ABBREVIATIONS

CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
DWV	DRAIN, WASTE, AND VENT
W.	WASTE
GW	GREASE WASTE
FM	FORCE MAIN
COND.	CONDENSATE
V.	VENT
VTR	VENT THRU ROOF
CO	CLEANOUT
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
ECO	EXTERIOR CLEANOUT (GRADE)
B.V.	BALANCING VALVE
AB.	ABOVE
DN.	DOWN
CLG.	CEILING
0/H	OVERHEAD
MIN.	MINIMUM
C.P.	CHROME PLATED
S.S.	STAINLESS STEEL
SL.	SLOPE
GA.	GAUGE
BLDG.	BUILDING
CONN.	CONNECTION
A.H.A.P.	AS HIGH AS POSSIBLE
A.F.F.	ABOVE FINISHED FLOOR
B.F.F.	BELOW FINISHED FLOOR
F.F.E.	FINISHED FLOOR ELEVATION
I.E.	INVERT ELEVATION
FD	FLOOR DRAIN
AD	AREA DRAIN
FS	FLOOR SINK
RD	ROOF DRAIN
CD	CONDENSATE DRAIN
CR	CONDENSATE RECEPTOR
HB	HOSE BIBB

SUMP PUMP SCHEDULE

MARK	GPM	HEAD	MOTOR	MANUFACTURER
SP-1	60	10'	1 HP 230/1/60	ZOELLER PUMP CO. #M264

FLOOR DRAIN/FLOOR SINK SCHEDULE

MARK	BODY	GRATE OR STRAINER	MANUFACTURER
FD-1	CAST IRON	6" NICKEL BRONZE SQUARE, WITH SEDIMENT BUCKET	J.R. SMITH #2005-C06-NB-B WATTS #FD-100-M6-5-7 ZURN #ZN-415S-P-Y

FLOOR DRAIN NOTES:

1. FURNISH ALL FLOOR DRAINS WITH TRAP SEAL PROTECTION DEVICES. SEE SCHEDULE, THIS SHEET.
2. FURNISH ALL FLOOR DRAINS AND FLOOR SINKS WITH SAME SIZE TRAP AS BRANCH LINE. REFER TO PLANS FOR CONN. SIZES.
3. PROVIDE ALL DRAINS WITH WIDE ANCHOR FLANGE AND CLAMPING DEVICE. ATTACH DRAINS TO MEMBRANE IN FLOOR. WHEN DRAINS ARE LOCATED IN NON-MEMBRANE FLOORS, THEY SHALL BE FLASHED IN COMPLIANCE WITH THE SPECIFICATIONS.

ELECTRIC WATER HEATER SCHEDULE

MARK	STORAGE IN GALLONS	RECOVERY @ 70 DEG. RISE	KW INPUT POWER	VOLT/PHASE	BASIS OF DESIGN
EWH-1	6 GAL	9 GPH	1.5 KW	208V/1PH	A.O. SMITH - DEL-6S-1.5
EWH-2	10 GAL	9 GPH	1.5 KW	208V/1PH	A.O. SMITH - DEL-10S-1.5
EWH-3	20 GAL	18 GPH	3 KW	208V/1PH	A.O. SMITH - DEL-20S-3

ELECTRIC WATER HEATER NOTES:

1. SET OUTLET TEMPERATURE OF TANK HEATERS TO PROVIDE 140° F HOT WATER.
2. SEE PIPING DETAILS, SHEET P801.

CIRCULATION PUMP SCHEDULE

MARK	SERVING	GPM	HEAD	MANUFACTURER & MODEL NUMBER
CP-1	EWH-2	1.0	0.5	TACO #003-SC4-1
CP-2	EWH-3	3.0	4.0	TACO #006-SC4-1

HOSE BIBB/HYDRANT SCHEDULE

MARK	TYPE	CONNECTION SIZE HW	CONNECTION SIZE CW	BASIS OF DESIGN	DESCRIPTION
WH-1	INTERIOR WALL HYDRANT	———	3/4"	WATTS #HY-450-3	CONCEALED MODERATE CLIMATE ANTI-SIPHON NARROW WALL HYDRANT WITH STAINLESS STEEL BOX. LEAD FREE. PROVIDE BELOW LAVATORIES AS SHOWN ON DRAWINGS.
WH-2	EXTERIOR WALL HYDRANT	———	3/4"	WATTS #HY-330-3	CONCEALED MODERATE CLIMATE ANTI-SIPHON HYDRANT WITH STAINLESS STEEL BOX. LEAD FREE. PROVIDE AT EXTERIOR OF BUILDING AS SHOWN ON DRAWINGS.

NOTES:

1. INSTALL WALL HYDRANTS 18" ABOVE FINISHED FLOOR OR EXTERIOR GRADE

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	SOIL	WASTE	VENT	HW	CW	MANUFACTURER
WC-1	FLOOR MOUNTED FLUSH VALVE WATER CLOSET	4"	———	2"	———	1"	AMERICAN STANDARD #2234.001 'MADERA', CENTOCO #500CC SEAT WITH S.S. HINGE POSTS, AND SLOAN ROYAL #113-1.28 FLUSH VALVE. MOUNT W/ SEAT 16" A.F.F.
WC-2	FLOOR MOUNTED FLUSH VALVE WATER CLOSET (ADA)	4"	———	2"	———	1"	AMERICAN STANDARD #3043.001 'MADERA', CENTOCO #500CC SEAT WITH S.S. HINGE POSTS, AND SLOAN ROYAL #113-1.28 FLUSH VALVE. MOUNT WITH SEAT 17.5" A.F.F. SEE NOTE '4' BELOW.
L-1 (ADA)	LAVATORY A.D.A.	———	1"	2"	———	1/2"	AMERICAN STANDARD #0954.04EC MURRO UNIVERSAL DESIGN WALL HUNG LAVATORY WITH EVERCLEAN, WITH #0062.000 ACRYLIC SHROUD. #605B.205 SELECTRONIC INNSBROOK ELECTRONIC SENSOR OPERATED FAUCET, 0.5 GPM, WITH #PK00.PAC POWER KIT. McGUIRE #155WC C.P. OFFSET OPEN GRID DRAIN WITH 17 GA. TAILPIECE, #8872 17 GA. C.P. 'P' TRAP WITH WALL BEND, #H2165LK C.P. SUPPLIES WITH LOOSE KEY STOPS, CONCEALED ARM CHAIR CARRIER, & TRUEBRO #103 INSULATION KIT.
L-2	DOUBLE FAUCET LAVATORY	———	1 1/4"	2"	———	1/2"	BRADLEY #LVLD2 VERGE LAVATORY SYSTEM - LVLD-SERIES WITH EVERO NATURAL QUARTZ MATERIAL. BRADLEY #6-3100 VERGE DECK-MOUNTED SOAP DISPENSER - CRESTT SERIES. BRADLEY #S53-3100 VERGE FAUCET - CRESST SERIES.
S-1	THREE COMPARTMENT SINK	———	2"	2"	3/4"	3/4"	ELKAY #3C12X16-2-12X STAINLESS STEEL THREE COMPARTMENT SINK W/ 12" LEFT & RIGHT DRAINBOARDS, AND ELKAY #LK943AF08LC WALL MOUNT FAUCET 44" FLEXIBLE HOSE, 1.2 GPM SPARY HEAD & 8" ARC TUBE SPOUT. PROVIDE WITH SHIRE GB-1 GREASE INTERCEPTOR.
EWC-1	WALL HUNG HI/LO EWC A.D.A.	———	1 1/4"	2"	———	1/2"	ELKAY #VRCTLR8SC, McGUIRE #8872 17 GA. C.P. 'P' TRAP WITH WALL BEND, #H2166LK C.P. SUPPLY WITH LOOSE KEY STOP, AND CARRIER SEE NOTE '4' BELOW.
MS-1	MOLDED STONE MOP SINK	———	3"	2"	3/4"	3/4"	FIAT #MSB 2424, #832-AA HOSE & BRACKET, #889-CC MOP HANGER, #48" S.S. WALL GUARD, #E-77-AA S.S. BUMPERGUARDS, AND T & S #B-0665-BSTR FAUCET.

PLUMBING FIXTURE NOTES:

1. WHERE COLOR/FINISH OPTIONS ARE AVAILABLE FOR FIXTURES, SELECTIONS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO PURCHASE AND INSTALLATION.
2. VERIFY SINK DIMENSIONS WITH ARCHITECT, RE: MILLWORK.
3. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF ALL FIXTURES.
4. FIXTURES FOR USE BY THE DISABLED:
   A. INSTALL IN ACCORDANCE WITH A.D.A., STATE, AND LOCAL REQUIREMENTS.
   B. THE FORCE REQUIRED TO ACTIVATE FLUSH VALVES SHALL BE 5 LBS MAXIMUM.
   C. FLUSH ACTIVATOR SHALL BE LOCATED ON WIDE SIDE OF THE STALL.
   D. THE FAUCET CONTROLS AND THE OPERATING MECHANISM (OPERABLE WITH ONE HAND) SHALL BE OF THE TYPE NOT REQUIRING AN OPERATING FORCE EXCEEDING 5 LBS, OR TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST.
   E. ACCESSIBLE FIXTURES FOR CHILDREN SHALL COMPLY WITH FLORIDA BUILDING CODE 423.4.4.
5. LAVATORIES LOCATED WITHIN CLASSROOM RESTROOMS SHALL NOT BE SUPPLIED WITH HOT WATER.

DOMESTIC WATER PRESSURE BOOSTER PUMP SCHEDULE

MARK	CONDITIONS OF SERVICE					PUMP DATA		MOTOR DATA				OTHER		DESIGN BASIS MODEL
	US GPM	HEAD (FT)	RPM	NPSH REQ. (FT)	EFFICIENCY (%)	MAX. AMBIENT TEMP. (°F)	MAX. OPERATING PRESSURE (PSI)	HP	VOLTAGE (V)	PHASE	FREQUENCY (Hz)	NET WEIGHT (LB)	GROSS WEIGHT (LB)	
BP-1	30	46.2	3868	2.67	———	104	———	2	200-240	3	60	180	288	GRUNDFOS CMBE TWIN 10-54 I-U-C-B-D-H
BP-2	150	58	———	10.96	61.5	———	145.04	3	208-230	3	60	361	584	GRUNDFOS HYRDO MULTI-B/E 2 CME15-1

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	ABBREVIATION
	CHECK VALVE	CV
	GATE VALVE	GV
	BALL VALVE	BV
	SOLENOID VALVE	SV
	SHUT-OFF COCK	-
	CALIBRATED BALANCING VALVE	BV
	PRESSURE REGULATING VALVE	PRV
	ROLL DOWN	DN
	ELBOW TURNED DOWN	DN
	ELBOW TURNED UP	UP
	TEE TURNED UP	UP
	P-TRAP	-
	TEE TURNED DOWN	DN
	PLUG OR WALL CLEAN OUT	CO
	FLOOR CLEAN OUT	FCO
	EXTERIOR CLEAN OUT	ECO
	PRESSURE & TEMPERATURE RELIEF VALVE	T & P
VTR	VENT THROUGH ROOF	VTR
	UNION	-
	FLOOR DRAIN	FD
	ROOF DRAIN	RD
#	UTILITY FLOOR BOX	-
	WALL HYDRANT	WH
	HOSE BIBB	HB
	FLOW ARROW	-
	SHOCK ARRESTER	SA
	POINT OF DEMOLITION	POD
	POINT OF CONNECTION	POC
XX-1	PLUMBING FIXTURE DESIGNATION	XX-1
	PRESSURE GAGE	-
	THERMOMETER	-
	REDUCED PRESSURE DETECTOR ASSEMBLY	RPDA
	GREASE TRAP	-
M	WATER METER	M

PLUMBING SYSTEM LEGEND

	SOIL OR WASTE LINE BELOW GRADE/ BELOW SLAB
	SOIL OR WASTE LINE (ABOVE GRADE)
FM	FORCE MAIN LINE (BELOW GRADE)
FM	FORCE MAIN LINE (ABOVE GRADE)
CD	CONDENSATE DRAIN PIPING
GR	GREASE WASTE PIPING (BELOW GRADE)
	VENT PIPING
ST	STORM DRAIN LINE (BELOW GRADE)
ST	STORM DRAIN LINE (ABOVE GRADE)
STO	OVERFLOW STORM DRAIN (ABOVE GRADE)
	DOMESTIC COLD WATER PIPING
	HOT WATER PIPING

CLEANOUT SCHEDULE

MARK	APPLICATION	MANUFACTURER
FCO	FINISHED FLOORS	J.R. SMITH #4033L; WATTS #CO-200-R; ZURN #ZN-1400
	FINISHED FLOORS, HEAVY DUTY	J.R. SMITH #4113L; WATTS #CO-200-RX; ZURN #ZN-1400-HD
	TILE AREAS	J.R. SMITH #4153L; WATTS #CO-200-T; ZURN #ZN-1400-X
	TERRAZZO AREAS	J.R. SMITH #4193L; WATTS #CO-200-U; ZURN #ZN-1400-Z
	CARPETED AREAS	J.R. SMITH #4033L-Y; WATTS #CO-200-RC; ZURN #Z-1400-HD
	UNFINISHED AREAS	J.R. SMITH #4113L; WATTS #CO-200-RX; ZURN #Z-1400-HD
CO/ WCO	LINE CLEANOUTS	J.R. SMITH #4472T; WATTS #CO-590-RD; ZURN #Z-1468
	STACK CLEANOUTS	J.R. SMITH #4532S; WATTS #CO-460-RD; ZURN #Z-1446
ECO	OUTSIDE AREAS	J.R. SMITH #4113L; WATTS #CO-200-RX; ZURN #Z-1400-HD

NOTES:

1. INSTALL ECO IN 24"x24"x4" THICK CONCRETE PAD. TOP OF PAD ELEVATION TO BE 2" ABOVE FINISHED GRADE.
2. PROVIDE ALL CLEANOUTS WITH WIDE ANCHOR FLANGE & CLAMPING DEVICE. ATTACH CLEANOUTS TO MEMBRANE IN FLOOR. WHEN CLEANOUTS ARE LOCATED IN NON-MEMBRANE FLOORS, THEY SHALL BE FLASHED IN COMPLIANCE WITH THE SPECIFICATIONS.
3. PROVIDE LINE & STACK TYPE WALL CLEANOUTS WITH ACCESS COVERS.

PLUMBING GENERAL NOTES

1. REFERENCE THE SPECIFICATIONS FOR MATERIALS AND EQUIPMENT STANDARDS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE FLORIDA BUILDING CODE 6TH EDITION (2017) AND THE FLORIDA BUILDING CODE 6TH EDITION (2017), PLUMBING.
3. THE INSTALLATION OF THE PLUMBING SYSTEMS AND EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE CODES INCLUDING BUT NOT LIMITED TO STATE AND LOCAL CODES.
4. THE CONTRACTOR SHALL COORDINATE THE INTERRUPTION OF ALL UTILITY SERVICES WITH OWNER'S REPRESENTATIVE. PROVIDE A MINIMUM OF FIVE WORKING DAYS ADVANCED NOTICE, OR PER PLUMBING SPECIFICATIONS, OF SCHEDULED UTILITY DISCONNECTION.
5. PROVIDE ANY ADDITIONAL FITTINGS REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN PROPER CLEARANCES. COORDINATE WITH ALL TRADES AND OTHER POTENTIAL OBSTRUCTIONS AND ROUTE PIPING TO AVOID INTERFERENCES.
6. CONCEAL PIPING ABOVE CEILINGS, WITHIN WALLS OR CHASES EXCEPT IN MECHANICAL ROOMS OR AS SPECIFICALLY NOTED.
7. FIRESTOP ALL PENETRATIONS THROUGH RATED WALLS, CEILINGS, AND FLOORS WITH LISTED ASSEMBLIES AND SLEEVE WHERE REQUIRED. FIRESTOP ASSEMBLIES SHALL BE EQUAL OR EXCEED THE RATING OF THE WALL OR FLOOR. ALL FIRESTOP ASSEMBLIES SHALL MEET ASTM E-814 REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR FINAL FINISHES AND ADDITIONAL PIPE PENETRATION REQUIREMENTS.
8. PROVIDE ACCESS PANELS TO ALL VALVES LOCATED WITHIN CHASES OR NON-ACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES. ALL VALVES SHALL BE ACCESSIBLE.
9. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE LOCATIONS AND MOUNTING HEIGHTS.
10. INSTALL CODE REQUIRED FIXED AIR GAPS ON ALL INDIRECT WASTE CONNECTIONS SERVING EQUIPMENT, AND APPLIANCES.
11. PROVIDE CLEANOUTS ON ALL SANITARY DRAIN & WASTE, STORM DRAIN, AND CONDENSATE DRAIN PIPING AS INDICATED ON THE DRAWINGS, AND AS REQUIRED BY LOCAL AND STATE CODES. INSTALL CLEANOUTS IN ACCESSIBLE LOCATIONS. COORDINATE TOP OF FLOOR/GRADE CLEANOUT ELEVATION WITH TOP OF FINISHED GRADE.
12. INSTALL HOSE BIBBS AND EXTERIOR WALL HYDRANTS AT 18" ABOVE FINISHED FLOOR AND FINISHED GRADE.
13. ALL FLOOR DRAINS SHALL BE EQUIPPED WITH A TRAP PRIMER CONNECTION AND SHALL BE SUPPLIED BY AN APPROVED TRAP PRIMER DEVICE. ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE INSTALLED WITH GRATES FLUSH TO THE FINISHED FLOOR.
14. UNLESS NOTED OTHERWISE, SLOPE ALL SANITARY DWV, STORM DRAIN, AND CONDENSATE DRAIN PIPING 3" PIPE SIZE & LARGER A MINIMUM OF 1/8" PER FT. OF RUN, AND 2" PIPE SIZE AND SMALLER A MINIMUM 1/4" PER FT. OF RUN. SLOPE VENT PIPING DOWN & BACK TO FIXTURES.
15. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN 10 FT. FROM, OR AT LEAST 3 FT. ABOVE ANY WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT.
16. EXTEND EXISTING PLUMBING VENTS WHERE REQUIRED TO MAINTAIN A MINIMUM OF 8" ABOVE THE NEW FINISHED ROOF SURFACE.
17. PROVIDE WATER HAMMER ARRESTORS AT ALL PLUMBING FIXTURES OR BATTERY OF FIXTURES WITH QUICK-CLOSING VALVES. INSTALL PER WATER HAMMER ARRESTORS SCHEDULE. AIR CHAMBERS SHALL NOT BE CONSIDERED AN EQUAL TO WATER HAMMER ARRESTORS AND SHALL NOT BE INSTALLED. QUICK CLOSING VALVES ARE DEFINED IN THE PDI HANDBOOK. ALL SENSOR OPERATED VALVES SHALL BE CONSIDERED QUICK CLOSING.
18. UNLESS NOTED OTHERWISE, RUN CW & HW PIPING FULL SIZE THRU LENGTH OF CHASE, AND MAKE CONNECTIONS TO FIXTURES AS INDICATED IN FIXTURE SCHEDULE . PROVIDE RIGID SUPPORT AND BLOCKING IN CHASE FOR HEADER AND BRANCH PIPING, AND FOR FLUSH VALVES TO PREVENT ANY MOVEMENT. TAPE TO BEING USED TO ISOLATE DISSIMILAR METALS IS PROHIBITED.
19. PROVIDE BALANCING VALVES IN HOT WATER RETURN PIPING AND BALANCE SYSTEM FOR PROPER OPERATION. BALANCING VALVES WITH THREADED CONNECTIONS: WATTS #CSM-61 'CIRCUIT SETTER'.
20. COORDINATE THE EXACT LOCATION OF FLOOR AND ROOF DRAINS WITH ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION.
21. PROVIDE ALL NECESSARY VALVES, TRAPS, FLOW CONTROLS, FILTERS, BACKFLOW ASSEMBLIES, FAUCETS, STOPS, TAILPIECES, VACUUM BREAKERS, IF NOT FURNISHED WITH EQUIPMENT.
22. PROVIDE SUPPLY STOPS ON HOT AND COLD WATER PIPE SUPPLYING ALL FIXTURES AND EQUIPMENT.
23. PROVIDE APPROVED CHROME PLATED TYPE VACUUM BREAKERS WHERE REQUIRED BY LOCAL CODES, AND AS INDICATED ON PLANS FOR NEW WORK.
24. SUBMIT CORE-DRILL AND BEAM PENETRATION DIMENSION PLANS TO STRUCTURAL ENGINEER AND ARCHITECT FOR REVIEW PRIOR TO STARTING ANY WORK.
25. PROVIDE DIELECTRIC UNIONS WHERE CONNECTIONS ARE MADE BETWEEN DISSIMILAR PIPE MATERIALS.
26. SEE RISER DIAGRAMS FOR PIPE SIZES AND ROUTING NOT SHOWN ON PLANS.
27. PRESSURE REDUCING VALVES SHALL BE PROVIDED WHERE THE WATER PRESSURE EXCEEDS 80 PSI AT ANY PLUMBING FIXTURE. WATER VELOCITY SHALL NOT EXCEED 5 FEET PER SECOND.
28. COORDINATE EXACT LOCATION OF FLOOR DRAINS FOR HVAC EQUIPMENT WITH MECHANICAL CONTRACTOR. CONDENSATE PIPING SHALL NOT DISCHARGE INTO SANITARY SYSTEM.
29. DO NOT PENETRATE WALL FOOTINGS WITH PIPING, COORDINATE WITH GENERAL CONTRACTOR TO DROP FOOTINGS AS REQUIRED TO CLEAR PLUMBING SERVICES WHERE ABSOLUTELY NECESSARY. ALL PIPING PENETRATING A BEARING WALL OR FOOTING MUST BE SLEEVED AND THE LOCATION SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
30. IF THE INTENT OF THE INFORMATION SHOWN ON THESE DOCUMENTS IS NOT CLEAR, OR IS CAPABLE OF MORE THAN ONE INTERPRETATION, SUCH MATTERS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER IN WRITING BEFORE THE SUBMISSION OF BIDS, AND THE ARCHITECT/ENGINEER SHALL MAKE CORRECTION OR EXPLANATION IN WRITING.
31. WHERE THE CONTRACTOR PROPOSES ALTERNATE SOLUTIONS, DIFFERENT ROUTINGS OF PIPING, DIFFERENT LOCATIONS OF EQUIPMENT, FIXTURES, ETC., THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OF THE RAMIFICATIONS OF THE PROPOSED CHANGE THAT ARE NOT INCLUDED IN HIS PROPOSAL, BUT BECOME APPARENT AT A LATER DATE, AND SHALL BEAR THE CONSEQUENCES OF CORRECTING ANY AND ALL CONFLICTS, DEFICIENCIES OR OTHER PROBLEMS AT NO INCREASE IN COST OR INCREASE IN CONSTRUCTION TIME ALLOTTED.
32. CONTRACTOR SHALL INSTALL ALL EQUIPMENT PER THE MANUFACUTURE'S INSTALLATION REQUIREMENTS AND/OR RECOMMENDATIONS.
33. ALL MODEL NUMBERS SHOWN WITHIN THESE DOCUMENTS ARE ONLY PROVIDED TO INDICATE LEVEL OF QUALITY AND THE DESIGN INTENT. REFER TO THE PLUMBING SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS FOR EACH PRODUCT BEING USED.
34. PROVIDE HOSE BIBS, FLOOR DRAINS AND HUB DRAINS IN ALL MECHANICAL ROOMS. HUB DRAINS ARE PROVIDED TO COLLECT CONDENSATE FROM MECHANICAL EQUIPMENT AND PIPING SHALL ROUTE TO STORM.
35. REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL DETAILS AND SPECIFICATIONS RELATING TO PLUMBING FIXTURE SELECTIONS, COLOR, FINISHES, AND PIPING ROUTING.

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CITY OF KEY COLONY BEACH | CITY HALL

600 W Ocean Dr . Key colony . Florida 33051

LIVS project number: 201913

Client project number: 2021-158

sheet title: PLUMBING SYMBOLS AND SPECIFICATIONS

revisions

issued for: BID SET

issue date: 05.01.23

drawn by: Author | approved by: Checker

scale: NO SCALE

seal

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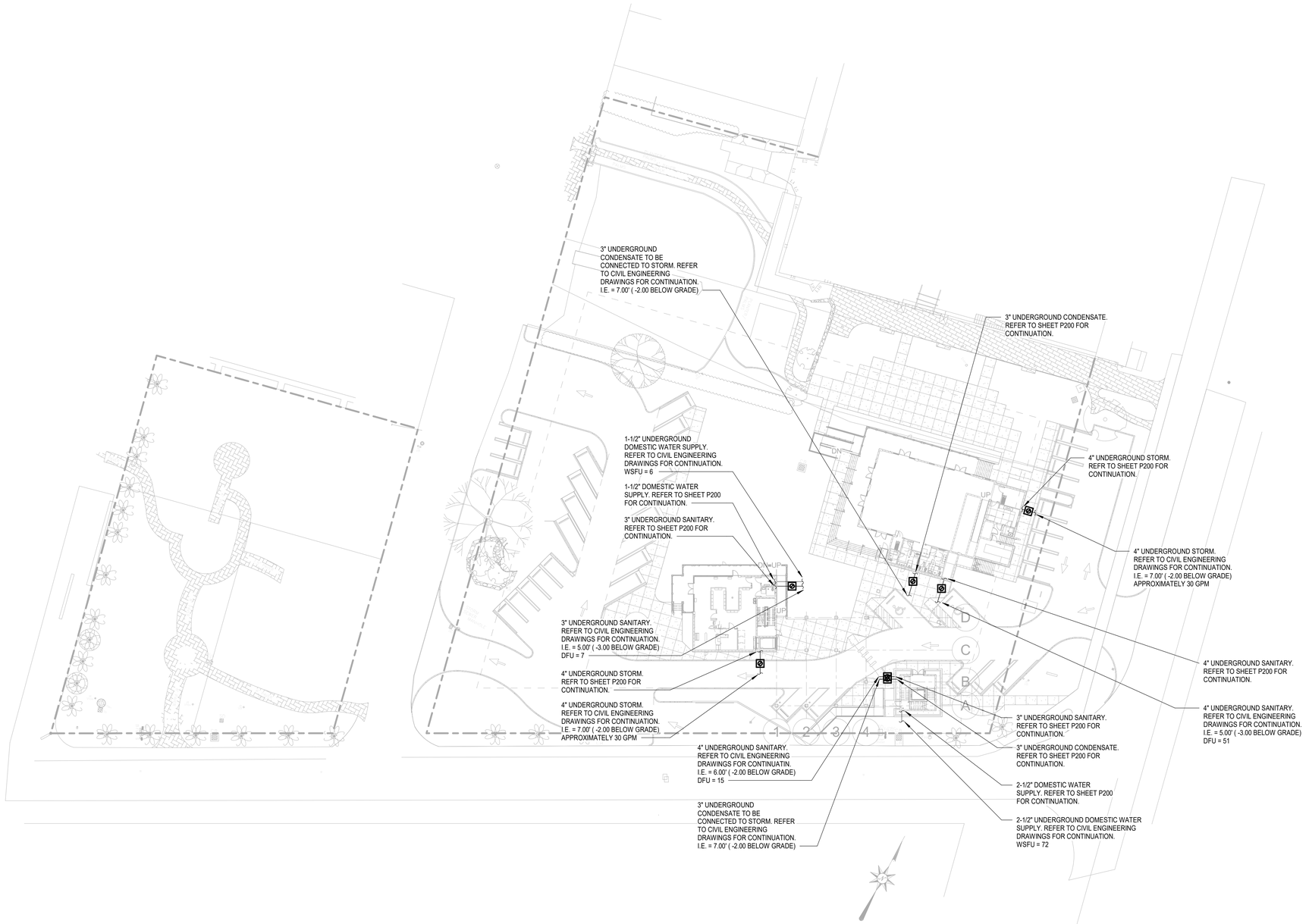

1 P101 PLUMBING SITE PLAN

1" = 30'-0"

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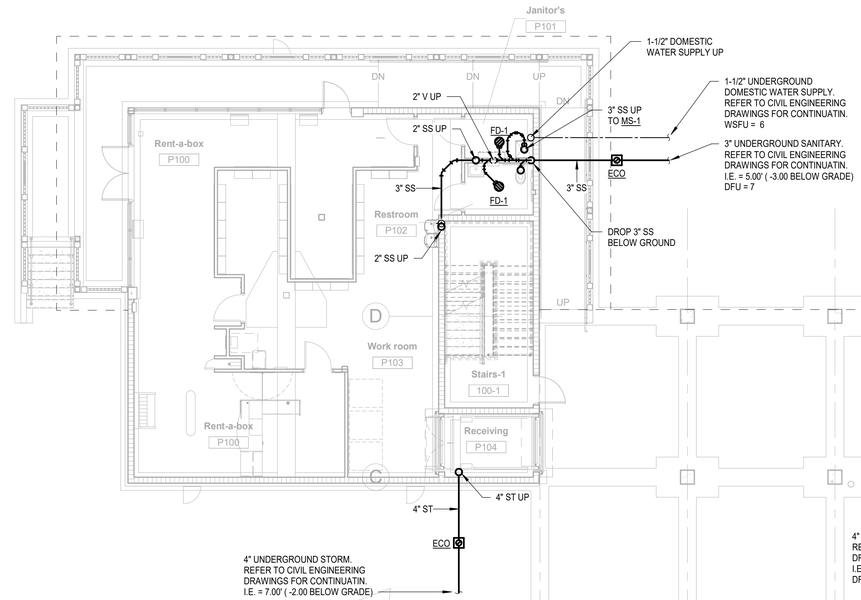
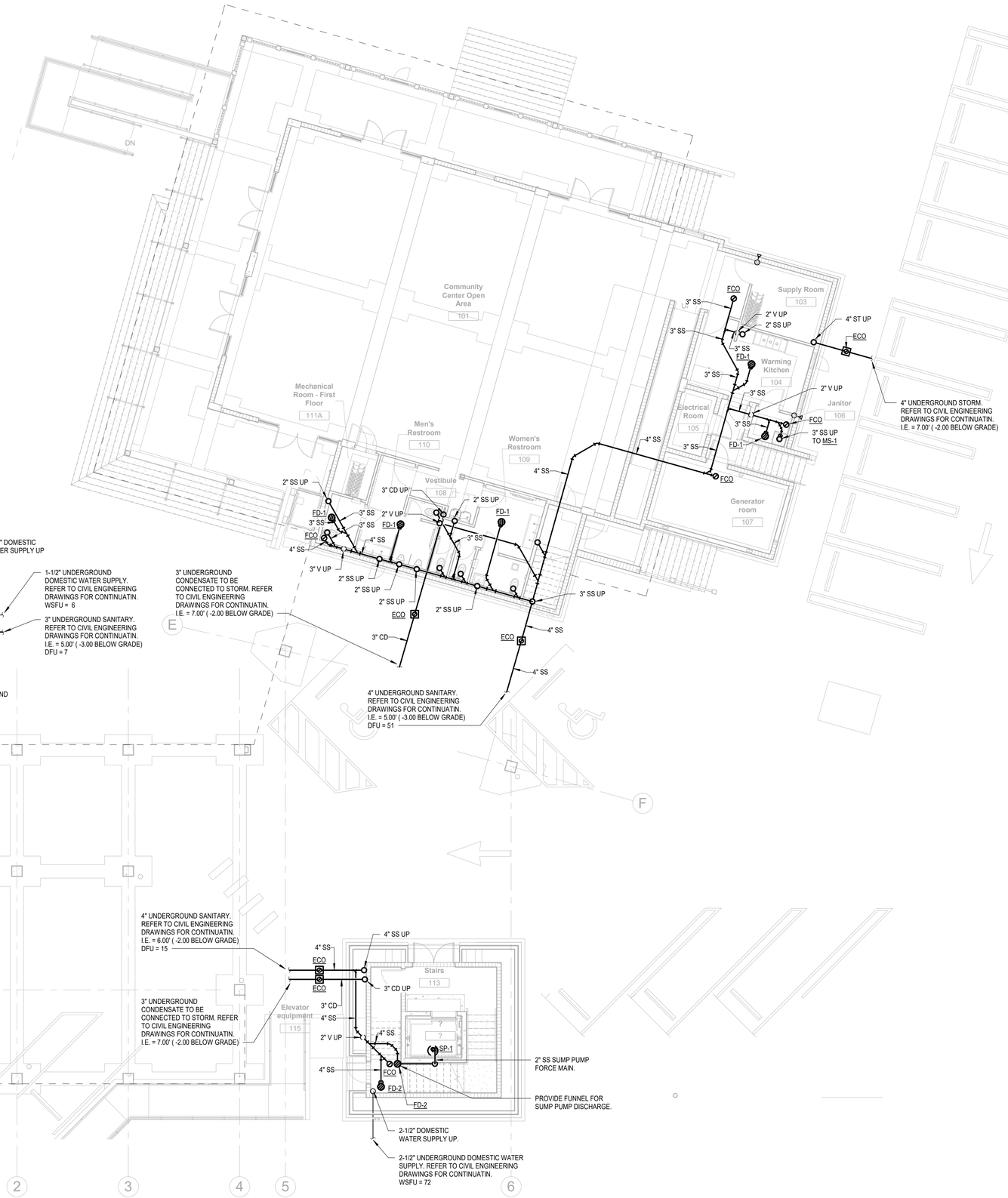
of

ELEVATED GROUND ELEVATION = 8.00'





PLUMBING BASEMENT AND UNDERGROUND FLOOR PLAN

1 / P200 — 1/8" = 1'-0"

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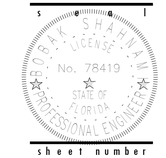
seal



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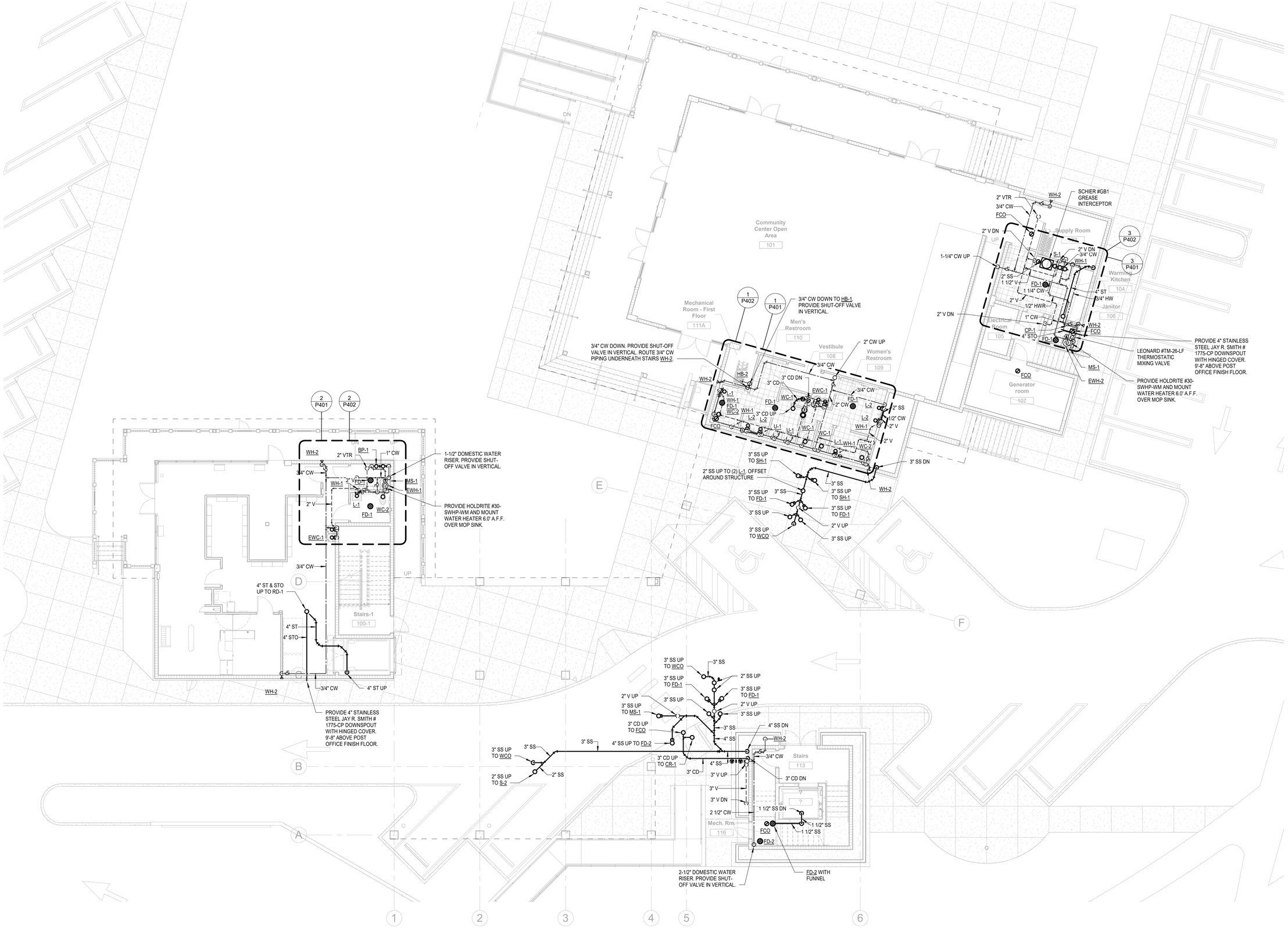

1 P201 **PLUMBING FIRST FLOOR PLAN**

1/8" = 1'-0"

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201913

Client project number:
2021-158

sheet title
PLUMBING FIRST FLOOR PLAN

revisions

1	Revision 1

issued for:
BID SET

issue date:
05.01.23

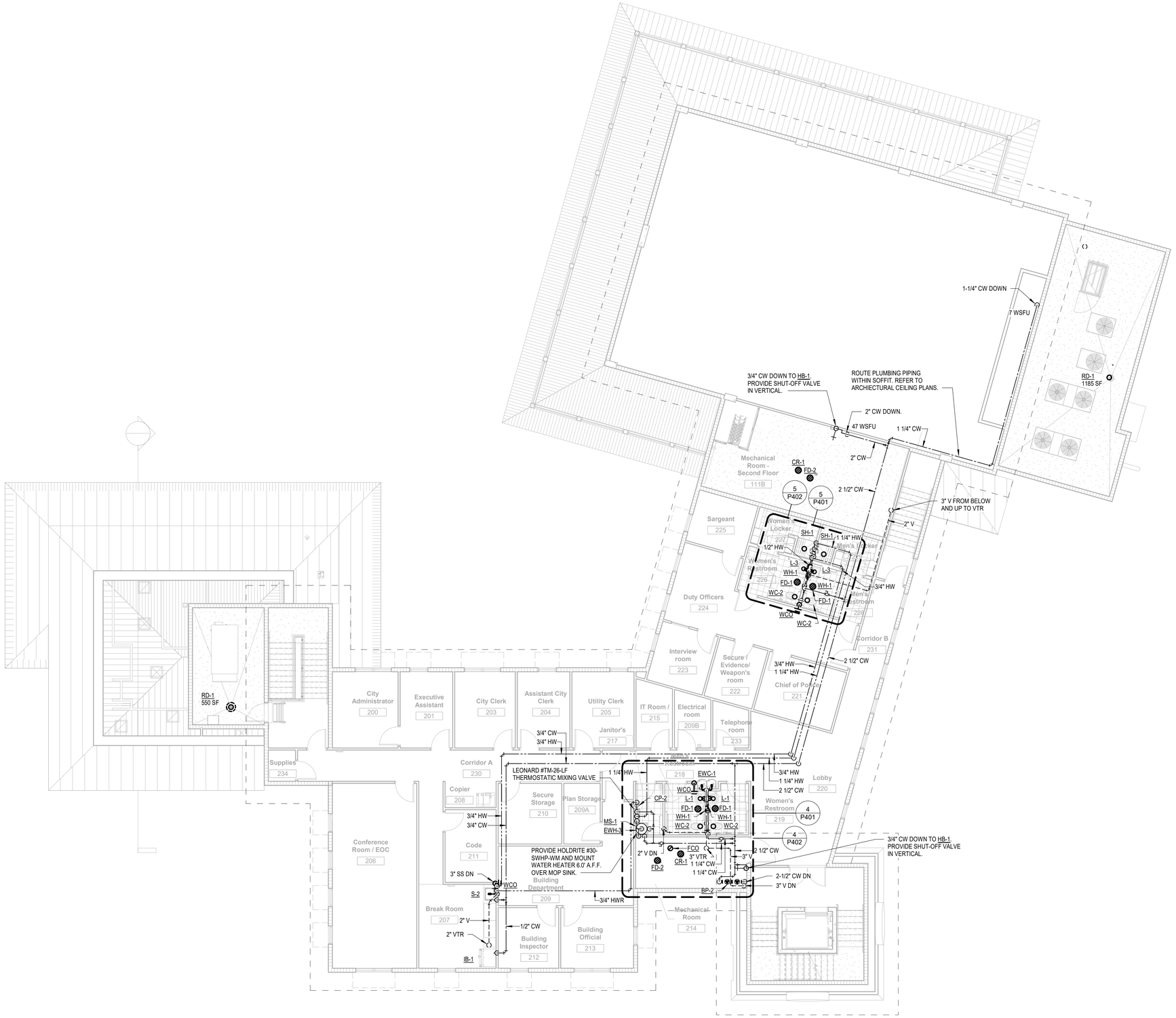
drawn by:	approved by:
Author	Checker

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

seal
OSBAK SHAHIAN LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

sheet number
P201

sheet:
of



1 P202 **PLUMBING SECOND FLOOR PLAN**

1/8" = 1'-0"

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2021-158

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PLUMBING SECOND FLOOR PLAN

revisions

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BID SET

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05.01.23

drawn by: Author
approved by: Checker

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1/8" = 1'-0"

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P202

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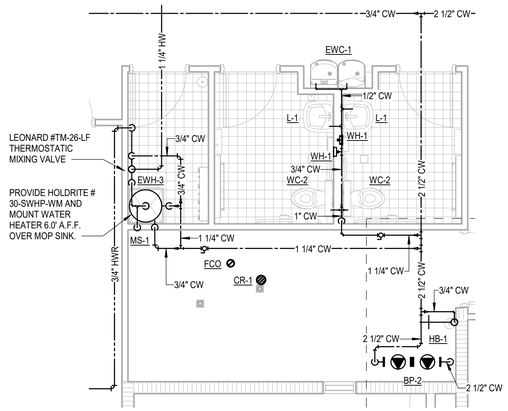
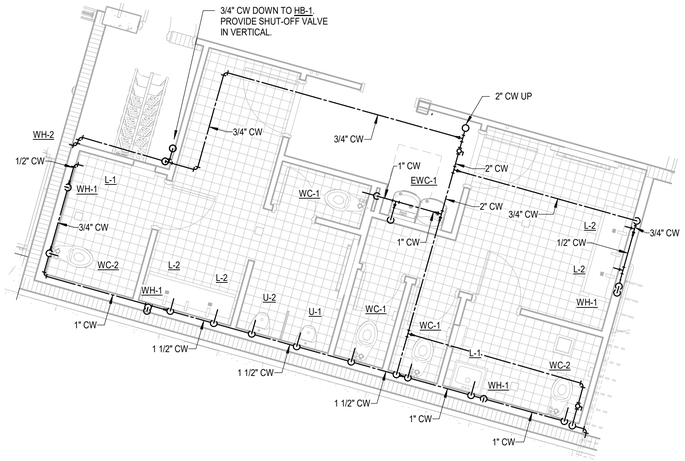
of



RESTROOM 218 AND 219 DOMESTIC WATER ENLARGED PLAN

4 / P401 — 1/4" = 1'-0"



RESTROOM 110 AND 109 DOMESTIC WATER ENLARGED PLAN

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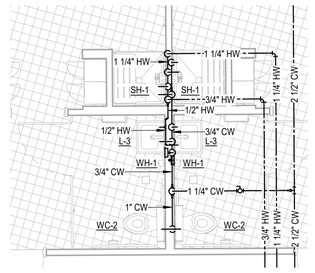
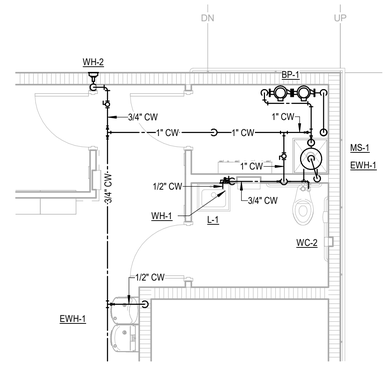


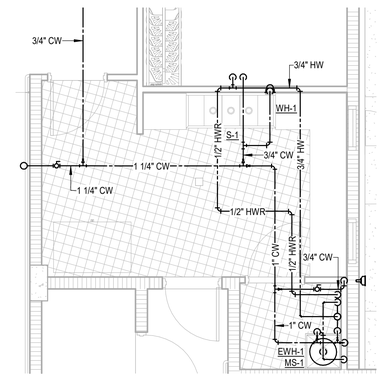
RESTROOM 226 AND 228 DOMESTIC WATER ENLARGED PLAN

5 / P401 — 1/4" = 1'-0"



RESTROOM WEST SIDE DOMESTIC WATER ENLARGED PLAN

2 / P401 — 1/4" = 1'-0"



KITCHEN AND JANITOR'S CLOSET DOMESTIC WATER ENLARGED PLAN

3 / P401 — 1/4" = 1'-0"

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sheet number
P401

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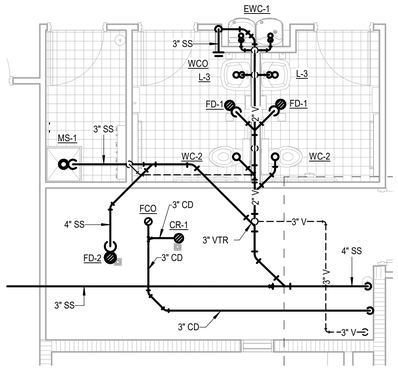
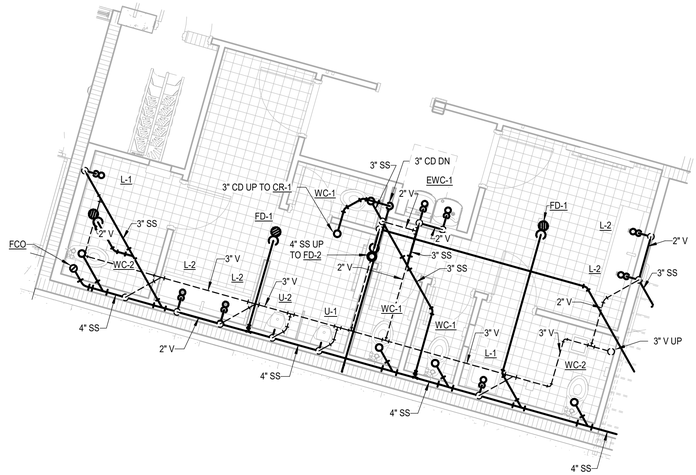
of



RESTROOM 218 AND 219 SANITARY AND VENTING ENLARGED PLAN

4 / P402 — 1/4" = 1'-0"



RESTROOM 110 AND 109 SANITARY AND VENTING ENLARGED PLAN

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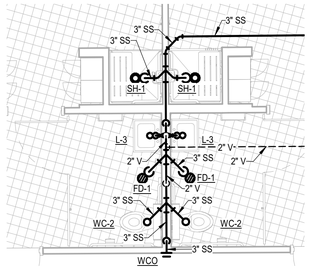
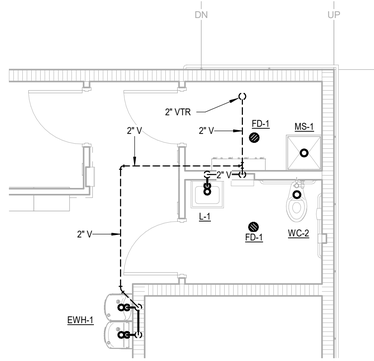


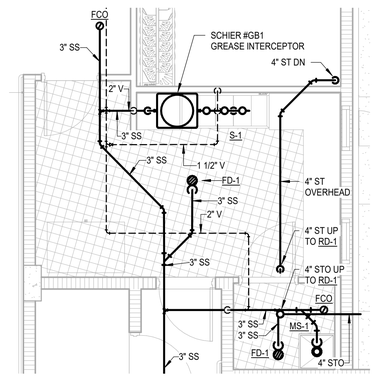
RESTROOM 226 AND 228 SANITARY AND VENTING ENLARGED PLAN

5 / P402 — 1/4" = 1'-0"



RESTROOM WEST SIDE SANITARY AND VENTING ENLARGED PLAN

2 / P402 — 1/4" = 1'-0"



KITCHEN AND JANITOR'S CLOSET SANITARY AND VENTING ENLARGED PLAN

3 / P402 — 1/4" = 1'-0"

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201913

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PLUMBING ENLARGED PLANS

revisions

issued for:
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05.01.23

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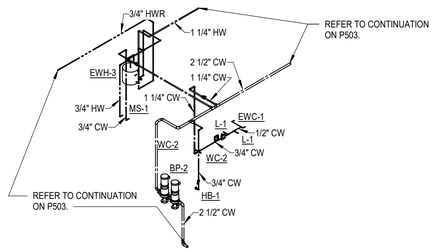
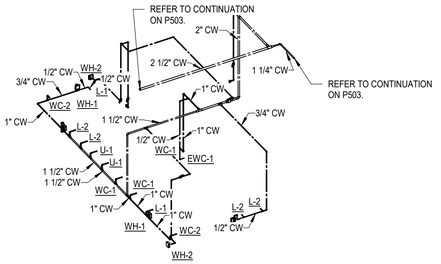
of



RESTROOM 218 AND 219 DOMESTIC WATER RISER DIAGRAM

4
P501



RESTROOM 110 AND 109 DOMESTIC WATER RISER DIAGRAM

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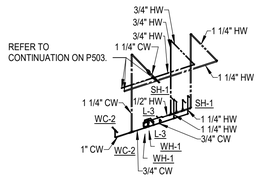

RESTROOM 226 AND 228 DOMESTIC WATER RISER DIAGRAM

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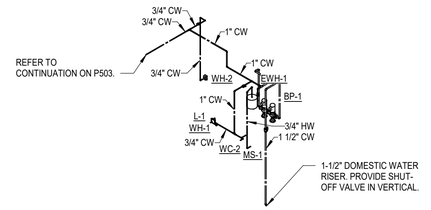
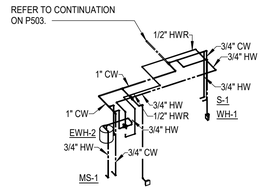


RESTROOM WEST SIDE DOMESTIC WATER RISER DIAGRAM

2
P501



KITCHEN AND JANITOR'S CLOSET DOMESTIC WATER RISER DIAGRAM

3
P501

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LIVS project number:
201913

Client project number:
2021-158

sheet title
PLUMBING RISER DIAGRAMS

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by: Author
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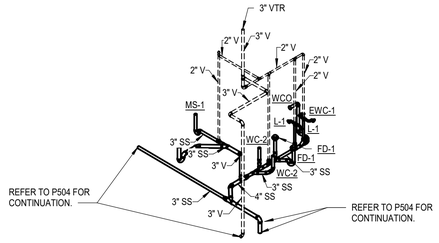
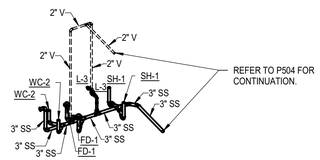


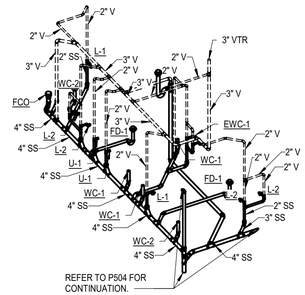
RESTROOM 218 AND 219 SANITARY AND VENTING RISER DIAGRAM

4 / P502



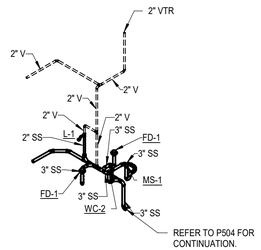
RESTROOM 226 AND 228 SANITARY AND VENTING RISER DIAGRAM

5 / P502



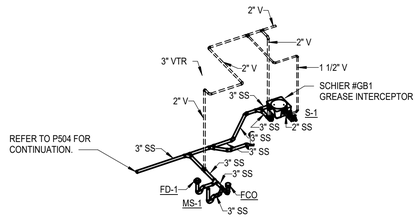
RESTROOM 110 AND 109 SANITARY AND VENTING RISER DIAGRAM

1 / P502



RESTROOM WEST SIDE SANITARY AND VENTING RISER DIAGRAM

2 / P502



KITCHEN AND JANITOR'S CLOSET SANITARY AND VENTING RISER DIAGRAM

3 / P502

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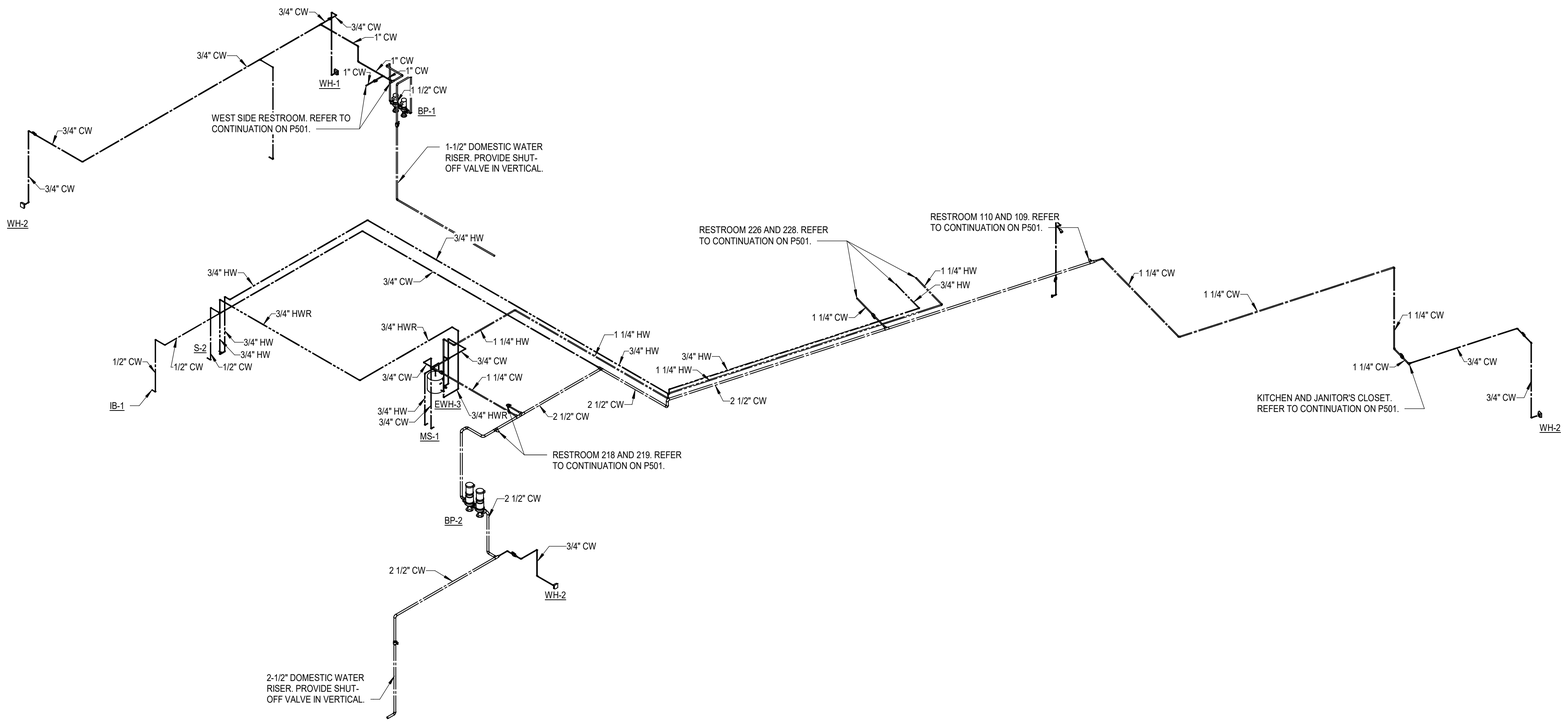

1 P503 **DOMESTIC WATER RISER DIAGRAM**

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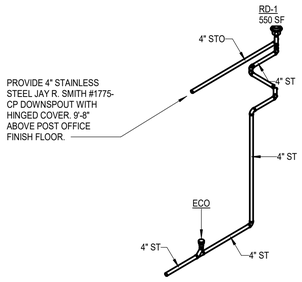
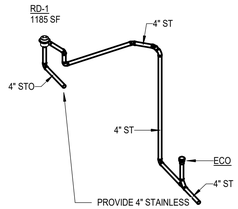
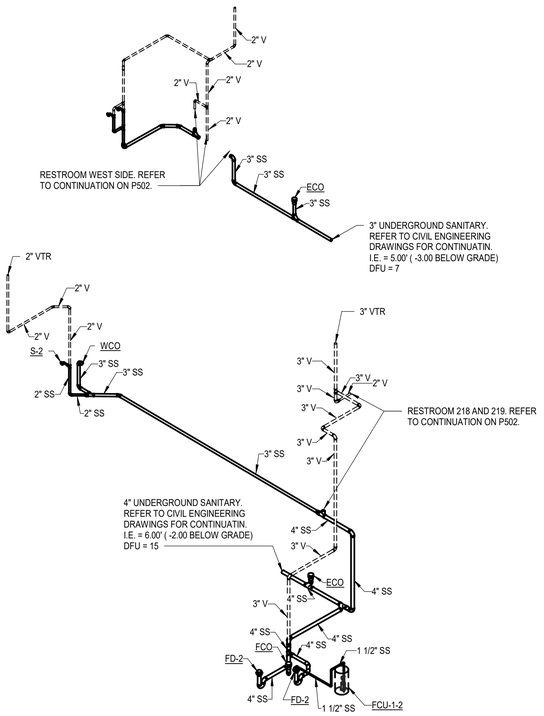


2 P504 STORM RISER DIAGRAMS





1 P504 SANITARY AND VENTING RISER DIAGRAM

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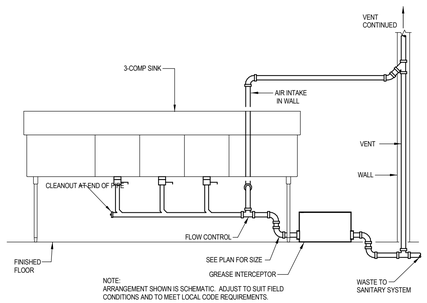

GREASE TRAP ABOVE SLAB DETAIL
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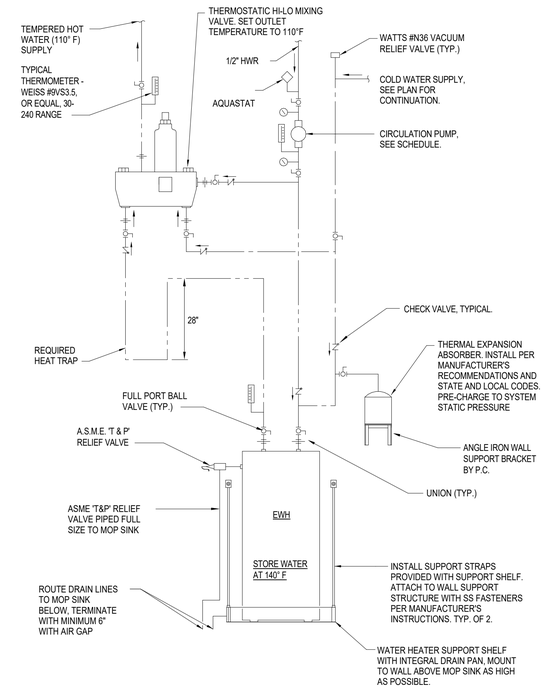

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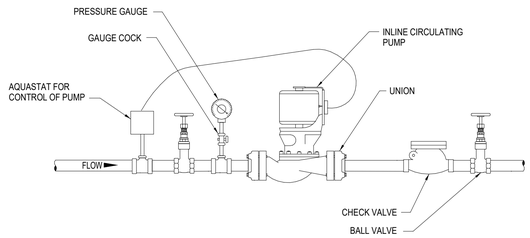

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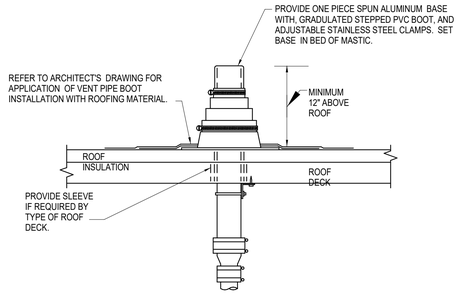
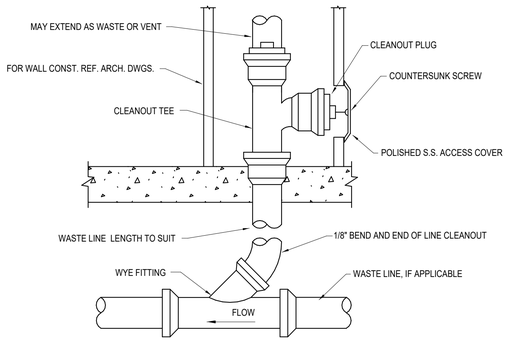


REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VENT THRU ROOF MINIMUM TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, AND ONE FOOT FROM ANY VERTICAL SURFACE. PROVIDE 1" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET ON VENT PIPE INSIDE BUILDING WITHIN SIX FEET OF VENT THRU ROOF LOCATION. VERIFY FLASHING AND COUNTER FLASHING WITH ROOFING CONTRACTOR.

VENT THROUGH ROOF DETAIL
NOT TO SCALE



WALL CLEANOUT DETAIL
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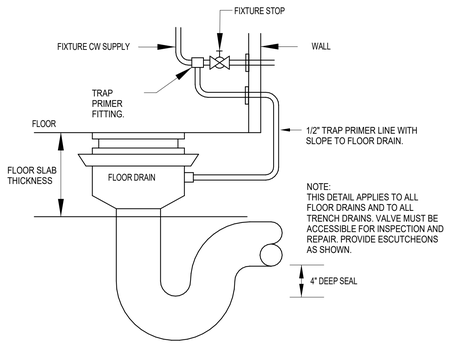

TRAP PRIMER DETAIL
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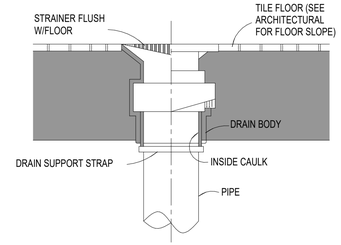

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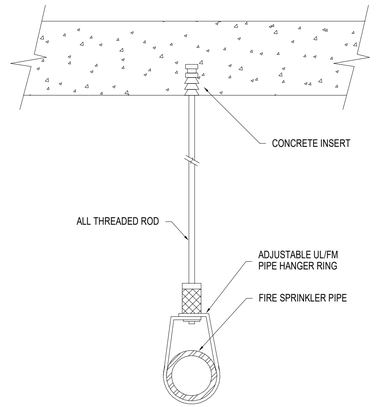
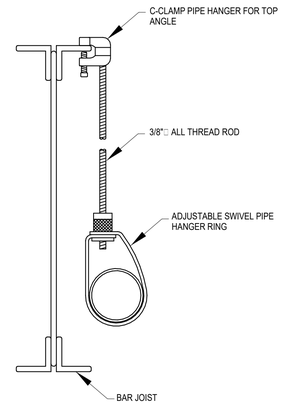


CONCRETE PIPE HANGER DETAIL
NOT TO SCALE



PIPE HANGER DETAIL
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LIVS project number:
201913

Client project number:
2021-158

sheet title
PLUMBING DETAILS

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by: Author
approved by: Checker

scale:
NO SCALE

seal
OAK SHAHNAM LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

sheet number
P801

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of

THE FIRE SUPPRESSION ENGINEERING DOCUMENTS AND BOOK SPECIFICATIONS ARE PREPARED EXCLUSIVELY FOR THIS PROJECT AND ARE IN COMPLIANCE WITH THE FOLLOWING STANDARD. THE INSTALLING CONTRACTOR IS RESPONSIBLE FOR PREPARING WORKING PLANS AND HYDRAULIC CALCULATIONS AS DEFINED BY 2013 ED. NFPA 13. THE WORKING PLANS AND HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE APPROVED SHOP DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO THE LOCAL AUTHORITY HAVING JURISDICTION FOR FINAL APPROVAL AND BUILDING PERMIT.

61G15-32.003 COMMON REQUIREMENTS TO ALL FIRE PROTECTION ENGINEERING DOCUMENTS.

(1) THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS SHALL PROVIDE THE ENGINEERING REQUIREMENTS TO BE USED IN THE PREPARATION OF THE FIRE PROTECTION SYSTEM LAYOUT DOCUMENTS AND TO INDICATE THE NATURE AND SCOPE OF THE WORK, AND TO DESCRIBE, DETAIL, DIMENSION, LABEL AND DEFINE THE FIRE PROTECTION COMPONENTS, SYSTEM(S), MATERIALS, ASSEMBLIES, EQUIPMENT AND ITS STRUCTURAL AND UTILITY SUPPORT SYSTEM(S), INSOFAR AS THEY INVOLVE THE SAFEGUARDING OF LIFE, HEALTH OR PROPERTY.
(2) THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS SHALL SPECIFY THE APPLICABLE REQUIREMENTS FOR THE ACCEPTANCE TESTING OF THE FIRE PROTECTION SYSTEM AND COMPONENTS, WHICH SHALL BE BASED UPON APPLICABLE CODES AND STANDARDS, WHERE AVAILABLE.
(3) THE OCCUPANCY OF THE AREA OR DESCRIPTION OF A SPECIFIC HAZARD BEING PROTECTED BY THE FIRE PROTECTION SYSTEM(S) SHALL BE SHOWN ON THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS.
(4) THE APPLICABLE CODE AND STANDARD TO BE USED IN THE PREPARATION OF THE FIRE PROTECTION SYSTEM LAYOUT DOCUMENTS SHALL BE SHOWN ON THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS. WHEN CODES AND STANDARDS ARE NOT AVAILABLE OR APPLICABLE, AND SAID LAYOUT DOCUMENTS ARE TO BE BASED ON ENGINEERING JUDGMENT, ANY REASONS AND ASSUMPTIONS MADE TO DEVELOP THE FIRE PROTECTION CONCEPT SHALL BE IDENTIFIED ON THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS.
(5) STRUCTURAL SUPPORT AND STRUCTURAL OPENINGS REQUIRED BY THE FIRE PROTECTION SYSTEM SHALL BE SHOWN ON THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS.
(6) WHEN LAYOUT DOCUMENTS CONTAIN MATERIAL DEVIATION FROM THE ENGINEER OF RECORD'S FIRE PROTECTION SYSTEM ENGINEERING DOCUMENT, SUCH LAYOUT DOCUMENTS ARE NOT COMPLIANT UNLESS THEY ARE ACCOMPANIED BY REVISED ENGINEERING DOCUMENTS MADE AND SEALED BY THE ENGINEER OF RECORD FOR THE FIRE PROTECTION SYSTEM.
(7) REQUIREMENTS FOR ACTIVATION CONTROL SYSTEMS, SEQUENCE, OPERATING PARAMETERS, INTERLOCKS, SAFETY RELATED DEVICES, INDICATORS AND ALARMS, SHALL BE SHOWN ON THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS, UNLESS SHOWN ON OTHER RELATED DOCUMENTS.
(8) ANY INFORMATION DEEMED APPROPRIATE BY THE ENGINEER OF RECORD TO ASSIST THE AUTHORITY HAVING JURISDICTION IN UNDERSTANDING THE OWNER'S INTENDED USE AND PROPOSED PROTECTION OF THE BUILDING OR FACILITY AND TO PROVIDE SUFFICIENT DIRECTION TO THE INSTALLATION CONTRACTOR OR OTHER INTERESTED PARTIES REGARDING THE LAYOUT OF THE SYSTEM(S), SHALL BE INCLUDED IN THE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS.
SPECIFIC AUTHORITY 471.008, 471.033(2), FS
LAW IMPLEMENTED 471.005(7), 471.033(2), FS
HISTORY–NEW 5-19-93, FORMERLY 21H-32.003, AMENDED 4-2-2000, 6-26-01

61G15-32.004 DESIGN OF WATER BASED FIRE PROTECTION SYSTEMS.

(1) WATER BASED FIRE PROTECTION SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO, AUTOMATIC SPRINKLER SYSTEMS OF WET, DRY, FINE WATER SPRAY (MIST), MANUAL, AND DELUGE VALVE CONTROLLED TYPES, PUMPING SYSTEMS, STANDPIPES, FIRE WATER MAINS AND DEDICATED FIRE PROTECTION WATER SOURCES.
(2) TO ENSURE MINIMUM DESIGN QUALITY IN FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS, SAID DOCUMENTS SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION WHEN APPLICABLE:
(A) THE POINT OF SERVICE FOR THE FIRE PROTECTION WATER SUPPLY AS DEFINED BY 633.021(18) F.S.
(B) APPLICABLE NFPA STANDARD TO BE APPLIED, OR IN THE CASE WHERE NO SUCH STANDARD EXISTS, THE ENGINEERING STUDY, JUDGMENTS, AND/OR PERFORMANCE BASED ANALYSIS AND CONCLUSIONS.
(C) CLASSIFICATION OF HAZARD OCCUPANCY FOR EACH ROOM OR AREA.
(D) DESIGN APPROACH, WHICH INCLUDES SYSTEM TYPE, DENSITIES, DEVICE TEMPERATURE RATING, AND SPACING FOR EACH SEPARATE HAZARD OCCUPANCY.
(E) CHARACTERISTICS OF WATER SUPPLY TO BE USED, SUCH AS MAIN SIZE AND LOCATION, WHETHER IT IS DEAD-END OR CIRCULATING; AND IF DEAD-END, THE DISTANCE TO THE NEAREST CIRCULATING MAIN, AS WELL AS ITS MINIMUM DURATION AND RELIABILITY FOR THE MOST HYDRAULICALLY DEMANDING DESIGN AREA.
(F) WHEN PRIVATE OR PUBLIC WATER SUPPLIES ARE USED, THE FLOW TEST DATA, INCLUDING DATE AND TIME OF TEST, WHO CONDUCTED TEST OR SUPPLIED INFORMATION, TEST ELEVATION, STATIC GAUGE PRESSURE AT NO FLOW, FLOW RATE WITH RESIDUAL GAUGE PRESSURE, HYDRANT FLOW COEFFICIENT, AND LOCATION OF TEST IN RELATION TO THE HYDRAULIC POINT OF SERVICE.
(G) VALVING AND ALARM REQUIREMENTS TO MINIMIZE POTENTIAL FOR IMPAIRMENTS AND UNRECOGNIZED FLOW OF WATER.
(H) MICROBIAL INDUCED CORROSION (MIC). THE ENGINEER OF RECORD SHALL MAKE REASONABLE EFFORTS TO IDENTIFY WATER SUPPLIES THAT COULD LEAD TO MICROBIAL INDUCED CORROSION (MIC). SUCH EFFORTS MAY CONSIST OF DISCUSSIONS WITH THE LOCAL WATER PURVEYOR AND/OR FIRE OFFICIAL, FAMILIARITY WITH CONDITIONS IN THE LOCAL AREA, OR LABORATORY TESTING OF WATER SUPPLIES. WHEN CONDITIONS ARE FOUND THAT MAY RESULT IN MIC CONTAMINATION OF THE FIRE PROTECTION PIPING, THE ENGINEER SHALL DESIGN CORRECTIVE MEASURES.
(I) BACKFLOW PREVENTION AND METERING SPECIFICATIONS AND DETAILS TO MEET LOCAL WATER PURVEYOR REQUIREMENTS INCLUDING MAXIMUM ALLOWABLE PRESSURE DROP.
(J) QUALITY AND PERFORMANCE SPECIFICATIONS OF ALL YARD AND INTERIOR FIRE PROTECTION COMPONENTS.
(3) CONTRACTOR SUBMITTALS WHICH DEVIATE FROM THE ABOVE MINIMUM DESIGN PARAMETERS SHALL BE CONSIDERED MATERIAL DEVIATIONS AND REQUIRE SUPPLEMENTAL ENGINEERING APPROVAL AND DOCUMENTATION.
(4) IN THE EVENT THE ENGINEER OF RECORD PROVIDES MORE INFORMATION AND DIRECTION THAN IS ESTABLISHED ABOVE, HE OR SHE SHALL BE HELD RESPONSIBLE FOR THE TECHNICAL ACCURACY OF THE WORK IN ACCORDANCE WITH APPLICABLE CODES, STANDARDS, AND SOUND ENGINEERING PRINCIPLES.
SPECIFIC AUTHORITY 471.008, 471.033(2), FS
LAW IMPLEMENTED 471.005(7), 471.033(2), FS
HISTORY–NEW 5-19-93, FORMERLY 21H-32.004, AMENDED 4-2-2000, 6-26-01, 7-12-05

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
	SPRINKLER BRANCH PIPING
	FEED-MAIN PIPING
	UNDERGROUND FIRE MAIN PIPING
	SPRINKLER OR STANDPIPE PIPE RISER LOCATION
	SPRINKLER PIPING UP
	SPRINKLER PIPING DOWN
	VICTAULIC TESTMASTER II #720 TEST AND DRAIN WITH SPLASH BLOCK
	HYDRAULIC REFERENCE NODE
	REFERENCE NOTE CALLOUT
	POINT OF CONNECTION
	POINT OF SERVICE FOR THE FIRE PROTECTION WATER SUPPLY
	CONTINUATION
	BACKFLOW PREVENTOR
	FIRE HYDRANT
	FREE STANDING POST INDICATOR VALVE W/TAMPER SWITCH
FDC	FIRE DEPARTMENT CONNECTION WITH (2) 2½" HOSE VALVE CONNECTIONS
	CHECK VALVE
FDV	STANDPIPE WITH FIRE DEPARTMENT VALVE
	DRY-VALVE LOCATION
	CONTROL VALVE W/TAMPER SWITCH
	BUTTERFLY VALVE W/TAMPER SWITCH IN VERTICAL
	BUTTERFLY VALVE W/TAMPER SWITCH
	FLOW SWITCH
	HOSE VALVE CABINET
F.C.	FLUSHING CONNECTION

FIRE PROTECTION ABBREVIATIONS

ABOVE FINISHED FLOOR	AFF
BELOW FINISHED GRADE	BFG
BELOW FINISHED FLOOR	BFF
CONTINUATION	CONT
CONNECTION	CONN
DIAMETER	DIA
DOWN	DN
UP	UP
NOT IN CONTRACT	NIC
NOT TO SCALE	NTS
NO SPRINKLER	N/A
SQUARE FEET	SF
POINT OF CONNECTION	P.O.C.
UNLESS NOTED OTHERWISE	U.N.O.
BOTTOM OF RISER	B.O.R.
TOP OF RISER	T.O.R.
FLUSHING CONNECTION	FC

FIRE SPRINKLER HEAD LEGEND

SYMBOL	ORIFICE	TEMP	RESPONSE	K-FAC	FINISH	MODEL	STYLE	SIN #	MFG.
●	1/2"	155°	QUICK	5.6	SEE ARCH. PLANS	M	FLAT PLATE CONCEALED PENDENT	VK462	VIKING
○	1/2"	155°	QUICK	5.6	BRASS	M	UPRIGHT	VK300	VIKING
⊠	1/2"	155°	QUICK	5.6	BRASS	M	UPRIGHT WITH GUARD	VK300	VIKING
◀	1/2"	155°	QUICK	8.0	SEE ARCH. PLANS	M	HORIZONTAL SIDEWALL	VK305	VIKING

ESTIMATED STEEL PIPE CHART

PIPE SERVING 1 SPRINKLER:	1"
PIPE SERVING 2-3 SPRINKLERS:	1-1/4"
PIPE SERVING 4 SPRINKLERS:	1-1/2"
PIPE SERVING 5-6 SPRINKLERS:	2"
PIPE SERVING 7-8 SPRINKLERS:	2-1/2"
PIPE SERVING 9+ SPRINKLERS:	3"
ALL SPRINKLER MAIN LINE PIPING:	4"

NOTE:
ALL BULK MAIN PIPE SIZES ARE SHOWN ON THE PLANS.

FIRE PROTECTION DATA

OCCUPANCY CLASSIFICATIONS AS NOTED ON PLANS

OCCUPANCY CLASSIFICATION: (UNLESS NOTED OTHERWISE)	LIGHT HAZARD
SYSTEM TYPE:	WET PIPE
DESIGN DENSITY:	.10 GPM/SQ. FT.
HYDRAULIC REMOTE AREA:	1,500 SQ. FT.
SPRINKLER ORIFICE SIZE:	1/2"
DURATION OF SUPPLY:	30 MIN.
MAXIMUM COVERAGE/SPRINKLER HEAD:	225 SQ. FT.
HOSE STREAM ALLOWANCE:	100 GPM
OCCUPANCY CLASSIFICATION: OH-1	ORDINARY HAZARD GROUP I
SYSTEM TYPE:	WET PIPE
DESIGN DENSITY:	.15 GPM/SQ. FT.
HYDRAULIC REMOTE AREA:	1,500 SQ. FT.
SPRINKLER ORIFICE SIZE:	1/2"
DURATION OF SUPPLY:	60 - 90 MIN.
MAXIMUM COVERAGE/SPRINKLER HEAD:	130 SQ. FT.
HOSE STREAM ALLOWANCE:	250 GPM
OCCUPANCY CLASSIFICATION: OH-2	ORDINARY HAZARD GROUP II
SYSTEM TYPE:	WET PIPE
DESIGN DENSITY:	.20 GPM/SQ. FT.
HYDRAULIC REMOTE AREA:	1,500 SQ. FT.
SPRINKLER ORIFICE SIZE:	1/2"
DURATION OF SUPPLY:	60 - 90 MIN.
MAXIMUM COVERAGE/SPRINKLER HEAD:	130 SQ. FT.
HOSE STREAM ALLOWANCE:	200 GPM

DESIGN CRITERIA:

THE FOLLOWING PUBLICATIONS SHALL BE USED AS A REFERENCE FOR DESIGN OF THE FIRE SUPPRESSION SYSTEM ON THIS PROJECT.

1. NFPA 13 (2016 ED.), INSTALLATION OF SPRINKLER SYSTEMS
2. FLORIDA BUILDING CODE 7th EDITION (2020)
3. FLORIDA FIRE PREVENTION CODE 7th EDITION (2020)

FLOW TEST INFORMATION:

FLOW TEST CONDUCTED BY:	Fire Protection Publications - R. Stiglitz
LOCATION:	600 W Ocean Drive, Key Colony Beach
DATE:	05/13/2021
STATIC:	56 PSI
RESIDUAL:	27 PSI
FLOW:	800 GPM

FLOW TEST DATA:

THE FIRE SPRINKLER CONTRACTOR SHALL PERFORM A TWO HYDRANT WATER FLOW TEST TO DETERMINE THE STATIC, RESIDUAL, AND FLOW. THE FLOW TEST SHALL BE PERFORMED DURING THE PEAK TIME OF THE DAY AND WITNESSED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

WATER SUPPLY NOTES:

1. THE FIRE SPRINKLER CONTRACTOR SHALL CONFIRM WITH THE WATER UTILITY COMPANY THAT THE EXISTING WATER SUPPLY HAS NO REPORTED CASES OF M.I.C. AND THE WATER SYSTEM IS TREATED WITH A CORROSION INHIBITOR.

GENERAL NOTES:

1. THE FIRE PROTECTION SYSTEMS SHALL COMPLY WITH THE ABOVE REFERENCED NFPA STANDARDS AND ALL STATE AND LOCAL CODES AND REQUIREMENTS.
2. FINAL SYSTEM ACCEPTANCE AND APPROVAL SHALL BE CONDUCTED BY THE LOCAL AUTHORITY HAVING JURISDICTION AND THE ARCHITECT/ENGINEER.
3. CONTRACTOR'S SPRINKLER SYSTEM LAYOUT (SHOP DRAWINGS), HYDRAULIC CALCULATIONS AND MATERIAL DATA SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND THE LOCAL AUTHORITY HAVING JURISDICTION FOR APPROVAL PRIOR TO SYSTEM INSTALLATION.
4. THE FIRE PROTECTION SYSTEMS SHOWN REPRESENT THE DESIGN INTENT OF THE ENGINEER OF RECORD, IN ACCORDANCE WITH STATE REGULATION 61G15-32. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE INSTALLATION WITH ALL OTHER TRADES. THE CONTRACTOR SHALL PROVIDE COMPLETE SPRINKLER SYSTEM LAYOUT DRAWINGS WITH ANY ADDITIONAL OFFSETS, SPRINKLERS OR SYSTEM COMPONENTS AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM AND TO AVOID CONFLICTS WITH OTHER TRADES.
5. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES, HEIGHTS AND ALL ASSOCIATED DATA.
6. PROVIDE FIRE STOP ASSEMBLIES FOR ALL PENETRATIONS OF SMOKE/FIRE WALLS, CEILINGS AND FLOORS. FIRE STOP ASSEMBLIES SHALL MEET ASTM E-814. SEE FIRE RATED PIPE PENETRATION DETAILS.
7. CONTRACTOR SHALL PROVIDE CORROSION-RESISTANT TYPES OF SPRINKLERS, PIPE, FITTINGS, AND HANGERS OR PROTECTIVE CORROSION-RESISTANT COATINGS ON ALL DRAIN, DRY PIPE SYSTEM PIPING, FITTINGS, SPRINKLERS AND ALL PIPING AND FITTING EXPOSED TO THE EXTERIOR ELEMENTS.
8. INSTALL ADDITIONAL SPRINKLERS UNDER ALL EXPOSED DUCTWORK OR OBSTRUCTIONS OR COMBINATIONS OF OBSTRUCTIONS EXCEEDING 48" IN WIDTH. PROVIDE ADDITIONAL SPRINKLERS AS REQUIRED FOR PROPER COVERAGE OF OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13.
9. ALL SPRINKLER HEADS INSTALLED WITHIN MECHANICAL ROOMS, STORAGE ROOMS, JANITORS CLOSETS OR AREAS SUBJECT TO MECHANICAL INJURY SHALL BE PROTECTED WITH LISTED GUARDS.
10. COORDINATE PIPE ROUTING WITH DUCT ROUTING, EQUIPMENT LOCATIONS, ELECTRICAL INSTALLATIONS AND BUILDING STRUCTURAL MEMBERS. DO NOT ROUTE PIPING OVER ELECTRICAL PANELS. PIPING ROUTED OVER ELECTRICAL PANELS SHALL BE REROUTED AT NO ADDITIONAL COST.
11. PROVIDE TAMPER SWITCHES ON ALL CONTROL VALVES.
12. SLOPE ALL PIPING TO THE SYSTEM MAIN DRAIN AS REQUIRED TO INSURE PROPER DRAINAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ALL PIPING IS DRAINABLE. ADDITIONAL DRAINS AND PLUGS SHALL BE INSTALLED WHERE REQUIRED TO COMPLY WITH THE ABOVE REFERENCED CODES.
13. ALL ROLL GROOVED AND CUT GROOVED COUPLINGS AND FITTINGS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
14. SPRINKLERS SHALL BE CENTERED IN CEILING TILES IN AREAS WITH LAY-IN TILES AND VISUALLY ALIGNED IN AREAS WITH SMOOTH CEILINGS.

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LIVS project number:
201913

Client project number:
2021-158

sheet title
FIRE SYMBOLS AND SPECIFICATIONS

revisions

issued for:
BID SET

issue date:
05.01.23

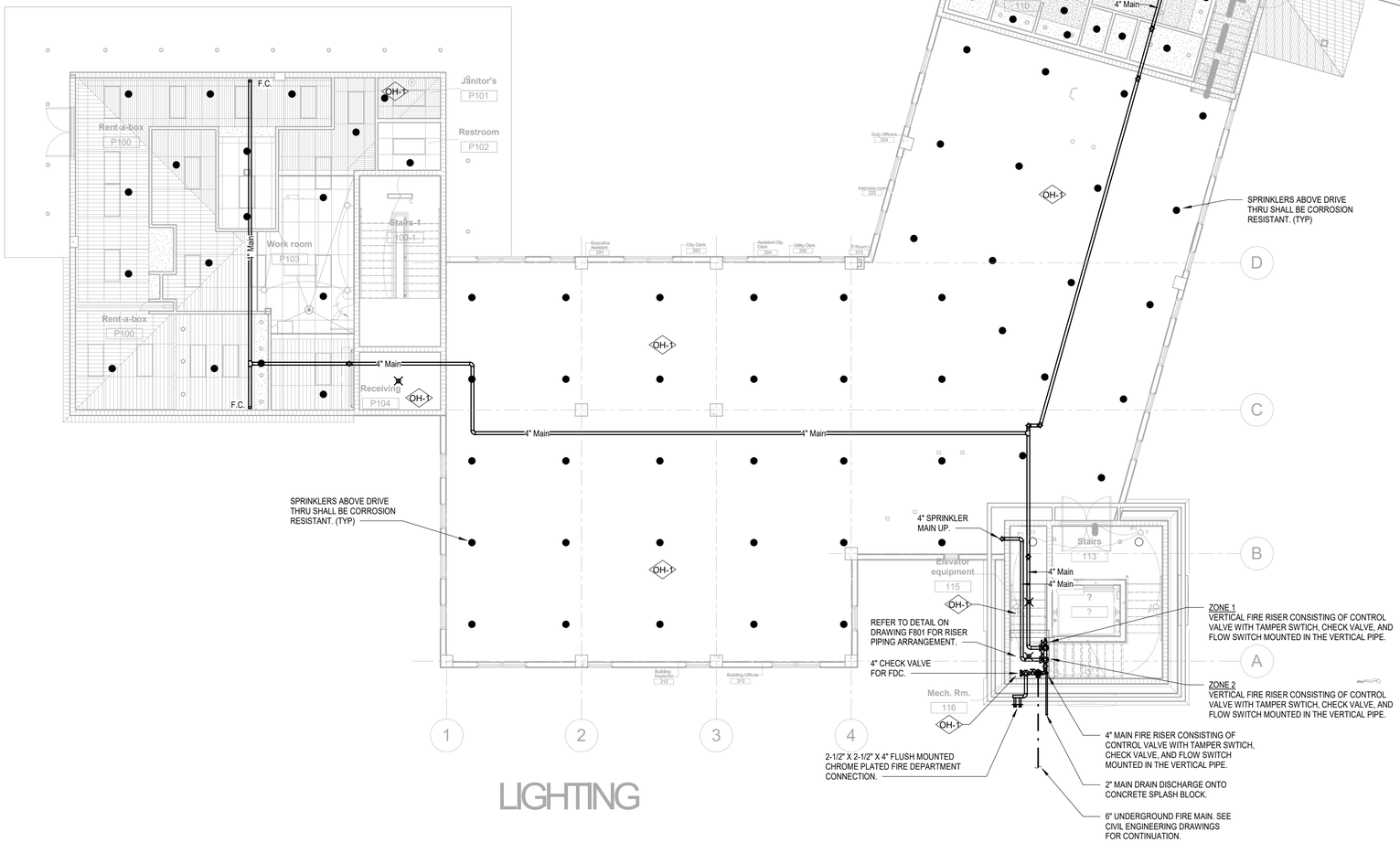
drawn by: Author
approved by: Checker

scale:
12" = 1'-0"

seal
OAK SHAHNAM LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

sheet number
F001

sheet:
of


F.C.
OH-1
Janitor's
P101
Restroom
P102
Rent-a-box
P100
Stairs-1
101
Work room
P103
4" Main
Receiving
P104
Rent-a-box
P100
Rent-a-box
P100
F.C.
4" Main
4" Main
SPRINKLERS ABOVE DRIVE THRU SHALL BE CORROSION RESISTANT. (TYP)
OH-1
OH-1
OH-1

GENERAL NOTES:

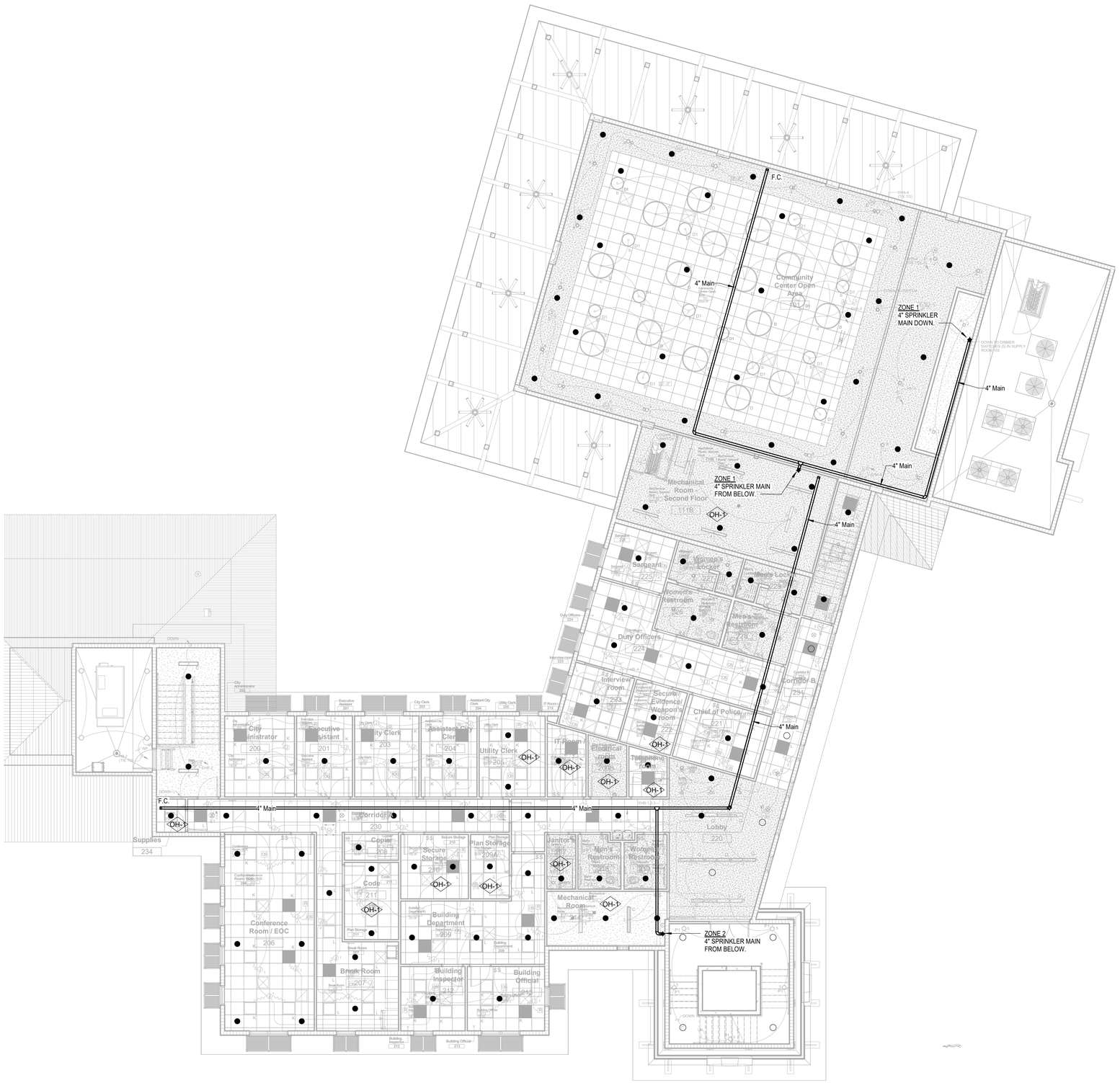
a. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 - 2016, THE FLORIDA BUILDING CODE 7TH EDITION (2020), AND THE FLORIDA BUILDING CODE.

b. PROVIDE A COMPLETE SYSTEM PER THE DRAWING NOTES AND SPECIFICATIONS. ALL ARES ARE LIGHT HAZARD OCCUPANCY EXCEPT WHERE OTHER OCCUPANCY CLASSIFICATIONS ARE LISTED.

c. COORDINATE SPRINKLER LOCATIONS WITH LIGHTS, CEILING GRID, AND ALL CEILING MOUNTED DEVICES.

d. CENTER ALL SPRINKLERS IN CEILING TILES.

e. LEVEL 2 (ZONE2) AREA: 6,150 SF



1 F202 **FIRE SECOND FLOOR PLAN**
1/8" = 1'-0"

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LIVS project number:
201913

Client project number:
2021-158

sheet title
FIRE PROTECTION SECOND FLOOR PLAN

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
Author	Checker

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

seal
DILIP K. SHAHANI LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

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F202

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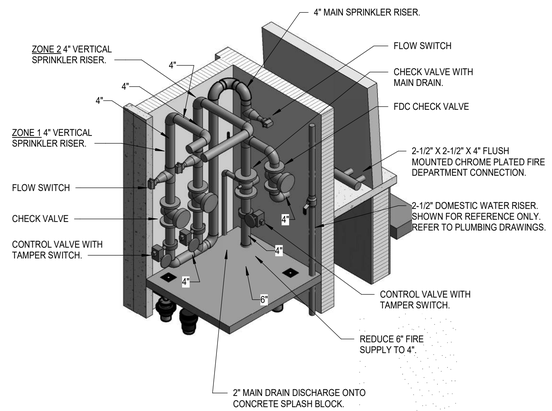
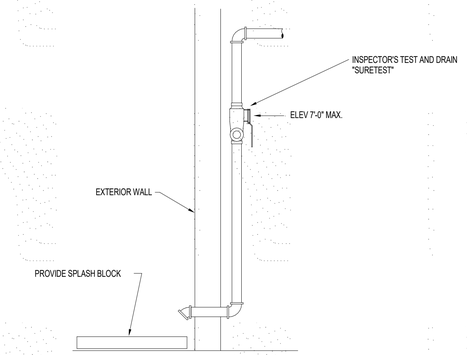


SPRINKLER RISER - WET PIPE SYSTEM
SCALE: 3/8" = 1'



INSPECTOR'S TEST - WET PIPE SYSTEM
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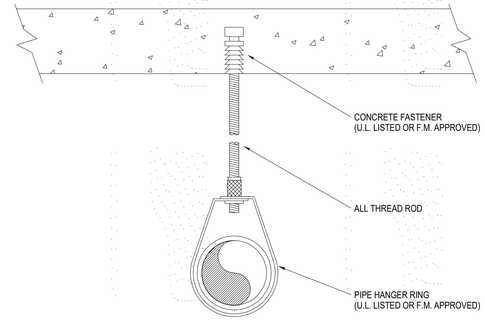

HANGER - CONCRETE
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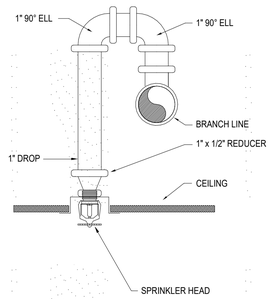

RETURN BEND
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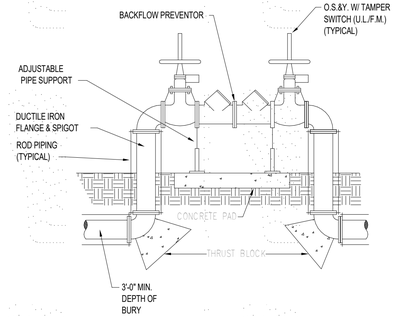

BACKFLOW PREVENTOR
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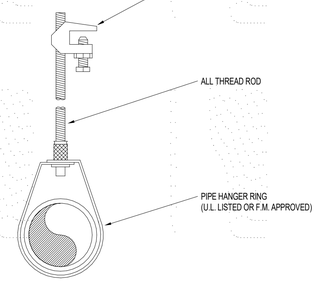

HANGER - STEEL
No Scale

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OSAK SHAHVAR LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

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MECHANICAL DUCTWORK LEGEND

POINT OF CONNECTION

POINT OF DISCONNECTION

T — TEMPERATURE/HUMIDITY SENSOR

S — SWITCH

CO — CARBON DIOXIDE SENSOR

SD SD — SMOKE DETECTOR

F — FIRE STAT

FIRE DAMPER

FIRE DAMPER

FIRE/SMOKE DAMPER

MANUAL VOLUME DAMPER

C — CARBON MONOXIDE SENSOR

TAP WITH 45° ENTRY

EMS — ENERGY MANAGEMENT SYSTEM

M — MOTOR OPERATED DAMPER

NEW WORK

EXISTING DUCT TO REMAIN

EXISTING DUCT TO BE DEMOLISHED

SUPPLY AIR DUCT - SECTION

RETURN AIR DUCT - SECTION

EXHAUST AIR DUCT - SECTION
SUPPLY DUCT UP THRU ROOF OR
FLOOR/CEILING ASSEMBLY

RETURN DUCT UP THRU ROOF OR
FLOOR/CEILING ASSEMBLY

ELBOW TURNED UP

ELBOW TURNED DOWN

UP — OFFSET IN DUCTWORK - UP

DN — OFFSET IN DUCTWORK - DOWN

TEE WITH DOUBLE THICKNESS

MITERED ELBOW - WHERE USED PROVIDE TURNING VANES

RADIUS ELBOW

CEILING DIFFUSER -
BOTTOM DUCT CONNECTION

STANDARD BRANCH TAKEOFF

MANUAL DAMPER

4-WAY DISCHARGE
SQUARE SUPPLY AIR DIFFUSER

RETURN AIR REGISTER/GRILLE

EXHAUST AIR REGISTER/GRILLE

SIDEWALL REGISTER OR GRILLE

FLEXIBLE CONNECTION

CEILING DIFFUSER - SIDE
DUCT CONNECTION

TYPE — A-350 — AIR QUANTITY
AIR DISTRIBUTION DESIGNATION

FLEXIBLE ROUND DUCT

FD — FIRE DAMPER AND ACCESS DOOR.

24X12 — RECTANGULAR DUCT, FIRST
FIGURE IS SIDE SHOWN

FSD — COMBINATION FIRE AND SMOKE
DAMPER, WITH ACCESS DOOR.

BDD — BACKDRAFT DAMPER

12"ø — ROUND DUCT, DIAMETER SHOWN

M — MOTORIZED DAMPER

BD — BAROMETRIC DAMPER

SPIN-IN COLLAR WITH
VOLUME DAMPER

MECHANICAL ABBREVIATIONS

A	AIR
AAV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR, AIR DRYER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ATC	AUTOMATIC TEMPERATURE CONTROL
AV	AIR VENT
BDD	BACK DRAFT DAMPER
BOT	BOTTOM
BFP	BACKFLOW PREVENTER
BTU	BRITISH THERMAL UNIT
C	CELSIUS, DEGREE CELSIUS
CENT	CENTRIFUGAL
CFM	CUBIC FEET PER MINUTE
CHWS&R	CHILLED WATER SUPPLY & RETURN
CLG	CEILING
CF	CEILING FAN
CO	CLEAN OUT
COND	CONDENSATE
DB	DRY BULB, DOWN BLOW
DCW	DOMESTIC COLD WATER
DEG	DEGREE
DELIV	DELIVERY
DHW	DOMESTIC HOT WATER
DISC	DISCONNECT
DN	DOWN
EA	EXHAUST AIR, EACH
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EFF	EFFICIENCY
ELEV	ELEVATION
EMS	ENERGY MANAGEMENT SYSTEM
ENT	ENTERING
ERG	EXISTING RETURN GRILLE
EWB	ENTERING WET BULB
F	FAHRENHEIT
FD	FIRE DAMPER, FLOOR DRAIN
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
F/SD	FIRE/SMOKE DAMPER
FT	FEET
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GLY	GLYCOL
GRV	GRAVITY RELIEF VENTILATOR
GWS	GLYCOL WATER SUPPLY
GWR	GLYCOL WATER RETURN
HHWS&R	HEATING HOT WATER SUPPLY & RETURN
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER, HEAT PUMP
HR	HOUR
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HZ	HERTZ (CYCLES PER SECOND)
ID	INSIDE DIAMETER
IN	INCH
KEF	KITCHEN EXHAUST FAN
KW	KILOWATT
LDB	LEAVING DRY BULB
LWB	LEAVING WET BULB
LOR	LIMIT OF REMOVAL
MAX	MAXIMUM
MBC	MASTER BUILDING CONTROLLER
MBH	THOUSAND BTU PER HOUR
MD	MANUAL DAMPER
MIN	MINIMUM
N	NORTH
NA	NOT APPLICABLE
NO OR #	NUMBER, NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
OPER	OPERATING
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
REG	REGISTER
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RM	ROOM
SA	SUPPLY AIR
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
S/FD	SMOKE/FIRE DAMPER
T	THERMOSTAT
TEC	TERMINAL EQUIPMENT CONTROLLER
TEMP	TEMPERATURE
TYP	TYPICAL
V	VENT, VOLT
VD	VOLUME DAMPER
VERT	VERTICAL
WB	WET BULB
WPD	WATER PRESSURE DROP
1WB	ONE WAY BLOW
2WB	TWO WAY BLOW
3WB	THREE WAY BLOW

MECHANICAL LEGEND

CD — -CONDENSATE DRAIN

RL — -REFRIGERANT LIQUID

RS — -REFRIGERANT SUCTION

-ELBOW,TURNED DOWN

-ELBOW, TURNED UP

SCOPE OF WORK:
THIS BRIEF DESCRIPTION OF THE SCOPE OF WORK IS NOT ALL INCLUSIVE. REVIEW THE CONSTRUCTION DOCUMENTS AND GENERAL NOTES.

1. PROVIDE DX AIR HANDLING UNITS (4)
2. PROVIDE DX ROOF TOP PACKAGE UNIT (1)
3. PROVIDE EXHAUST FANS (11)
4. PROVIDE VAV TERMINAL UNITS (17)
5. PROVIDE NEW EDH SERVING AHU-2

ALTERNATE A
1. EQUIPMENT TO BE PRICED AT 208 VOLTS INSTEAD OF 480 VOLTS

PROJECT DESIGN CONDITIONS

TEMERATURE CONDITIONS

OUTDOOR

	DRY BULB (F)	WET BULB	COMMENTS
SUMMER	90	79	(.4% MEAN COINCIDED DB/WB)
WINTER	55	X	(99.6% DB)
DAILY RANGE	16.6	X	

LOCATION BASED ON ASHRAE WEATHER DATA FOR KEY WEST FLORIDA

INDOOR

	DRY BULB (F)	RH%	COMMENTS
OCCUPIED COOLING	75	50-55	PLUS OR MINUS 2 DEGREES
OCCUPIED HEATING	70	X	PLUS OR MINUS 2 DEGREES
UNOCCUPIED COOLING	85	60-65	
UNOCCUPIED HEATING	60	X	

VENTILATION IS BASED ON OCCUPANCY PER ASHRAE 62.1-2016

ENVELOPE AND EQUIPMENT EFFICICENCIES ARE BASED ON ASHRAE 90.1 2019 AND THE FLORIDA BUILDING CODE 2020

THIS PROJECT IS DESIGNED UNDER THE 2020 FLORIDA BUILDING CODE AND THE 2017 FLORIDA FIRE PREVENTION CODE

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LIVS project number:
201913

Client project number:
2021-158

sheet title
MECHANICAL SYMBOLS AND SPECIFICATION

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
Author	Checker

scale:
NO SCALE

seal
OMAR SHAHIAN · LICENSE · No. 78419 · STATE OF FLORIDA · PROFESSIONAL ENGINEER

sheet number
M001

sheet:
of

MECHANICAL GENERAL NOTES

1 THE CONTRACTOR SHALL DEMONSTRATE EACH HVAC SYSTEMS PERFORMANCE IN THE PRESENCE OF THE ARCHITECT/ENGINEER AND THE OWNER'S PROJECT MANAGER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY ADDITIONAL SYSTEM TEST REQUIRED IF IN THE OPINION OF THE ARCHITECT/ENGINEER AND THE OWNERS PROJECT MANAGER THE SYSTEMS DO NOT PERFORM AS SPECIFIED.

2 IF, THROUGH ERRORS OR OMISSIONS, THE INTENT OF ARCHITECT/ ENGINEER WITH REGARD TO ANY DETAIL IS NOT CLEAR, OR IS CAPABLE OF MORE THAN ONE INTERPRETATION, SUCH MATTERS WILL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER IN WRITING BEFORE THE SUBMISSION OF BIDS, AND THE ARCHITECT/ ENGINEER SHALL MAKE CORRECTION OR EXPLANATION IN WRITING. OTHERWISE, NO EXTRA CHARGE WILL BE ALLOWED FOR THE WORK OR MATERIAL WHICH THE ARCHITECT/ENGINEER WILL REQUIRE, PROVIDED THAT IT COMES WITHIN A REASONABLE INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS.

3 THE PLANS AND SPECIFICATIONS ARE INTENDED AS A GENERAL DESCRIPTION OF THE WORK TO BE PERFORMED. ALL ITEMS NOT SPECIFICALLY MENTIONED OR SHOWN, BUT NECESSARY FOR THE COMPLETION OF THE INSTALLATION, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT THEMSELVES WITH THE MECHANICAL, ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL PLANS BEFORE SUBMITTING THEIR FINAL BID. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO THE CONTRACTOR'S FAILURE TO FAMILIARIZE THEMSELVES WITH THE PLANS.

4 UNFORESEEN CONDITIONS MAY EXIST AND WORK MAY NOT BE FIELD LOCATED EXACTLY AS SHOWN ON THE DRAWINGS. COORDINATION WITH OTHER TRADES IN ROUTING AND/OR BURIAL DEPTHS AS DETERMINED DURING CONSTRUCTION AND AS DIRECTED BY THE ARCHITECT/ENGINEER MAYBE NECESSARY. IT IS INTENDED THAT SUCH DEVIATIONS SHALL BE CONSIDERED AS PART OF THIS CONTRACT. SUCH DEVIATIONS MAY NOT BE CONSIDERED AS PART OF THIS CONTRACT WHEN PROPERLY DOCUMENTED IN WRITING. THE PLANS ARE NOT COMPLETELY TO SCALE. CONTRACTOR IS TO FIELD VERIFY DIMENSIONS OF ALL SITE UTILITIES ECT PRIOR TO BID AND INCLUDE ANY DEVIATIONS IN THE CONTRACT.

5 ALL PIPING AND DUCT IS TO BE CONCEALED ABOVE CEILING OR IN NEW WALLS UNLESS SPECIFICALLY NOTED AS EXPOSED OR SURFACE MOUNTED. CONTRACTOR TO COORDINATE WITH THE GENERAL CONTRACTOR TO PAINT ALL EXPOSED PIPING TO MATCH CORRESPONDING EXPOSED AREAS.

6 ALL WORK SHALL BE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE SUPPLEMENTS AND ALL LOCAL CODES.

7 THE SIZE AND LOCATION OF EQUIPMENT INSTALLED UNDER DIVISION 23 MECHANICAL SHALL BE COORDINATED WITH OTHER TRADES. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.

8 PROVIDE A VOLUME DAMPER AT EVERY BRANCH DUCT AND AS SHOWN ON THE DOCUMENTS FOR ALL DUCTWORK SYSTEMS. ALL DAMPERS MAY NOT BE SHOWN ON THE DOCUMENTS FOR CLARITY. PROVIDE VOLUME DAMPERS AT EXISTING DUCTWORK LOCATION AS REQUIRED TO BALANCE THE SYSTEM APPROPRIATELY.

9 VERIFY CONDITIONS IN FIELD AND COORDINATE WITH ALL TRADES INCLUDING, BUT NOT LIMITED TO, ARCHITECTURAL, STRUCTURAL, LIGHTING, POWER, SYSTEMS, PLUMBING, FIRE PROTECTION AND OTHERS FO NEW WORK.

10 DISCONNECT SWITCHES REQUIRED FOR THE MECHANICAL EQUIPMENT SHALL BE PROVIDED BY DIVISION 26 ELECTRICAL EXCEPT WHEN INDICATED ON SCHEDULE.

11 ALL VOLUME DAMPERS INSTALLED ABOVE GYPSUM BOARD CEILING SHALL HAVE A REMOTELY OPERATED DAMPER. THE DAMPER LOCATION IT TO BE ACCURATELY LOCATED AND LABELED ON THE AS-BUILT DRAWINGS AT THE COMPLETION OF THE PROJECT.

12 PROVIDE 4" HIGH CONCRETE PADS UNDER ALL FLOOR MOUNTED EQUIPMENT, WITH CHAMFERED EDGES AND 6" EXTENSION BEYOND EQUIPMENT UNLESS NOTED OTHERWISE. PROVIDE 3" PAD FOR AHU'S LOCATED IN MEZZANINE.

13 ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION. SUPPORT ALL OBJECTS FROM STRUCTURE WITHOUT PENETRATING THE CEILING.

14 REFER TO TYPICAL DETAILS FOR PIPING AND EQUIPMENT INSTALLATION.

15 CONDENSATE DRAINS FROM ALL MECHANICAL EQUIPMENT SHALL BE COORDINATED FOR PROPER DRAINAGE TO SUIT EQUIPMENT FURNISHED. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

16 UNLESS OTHERWISE NOTED, ALL EQUIPMEN SHALL BE INDEPENDENTLY PIPED FULL SIZE TO THE NEAREST PLUMBING DRAIN OR DRY WELL.

17 ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH NFPA 90A AND 90B. AND SMACNA

18 DUCT SIZES SHOWN ARE MINIMUM INSIDE DIMENSIONS.

19 BEFORE FABRICATION, VERIFY AND COORDINATE ALL DIMENSIONS IN FIELD. DUCT SIZES AND ALL OPENINGS THROUGH BUILDING CONSTRUCTION SHALL SUIT EQUIPMENT FURNISHED. CONTROLS CONTRACTOR SHALL COORDINATE WITH APPROVED DUCT SHOP DRAWINGS FOR THE APPROVED DUCT SIZES TO SIZE THE AFMS APPROPRIATELY.

20 ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS AND PIPING (INCLUDING DIVIDING DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST.

21 ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, ELBOWS, FITTINGS, ETC., TO ALLOW SMOOTH FLOWS. ALL SPLIT DUCT FITTINGS SHALL TRANSITION TO FULL SIZE OF THE SUM OF BOTH BRANCHES UPSTREAM OF SPLIT.

22 ACCESS PANELS IN DUCTWORK AND CEILINGS SHALL BE PROVIDED WHERE REQUIRED FOR OPERATION, BALANCING AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT.

23 EXHAUST DUCTWORK SHALL BE UN-INSULATED GALVANIZED STEEL.

24 MAINTAIN CLEARANCE OF A MINIMUM OF 6" BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC., AND ALL FIRE RATED AND FIRE/SMOKE RATED PARTITIONS TO ALLOW FOR INSPECTIONS OF RATED WALLS.

25 PROVIDE FLEXIBLE DUCT CONNECTIONS ON ALL DUCTS CONNECTING TO EACH FAN, AIR HANDLING UNIT AND FAN COIL UNIT.

26 DIFFUSER NECKS SHALL MATCH SIZES OF FLEX DUCTS TO BE CONNECTED.

27 FLEXIBLE DUCTWORK SHALL BE FULLY EXTENDED NOT TO EXCEED 6'-0" IN LENGTH.

28 COORDINATE DIFFUSER, GRILLE AND REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND EQUIPMENT OF ALL TRADES.

29 COORDINATE WITH ARCHITECT BEFORE PURCHASING GRILLES, REGISTERS, DIFFUSERS, LOUVERS AND OTHER AIR DISTRIBUTION DEVICES TO VERIFY FINISH.

30 DAMPERS AND INSIDES OF DUCTS VISIBLE THROUGH GRILLES, REGISTERS AND DIFFUSERS SHALL BE PAINTED FLAT BLACK.

31 ALL OPERABLE THERMOSTAT PARTS SHALL BE MOUNTED 48" ABOVE FINISHED FLOOR.

32 COORDINATE THERMOSTAT AND HUMDISTAT LOCATIONS WITH FURNITURE/EQUIPMENT LAYOUTS, WINDOWS AND DOOR SWING AREAS.

33 ALL CONTROL WIRING AND HARDWARE TO COMPLETE THE HVAC CONTROL SYSTEM SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 23 MECHANICAL OF THESE CONTRACT DOCUMENTS UNLESS INDICATED OTHERWISE ON DRAWINGS.

34 ALL HVAC EQUIPMENT LOCATIONS AND WEIGHTS SHALL BE COORDINATED AND APPROVED BY THE ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR AND OWNER PRIOR TO PURCHASE AND INSTALLATION.

35 PROVIDE ALL MANUFACTURER INSTALLATION AND MAINTENANCE MANUALS FOR EQUIPMENT INSTALLED FOR ENGINEER REVIEW BEFORE RELEASE TO THE OWNER.

36 ALL SUPPLY AND RETURN DUCTWORK SHALL BE GALVANIZED STEEL. DUCTWORK SHALL BE SUPPORTED WITH MINIMUM 1" SHEET METAL STRAPS AT 5'-0" ON CENTERS.

37 INSTALLATION OF SMOKE DETECTORS IN SUPPLY DUCT AND RETURN DUCT PRIOR TO MIXING WITH FRESH AIR SHALL BE BY THE MECHANICAL CONTRACTOR AND PROVIDED BY ELECTRICAL CONTRACTOR.

38 PROVIDE FIRE DAMPERS AT EACH FIRE RATED WALL, FLOOR, AND CEILING PENETRATION OF ALL AIR SUPPLY, RETURN, EXHAUST AND VENTILATION DUCTS. IF NOT SHOWN ON THE DOCUMENTS THIS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BID.

39 AIR FILTERING SHALL BE ACCOMPLISHED USING 2" PLEATED 30% EFFICIENT (MIN.) FILTERS OR EQUAL IN AIR HANDLING EQUIPMENT. NO ELECTROSTATIC OR WASHABLE FILTERS ARE ALLOWED. INSTALL PRIOR TO UNIT START UP, REPLACE A MINIMUM OF TWICE PER MONTH DURING THE CONSTRUCTION PERIOD, REPLACE PRIOR TO TEST AND BALANCE, AND REPLACE MONTHLY UNTIL FINAL COMPLETION.

40 PROVIDE A REMOVABLE 3/4" X 3/4" MINIMUM MESH SCREEN AT ALL INTAKE LOUVERS, NO INSECT SCREENS. PROVIDE NEW BIRD SCREENS AND BACK DRAFT DAMPERS FOR ALL OUTSIDE AIR LOUVERS. ALL INTAKE SCREENS SHALL BE REMOVABLE FOR CLEANING AND REPLACEMENT WHEN NECESSARY.

41 PROVIDE HINGED DUCT INSPECTION PANEL IN THE DISCHARGE DUCT WITHIN 15 FT. OF EACH AIR HANDLING UNIT DISCHARGE. SIZE OF THE PANEL SHALL BE THE LARGEST POSSIBLE FOR SIZE OF THE DUCT. PREFERABLE LOCATION OF THE INSPECTION PANEL IS IN THE MECHANICAL ROOM.

42 PROVIDE MANUFACTURER'S RECOMMENDED SERVICE AND MAINTENANCE CLEARANCES FOR ALL AIR HANDLING UNITS, ALL FAN COIL UNITS SHALL BE INSTALLED IN MECHANICAL ROOMS OF SUFFICIENT SIZE. AIR HANDLING UNITS AND FAN COIL UNITS INSTALLED ABOVE CEILINGS ARE NOT ACCEPTABLE. AS A MINIMUM, SUFFICIENT SIZE SHALL BE CONSIDERED AS 3 FT OF CLEARANCE TO ANY SIDE REQUIRING ACCESS AND ALLOW COMPLETE REMOVAL OF THE AHU FAN ASSEMBLY, MOTOR, AND COIL (TYPICALLY, THE WIDTH OF THE AHU CASING ON THE SHAFT PULL SIDE).

43 ALL AIR HANDLING UNITS SHALL BE FREE OF ANY OBSTRUCTION FOR REMOVAL OF PANELS AND ROUTINE MAINTENANCE. DO NOT ATTACH ANY CONDUIT, JUNCTION BOXES, SENSORS, OR ANYTHING ELSE ON THE ACCESS PANELS OF THE AIR HANDLING UNITS.

44 ALL EQUIPMENT SHALL BE FREE OF ANY DAMAGE AT THE TIME OF ACCEPTANCE. ALL DENTS, SCRATCHES, AND ANY OTHER DAMAGE SHALL BE REPAIRED PRIOR TO THE INSTALLATION OF THE EQUIPMENT.

45 ALL DUCTWORK ACCESSORIES THAT PENETRATE THE SHEET METAL DUCT SHALL BE PROPERLY FASTENED, SEALED, AND INSULATED.

46 ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL WITH EXTERNALLY WRAPPED INSULATION AND INSTALLED PER SMACNA GUIDELINES. DUCTS/MATERIALS SHALL BE PROPERLY STORED, PROTECTED FROM MOISTURE, DUST AND DEBRIS, AND INTERIORS CLEANED PRIOR TO INSTALLATION.

47 PROVIDE MANUAL DAMPERS FOR ALL LOW PRESSURE SUPPLY, RETURN, AND EXHAUST AIR BRANCH AND/OR RUN-OUT DUCTS FOR AIR VOLUME CONTROL AND ADJUSTMENT.

48 AIR HANDLING AND DUCTWORK SYSTEMS SHALL BE PROTECTED FROM CONSTRUCTION DUST AND WEATHER DURING THE CONSTRUCTION PERIOD. AFTER CONSTRUCTION, SYSTEMS SHALL BE OBSERVED BY THE ENGINEER AND CLEANED BY CONTRACTOR IF NECESSARY.

49 CONTROL DEVICE MOTORS (DAMPERS, ETC.) SHALL BE 24VAC TYPE WITH ALL ELECTRICAL POWER REQUIREMENTS CLEARLY NOTED ON THE CONSTRUCTION DRAWINGS.

50 THE CONTRACTOR IS SOLELY RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE TEST AND BALANCE FIRM. PRIOR TO TESTING AND BALANCING, THE CONTRACTOR SHALL START-UP, PRE-BALANCE, AND REPLACE ALL AIR FILTERS FOR EVERY AHU BEING TESTED. ALL DISCREPANCIES, DRIVE CHANGES, ETC. REPORTED BY ENGINEER OR TEST AND BALANCE FIRM SHALL BE CORRECTED BY CONTRACTOR WITHIN FIVE CALENDAR DAYS AT NO ADDITIONAL COST. TESTING AND BALANCING SHALL BE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION. TESTING AND BALANCING SHALL BE INCLUDED IN CONTRACTOR'S SCOPE OF WORK.

51 OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE AS A SEPARATE SUBMITTAL ITEM A LIST OF ALL EQUIPMENT INSTALLED, AND PREVENTATIVE MAINTENANCE REQUIREMENTS ALONG WITH TIME SCHEDULE(S) FOR EACH ITEM. THE SEQUENCE OF OPERATION SHALL ALSO INCLUDE A DEFINITIVE SEQUENCE OF OPERATION OF THE MECHANICAL SYSTEM AND COMPONENTS AS THEY FUNCTION INTEGRALLY AND INDEPENDENTLY WITH THE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFERRING CONTROL OF THE SYSTEM TO THE ENERGY CONTROL DEPARTMENT PRIOR TO FINAL CLOSEOUT OF THE PROJECT. THIS IS REQUIRED PRIOR TO ISSUANCE OF ANY FORM OF OCCUPANCY CERTIFICATE.

52 THERE SHALL BE ENOUGH ROOM AROUND THE AIR HANDLERS FOR EASE OF SERVICE AND ACCESSIBILITY. FOLLOW MANUFACTURER'S RECOMMENDATIONS ON EQUIPMENT ACCESS AND MAINTENANCE.

53 AIR CONDITIONING UNITS, CONDUIT, AND PIPING SHALL NOT BE INSTALLED ON ROOFS OR WALKWAYS.

54 THE HVAC SYSTEMS SHOULD BE TESTED AND BALANCED UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER OR BY AN AABC OR NEBB CERTIFIED TEST AND BALANCE CONTRACTOR EMPLOYED BY THE CONSTRUCTION MANAGER. TEST AND BALANCE SHALL BE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION. THE TEST AND BALANCE SHALL BE INCLUDED IN CONTRACTOR'S SCOPE OF WORK.

55 DOUBLE WALL RETURN AIR PLENUMS ARE REQUIRED AND ARE THE RESPONSIBILITY OF THE EQUIPMENT PROVIDER

56 PROVIDE REMOVABLE, WASHABLE WIRE MESH FILTERS ON ALL OUTSIDE AIR DUCTWORK PRIOR TO AIR FLOW MONITORING STATION. COORDINATE WITH AIRFLOW MONITORING STATION MANUFACTURER FOR GUIDELINES ON MINIMUM PLACEMENT FOR AIR FILTER AND FILTER MEDIA BANK APPLICATIONS.

57 CONTRACTOR SHALL ASSIST THE OWNERS COMMISSIONING AGENT TO COMMISSION THE HVAC SYSTEM.

58 AIRFLOW MONITORING SENSORS MUST BE INSTALLED TO ALLOW FOR EASE OF REMOVAL FOR THE OWNERS MAINTENANCE STAFF. AIRFLOW MONITORING STATION DISPLAY SHALL BE INSTALLED AT A MAXIMUM HEIGHT OF 60" TO CLEARLY VIEW DISPLAY MONITOR. PROVIDE EQUIPMENT TAG FOR ALL AFMS EQUIPMENT. PROVIDE ACCESS PANEL FOR MAINTENANCE FOR EASE OF ACCESS TO SENSORS.

59 THE OWNER RESERVES THE RIGHT TO PROVIDE VERIFICATION OF THE TEST AND BALANCE REPORTS AND SUCH VERIFICATION SHALL BE BY A SECOND INDEPENDENT BALANCER. REPORTS FOUND TO BE INACCURATE WILL BE DISALLOWED AND THE BALANCER WILL BE REQUIRED TO REPEAT OPERATIONS UNDER THE SUPERVISION OF THE SECOND INDEPENDENT BALANCER UNTIL ACCURATE REPORTS ARE COMPLETED AND AGREED UPON. THE COST OF INITIAL CHECKING WILL BE BY THE CONTRACTOR, UNLESS THE INITIAL REPORT IS FOUND TO BE INACCURATE AND/OR INCOMPLETE. IN SUCH CASE, THE COSTS OF THE VERIFICATION TEST AND BALANCE AND ALL SUBSEQUENT COSTS OF SUPERVISION IN ORDER TO SECURE ACCEPTABLE REPORTS WILL BE BY THE BALANCER.

60 MANUFACTURER OF VFD'S, AHU' VAV'S, FCU'S, DX SYSTEMS, HVAC CONTROLS,, AND EXHAUST FANS SHALL PROVIDE A MINIMUM OF 40 HOURS OF TRAINING FOR OWNERS OPERATORS. TOPICS SHALL BE DETERMINED BY THE OWNERS MAINTENANCE DEPARTMENT. TRAINING SHALL INCLUDE BUT NOT LIMITED TO RECOMMENDED MAINTENANCE AND OPERATING PROCEDURES, SEQUENCE OF OPERATION OF MECHANICAL EQUIPMENT CONTROLS, READING AND USING CONTROL DIAGRAMS, SETPOINT, PERFORMANCE TESTING AND PREVENTATIVE MAINTENANCE.

61 ALL CONDENSATE DRAIN LINES SHALL BE INSULATED AND INSTALLED WITH A 'P' TRAP,REFER TO GENERAL DETAILS, AT THE UNIT WITH A MINIMUM DEPTH OF 2" OR PER MANUFACTURER'S INSTRUCTIONS, WHICHEVER IS GREATER.

62 ALL DIFFUSER, REGISTERS, AND GRILLES SHALL BE PROVIDED WITH ASSOCIATED VOLUME DAMPER

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201913

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sheet title
MECHANICAL SYMBOLS AND SPECIFICATION

revisions

issued for:
BID SET

issue date:
05.01.23

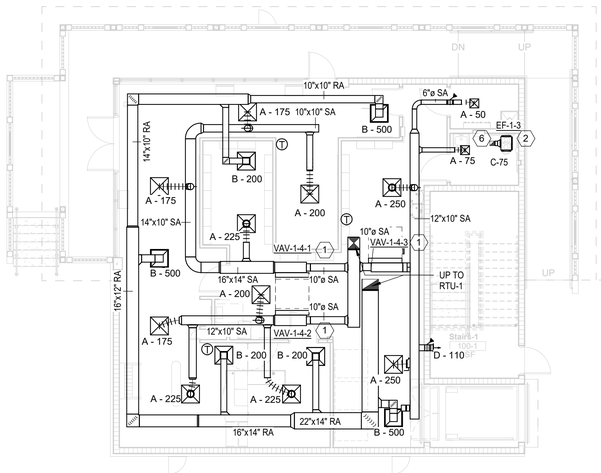
drawn by:	approved by:
Author	Checker

scale:

seal

sheet number
M002

sheet:
of





1 M201 **MECHANICAL FIRST FLOOR PLAN**

1/8" = 1'-0"

GENERAL NOTES:

A. REFET TO SHEETS M001 AND M002 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.
B. DRAWINGS ARE DIAGRAMTIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS. FOR EXACT BUILDING DIMENSIONS, SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
C. COORDINATE ALL WORK WITH THE REQUIRED TRADES.

PLAN KEY NOTES:

1. PROVIDE VAV TERMINAL BOX, TEMPERATURE/HUMIDITY SENSOR , AND ALL REQUIRED APPURTENANACES. SUPPORT EQUIPMENT FROM STRUCTURE ABOVE. SEE INSTALLATION DETAILS. ENSURE NEC CLEARANCE FOR ELECTRICAL PANEL.
2. PROVIDE NEW EXHAUST FAN. REFER TO MECHANICAL SCHEDULE AND DETAIL SHEET FOR FURTHER REFENCES PROVIDE ACCESS PANEL FOR EQUIPMENT MAINTENANCE.
3. PROVIDE NEW AHU.ROUTE RERIGERANT TO CONDENSING UNIT. SEE SHEET M301 FOR CONDENSING UNIT LOCATION. PROVIDE LITTLE GIANT CONDENSATE PUMP AND ROUTE TO NEAREST RECEPTACLE. COORDINATE WITH PLUMBING DISCIPLINE. REFER TO MECHANICAL SCHEDULE AND DETAIL SHEETS FOR FURTHER REFERENCES
4. PROVIDE TEMPERATURE SENSOR AS SHOWN IN DRAWINGS (TYPICAL)
5. PROVIDE NEW LOUVER REFER TO MECHANICAL SCHEDULE AND DETAILS SHEETS FOR FURTHER REFERENCES.
6. PROVIDE EF DUCTWORK UP TO THE ROOF. REFERE TO MECHANICAL ROOF PLAN FOR FURTHER REFERENCES

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LIVS project number:
201913

Client project number:
2021-158

sheet title
MECHANICAL FIRST FLOOR PLAN

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
RGV	BBS

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

seal

sheet number
M201

sheet:
of



1 M202 **MECHANICAL SECOND FLOOR PLAN**

1/8" = 1'-0"

GENERAL NOTES:

A. REFET TO SHEETS M001 AND M002 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.
B. DRAWINGS ARE DIAGRAMTIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS. FOR EXACT BUILDING DIMENSIONS, SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
C. COORDINATE ALL WORK WITH THE REQUIRED TRADES.

PLAN KEY NOTES:

1. PROVIDE NEW AHU.ROUTE RERIGERANT TO CONNSENSING UNITS. SEE SHEET M301 FOR CONDENSING UNITS LOCATION. REFRIGERANT LINES SHALL BE INSATLLED PER MANUFACTURER RECOMMENDATIONS PROVIDE LITTLE GIANT CONDENSATE PUMP AND ROUTE TO NEAREST RECEPTICAL. COORDINATE WITH PLUMBING DISCIPLINE. REFER TO MECHANICAL SCHEDULE AND DETAIL SHEETS FOR FURTHER REFERENCES
2. PROVIDE NEW EXHAUST FAN. REFER TO MECHANICAL SCHEDULE AND DETAIL SHEET FOR FURTHER REFENCES PROVIDE ACCESS PANEL FOR EQUIPMENT MAINTENANCE.
3. PROVIDE VAV TERMINAL BOX, TEMPERATURE HUMIDITY SENSOR, AND ALL REQUIRED APPURTENANACES. SUPPORT EQUIPMENT FROM STRUCTURE ABOVE. SEE INSTALLATION DETAILS. ENSURE NEC CLEARANCE FOR ELECTRICAL PANEL.ROUTE RERIGERANT TO CONDENSER. SEE SHEET M301 FOR CONDENSER LOCATION. PROVIDE LITTLE GIANT CONDENSATE PUMP AND ROUTE TO NEAREST RECEPTICALE. COORDINATE WITH PLUMBING DISCIPLINE. REFER TO MECHANICAL SHECUDEL AND DETAIL SHEETS FOR URTHER REFERENCES
4. PROVIDE NEW TEMPERATURE SENSOR AS SHOWN IN DRAWINGS (TYPICAL)
5. PROVIDE NEW LOUVER REFER TO MECHANICAL SCHEULE AND DETAILS SHEETS FOR FURTHER REFERENCES.
6. PROVIDE NEW ELECTRIC DUCT HEATER . REFER TO MECHANICAL SCHEDULE FOR FURTHER REFERENCES

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2021-158

sheet title
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revisions

issued for:
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issue date:
05.01.23

drawn by:	approved by:
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OSCAR SHAHNAM LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

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M202

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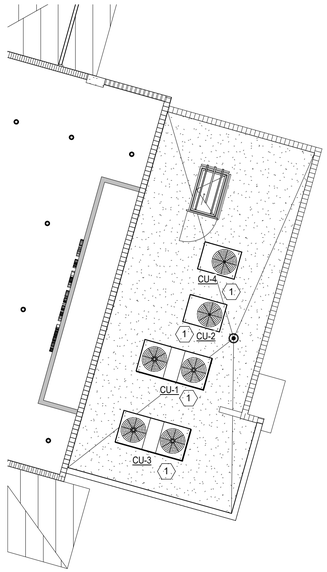

1 M301 **CONDENSER ROOF PLAN**
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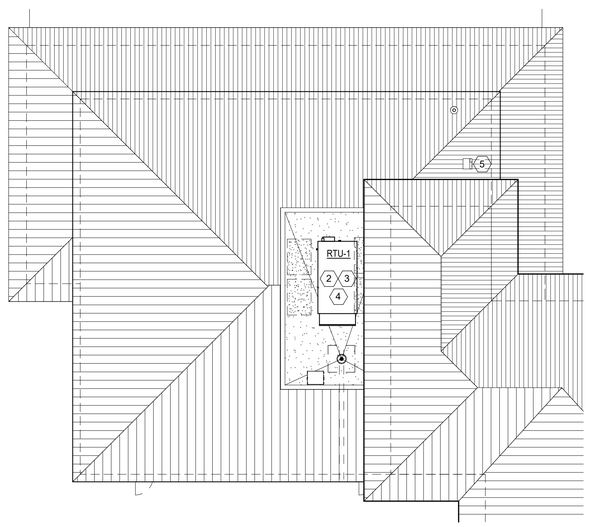

2 M301 **MECHANICAL POST OFFICE ROOF PLAN**
1/8" = 1'-0"

GENERAL NOTES:

A. REFET TO SHEETS M-001 AND M-002 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.
B. DRAWINGS ARE DIAGRAMTIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS. FOR EXACT BUILDING DIMENSIONS, SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
C. COORDINATE ALL WORK WITH THE REQUIRED TRADES.
D. ALL ROOFTOP EQUIPMENT THAT REQUIRE MAINTENANCE AND SERVICE SHALL MAINTAIN MINIMUM DISTANCE OF 10 FEET SIDE FROM ROOF EDGE. ALL ROOFTOP EQUIPMENT MUST ADHERE TO CURRENT HURRICANE CODES REGARDING ROOF TIE-IN AND WIND RESISTANCE. FOR ANY EQUIPMENT LOCATED LESS THAN 10 FEET FROM ROOF EDGE PROVIDE GUARD RAILS, INSTALLED ACCORDING INTERNATIONAL MECHANICAL CODE ([BE]304.11GUARDS). RAILS SHALL BE FLORIDA APPROVED. COORDINATE WITH STRUCTURAL DRAWINGS FOR EXACT LOCATION.

PLAN KEY NOTES:

1. PROVIDE DX SPLIT SYSTEM CONDENSING UNIT, EQUIPMENT PAD, REFRIGERANT PIPE AND ALL REQUIRED APPURTENANCES. SECURE TO PAD WITH HURRICANE RATED ANCHORS.
2. PROVIDE NEW ROOF TOP UNIT AND ALL ASSOCIATED COMPONENTS. REFER TO MECHANICAL SCHEDULE SHEET M701. REFER TO MECHANICAL DETAIL SHEET M801 FOR FURTHER REFERENCE. PROVIDE WITH VIBRATION ISOLATION NEOPRENE PADS OR SPRINGS. PROVIDE FLEX CONNECTION FOR DUCTWORK TAKEOFFS. FOLLOW INSTALLATION RECOMMENDATIONS AND CLEARANCES FROM MANUFACTURER. PROVIDE WALK PADS ON ROOF AROUND UNITS.
3. NEW SUPPLY AND RETURN DUCTWORK OPENING TO BE CONNECTED TO RTU UNIT LOCATED ON THE ROOF. PROVIDE FLEX CONNECTION FOR DUCTWORK TAKEOFFS. FOR CONTINUATION REFER TO MECHANICAL RENO FLOOR PLAN.
4. ROUTE CONDENSATE PIPE UP TO NEAREST EXISTING ROOF DRAIN AND TERMINATE INDIRECTLY PROVIDE P-TRAP FOR EACH UNIT. SLOPE A MINIMUM OF 1/8" PER FOOT REFER TO MECHANICAL SHEET M81 FOR FURTHER REFERENCES. CONDENSATE PIPE SHALL BE INSULATED 3/4" COPPER TYPE L PIPE. INSULATION SHALL BE TYPE B. 2. FOR ALL EXPOSED PIPING, PROVIDE UV INSULATION COATING. PROVIDE CONNECTION SIZED PER MANUFACTURER RECOMMENDATION FROM THE UNIT OUTLET TO THE NEW 3/4" COPPER LINE (AS REQUIRED
5. PROVIDE NEW EF GOOSENECK VENT . REFERE TO MECHANICAL DETAIL FOR FURTHER REFERENCES)

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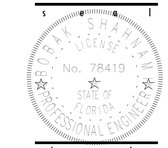

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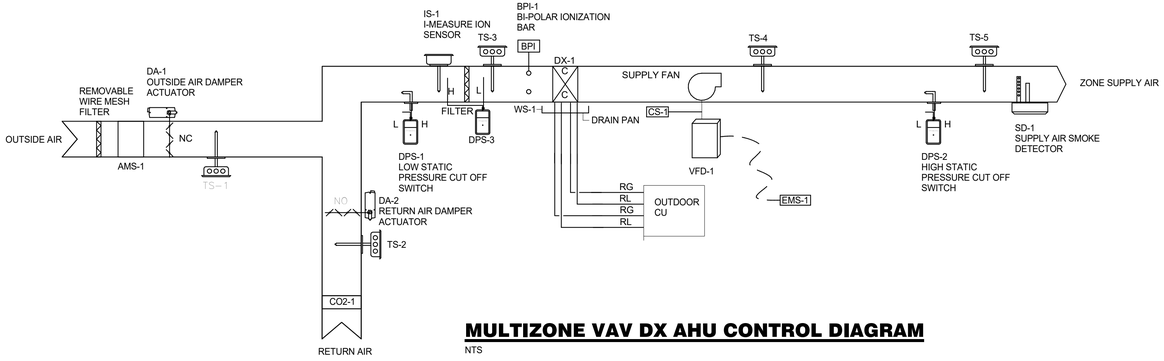


MULTIZONE VAV DX AHU CONTROL DIAGRAM

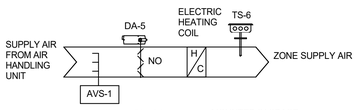
NTS

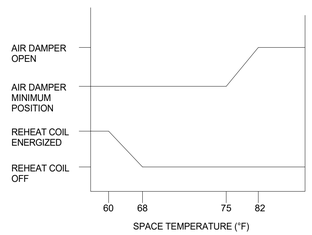
MULTIZONE VARIABLE VOLUME RTU CONTROL POINT LIST

POINT NAME		HARDWARE POINTS				SOFTWARE POINTS				SHOW ON GRAPHIC	REMARKS
		ANALOG		DIGITAL							
TAG	DESCRIPTION	INPUT	OUTPUT	INPUT	OUTPUT	ADJUSTABLE VALUE	SCHEDULE	TREND	ALARM		
TS-1	OUTSIDE AIR TEMPERATURE	X						X		X	
TS-2	RETURN AIR TEMPERATURE	X						X		X	
TS-3	MIXED AIR TEMPERATURE	X						X		X	
TS-4	COOLING COIL DISCHARGE AIR TEMPERATURE	X						X		X	
TS-5	SUPPLY AIR TEMPERATURE	X						X		X	
T-1	SPACE TEMPERATURE SENSOR	X				X	X	X	X	X	
H-1	SPACE HUMIDITY SENSOR	X						X	X	X	
CO2-1	SYSTEM CO2	X						X	X	X	
CS-1	SUPPLY FAN STATUS			X				X	X	X	
DA-1	OA DAMPER FEEDBACK	X						X	X	X	
DA-1	OUTSIDE AIR DAMPER		X			X	X	X		X	
VFD-1	SUPPLY FAN SPEED		X					X		X	
VFD-1	SUPPLY FAN START/STOP				X		X	X		X	
DA-2	RETURN AIR DAMPER FEEDBACK	X						X	X	X	
DA-2	RETURN AIR DAMPER		X			X	X	X		X	
AMS-1	OUTSIDE AIR-FLOW STATION	X				X	X	X		X	
DPS-1	LOW STATIC CUT OFF SWITCH			X					X	X	
DPS-2	HIGH STATIC CUT OFF SWITCH			X					X	X	
DPS-3	FILTER DIFFERENTIAL PRESSURE			X					X	X	
PT-1	BUILDING PRESSURE TRANSDUSER	X				X		X	X	X	
SD-1	SUPPLY SMOKE DETECTOR			X					X	X	
WS-1	WATER SENSING SWITCH			X			X	X		X	
BPI-1	BI-POLAR IONIZATION BAR				X			X		X	
IS-1	SUPPLY ION SENSOR	X						X		X	1

REMARKS:

1. SET SENSITIVITY TO 200k IONS/CCM





VARIABLE VOLUME AIR TERMINAL VALVE

NTS

VARIABLE AIR VOLUME TERMINAL UNIT CONTROL POINT LIST

POINT NAME		HARDWARE POINTS				SOFTWARE POINTS				SHOW ON GRAPHIC	REMARKS
		ANALOG		DIGITAL							
TAG	DESCRIPTION	INPUT	OUTPUT	INPUT	OUTPUT	ADJUSTABLE VALUE	SCHEDULE	TREND	ALARM		
T-1	SPACE TEMPERATURE SENSOR	X				X	X	X	X	X	
H-1	SPACE HUMIDITY SENSOR	X						X	X	X	
TS-6	SUPPLY AIR TEMPERATURE	X						X		X	
DA-5	TERMINAL AIR DAMPER FEEDBACK	X						X	X	X	
DA-5	TERMINAL AIR DAMPER		X			X	X	X		X	
AVS-1	AIR VELOCITY SENSOR	X						X		X	

MULTI-ZONE VAV DX AIR HANDLING UNIT (AHU) SEQUENCE OF OPERATION

UNOCCUPIED: WHEN THE BUILDING IS INDEXED FOR UNOCCUPIED OPERATION, ALL MOTORIZED DAMPERS AND CONTROL VALVES SHALL MODULATE TO THEIR NORMAL POSITIONS AND THE SUPPLY AND EXHAUST FANS SHALL STOP. ALL BI-POLAR IONIZATION BARS SHALL BE DE-ENGERGIZED.

UNOCCUPIED OVERRIDE: AN OVERRIDE MODE SHALL BE PROVIDED THAT WILL PERMIT OPERATION OF THE AHU TO FEED THE ZONE IN OVERRIDE. WHEN IN OVERRIDE, THE AHU SHALL OPERATE FOR A PERIOD OF 2 HOURS (ADJ.).

MORNING COOL DOWN OR WARM UP PERIOD: MAINTAIN THE OUTSIDE AIR DAMPERS CLOSED AND RUN UNIT FOR AN INITIAL PERIOD OF 1 HOUR (ADJ.) PRIOR TO OCCUPANCY WITH A SYSTEM LEARNED MINIMUM ASSOCIATED EXHAUST FANS SHALL NOT OPERATE DURING THE COOL DOWN OR WARM UP MODE. THE AHU SHALL START AND MAINTAIN A DISCHARGE TEMPERATURE OF 55°F (ADJ.) SENSED BY TS-4 DURING COOL DOWN ONLY AND DURING WARM UP COMPRESSORS SHALL BE OFF.

OCCUPIED: WHEN THE BUILDING IS INDEXED FOR OCCUPIED OPERATION BY THE EMS, OPEN THE OUTSIDE AIR AND EXHAUST AIR DAMPERS. AFTER DAMPER POSITIONS ARE PROVEN OPEN THE SUPPLY AND EXHAUST FANS SHALL BE ENERGIZED. AFTER PROOF OF FANS STATUS, TEMPERATURE CONTROL ALGORITHMS SHALL BE ENABLED. BI-POLAR IONIZATION BARS (BPI-1) SHALL ENERGIZE.

TEMPERATURE CONTROL:

COOLING: STAGE/MODULATE THE COMPRESSORS TO MAINTAIN A SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT OF 55° F (ADJ.) AS SENSED BY TS-4. WHEN THE MOST DEMANDING ZONE TEMPERATURE DROPS 2 DEGREES (ADJ) BELOW SET POINT FOR 15 MINUTES WHEN THE DAMPER IS IN MINIMUM COOLING POSITION AND NO ZONE DAMPERS ARE OPEN MORE THAN 95%, INCREASE SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT 1 DEGREE EVERY 5 MINUTES, TO A MAXIMUM SUPPLY AIR DISCHARGE SETPOIINT OF 60°F, UNTIL ROOM TEMPERATURE REACHES SET POINT. WHEN ANY OF THE ROOMS TEMPERATURE IS 2 DEGREES (ADJ) ABOVE SET POINT THEN THE OPPOSITE SHALL OCCUR UNTIL SUPPLY AIR TEMPERATURE SETPOINT DROPS TO 55°F. DISABLE TEMPERATURE RESET IF ANY ZONE OPENS MORE THAN 95% (ADJ.).

HEATING: WHEN THE MIXED AIR TEMPERATURE DROPS BELOW 50 DEGREES (ADJ.) AS SENSED BY TS-3, MODULATE ELECTRIC HEATING COIL TO MAINTAIN 55 DEGREES (ADJ.) SUPPLY AIR DISCHARGE TEMPERATURE AS SENSED BY TS-5.

REHEAT: WHEN THE AHU IS IN OCCUPIED DEHUMIDIFICATION MODE THE SUPPLY DUCT HEATER SHALL ENERGIZE AND MAINTAIN A DISCHARGE TEMPERATURE OF 56°F AS SENSED BY TS-5. ONCE THE DEHUMIDIFICATION MODE IS DEACTIVATED RTU DISCHARGE TEMPERATURE SHALL RESET TO COOLING CONTROL.

SUPPLY FAN AND DUCT PRESSURE CONTROL : MODULATE THE SUPPLY FAN VFD TO MAINTAIN DISCHARGE AIR STATIC PRESSURE SETPOINT PROVIDED BY T&B CONTRACTOR AS SENSED BY THE PRESSURE TRANSDUCER PROBE THAT IS LOCATED APPROXIMATELY 2/3 OF THE WAY TOWARD THE END OF THE DUCT. THE EMS SYSTEM SHALL MONITOR VAV BOXES DAMPER POSITION AND ADJUST SUPPLY AIR PRESSURE. IF ALL VAV BOXES ARE ABOVE MINIMUM FLOW AND ALL ZONE SETPOINTS ARE SATISFIED,THE SUPPLY DUCT PRESSURE SHALL DECREASE 0.1 IN WG EVERY 15 MINUTES (ADJ.) UNTIL ONE VAV BOX REACHES 95% OPEN AND SPACE TEMPERATURE IS AT SET POINT. IF ANY VAV BOX IS A 100% OPEN AND THE SPACE TEMPERATURE IS 2 °F (ADJ.) ABOVE SET POINT INCREASE SUPPLY PRESSURE 0.1 IN WC EVERY 5 MINUTES UNTIL IT REACHES THE PRESSURE SET POINT. WAIT 1 HOUR (ADJ) TO REPEAT SEQUENCE.

OUTSIDE AIR CONTROL: DURING THE OCCUPIED MODE MODULATE BOTH THE OUTSIDE AIR DAMPER AND THE RETURN AIR DAMPER TO MAINTAIN OUTSIDE AIR SENSED BY AIRFLOW MONITORING STATION. DO NOT ALLOW RA DAMPER TO THROTTLE LOWER THAN 20% OPEN.

SMOKE CONTROL: SHOULD PRODUCTS OF COMBUSTION BE DETECTED BY THE SUPPLY AIR SMOKE DETECTOR (BY OTHERS), THE SUPPLY FAN SHALL BE DE-ENERGIZED BY THE FIRE ALARM SYSTEM. AHU SHALL AUTOMATICALLY BE RELEASED TO SCHEDULED OPERATING MODE ONCE THE FIRE ALARM IS RESET. MANUAL RESET IS NOT ACCEPTABLE.

FAN STATUS: THE EMS SHALL MONITOR THE VFD STATUS, SHOULD THE SUPPLY FAN BE COMMANDED ON AND AN OFF STATUS IS SENSED, AN ALARM SHALL BE GENERATED AT THE EMS.

UNOCCUPIED HUMIDITY RESET : SHOULD ROOM HUMIDITY SENSOR RISE ABOVE 60% RH (ADJ) FOR 1 HOUR (ADJ) ACTIVATE THE RTU AND STAGE/MODULATE THE COMPRESSORS TO MAINTAIN 54°F (ADJ.) AS SENSED BY TS-4. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED IN THIS MODE. AFTER 1 HOUR (ADJ) OR ONCE THE RH DROPS AT THE ZONE VAV RH SENSOR TO BELOW 55% RH, RETURN AHU TO UNOCCUPIED MODE OF OPERATION. CYCLE MAY REPEAT AFTER 20 MINUTE (ADJ.) DELAY.

OCCUPIED HUMIDITY RESET : SHOULD ROOM HUMIDITY SENSOR RISE ABOVE 60% RH (ADJ) FOR 1 HOUR (ADJ). RESET THE COOLING COIL DISCHARGE AIR SETPOINTS DOWN TO 53°F(ADJ.) AS SENSED BY TS-4. AFTER 1 HOUR (ADJ) OR ONCE THE RH DROPS AT THE SPACE RH SENSOR TO BELOW 55% RH, RETURN THE AHU TO NORMAL DISCHARGE AIR SETPOINT. CYCLE MAY REPEAT AFTER 15 MINUTE (ADJ.) DELAY.

CONDENSING UNIT : THE CONDENSING UNIT COMPRESSORS SHALL STAGE/MODULATE TO MAINTAIN AHU DISCHARGE TEMPERATURE. DURING OCCUPIED PERIODS THE AHU SHALL OPERATE AND CONDENSING UNIT SHALL BE ENABLED TO MAINTAIN AHU DISCHARGE TEMPERATURES, AS REQUIRED.

CONDENSATE OVERFLOW SAFETY SWITCH:

A WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 SHALL BE PROVIDED THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED. WHEN WATER IN DRAIN PAN RAISES TO THE CONTACT POINT, THE FAN SHALL BE DISABLE, AND AN ALARM IS TO BE ISSUED TO THE BAS.

VARIABLE VOLUME AIR TERMINAL VALVE - SEQUENCE OF OPERATION (AHU10-1 ONLY)

A. MODES OF OPERATION:

1. PROVIDE FOR AIR TERMINAL VALVES, THREE OPERATIONAL MODES: OCCUPIED MODE, UNOCCUPIED MODE, AND NIGHT SET-UP/ SET-BACK. ALL NORMAL OPERATING MODES SHALL BE COMMANDED BY THE EMS.
2. OCCUPIED MODE: WHEN SCHEDULED BY THE EMS, THE SYSTEM "OCCUPIED MODE" SHALL BE ENABLED; AIR TERMINAL VALVE CONTROL ALGORITHMS SHALL RESPOND TO THE NORMALLY OCCUPIED BUILDING SET POINTS.
3. UNOCCUPIED MODE: WHEN SCHEDULED BY THE EMS, OR MANUALLY COMMANDED AT THE OPERATOR WORKSTATION, SYSTEM OPERATION SHALL BE DISABLED,AHU OPERATION SHALL BE DISABLED; AIR TERMINAL VALVE DAMPERS AND COIL CONTROLS SHALL ACTUATE TO THEIR RESPECTIVE NORMAL/OFF POSITIONS. THE FAN SHALL STOP AND CONTROL ALGORITHMS DEACTIVATED.
4. NIGHT SET-UP/BACK: WHEN COMMANDED BY THE EMS, THE AIR TERMINAL VALVE CONTROL ALGORITHMS SHALL RESPOND TO THE NIGHT SET-UP/BACK SETPOINTS.

B. DESCRIPTION:

1. EACH AIR TERMINAL VALVE CONSISTS OF AN INLET CONTROL DAMPER, INLET AIR VELOCITY SENSING DEVICE, ELECTRIC HEATING COIL AND UNIT MOUNTED EMS CONTROLLER. UNITS ARE VARIABLE AIR VOLUME DELIVERY WITH MINIMUM AND HEATING AIRFLOW SETPOINTS. AIR TERMINAL VALVE COMPONENTS TO BE FACTORY MOUNTED TO BOX BY MANUFACTURER. ALL CONTROL WIRING CONNECTIONS BY CONTROLS CONTRACTOR.

C. SYSTEM CONTROL:

1. AIR TERMINAL VALVE INLET CONTROL DAMPER SHALL MODULATE OPEN/CLOSED TO MAINTAIN THE AIR VELOCITY SET POINT OF THE EMS CONTROLLER, BASED ON THE INPUT OF THE AIR VALVE INLET VELOCITY SENSOR. THE AIR VALVE CONTROLLER SHALL RESET THE VELOCITY SET POINT TO MAINTAIN THE ROOM TEMPERATURE SET POINT SELECTED AT THE ROOM SENSOR OR OPERATORS WORKSTATION. THE AIR TERMINAL VALVE DAMPER SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE. AS SPACE TEMPERATURE DROPS TO THE SET POINT, THE INLET AIR DAMPER SHALL CLOSE TO THE MINIMUM AIR QUANTITY VALUE SCHEDULED. AS SPACE TEMPERATURE CONTINUES TO DROP THE ELECTRIC HEATING COIL SHALL MODULATE TO MAINTAIN THE HEATING SET POINT. SET POINTS, DEADBANDS, AND THROTTLING RANGES SHALL BE AS INDICATED. COORDINATE MAXIMUM, MINIMUM AND HEATING AIRFLOW SET POINTS WITH SCHEDULES ON CONTRACT DRAWINGS.

a. PROVIDE A ROOM TEMPERATURE AND HUMIDITY SENSOR FOR EACH; AT LOCATION INDICATED ON FLOOR PLANS. FURNISH WITH SET POINT ADJUSTMENT, TEMPERATURE INDICATION AND UNOCCUPIED OVERRIDE MOMENTARY CONTACT PUSH BUTTON.

b. PROVIDE RESTRICTION ADJUSTMENT OF ROOM TEMPERATURE SENSOR RANGE AT THE EMS WORKSTATION COMPUTER AT A MAXIMUM OF 3°F. SETPOINTS SHALL BE 75 °F COOLING, 70 °F HEATING. (RANGES SHALL BE 74 °F TO 77°F COOLING, 68°F TO 71°F HEATING).

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sheet title
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revisions

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BID SET

issue date:
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drawn by: Author
approved by: Checker

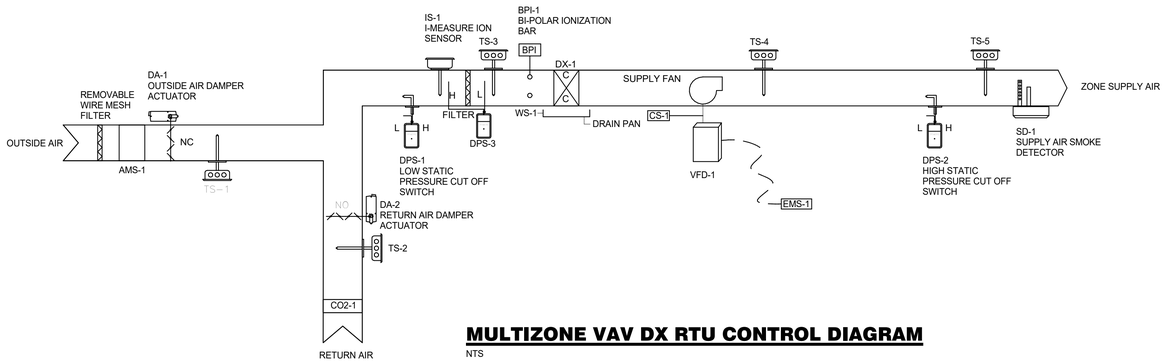
scale:
NO SCALE

seal



sheet number
M601

sheet:
of



MULTIZONE VAV DX RTU CONTROL DIAGRAM

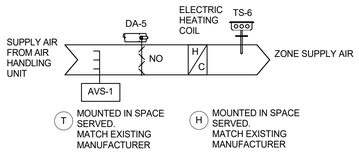
NTS

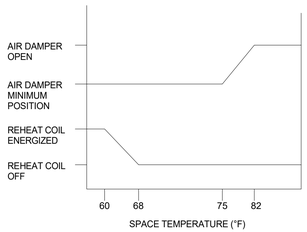
MULTIZONE VARIABLE VOLUME RTU CONTROL POINT LIST

POINT NAME		HARDWARE POINTS				SOFTWARE POINTS				SHOW ON GRAPHIC	REMARKS
		ANALOG		DIGITAL							
TAG	DESCRIPTION	INPUT	OUTPUT	INPUT	OUTPUT	ADJUSTABLE VALUE	SCHEDULE	TREND	ALARM		
TS-1	OUTSIDE AIR TEMPERATURE	X						X		X	
TS-2	RETURN AIR TEMPERATURE	X						X		X	
TS-3	MIXED AIR TEMPERATURE	X						X		X	
TS-4	COOLING COIL DISCHARGE AIR TEMPERATURE	X						X		X	
TS-5	SUPPLY AIR TEMPERATURE	X						X		X	
T-1	SPACE TEMPERATURE SENSOR	X				X	X	X	X	X	
H-1	SPACE HUMIDITY SENSOR	X						X	X	X	
CO2-1	SYSTEM CO2	X						X	X	X	
CS-1	SUPPLY FAN STATUS			X				X	X	X	
DA-1	OA DAMPER FEEDBACK	X						X	X	X	
DA-1	OUTSIDE AIR DAMPER		X			X	X	X		X	
VFD-1	SUPPLY FAN SPEED		X					X		X	
VFD-1	SUPPLY FAN START/STOP				X		X	X		X	
DA-2	RETURN AIR DAMPER FEEDBACK	X						X	X	X	
DA-2	RETURN AIR DAMPER		X			X	X	X		X	
AMS-1	OUTSIDE AIR-FLOW STATION	X				X	X	X		X	
DPS-1	LOW STATIC CUT OFF SWITCH			X					X	X	
DPS-2	HIGH STATIC CUT OFF SWITCH			X					X	X	
DPS-3	FILTER DIFFERENTIAL PRESSURE			X					X	X	
PT-1	BUILDING PRESSURE TRANSDUSER	X				X		X	X	X	
SD-1	SUPPLY SMOKE DETECTOR			X					X	X	
WS-1	WATER SENSING SWITCH			X			X	X		X	
BPI-1	BI-POLAR IONIZATION BAR				X			X		X	
IS-1	SUPPLY ION SENSOR	X						X		X	1

REMARKS:

1. SET SENSITIVITY TO 200k IONS/CCM





VARIABLE VOLUME AIR TERMINAL VALVE

NTS

VARIABLE AIR VOLUME TERMINAL UNIT CONTROL POINT LIST

POINT NAME		HARDWARE POINTS				SOFTWARE POINTS				SHOW ON GRAPHIC	REMARKS
		ANALOG		DIGITAL							
TAG	DESCRIPTION	INPUT	OUTPUT	INPUT	OUTPUT	ADJUSTABLE VALUE	SCHEDULE	TREND	ALARM		
T-1	SPACE TEMPERATURE SENSOR	X				X	X	X	X	X	
H-1	SPACE HUMIDITY SENSOR	X						X	X	X	
TS-6	SUPPLY AIR TEMPERATURE	X						X		X	
DA-5	TERMINAL AIR DAMPER FEEDBACK	X						X	X	X	
DA-5	TERMINAL AIR DAMPER		X			X	X	X		X	
AVS-1	AIR VELOCITY SENSOR	X						X		X	

MULTI-ZONE VAV DX AIR HANDLING UNIT (AHU) SEQUENCE OF OPERATION

UNOCCUPIED: WHEN THE BUILDING IS INDEXED FOR UNOCCUPIED OPERATION, ALL MOTORIZED DAMPERS AND CONTROL VALVES SHALL MODULATE TO THEIR NORMAL POSITIONS AND THE SUPPLY AND EXHAUST FANS SHALL STOP. ALL BI-POLAR IONIZATION BARS SHALL BE DE-ENGERGIZED.

UNOCCUPIED OVERRIDE: AN OVERRIDE MODE SHALL BE PROVIDED THAT WILL PERMIT OPERATION OF THE AHU TO FEED THE ZONE IN OVERRIDE. WHEN IN OVERRIDE, THE AHU SHALL OPERATE FOR A PERIOD OF 2 HOURS (ADJ.).

MORNING COOL DOWN OR WARM UP PERIOD: MAINTAIN THE OUTSIDE AIR DAMPERS CLOSED AND RUN UNIT FOR AN INITIAL PERIOD OF 1 HOUR (ADJ.) PRIOR TO OCCUPANCY WITH A SYSTEM LEARNED MINIMUM. ASSOCIATED EXHAUST FANS SHALL NOT OPERATE DURING THE COOL DOWN OR WARM UP MODE. THE AHU SHALL START AND MAINTAIN A DISCHARGE TEMPERATURE OF 55°F (ADJ.) SENSED BY TS-4 DURING COOL DOWN ONLY AND DURING WARM UP COMPRESSORS SHALL BE OFF.

OCCUPIED: WHEN THE BUILDING IS INDEXED FOR OCCUPIED OPERATION BY THE EMS, OPEN THE OUTSIDE AIR AND EXHAUST AIR DAMPERS. AFTER DAMPER POSITIONS ARE PROVEN OPEN THE SUPPLY AND EXHAUST FANS SHALL BE ENERGIZED. AFTER PROOF OF FANS STATUS, TEMPERATURE CONTROL ALGORITHMS SHALL BE ENABLED. BI-POLAR IONIZATION BARS (BPI-1) SHALL ENERGIZE.

TEMPERATURE CONTROL:

COOLING: STAGE/MODULATE THE COMPRESSORS TO MAINTAIN A SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT OF 55° F (ADJ.) AS SENSED BY TS-4. WHEN THE MOST DEMANDING ZONE TEMPERATURE DROPS 2 DEGREES (ADJ) BELOW SET POINT FOR 15 MINUTES WHEN THE DAMPER IS IN MINIMUM COOLING POSITION AND NO ZONE DAMPERS ARE OPEN MORE THAN 95%, INCREASE SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT 1 DEGREE EVERY 5 MINUTES, TO A MAXIMUM SUPPLY AIR DISCHARGE SETPOINT OF 60°F, UNTIL ROOM TEMPERATURE REACHES SET POINT. WHEN ANY OF THE ROOMS TEMPERATURE IS 2 DEGREES (ADJ) ABOVE SET POINT THEN THE OPPOSITE SHALL OCCUR UNTIL SUPPLY AIR TEMPERATURE SETPOINT DROPS TO 55°F. DISABLE TEMPERATURE RESET IF ANY ZONE OPENS MORE THAN 95% (ADJ.).

HEATING: WHEN THE MIXED AIR TEMPERATURE DROPS BELOW 50 DEGREES (ADJ.) AS SENSED BY TS-3, MODULATE ELECTRIC HEATING COIL TO MAINTAIN 55 DEGREES (ADJ.) SUPPLY AIR DISCHARGE TEMPERATURE AS SENSED BY TS-5.

REHEAT: WHEN THE AHU IS IN OCCUPIED DEHUMIDIFICATION MODE THE SUPPLY DUCT HEATER SHALL ENERGIZE AND MAINTAIN A DISCHARGE TEMPERATURE OF 56°F AS SENSED BY TS-5. ONCE THE DEHUMIDIFICATION MODE IS DEACTIVATED RTU DISCHARGE TEMPERATURE SHALL RESET TO COOLING CONTROL.

SUPPLY FAN AND DUCT PRESSURE CONTROL : MODULATE THE SUPPLY FAN VFD TO MAINTAIN DISCHARGE AIR STATIC PRESSURE SETPOINT PROVIDED BY T&B CONTRACTOR AS SENSED BY THE PRESSURE TRANSDUCER PROBE THAT IS LOCATED APPROXIMATELY 2/3 OF THE WAY TOWARD THE END OF THE DUCT. THE EMS SYSTEM SHALL MONITOR VAV BOXES DAMPER POSITION AND ADJUST SUPPLY AIR PRESSURE. IF ALL VAV BOXES ARE ABOVE MINIMUM FLOW AND ALL ZONE SETPOINTS ARE SATISFIED THE SUPPLY DUCT PRESSURE SHALL DECREASE 0.1 IN WG EVERY 15 MINUTES (ADJ.) UNTIL ONE VAV BOX REACHES 95% OPEN AND SPACE TEMPERATURE IS AT SET POINT. IF ANY VAV BOX IS A 100% OPEN AND THE SPACE TEMPERATURE IS 2 °F (ADJ.) ABOVE SET POINT INCREASE SUPPLY PRESSURE 0.1 IN WC EVERY 5 MINUTES UNTIL IT REACHES THE PRESSURE SET POINT. WAIT 1 HOUR (ADJ) TO REPEAT SEQUENCE.

OUTSIDE AIR CONTROL: DURING THE OCCUPIED MODE MODULATE BOTH THE OUTSIDE AIR DAMPER AND THE RETURN AIR DAMPER TO MAINTAIN OUTSIDE AIR SENSED BY AIRFLOW MONITORING STATION. DO NOT ALLOW RA DAMPER TO THROTTLE LOWER THAN 20% OPEN.

SMOKE CONTROL: SHOULD PRODUCTS OF COMBUSTION BE DETECTED BY THE SUPPLY AIR SMOKE DETECTOR (BY OTHERS), THE SUPPLY FAN SHALL BE DE-ENERGIZED BY THE FIRE ALARM SYSTEM. AHU SHALL AUTOMATICALLY BE RELEASED TO SCHEDULED OPERATING MODE ONCE THE FIRE ALARM IS RESET. MANUAL RESET IS NOT ACCEPTABLE.

FAN STATUS: THE EMS SHALL MONITOR THE VFD STATUS, SHOULD THE SUPPLY FAN BE COMMANDED ON AND AN OFF STATUS IS SENSED, AN ALARM SHALL BE GENERATED AT THE EMS.

UNOCCUPIED HUMIDITY RESET : SHOULD ROOM HUMIDITY SENSOR RISE ABOVE 60% RH (ADJ) FOR 1 HOUR (ADJ) ACTIVATE THE RTU AND STAGE/MODULATE THE COMPRESSORS TO MAINTAIN 54°F (ADJ.) AS SENSED BY TS-4. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED IN THIS MODE. AFTER 1 HOUR (ADJ) OR ONCE THE RH DROPS AT THE ZONE VAV RH SENSOR TO BELOW 55% RH, RETURN AHU TO UNOCCUPIED MODE OF OPERATION. CYCLE MAY REPEAT AFTER 20 MINUTE (ADJ.) DELAY.

OCCUPIED HUMIDITY RESET : SHOULD ROOM HUMIDITY SENSOR RISE ABOVE 60% RH (ADJ) FOR 1 HOUR (ADJ). RESET THE COOLING COIL DISCHARGE AIR SETPOINTS DOWN TO 53°F(ADJ.) AS SENSED BY TS-4. AFTER 1 HOUR (ADJ) OR ONCE THE RH DROPS AT THE SPACE RH SENSOR TO BELOW 55% RH, RETURN THE AHU TO NORMAL DISCHARGE AIR SETPOINT. CYCLE MAY REPEAT AFTER 15 MINUTE (ADJ.) DELAY.

CONDENSATE OVERFLOW SAFETY SWITCH:

A WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 SHALL BE PROVIDED THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED. WHEN WATER IN DRAIN PAN RAISES TO THE CONTACT POINT, THE FAN SHALL BE DISABLE, AND AN ALARM IS TO BE ISSUED TO THE BAS.

VARIABLE VOLUME AIR TERMINAL VALVE - SEQUENCE OF OPERATION (AHU10-1 ONLY)

A. MODES OF OPERATION:

1. PROVIDE FOR AIR TERMINAL VALVES, THREE OPERATIONAL MODES: OCCUPIED MODE, UNOCCUPIED MODE, AND NIGHT SET-UP/ SET-BACK. ALL NORMAL OPERATING MODES SHALL BE COMMANDED BY THE EMS.

2. OCCUPIED MODE: WHEN SCHEDULED BY THE EMS, THE SYSTEM "OCCUPIED MODE" SHALL BE ENABLED; AIR TERMINAL VALVE CONTROL ALGORITHMS SHALL RESPOND TO THE NORMALLY OCCUPIED BUILDING SET POINTS.

3. UNOCCUPIED MODE: WHEN SCHEDULED BY THE EMS, OR MANUALLY COMMANDED AT THE OPERATOR WORKSTATION, SYSTEM OPERATION SHALL BE DISABLED.AHU OPERATION SHALL BE DISABLED; AIR TERMINAL VALVE DAMPERS AND COIL CONTROLS SHALL ACTUATE TO THEIR RESPECTIVE NORMAL/OFF POSITIONS. THE FAN SHALL STOP AND CONTROL ALGORITHMS DEACTIVATED.

4. NIGHT SET-UP/BACK: WHEN COMMANDED BY THE EMS, THE AIR TERMINAL VALVE CONTROL ALGORITHMS SHALL RESPOND TO THE NIGHT SET-UP/BACK SETPOINTS.

B. DESCRIPTION:

1. EACH AIR TERMINAL VALVE CONSISTS OF AN INLET CONTROL DAMPER, INLET AIR VELOCITY SENSING DEVICE, ELECTRIC HEATING COIL AND UNIT MOUNTED EMS CONTROLLER. UNITS ARE VARIABLE AIR VOLUME DELIVERY WITH MINIMUM AND HEATING AIRFLOW SETPOINTS. AIR TERMINAL VALVE COMPONENTS TO BE FACTORY MOUNTED TO BOX BY MANUFACTURER. ALL CONTROL WIRING CONNECTIONS BY CONTROLS CONTRACTOR.

C. SYSTEM CONTROL:

1. AIR TERMINAL VALVE INLET CONTROL DAMPER SHALL MODULATE OPEN/CLOSED TO MAINTAIN THE AIR VELOCITY SET POINT OF THE EMS CONTROLLER, BASED ON THE INPUT OF THE AIR VALVE INLET VELOCITY SENSOR. THE AIR VALVE CONTROLLER SHALL RESET THE VELOCITY SET POINT TO MAINTAIN THE ROOM TEMPERATURE SET POINT SELECTED AT THE ROOM SENSOR OR OPERATORS WORKSTATION. THE AIR TERMINAL VALVE DAMPER SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE. AS SPACE TEMPERATURE DROPS TO THE SET POINT, THE INLET AIR DAMPER SHALL CLOSE TO THE MINIMUM AIR QUANTITY VALUE SCHEDULED. AS SPACE TEMPERATURE CONTINUES TO DROP THE ELECTRIC HEATING COIL SHALL MODULATE TO MAINTAIN THE HEATING SET POINT. SET POINTS, DEADBANDS, AND THROTTLING RANGES SHALL BE AS INDICATED. COORDINATE MAXIMUM, MINIMUM AND HEATING AIRFLOW SET POINTS WITH SCHEDULES ON CONTRACT DRAWINGS.

a. PROVIDE A ROOM TEMPERATURE AND HUMIDITY SENSOR FOR EACH; AT LOCATION INDICATED ON FLOOR PLANS. FURNISH WITH SET POINT ADJUSTMENT, TEMPERATURE INDICATION AND UNOCCUPIED OVERRIDE MOMENTARY CONTACT PUSH BUTTON.

b. PROVIDE RESTRICTION ADJUSTMENT OF ROOM TEMPERATURE SENSOR RANGE AT THE EMS WORKSTATION COMPUTER AT A MAXIMUM OF 3°F. SETPOINTS SHALL BE 75 °F COOLING, 70 °F HEATING. (RANGES SHALL BE 74 °F TO 77°F COOLING, 68 °F TO 71°F HEATING).

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LIVS project number:
201913

Client project number:
2021-158

sheet title
MECHANICAL CONTROLS

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by: Author
approved by: Checker

scale:
NO SCALE

seal

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M602

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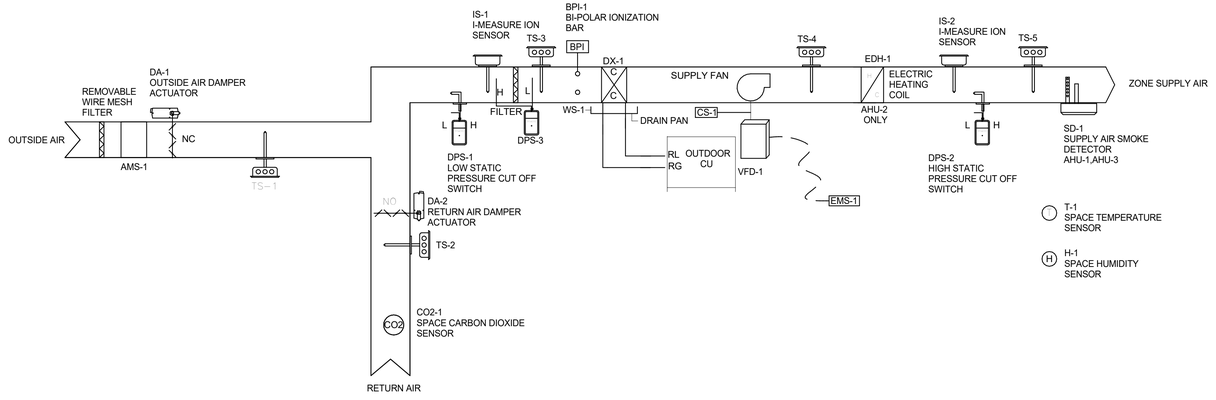
of



SINGLE ZONE VAV DX AIR HANDLING UNIT CONTROL DIAGRAM

NTS

SINGLEZONE VARIABLE VOLUME AHU CONTROL POINT LIST

POINT NAME		HARDWARE POINTS				SOFTWARE POINTS				SHOW ON GRAPHIC	REMARKS
		ANALOG		DIGITAL							
TAG	DESCRIPTION	INPUT	OUTPUT	INPUT	OUTPUT	ADJUSTABLE VALUE	SCHEDULE	TREND	ALARM		
TS-1	OUTSIDE AIR TEMPERATURE	X						X		X	
TS-2	RETURN AIR TEMPERATURE	X						X		X	
TS-3	MIXED AIR TEMPERATURE	X						X		X	
TS-4	COOLING COIL DISCHARGE AIR TEMPERATURE	X						X		X	
TS-5	SUPPLY AIR TEMPERATURE	X						X		X	
T-1	SPACE TEMPERATURE SENSOR	X				X	X	X	X	X	
H-1	SPACE HUMIDITY SENSOR	X						X	X	X	
CO2-1	SYSTEM CO2	X						X	X	X	
CS-1	SUPPLY FAN STATUS			X				X	X	X	
DA-1	OA DAMPER FEEDBACK	X						X	X	X	
DA-1	OUTSIDE AIR DAMPER		X			X	X	X		X	
VFD-1	SUPPLY FAN SPEED		X					X		X	
VFD-1	SUPPLY FAN START/STOP				X		X	X		X	
DA-2	RETURN AIR DAMPER FEEDBACK	X						X	X	X	
DA-2	RETURN AIR DAMPER		X			X	X	X		X	
AMS-1	OUTSIDE AIR-FLOW STATION	X				X	X	X		X	
DPS-1	LOW STATIC CUT OFF SWITCH			X					X	X	
DPS-2	HIGH STATIC CUT OFF SWITCH			X					X	X	
DPS-3	FILTER DIFFERENTIAL PRESSURE			X				X	X	X	
PT-1	BUILDING PRESSURE TRANSDUSER	X				X		X	X	X	
SD-1	SUPPLY SMOKE DETECTOR			X					X	X	
WS-1	WATER SENSING SWITCH			X			X	X		X	
BPI-1	BI-POLAR IONIZATION BAR				X			X		X	
IS-1	SUPPLY ION SENSOR	X						X		X	1

REMARKS:

1. SET SENSITIVITY TO 200k IONS/CCM

MULTI-ZONE VAV DX ROOF-TOP UNIT (RTU) SEQUENCE OF OPERATION

UNOCCUPIED: WHEN THE BUILDING IS INDEXED FOR UNOCCUPIED OPERATION, ALL MOTORIZED DAMPERS AND CONTROL VALVES SHALL MODULATE TO THEIR NORMAL POSITIONS AND THE SUPPLY AND ASSOCIATED RELIEF AND EXHAUST FANS SHALL STOP. ALL BI-POLAR IONIZATION BARS SHALL BE DE-ENGERGIZED.

UNOCCUPIED OVERRIDE: AN OVERRIDE MODE SHALL BE PROVIDED THAT WILL PERMIT OPERATION OF THE RTU TO FEED THE ZONE IN OVERRIDE. WHEN IN OVERRIDE, THE RTU SHALL OPERATE FOR A PERIOD OF 2 HOURS (ADJ.).

NIGHT SET-BACK : THE SPACE TEMPERATURE SENSOR SHALL SIGNAL THE RTU TO START WHEN A SPACE TEMPERATURE DROPS TO 60 °F (ADJUSTABLE) AND STOP WHEN ALL ZONES REACH 64 °F (ADJUSTABLE) THE RTU SHALL OPERATE AS DESCRIBED IN THE WARM-UP MODE.

NIGHT SET-UP : THE SPACE TEMPERATURE SENSOR SHALL SIGNAL THE RTU TO START WHEN ANY SPACE TEMPERATURE RISES TO 85 °F (ADJUSTABLE). THE COMPRESSORS SHALL STAGE/MODULATE TO MAINTAIN UNIT DISCHARGE TEMPERATURE. THE RTU SHALL STOP WHEN ALL TEMPERATURES DROP TO 80 °F. THE UNIT SHALL OPERATE AS DESCRIBED UNDER COOL-DOWN MODE.

MORNING COOL DOWN OR WARM UP PERIOD: MAINTAIN THE OUTSIDE AIR AND RELIEF AIR DAMPERS CLOSED AND RUN UNIT FOR AN INITIAL PERIOD OF 1 HOUR (ADJ.) PRIOR TO OCCUPANCY WITH A SYSTEM LEARNED MINIMUM. ASSOCIATED EXHAUST AND RELIEF FANS SHALL NOT OPERATE DURING THE COOL DOWN OR WARM UP MODE. THE RTU SHALL START AND MAINTAIN A DISCHARGE TEMPERATURE OF 55°F (ADJ.) SENSED BY TS-4 DURING COOL DOWN ONLY AND DURING WARM UP COMPRESSORS SHALL BE OFF.

OCCUPIED: WHEN THE BUILDING IS INDEXED FOR OCCUPIED OPERATION BY THE EMS, OPEN THE OUTSIDE AIR, RELIEF AIR AND EXHAUST AIR DAMPERS. AFTER DAMPER POSITIONS ARE PROVEN OPEN THE SUPPLY RELIEF AND EXHAUST FANS SHALL BE ENERGIZED. AFTER PROOF OF FANS STATUS, TEMPERATURE CONTROL ALGORITHMS SHALL BE ENABLED. BI-POLAR IONIZATION BARS (BPI-1) SHALL ENERGIZE.

TEMPERATURE CONTROL:

COOLING: STAGE/MODULATE THE COMPRESSORS TO MAINTAIN A SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT OF 55° F (ADJ.) AS SENSED BY TS-4. WHEN THE MOST DEMANDING ZONE TEMPERATURE DROPS 2 DEGREES (ADJ) BELOW SET POINT FOR 15 MINUTES WHEN THE DAMPER IS IN MINIMUM COOLING POSITION AND NO ZONE DAMPERS ARE OPEN MORE THAN 95%, INCREASE SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT 1 DEGREE EVERY 5 MINUTES, TO A MAXIMUM SUPPLY AIR DISCHARGE SETPOIINT OF 60°F, UNTIL ROOM TEMPERATURE REACHES SET POINT. WHEN ANY OF THE ROOMS TEMPERATURE IS 2 DEGREES (ADJ) ABOVE SET POINT THEN THE OPPOSITE SHALL OCCUR UNTIL SUPPLY AIR TEMPERATURE SETPOINT DROPS TO 55°F. DISABLE TEMPERATURE RESET IF ANY ZONE OPENS MORE THAN 95% (ADJ.).

HEATING: WHEN THE MIXED AIR TEMPERATURE DROPS BELOW 50 DEGREES (ADJ.) AS SENSED BY TS-3, MODULATE VAV ELECTRIC HEATING COIL TO MAINTAIN 55 DEGREES (ADJ.) SUPPLY AIR DISCHARGE TEMPERATURE AS SENSED BY TS-5.

REHEAT: WHEN THE RTU IS IN OCCUPIED DEHUMIDIFICATION MODE THE SUPPLY DUCT HEATER SHALL ENERGIZE AND MAINTAIN A DISCHARGE TEMPERATURE OF 56°F AS SENSED BY TS-5. ONCE THE DEHUMIDIFICATION MODE IS DEACTIVATED RTU DISCHARGE TEMPERATURE SHALL RESET TO COOLING CONTROL.

SUPPLY FAN AND DUCT PRESSURE CONTROL : MODULATE THE SUPPLY FAN VFD TO MAINTAIN DISCHARGE AIR STATIC PRESSURE SETPOINT PROVIDED BY T&B CONTRACTOR AS SENSED BY THE PRESSURE TRANSDUCER PROBE THAT IS LOCATED APPROXIMATELY 2/3 OF THE WAY TOWARD THE END OF THE DUCT. THE EMS SYSTEM SHALL MONITOR VAV BOXES DAMPER POSITION AND ADJUST SUPPLY AIR PRESSURE. IF ALL VAV BOXES ARE ABOVE MINIMUM FLOW AND ALL ZONE SETPOINTS ARE SATISFIED,THE SUPPLY DUCT PRESSURE SHALL DECREASE 0.1 IN WG EVERY 15 MINUTES (ADJ.) UNTIL ONE VAV BOX REACHES 95% OPEN AND SPACE TEMPERATURE IS AT SET POINT. IF ANY VAV BOX IS A 100% OPEN AND THE SPACE TEMPERATURE IS 2 °F (ADJ.) ABOVE SET POINT INCREASE SUPPLY PRESSURE 0.1 IN WC EVERY 5 MINUTES UNTIL IT REACHES THE PRESSURE SET POINT. WAIT 1 HOUR (ADJ) TO REPEAT SEQUENCE.

OUTSIDE AIR CONTROL: DURING THE OCCUPIED MODE MODULATE BOTH THE OUTSIDE AIR DAMPER AND THE RETURN AIR DAMPER TO MAINTAIN OUTSIDE AIR SENSED BY AIRFLOW MONITORING STATION. DO NOT ALLOW RA DAMPER TO THROTTLE LOWER THAN 20% OPEN.

SMOKE CONTROL: SHOULD PRODUCTS OF COMBUSTION BE DETECTED BY THE SUPPLY AIR SMOKE DETECTOR (BY OTHERS), THE SUPPLY FAN SHALL BE DE-ENERGIZED BY THE FIRE ALARM SYSTEM. RTU SHALL AUTOMATICALLY BE RELEASED TO SCHEDULED OPERATING MODE ONCE THE FIRE ALARM IS RESET. MANUAL RESET IS NOT ACCEPTABLE.

FAN STATUS: THE EMS SHALL MONITOR THE VFD STATUS, SHOULD THE SUPPLY FAN BE COMMANDED ON AND AN OFF STATUS IS SENSED, AN ALARM SHALL BE GENERATED AT THE EMS.

UNOCCUPIED HUMIDITY RESET : SHOULD ROOM HUMIDITY SENSOR RISE ABOVE 60% RH (ADJ) FOR 1 HOUR (ADJ) ACTIVATE THE RTU AND STAGE/MODULATE THE COMPRESSORS TO MAINTAIN 54°F (ADJ.) AS SENSED BY TS-4. THE OUTSIDE AND RELIEF AIR DAMPERS SHALL REMAIN CLOSED AND RELIEF FAN REMAIN DE-ENERGIZED IN THIS MODE. AFTER 1 HOUR (ADJ) OR ONCE THE RH DROPS AT THE ZONE VAV RH SENSOR TO BELOW 55% RH, RETURN RTU TO UNOCCUPIED MODE OF OPERATION. CYCLE MAY REPEAT AFTER 20 MINUTE (ADJ.) DELAY.

OCCUPIED HUMIDITY RESET : SHOULD ROOM HUMIDITY SENSOR RISE ABOVE 60% RH (ADJ) FOR 1 HOUR (ADJ). RESET THE COOLING COIL DISCHARGE AIR SETPOINTS DOWN TO 53°F(ADJ.) AS SENSED BY TS-4. AFTER 1 HOUR (ADJ) OR ONCE THE RH DROPS AT THE SPACE RH SENSOR TO BELOW 55% RH, RETURN THE RTU TO NORMAL DISCHARGE AIR SETPOINT. CYCLE MAY REPEAT AFTER 15 MINUTE (ADJ.) DELAY.

CONDENSING UNIT : THE CONDENSING UNIT COMPRESSORS SHALL STAGE/MODULATE TO MAINTAIN AHU DISCHARGE TEMPERATURE. DURING OCCUPIED PERIODS THE AHU SHALL OPERATE AND CONDENSING UNIT SHALL BE ENABLED TO MAINTAIN AHU DISCHARGE TEMPERATURES, AS REQUIRED.

CONDENSATE OVERFLOW SAFETY SWITCH:

A WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 SHALL BE PROVIDED THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED. WHEN WATER IN DRAIN PAN RAISES TO THE CONTACT POINT, THE FAN SHALL BE DISABLE, AND AN ALARM IS TO BE ISSUED TO THE BAS.

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LIVS project number:
201913

Client project number:
2021-158

sheet title
MECHANICAL CONTROLS

revisions

issued for:
BID SET

issue date:
05.01.23

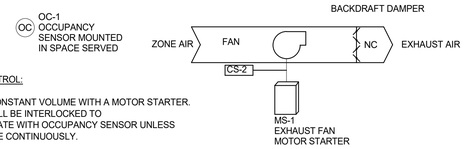
drawn by: Author
approved by: Checker

scale:
NO SCALE

seal
SHAHAM No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

sheet number
M603

sheet:
of

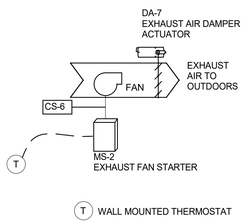


EXHAUST FAN CONTROL:

EXHAUST FAN IS CONSTANT VOLUME WITH A MOTOR STARTER. EXHAUST FAN SHALL BE INTERLOCKED TO ACTIVATE/DEACTIVATE WITH OCCUPANCY SENSOR UNLESS NOTED TO OPERATE CONTINUOUSLY.

EXHAUST FAN CONTROL DIAGRAM

NTS



T WALL MOUNTED THERMOSTAT

ELECTRICAL ROOM EXHAUST FAN SEQUENCE OF OPERATION:

1. THE EXHAUST FAN SERVING HE ELECTRICAL ROOM SHALL OPERATE CONTINUOUSLY, AND KEEP A ROOM TEMPERATURE BELOW 90 DEG F 24 HOURS A DAY 7 DAYS PER WEEK.
2. PROVIDE NEW THERMOSTAT

ELECTRICAL ROOM EXHAUST FAN CONTROL DIAGRAM

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of

SPLIT SYSTEM SCHEDULE - AIR CONDITIONER

MARK	AREA SERVED	MANUFACTURER	ORIENTATION	COOLING		AIR HANDLER														CONDENSING UNIT									REMARKS
				TOTAL (BTU/HR)	SENSIBLE (BTU/HR)	MODEL#	SUPPLY (CFM)	OUTSIDE AIR (CFM)	ESP (IN.WG.)	MOTOR		COIL EAT (°F)		COIL LAT (°F)		ELECTRICAL						WEIGHT (LBS)	MODEL #	EER (SEER)	REFRIGERANT	COMPRESSOR		ELECTRICAL					
										HP	QTY	DB	WB	DB	WB	VOLT	PHASE	MCA	MOP	HEATING KW	SSCR (Ks)					QTY.	TYPE	VOLT	PHASE	MCA	MOP	WEIGHT (LBS)	
AHU-1/CU-1	1ST FLOOR	TRANE	VERTICAL	115.7	83.4	CSAA010	4250	740	2	4	2	72.79	62.83	54.89	53.52	460	3	22.22	30	-	5.0	908	TTA12043CAA	12.5	R-410A	2	DIGITAL	480	3	40	50	416.5	1-11
AHU-2/CU-2	2ND FLOOR-EAST	TRANE	VERTICAL	44.77	30.4	BCVD036	1100	205	1.5	1	1	77.74	66	52.5	52	460	3	5.75	15	-	5.0	228	4TR4048N	16	R-410A	1	DIGITAL	480	3	24	40	160	1--12
AHU-3/CU-3	2ND FLOOR-WEST	TRANE	VERTICAL	145	99.9	CSAA010	4330	805	2	4	2	73.35	63.06	52.28	51.41	460	3	22.22	30	-	5.0	938	TTA15043CAA	12.5	R-410A	2	DIGITAL	480	3	50	70	416.5	1-11
AHU-4/CU-4	1ST FLOOR	TRANE	HORIZONTAL	26	18.9	BCHD024	820	125	1.5	1	1	73.35	63.06	52.23	52.08	460	3	30.07	35	7	5.0	149	4TTL6030A1COTA	16	R-410A	1	DIGITAL	480	3	17	25	160	1-14

NOTES:

1. SINGLE POINT CONNECTION.
2. REFRIGERANT LINES AND INSULATION SHALL BE SIZED AND INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUBMITTALS ON INSULATION WITH EQUIPMENT SUBMITTALS.
3. UNIT SHALL CONTACT TO FACILITY WIDE ENERGY MANAGEMENT SYSTEM
4. PROVIDE 5 MINUTE TIME DELAY TO PREVENT COMPRESSOR SHORT CYCLING. INSTALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS.
5. BAS SHALL PROVIDE CONDENSATE OVERFLOW SWITCH IN ACCORDANCE WITH FMC-2020 SECTION 307.2.3
6. PROVIDE HOT GAS BYPASS AND MODULATING FACE/BYPASS DAMPERS FOR THE DOAS UNITS ONLY
7. PROVIDE CONDENSING UNITS WITH RAWAL VALVE FOR CAPACITY MODULATION
8. OUTSIDE AIR DAMPER SHALL BE INTERLOCKED WITH COMPRESSOR, DAMPER SHALL OPEN/CLOSE UPON ACTIVATION OF COMPRESSOR
9. PROVIDE CONDENSER COIL AND ENTIRE CABINET WITH CORROSION PROTECTION COATING, ALL INTERIOR SURFACES INCLUDING BOTH COILS
10. ALUMINUM JACKETING FOR REFRIGERANT PIPNG.
11. PROVIDE 10,000 HR SALT SPRAY COATING PROTETION
12. PROVIDE ELECTRIC HEATING INTEGRATED
13. PROVIDE HANGER ISOLATER
14. PROVIDE WITH SECONDARY OVERFLOW SWITCH

DX ROOFTOP UNIT WITH MODULATING HOT GAS REHEAT SCHEDULE

MARK	SPACE SERVED	BLOWER SECTION								ELECTRICAL				DX COOLING COIL						EFFICIENCY			HOT GAS REHEAT COIL							MANUFACTURER	MODEL	WEIGHT (LBS)	DIMESIONS			REMARKS
		FAN TYPE	VFD	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	ESP (IN.WG.)	MOTOR							CAPACITY (MBH)		AIR PROPERTIES				REFIGERANT	FILTER	MRE (LB/KWHR)	MRC (LB/HR)	EER	AIR PROPERTIES				ROWS				LENGTH (FT)	WIDHT (FT)	HEIGHT (FT)	
							TON	BHP	MOTOR HP	RPM	VOLTAGE	PHASE	MCA	MFS	TOTAL	SENSIBLE	EAT (°F)		LAT (°F)						EAT (°F)		LAT (°F)								
																	DB	WB	DB	WB						DB	WB	DB	WB							
RTU-1	POST OFFICE	DIRECT	YES	2,435	400	2	8.5	1.69	6	Direct Drive	460	3	26.1	35	102.5	68.5	80	67.61	54.5	54	R-410A	MERV 13	3.55	30.93	11.3	52.4	51.6	65	57	6	TRANE	OABD105A4	1344	119	52	55	ALL NOTES

NOTES:

1 TRANE IS BASIS OF DESIGN, SUBSTITUTIONS SHALL NOT EXCEED WEIGHT OR DIMENSIONS AND SHALL MEET OR EXCEED PERFORMANCE
2 EVAPORATOR COIL SHALL BE 6 ROWS, MINIMUM
3 HOT GAS REHEAT SHALL BE 6 ROWS, MINIMUM, AND SHALL BE FULLY MODULATING
4 FACTORY STARTUP, NO EXCEPTIONS
5 PRIMARY COMPRESSOR SHALL BE DIGITAL SCROLL WITH FACTORY COMPRESSOR SOUND BLANKET
6 SUPPLY FAN SHALL BE DIRECT DRIVE PLENUM WITH VFD
7 HINGED ACCESS DOORS
8 MERV 13 FILTERS
9 DOUBLE WALL CONSTRUCTION MINIMUM 2-INCH, R-13
10 PROVIDE WITH 24" WIND LOAD RATED ACOUSTICAL VIBRO CURB
11 VARIABLE SPEED CONDENSER FANS W/ HEAD PRESSURE CONTROL
12 COIL FACE VELOCITY SHALL NOT EXCEED 500 FPM, NO EXCEPTIONS
13 FACTORY OA AND RA DAMPERS AND SUPPLY FAN PIEZO FOR AIR FLOW MONITORING
14 BACNET INTERFACE
15 SPACE TEMPERATURE AND HUMIDITY CONTROL
16 CORROSION PROTECTION COATING ON EVAP, HGRH AND CONDENSER COILS
17 STAINLESS STEEL INTERIOR LINING
18 STAINLESS STEEL DRAIN PAN WITH FACTORY CONDENSATE OVERFLOW SWITCH
19 SMOKE DETECTOR BY FIRE ALARM
20 FACTORY NON-FUSED DISCONNECT AND CONVENIENCE RECEPTACLE
21 ELECTRIC HEAT SHALL BE SCR MODULATING, STAGED HEAT NOT ACCEPTABLE
22 WARRANTY 1 YEAR PARTS AND LABOR WHOLE UNIT, 2-5 YEAR COMPRESSOR PARTS

FAN SCHEDULE

MARK	AREA SERVED	CFM	ESP (IN.WG.)	FAN RPM	MOTOR	ELECTRICAL	MOUNTING	CONTROLS	WEIGHT (LB)	MANUFACTURER	MODEL	NOTES
					POWER(W)	V/PH						
EF-1-1	1ST FLOOR JANITOR CLOSET	50	0.15	700	18	115/1	CEILING	EMS	12	GREENHECK	SP-110-VG	1-6
EF-1-2	RESTROOM (ADA) 103	525	0.2	914	186	115/1	INLINE	EMS	36	GREENHECK	CSP-A710	1-5
EF-1-3	POST OFFICE RESTROOM	75	0.125	721	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-4	WOMEN LOCKERS 227	75	0.6	950	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-5	MEN LOCKERS 229	75	0.6	950	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-6	WOMEN RESTROOMS 226	75	0.6	950	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-7	MEN RESTROOMS 228	75	0.6	950	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-8	ELECTRICAL ROOM 209N	125	0.7	1050	128	115/1	CEILING	EMS	10	GREENHECK	SP-B150	1-7
EF-1-9	MEN RESTROOMS 218	75	0.8	950	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-10	WOMEN RESTROOMS 219	75	0.8	950	80	115/1	CEILING	EMS	10	GREENHECK	SP-B110	1-6
EF-1-11	JANITOR 217	75	1	1050	120	115/1	CEILING	EMS	10	GREENHECK	SP-B150	1-6

NOTES:

1. PROVIDE WITH BACKDRAFT DAMPER.
2. PROVIDE HANGING NEOPRENE ISOLATORS.
3. PROVIDE VARIABLE SPEED CONTROL MOUNTED AND WIRED TO THE FAN AT THE FACTORY
4. PROVIDE 5 MINUTES TIME DELAY SWITCH.
5. PROVIDE 5 MINUTES TIME DELAY SWITCH.
6. PROVIDE INTEGRAL GRILLE
7. PROVIDE WITH THERMOSTATS

LOUVERS

MARK	MANUFACTURER	MODEL	SYSTEM	SIZE	FREE AREA (SQ FT)	AIRFLOW (CFM)	FACE VELOCITY (FPM)	PRESSURE DROP
L-1-1	GREENHECK	EVH	RELIEF	12X10	0.10	50	597	0.06
L-1-2	GREENHECK	EVH	RELIEF	16X18	0.80	525	666	0.07
L-1-3	GREENHECK	EVH	RELIEF	20X20	1.10	725	665	0.07
L-1-4	GREENHECK	EVH	INTAKE	26X26	2.00	945	459	0.04
L-1-5	GREENHECK	EVH	INTAKE	18X14	0.50	205	433	0.03
L-1-6	GREENHECK	EVH	INTAKE	26X22	1.70	805	472	0.04
L-1-7	GREENHECK	EVH	RELIEF	32X20	2.20	1500	690	0.08
L-1-8	GREENHECK	EVH	INTAKE	22X20	1.20	600	482	0.04

NOTES:

1. LOUVERS TO BE HURRICANE RATED
2. LOUVERS TO BE WIND-DRIVEN RAIN RESISTANT AND SHALL COMPLY WITH AMCA 550.

ELECTRIC DUCT HEATER SCHEDULE

MARK	SERVING	AIRFLOW (CFM)	DUCT SIZE	KW	VOLTAGE	PHASE	CONTROL	NOTES
EDH-2	AHU-2	1100	16X12	10	208	3	SCR	f-6

NOTES:

1. UL LISTED
2. EQUIPPED WITH THERMAL OVERLOAD PROTECTION
3. EQUIPPED WITH DISCONNECT SWITCH
4. SELECTION IS BASED ON INDEECO
5. EQUIPPED WITH FLOW SWITCH
6. INSTALL PER MANUCAFTURER RECOMMENDATIONS

DIFFUSER, REGISTER, & GRILLE SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	AIRFLOW (CFM)	FACE SIZE	MIN. NECK	NECK VELOCITY (FPM)
A	TITUS	TMS-AA	LOUVERED FACE CEILING SUPPLY	0 - 120	24x24	6"Ø	600
				125 - 210		8"Ø	
				215 - 385		10"Ø	
				390 - 550		12"Ø	
				555 - 750		14"Ø	
				0 - 110	12X12	6"Ø	600
				115 -200		8"Ø	
B	TITUS	PAR-AA	PERFORATED CEILING RETURN REGISTER	0 - 330	12X12	10X10	-
				0 - 850	24X24	22X22	
C	TITUS	50 F	EGGCRATE CEILING EXHAUST REGISTER	0 - 330	12X12	10X10	-
				0 - 850	24X24	22X22	
D	TITUS	300 FL	SIDEWALL DOUBLE DEFLECTION SUPPLY	AS SHOWN	-	AS SHOWN	600
E	TITUS	350 FL	SIDEWALL FIXED BLADE RETURN REGISTER	AS SHOWN	-	AS SHOWN	600

NOTES:

1. MAXIMUM NC LEVEL OF 25.
2. ALL AIR DEVICES SHALL BE 4-WAY THROW UNLESS NOTED OTHERWISE OR SHOWN ON PLANS WITH DIRECTIONAL ARROWS.
3. DEVICES SHALL BE PROVIDED WITH FACTORY FINISH TO MATCH CEILING OR WALL. MECHANICAL CONTRACTOR SHALL COORDINATE SPECIFIC LOCATIONS AND APPROPRIATE BORDER TYPES AND WITH ARCHITECTURAL DRAWINGS.
4. IF REQUIRED, PROVIDE TOP HAT FOR ALL GRILLES AND DIFFUSERS.
5. PROVIDE VOLUME DAMPER FOR DIFFUSERS LOCATED AT GYPSUM BOARD CEILING AND FOR ALL REGISTERS.
6. PROVIDE OPPOSED BLADE VOLUME DAMPER FOR DIFFUSERS "Q". DAMPER SHALL BE ALUMINUM CONSTRUCTION.
7. PROVIDE SQUARE TO ROUND THROAT ADAPTERS - ROUND RUNOUT SIZE SAME AS THROAT (I.E. 8X8 USE ØØ) FOR ALL CEILING DIFFUSERS OR PROVIDE DIFFUSERS WITH INTEGRAL THROAT CONNECTION.
8. FOR EXHAUST AND RETURN AIR REGISTERS, THE NECK/CFM RANGE REFERS TO THE REGISTER PLENUM BOX INDICATED IN THE CONNECTION DETAIL.

VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE

MARK	SPACE SERVED	SIZE	COOLING CFM		HEAT	HEAT (KW)	STEPS	ELECTRICAL		MANUFACTURER	MODEL	NOTES
			MAX	MIN	CFM			VOLTAGE	PHASE			
RTU-1												
VAV-1-4-1	Separate Bldg.	08	775	245	300	3	2	277	1	TRANE	VCEF08	ALL NOTES
VAV-1-4-2	Separate Bldg.	08	825	135	250	2.5	1	277	1	TRANE	VCEF08	ALL NOTES
VAV-1-4-3	Separate Bldg.	08	535	135	250	2.5	1	277	1	TRANE	VCEF08	ALL NOTES
SUMMARY			2435	380	550							
AHU-1-3												
VAV-1-3-1	230,220	08	580	115	150	1.5	1	277	1	TRANE	VCEF08	ALL NOTES
VAV-1-3-2	205, 215, 216	06	410	75	100	1	1	277	1	TRANE	VCEF06	ALL NOTES
VAV-1-3-3	200, 201	08	555	55	100	1	1	277	1	TRANE	VCEF08	ALL NOTES
VAV-1-3-4	203, 204	05	255	60	100	1	1	277	1	TRANE	VCEF05	ALL NOTES
VAV-1-3-5	206	08	840	190	250	2.5	1	277	1	TRANE	VCEF08	ALL NOTES
VAV-1-3-6	208,210, 211	06	415	55	100	1	1	277	1	TRANE	VCEF06	ALL NOTES
VAV-1-3-7	213, 209	06	400	80	100	1	1	277	1	TRANE	VCEF06	ALL NOTES
VAV-1-3-8	207, 212	05	250	60	100	1	1	277	1	TRANE	VCEF05	ALL NOTES
VAV-1-3-9	214,217,218,219	05	275	40	100	1	1	277	1	TRANE	VCEF05	ALL NOTES
VAV-1-3-10	220	06	350	40	100	1	1	277	1	TRANE	VCEF06	ALL NOTES
SUMMARY			4330	730	1100							
SERVES AHU-1-1												
VAV-1-1-1	101 S	12	1590	380	500	5	3	480	3	TRANE	VCEF12	ALL NOTES
VAV-1-1-2	101 N	12	1780	380	500	5	3	480	3	TRANE	VCEF12	ALL NOTES
VAV-1-1-3	103,104,106	08	680	125	200	2	1	277	1	TRANE	VCEF08	ALL NOTES
VAV-1-1-4	108, 109, 110, 113	04	200	50	100	1	1	277	1	TRANE	VCEF04	ALL NOTES
SUMMARY			4250	935	1300							

NOTES:

1 PROVIDE INTEGRAL FUSED DOOR-LOCKING DISCONNECT.
2 PROVIDE CONTROL TRANSFORMER AND SINGLE POINT POWER CONNECTION.
3 PROVIDE AIR FLOW SWITCH FOR ELECTRIC HEAT.
4 INCLUDES 0.25" ALLOWANCE FOR DOWNSTREAM DUCT STATIC.
5 PROVIDE VAV BOXES WITH DISCHARGE TEMPERATORE SENSOR. SENSOR SHALL BE COMPATIBLE WITH DDC SYSTEM.
6 MAXIMUM RADIATED AND DISCHARGE NC LEVEL OF 30 AT 1.5 IN WG. INLET PRESSURE.
7 ALL RUNOUT SHALL EQUAL CONNECTION SIZE UNLESS OTHERWISE NOTED.
8 VAV BOXES SHALL BE DOUBLE WALL CONSTRUCTION, NO INTERNAL LINER IS PERMITTED.
9 VAV BOXES SHALL HAVE MINIMUM 1 YEAR FULL PARTS AND LABOR WARRANTY.
10 ALL UNITS SHALL BE PROVIDE WITH ACCESS FOR MAINTENACE

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LIVS project number:
201913

Client project number:
2021-158

sheet title
MECHANICAL SCHEDULES

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
Author	Checker

scale:
NO SCALE

seal
ERIK SHAHVAR · LICENSE · No. 78419 · STATE OF FLORIDA · PROFESSIONAL ENGINEER

sheet number
M701

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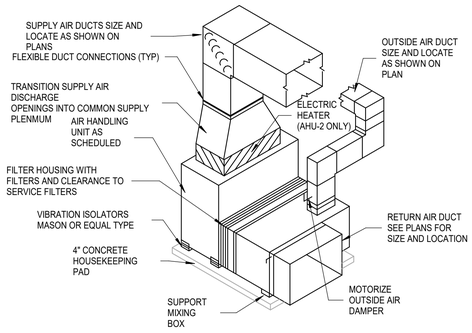
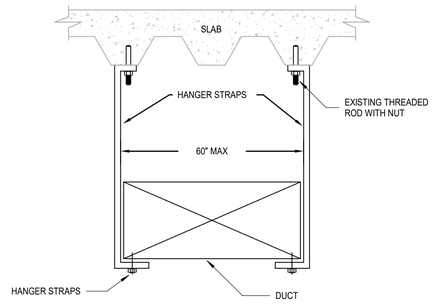


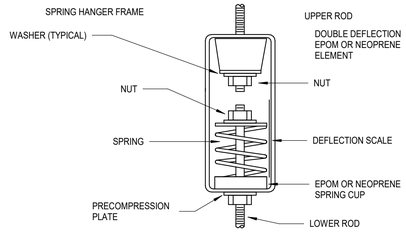
1 M801 AIR HANDLING UNIT DETAIL

NOT TO SCALE



2 M801 DUCT HANGING DETAIL

NOT TO SCALE

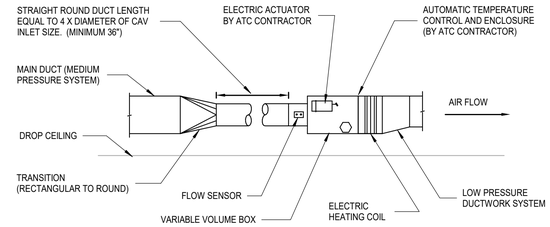


NOTES:

- THE SPRING SHALL BE PRE-COMPRESSED SO THAT WHEN PROPERLY INSTALLED & LOADED, THE SPRING IS ADJUSTED TO THE MID-POINT OF THE DEFLECTION SCALE.
- REFER TO THE SPECIFICATIONS FOR THE DEFLECTION REQUIREMENTS

3 M801 SPRING ISOLATED HANGER FOR PIPE OR EQUIPMENT

NOT TO SCALE

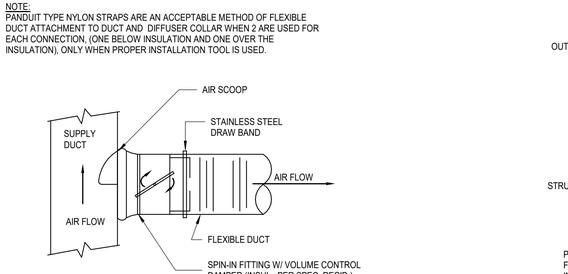


NOTES:

1. ARRANGE ACCESS TO PERMIT EASY FIELD BALANCE AND MAINTENANCE OF TERMINAL UNIT.
2. MECHANICAL CONTRACTOR SHALL COORDINATE CONTROLS ON LEFT OR RIGHT SIDE AS REQUIRED BY FIELD CONDITIONS.
3. ATC CONTRACTOR SHALL PROVIDE TRANSFORMER FOR EACH VAV TERMINAL. COORDINATE WITH ELECTRICAL CONTRACTOR.

4 M801 VARIABLE VOLUME TERMINAL UNIT INSTALLATION DETAIL

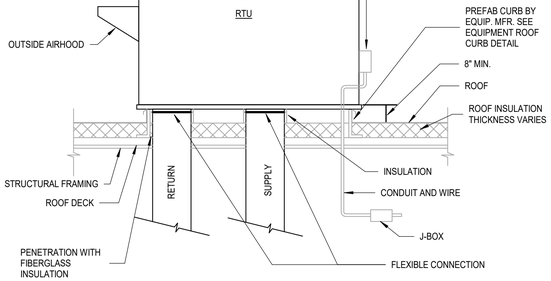
NOT TO SCALE



ALL HANGER SYSTEMS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, THE LATEST MECHANICAL CODES AND THE S.M.A.C.N.A. STANDARDS.

5 M801 CEILING EXHAUST FAN DETAIL

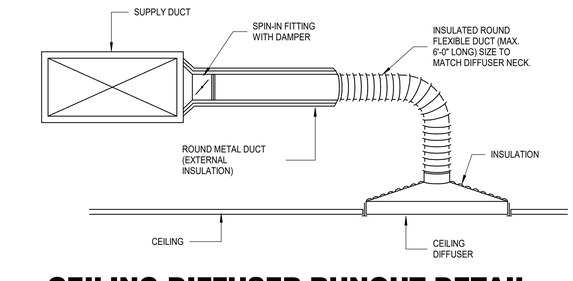
NOT TO SCALE



ALL HANGER SYSTEMS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, THE LATEST MECHANICAL CODES AND THE S.M.A.C.N.A. STANDARDS.

6 M801 INLINE EXHAUST FAN

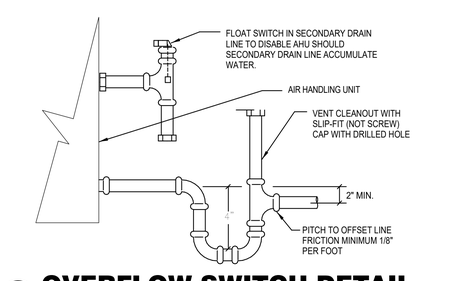
NOT TO SCALE



NOTE:
PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS WITH CONSIDERATIONS FOR DISTANCE OF PIPING AND HEIGHT OF RISERS.

7 M801 TYPICAL SPLIT SYSTEM PIPING DETAIL

NOT TO SCALE

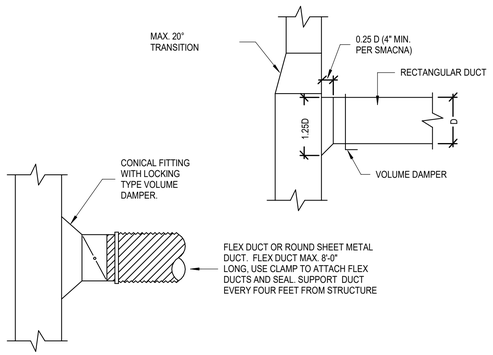


NOTES:
1. DUCT SHOULD EXTEND STRAIGHT FOR SEVERAL INCHES FROM A CONNECTION BEFORE BENDING

2. SUPPORT SYSTEM MUST NOT DAMAGE DUCT OR CAUSE OUT OF ROUND SHAPE.

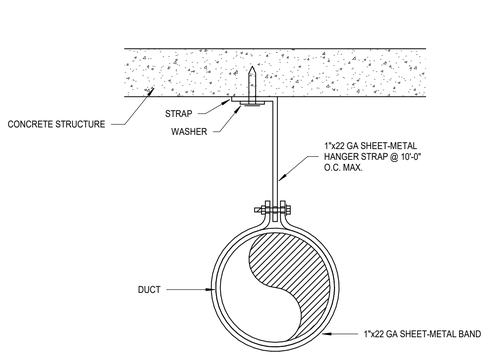
8 M801 FLEX DUCT SUPPORT

NOT TO SCALE



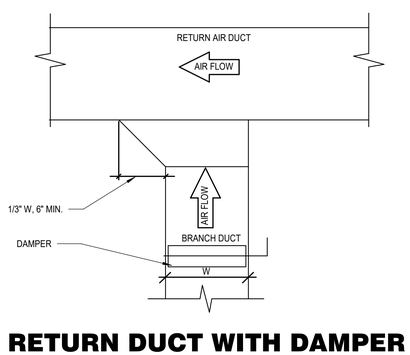
9 M801 BRANCH DUCT DETAIL

NOT TO SCALE



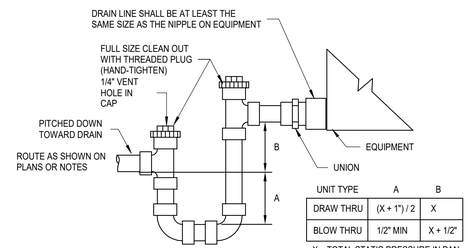
10 M801 EXPOSED DUCT INSTALLATION DETAIL

12" = 1'-0"



11 M801 RETURN DUCT WITH DAMPER AT SINGLE BRANCH

NOT TO SCALE



UNIT TYPE	A	B
DRAW THRU	(X + 1") / 2	X
BLOW THRU	1/2" MIN	X + 1/2"

X = TOTAL STATIC PRESSURE IN PAN

12 M801 CONDENSATE DRAIN TRAP DETAIL

NOT TO SCALE

NOTE:
PANDUIT TYPE NYLON STRAPS ARE AN ACCEPTABLE METHOD OF FLEXIBLE DUCT ATTACHMENT TO DUCT AND DIFFUSER COLLAR WHEN 2 ARE USED FOR EACH CONNECTION, (ONE BELOW INSULATION AND ONE OVER THE INSULATION), ONLY WHEN PROPER INSTALLATION TOOL IS USED.

13 M801 TYPICAL FLEX DUCT CONNECTION

NOT TO SCALE

14 M801 RTU INSTALLATION DETAIL

NOT TO SCALE

15 M801 CEILING DIFFUSER RUNOUT DETAIL

NOT TO SCALE

16 M801 OVERFLOW SWITCH DETAIL

NOT TO SCALE

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sheet title
MECHANICAL DETAILS

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BID SET

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drawn by:	approved by:
Author	Checker

scale:
NOT TO SCALE

seal



sheet number
M801

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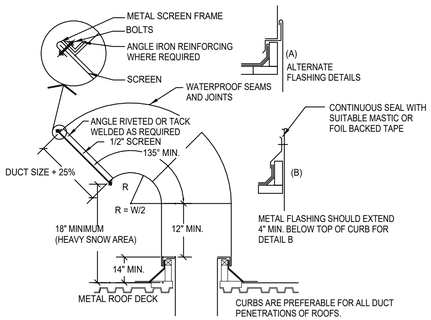
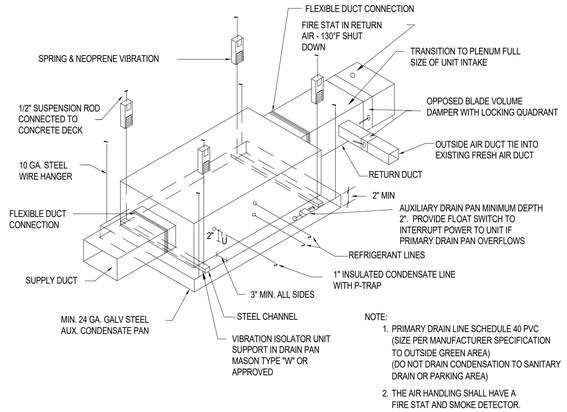
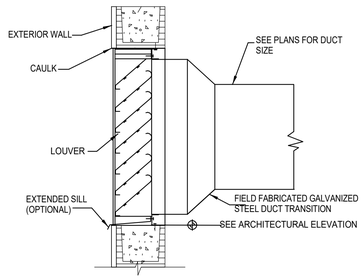


1 M802 **GOOSENECK VENT DETAIL**
NOT TO SCALE

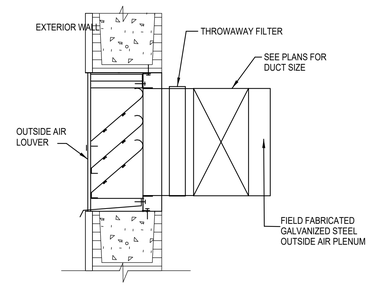


NOTE:
1. PRIMARY DRAIN LINE SCHEDULE 40 PVC (SIZE PER MANUFACTURER SPECIFICATION TO OUTSIDE GREEN AREA) (DO NOT DRAIN CONDENSATION TO SANITARY DRAIN OR PARKING AREA)
2. THE AIR HANDLING SHALL HAVE A FIRE STAT AND SMOKE DETECTOR.

2 M802 **HORIZONTAL AHU MOUNTED DETAIL**
NOT TO SCALE

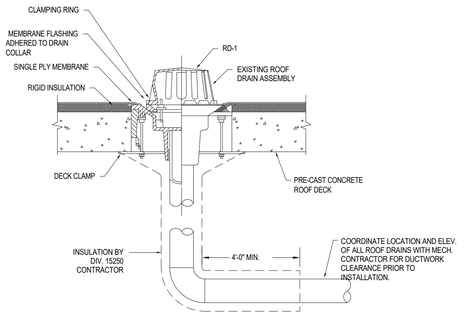


3 M802 **EXHAUST AIR DETAIL**
NOT TO SCALE



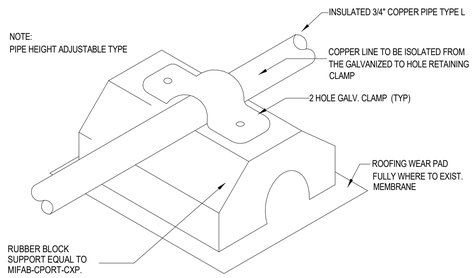
4 M802 **OUTSIDE AIR LOUVER**
NOT TO SCALE

NOTE:
SEE ARCHITECTURAL PLANS FOR EXACT FLASHING REQUIREMENTS.

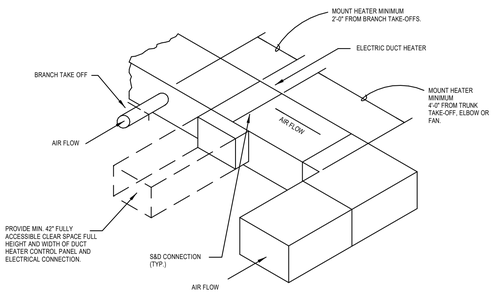


5 M802 **ROOF DRAIN DETAIL**
NOT TO SCALE

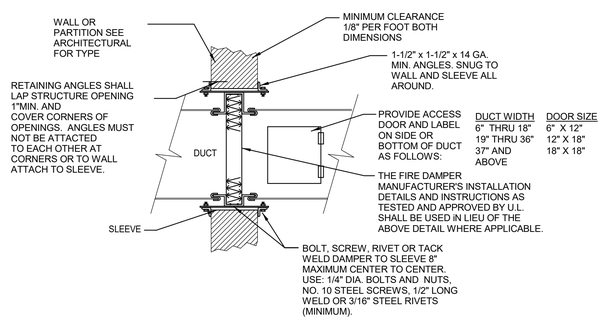
NOTE:
PIPE HEIGHT ADJUSTABLE TYPE



6 M802 **ROOF CONDENSATE PIPING DETAIL**
NOT TO SCALE

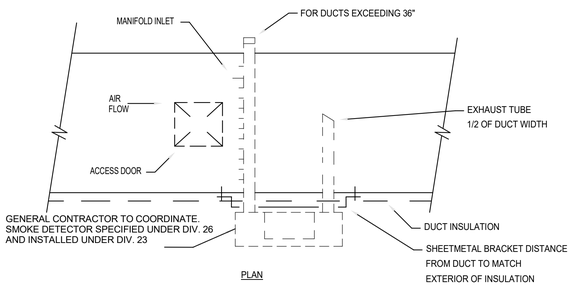


7 M802 **ELECTRIC DUCT HEATER**
NOT TO SCALE



NOTES:
1. FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

8 M802 **FIRE DAMPER DETAIL**
NOT TO SCALE



PLAN

NOTES:
1. INSTALL DUCT SMOKE DETECTORS IN ACCORDANCE WITH DETECTOR MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND REQUIREMENTS INDICATED ABOVE. WHERE REQUIREMENTS ARE IN CONFLICT, THE MORE STRINGENT WILL GOVERN. PROVIDE DIFFERENTIAL PRESSURE TEST OF SMOKE DETECTOR - INDICATE COMPLIANCE WITH MANUFACTURER'S RECOMMENDED DIFFERENTIAL PRESSURE. INSTALLATION SHALL COMPLY WITH NFPA 90A AND NFPA 72.
2. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SMOKE DETECTOR WIRING AND ACCESSORIES SUCH AS REMOTE TEST STATIONS.

9 M802 **SMOKE DETECTOR DETAIL**
NOT TO SCALE

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LIVS project number:
201913

Client project number:
2021-158

sheet title
MECHANICAL DETAILS

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by: Author
approved by: Checker

scale:
NOT TO SCALE

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ISAAK SHAHNAM LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

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LIGHTING FIXTURE SCHEDULE

	MANUFACTURER & CATALOG No.	DESCRIPTION	MOUNTING	LAMPS	VOLTAGE	REMARKS
A	HE WILLIAMS #LT24-L52-840-AF-DRV-UNV-GLR		RECESSED	LED (37W)		
A1	HE WILLIAMS #LT24-L52-840-AF-EM/12W-DRV-UNV-GLR		RECESSED	LED (37W)		
B	HE WILLIAMS #LT24-L40-840-AF-DRV-UNV-GLR		RECESSED	LED (32W)		
B1	HE WILLIAMS #LT24-L40-840-AF-EM/12W-DRV-UNV-GLR		RECESSED	LED (32W)		
C	LC DOANE #RAB4-IN26-40/80-AW-VAR-DM-D-GLR		SURFACE	LED (24W)		
C1	LC DOANE #RAB4-IN26-40/80-AW-VAR-DM-EM-D-GLR		SURFACE	LED (24W)		
D	HE WILLIAMS #RND4-L67-840-FXA-DIM-UNV-GLR		RECESSED	LED (66W)		DIM CONTROLLER
D1	HE WILLIAMS #RND2-L22-840-FXA-DIM-UNV-GLR		RECESSED	LED (28.3W)		DIM CONTROLLER
E	BEGHELLI #OL2-SA-LRIC-GR		CEILING SURFACE	LED		ARROW AS INDICATED ON PLAN
E1	BEGHELLI #OL2-SA-LR2C-GR	SIMILAR TO TYPE "E" BUT DOUBLE FACE	CEILING SURFACE	LED		ARROW AS INDICATED ON PLAN
F	VISIONAIRE VLX-I-T3-(*LC5-T5 MTD. 20' AFG		POLE 20' FT.	LED (159 W)		SEE DETAIL ON DWG. E1.10
F1	VISIONAIRE 2/ VLX-T3-96LC-5-T5 MTD. 20' AFG	SIMILAR TO TYPE "F" BUT DOUBLE ARM	POLE 20' FT.	LED (318 W)		
G	HE WILLIAMS 6DR-TL-L40-835-DIM-UNV-O-W-OF-CS-WET_CC		RECESSED	LED (36.5 W)		
G1	HE WILLIAMS 6DR-TL-L40-840-F-EM_10W-UNV-L-W-OF-CS-WET_CC ON BATTERY		RECESSED	LED (36.5 W)		
H	LITHONIA #ZLIN-L48-LP840-UNV-GLR		SURFACE	LED (25 W)		
J	GOTHAM #EVO40/10-4WR-MD-SF		RECESSED	LED (13 W)		DIM CONTROLLER
K	HE WILLIAMS #LT22-L84-840-AF-DRV-UNV-GLR		RECESSED	LED (33W)		
L	HE WILLIAMS #LT22-L27-840-AF-DRV-UNV-GLR		RECESSED	LED (21W)		
M	B-K LIGHTING #YK-D-LED-A4080-WHP-H-LD-MT	STEP LIGHT	RECESSED	LED (9.5W)		
N	HE WILLIAMS #4DR-TL-L20-840-F-LA-CS-IP	DAMP LOCATION (IP65)	RECESSED	LED (19.8W)		
N1	HE WILLIAMS #4DR-TL-L20-840-F-EM/10W-LM-CS-IP	DAMP LOCATION W/ BATTERY BACK-UP	RECESSED	LED (19.8W)		
P	SAL-#S9366-L16-4K-PT/WH	SCONCE	WALL	LED (14.5W)		MOUNT 8'-0" TO TOP
P1	SAL-#S9365-L12-4K-PT/WH	SCONCE, DAMP LOCATION	WALL	LED		MOUNT 8'-0" TO TOP
Q	HE WILLIAMS #MX2R-TL-X-L8-840-R-UNV	LINEAR, 2" WIDE	RECESSED	LED (6.7W/FT)		LENGHTS: 8'-0" & 12'-0"
R	HE WILLIAMS #OSA65-L20-840-AC-FT-WHT-AB-SF-UNV	BOLLARD	POST	LED		

ALTERNATE NO.1 - SCOPE OF WORK

THE BASIS OF DESIGN FOR THE ELECTRICAL SYSTEM IS BASED ON A THREE-PHASES, FOR WIRE SYSTEM AT A RATED DISTRIBUTION VOLTAGE OF 480/277 WITH 480 VOLTS PANELS, DRY TYPE STEP DOWN TRANSFORMERS AND 208 VOLTS PANELS. LIGHTING IS SERVED AT 277 VOLTS WHILE MOTORS AT 480 VOLTS.

UNDER ALTERNATE NO.1, THE ENTIRE ELECTRICAL DISTRIBUTION SYSTEM IS CHANGED TO A THREE PHASE, FOUR WIRE SYSTEM AT A RATED DISTRIBUTION VOLTAGE OF 208/120. THE LIGHTING SYSTEM WILL NOW BE SERVED AT 120 VOLTS AND PARKING LOT LIGHTING AT 208 VOLTS. ELEVATOR AND HVAC EQUIPMENT WILL NOW BE SERVED AT 208 VOLTS, THREE PHASE.

ALTERNATE NO.1 SHALL INCLUDE ANY INCREASE IN PRICE FOR EQUIPMENT RATED AT 208 VOLTS IN LIEU OF 480 VOLTS.

GENERAL NOTES

1. THE PLANS ARE GENERALLY DIAGRAMMATIC AND THE CONTRACTOR SHALL COORDINATE HIS WORK WITH EXISTING ARCHITECTURAL AND STRUCTURAL CONDITIONS. ALL NECESSARY OFFSETS IN RACEWAYS, FITTINGS, ETC., REQUIRED TO PROPERLY INSTALL THE WORK SHALL BE FURNISHED SO AS TO TAKE UP A MINIMUM SPACE AND ALL SUCH OFFSETS, FITTINGS, ETC., REQUIRED TO ACCOMPLISH THIS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, AS PART OF HIS WORK. CUTTING AND PATCHING REQUIRED TO ACCOMPLISH WORK SHALL EXACTLY MATCH ORIGINAL FINISHES.
2. PRIOR TO COMMENCEMENT OF DEMOLITION CUTTING OR EXCAVATION ACTIVITIES, THE CONTRACTOR SHALL IDENTIFY THE PRESENCE OF AND LOCATE ALL EXPOSED AND CONCEALED UTILITIES IN THE INTERIOR OF THE BUILDING, AND/OR ON SITE WHICH MAY CAUSE HAZARDOUS CONDITIONS TO WORKERS AND/OR OCCUPANTS AS A RESULT OF CONSTRUCTION.
3. SHOULD THE CONTRACTOR DETERMINE THAT IT IS UNFEASIBLE OR IMPRACTICAL TO IDENTIFY AND LOCATE CONCEALED UTILITIES, THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS TO INSURE THAT HAZARDS FROM UTILITIES ARE ELIMINATED IN THE AREAS IN QUESTION, AS WELL AS AREAS AFFECTED BY SUCH WORK. UNDER NO CIRCUMSTANCES WILL NECESSARY UTILITIES SERVING OTHER AREAS OF THE BUILDING, SCHEDULED TO REMAIN IN OPERATION DURING CONSTRUCTION, BE DISCONTINUED.
4. THE CONTRACTOR SHALL NOTIFY THE OWNER AND A/E, IN WRITING, PRIOR TO STARTING WORK AFFECTING BUILDING SERVICES AND UTILITIES, AND SUBMIT A DETAILED PLAN OF ACTION, INCLUDING, BUT NOT LIMITED TO: AREA AND UTILITIES AFFECTED, SCHEDULE, PROPOSED PLAN OF ACTION AND OTHER PERTINENT DATA. CONTRACTOR SHALL OBTAIN IN WRITING THE F.P.L. PM'S APPROVAL OF HIS REQUEST.
5. INSTALLATION OF UNDERGROUND DUCTS AND CONDUITS FOR COMMUNICATION SERVICES SHALL BE THOROUGHLY COORDINATED WITH OTHER UTILITIES ON THE SITE. DUCT AND CONDUIT SIZES AND MATERIAL TYPES SHALL BE AS SHOWN ON THE DRAWINGS.
6. THE CONTRACTOR SHALL HAVE VISITED THE JOB SITE BEFORE BIDDING AND ASCERTAINED ALL EXISTING CONDITIONS, WHICH WILL AFFECT HIS WORK. FAILURE TO DO SO WILL NOT BE ACCEPTED AS A REASON FOR REQUESTING EXTRA PAY IN THE EVENT THAT EXISTING CONDITIONS RESULT IN EXTRA MATERIALS OR LABOR.
7. ANY EXISTING CONDITIONS FOUND BY THE CONTRACTOR, WHICH WILL ADVERSELY AFFECT THE WORK SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
8. CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF QUANTITIES OF MATERIALS REQUIRED FOR THIS PROJECT.
9. DESIGN IS BASED ON FLORIDA BUILDING CODE (FBC) 2017 (6TH EDITION) AND NFPA-70 (2014).
10. CONTRACTOR SHALL PROVIDE A SAFETY PLAN AT THE FIRST SITE COORDINATION MEETING INDICATING AREAS OF CONSTRUCTION AND EXISTING MEANS OF EXIT. EXISTING MEANS OF EXITS SHALL REMAIN OPEN AT ALL TIMES. PROVIDE BARRIERS TO SEPARATE STUDENTS AND STAFF FROM THE CONSTRUCTION AREA.

ELECTRICAL - SYMBOL LEGEND

LIGHTING

- RECESSED, SEMI RECESSED, SURFACE OR PENDANT MOUNTED LED FIXTURE. L=FIXTURE TYPE, 2=CIRCUIT No. AND a=SWITCH LEG.
- RECESSED, SEMI RECESSED, SURFACE OR PENDANT MOUNTED LED FIXTURE ON "LIFE SAFETY CIRCUIT" (EMERGENCY)
- SURFACE OR PENDANT MOUNTED LINEAR LED FIXTURE.
- SURFACE OR PENDANT MOUNTED LINEAR LED FIXTURE ON "LIFE SAFETY CIRCUIT" (EMERGENCY)
- RECESSED OR LAY-IN LINEAR LED FIXTURE.
- RECESSED OR LAY-IN LINEAR LED FIXTURE ON "LIFE SAFETY CIRCUIT" EMERGENCY)
- WALL MOUNTED LINEAR LED FIXTURE. 7'-6" AFF. UON.
- ON "LIFE SAFETY CIRCUIT" 7'-6" AFF. UNLESS OTHERWISE NOTED. WALL MOUNTED LINEAR LED FIXTURE
- WALL MOUNTED LED FIXTURE 7'-6" AFF. UON.
- WALL MOUNTED LED FIXTURE ON "LIFE SAFETY CIRCUIT" 7'-6" AFF. UON. (EMERGENCY)
- SURFACE MOUNTED SINGLE FACE EXIT LIGHT FIXTURE WITH ARROWS AS INDICATED.
- WALL MOUNTED EXIT LIGHT FIXTURE WITH ARROWS AS INDICATED, 7'-6" AFF. UON.
- SURFACE MOUNTED DOUBLE FACE EXIT LIGHT FIXTURE WITH ARROWS AS INDICATED.
- WALL MOUNTED DOUBLE FACE EXIT LIGHT FIXTURE WITH ARROWS AS INDICATED. 7'-6" AFF. UON.
- EMERGENCY BATTERY PACK 7'-0" AFF. UON.
- ROADWAY OR PARKING LOT LUMINAIRE. SINGLE ARM, OR TOP MOUNT, POLE MOUNTED.
- ROADWAY OR PARKING LOT LUMINAIRE. DOUBLE ARM, POLE MOUNTED.

WIRING

- HOMERUN TO PANEL "A",1-3-5 ARE CIRCUIT NO's. TICKS ARE No. OF CONDUCTORS ( ) INDICATES GROUND WIRE. MAXIMUM 3 CIRCUITS PER CONDUIT. RUN HOMERUNS TO PANELS AS SHOWN ON FLOOR PLANS, DO NOT COMBINE HOMERUNS.
- INDICATES A CONDUIT RUN CONCEALED IN A CEILING OR WALL.
- INDICATES A CONDUIT RUN EMBEDDED IN CONCRETE OR UNDERGROUND.
- INDICATES A CAPPED CONDUIT.
- CONDUIT RUN TURNED DOWN. (RISER DOWN)
- CONDUIT RUN TURNED UP. (RISER UP)
- CONDUIT SEAL.
- FLEXIBLE CONDUIT - ½". WITH 3#12 WIRES
- FLEXIBLE EQUIPMENT CONNECTION.

RECEPTACLES

- DUPLEX RECEPTACLE, , 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., MOUNTED 18" AFF. UON.
- WP DUPLEX RECEPTACLE, , AS ABOVE, WITH SPRING-HINGED, GASKETED AND WEATHERPROOF COVER.
- DUPLEX RECEPTACLE, , 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., MOUNTED 42" AFF.
- TWIN DUPLEX RECEPTACLE 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., MOUNTED 18" AFF., UON.
- TWIN DUPLEX RECEPTACLE 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., MOUNTED 48" AFF., UON.
- ISOLATED GROUND TYPE RECEPTACLE. 2P., 3 WIRE, 20A., 125V., MOUNTED 18" AFF. UON.
- SP SURGE PROTECTION DUPLEX RECEPTACLE. 2P., 3 WIRE 20A., 125V., MOUNTED 18" AFF. UON. (SP DENOTES SURGE PROTECTION)
- GFI GROUND FAULT INTERRUPTER TYPE, DUPLEX RECEPTACLE 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., MOUNTED 18" AFF. UON.
- GFI GROUND FAULT INTERRUPTER TYPE, DUPLEX RECEPTACLE 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., MOUNTED 42" AFF. UON.
- DUPLEX RECEPTACLE, 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., FLUSH WITH FLOOR.
- FLOOR BOX, CONCRETE 7 GANG MULTI-SERVICE BOX FOR POWER & VOICE DATA WITH BRASS BOX COVER FOR TILE OR CARPET. HUBBEL # CFBT64 OR EQUAL.
- TWIN DUPLEX RECEPTACLE 2P., 3 WIRE, GROUNDING TYPE, 20A., 125V., FLUSH WITH FLOOR.
- CEILING OR WALL MOUNTED JUNCTION BOX

LIGHTNING PROTECTION

- A ADHESIVE BASE AIR TERMINAL- TYPE "A"
- B ADHESIVE BASE AIR TERMINAL - TYPE "B"
- C ADHESIVE BASE AIR TERMINAL - TYPE "C"
- DOWN CONDUCTOR AND GROUND ROD.

SWITCHES

- $a SINGLE POLE TOGGLE SWITCH, 20A., 120/277 VAC. MOUNTED 48" AFF. "a" INDICATES SWITCH LEG.
- $3 THREE-WAY TOGGLE SWITCH, 20A., 120/277 VAC. MOUNTED 48" AFF. ABOVE FINISH FLOOR UON.
- $4 FOUR-WAY TOGGLE SWITCH, 20A., 120/277 VAC. MOUNTED 48" AFF.
- $D DIMMER SWITCH. MOUNTED 48" AFF.
- $P SINGLE POLE TOGGLE SWITCH, 20A., 120/277 VAC. WITH PILOT LIGHT. 48" ABOVE FINISH FLOOR UON.
- $M MOTOR MANUAL STARTER TOGGLE SWITCH WITH OVERLOADS, UON. MOUNTED 48" AFF.
- $WP WEATHERPROOF TOGGLE SWITCH, 20A. 120/277 VAC. MTD. 48" A.F.F.

INTRUSION ALARM

- DS DOOR SWITCH AND CONNECTION.
- DSR ROOF HATCH DOOR SWITCH AND CONNECTION.
- MD MOTION DETECTOR
- GD GLASS DETECTOR
- SSCP SECURITY SYSTEM CONTROL PANEL.
- KP KEY PAD STATION.

COMMUNICATION SYTEM

- S CEILING MOUNTED SPEAKER.
- S WALL MOUNTED SPEAKER.
- TV TV OUTLET WITH RF CONNECTOR AT 7'-6" ABOVE FINISH FLOOR UON.
- TELEPHONE/DATA OUTLET MOUNTED 18" AFF UNLESS OTHERWISE NOTED.
- TELEPHONE/DATA OUTLET MOUNTED 42" AFF UNLESS OTHERWISE NOTED.
- TELEPHONE BACKBOARD (WALL MOUNTED)
- B BELL
- PBT TELEPHONE/DATA DISTRIBUTION PULL BOX (12"x12"x6") MOUNTED IN ACCESSIBLE CEILING SPACE

FIRE ALARM SYSTEM

- D SMOKE DETECTOR CEILING MOUNTED.
- D SMOKE DETECTOR DUCT MOUNTED.
- H CEILING MOUNTED HEAT DETECTOR.
- H FIRE ALARM HORN, 6'-8" ABOVE FINISHED FLOOR.
- F MANUAL FIRE ALARM PULL STATION. 48" ABOVE FINISHED FLOOR.
- F FIRE ALARM HORN AND FLASHING STROBE LIGHT 6'-8" ABOVE FINISH FLOOR.
- FIRE ALARM FLASHING STROBE LIGHT 6'-8" ABOVE FINISH FLOOR.
- TS VALVE SUPERVISORY SWITCH. (TAMPER SWITCH)
- FS WATER FLOW SWITCH
- PIV POST INDICATOR VALVE
- FARA FIRE ALARM REMOTE (GRAPHIC) ANNUNCIATOR PANEL
- FACP FIRE ALARM ZONE ANNUNCIATOR AND CONTROL PANEL
- M FIRE ALARM ADDRESSABLE CONTROL OR MONITORING MODULE
- S FIRE ALARM SPEAKER-CEILING MOUNTED
- SE GAS SOLENOID VALVE

MOTOR AND CONTROLS

- MOTOR.
- FD MAGNETIC MOTOR STARTER. "FD" DENOTES FREQUENCY DRIVE CONTROLLER
- COMBINATION MOTOR STARTER AND DISCONNECT SWITCH.
- PUSH BUTTON STATION. 42" AFF
- SAFETY DISCONNECT SWITCH FOR DUCT HEATER WITH CONTACTOR.
- T THERMOSTAT
- PE PHOTOELECTRIC CELL
- R EMERGENCY LIGHTING RELAY. SEE WIRING DIAGRAM

DISTRIBUTION EQUIPMENT

- PANELBOARD.
- G GROUNDING PLATE. SEE DETAIL.
- SPD SURGE PROTECTIVE DEVICE
- PB PULLBOX.
- SAFETY OR DISCONNECT SWITCH
- CB ENCLOSED CIRCUIT BREAKER

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
C, COND.	CONDUIT
CB.	CIRCUIT BREAKER
CKT	CIRCUIT
CLG.	CEILING
DISC.	DISCONNECT
EC.	EMPTY CONDUIT
G, GND.	GROUND
GFI.	GROUND FAULT INTERRUPTER
HP.	HORSE POWER
HD.	HAND DRYER
MTD.	MOUNTED
PH.	PHASE
PB.	PULL BOX
PNL.	PANEL
PWR.	POWER
SD	SOAP DISPENSER
SP	SURGE PROTECTOR
SW.	SWITCH
TEL.	TELEPHONE
TV.	TELEVISION
UON.	UNLESS OTHERWISE NOTED
V.	VOLTAGE
W.	WIRE
W/	WITH
WP.	WEATHER PROOF

NOTES:

1. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
2. ALL SYMBOLS SHOWN ON ELECTRICAL SYMBOL LEGEND ARE NOT NECESSARILY USED IN THIS PROJECT.
3. ELECTRICAL SYMBOLS ON THE ELECTRICAL SYMBOL LEGEND ARE SHOWN WITH SOLID LINES FOR EASE OF IDENTIFICATION AND LEGIBILITY. ELECTRICAL SYMBOLS USED ON FLOOR PLANS ARE SHOWN WITH SOLID LINES TO REPRESENT NEW AND WITH DASHED LINES TO REPRESENT EXISTING, EITHER TO REMAIN OR TO BE REMOVED.

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LIVS project number:
201913

Client project number:
-

sheet title
LIGHTING FIXTURE
ELECTRICAL SYMBOL
LEGEND & NOTES

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

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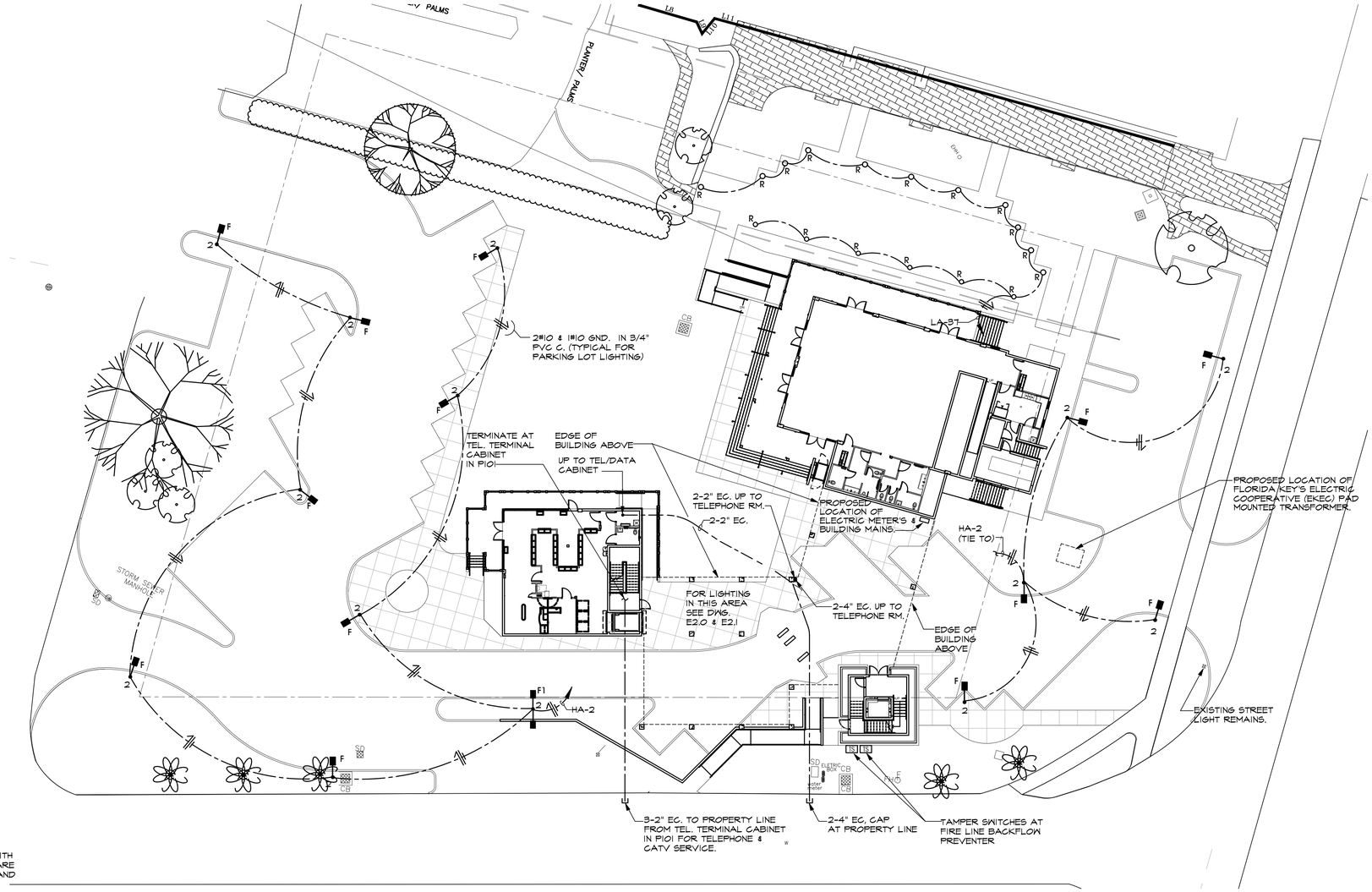
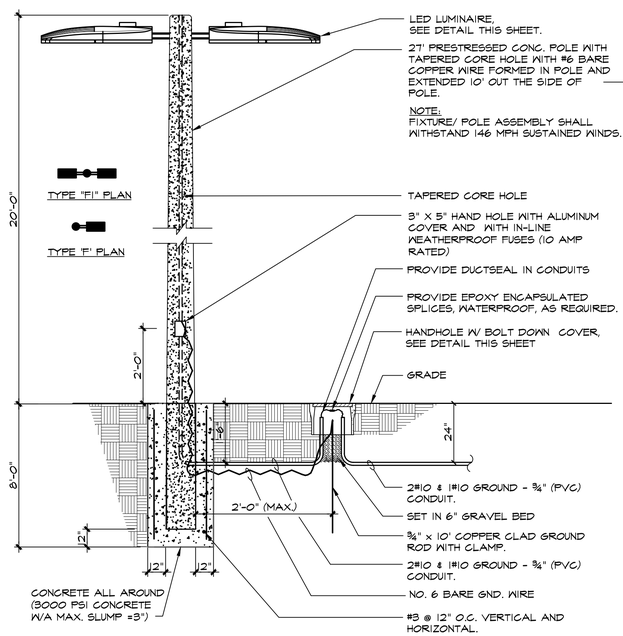
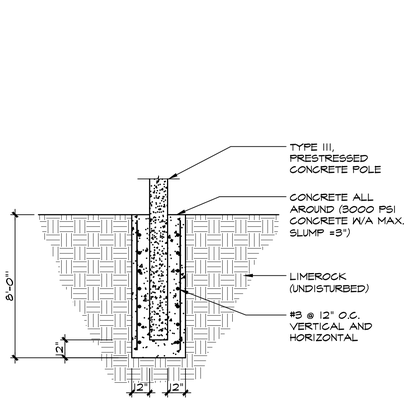


ELECTRICAL SITE PLAN LIGHTING 1"=20'

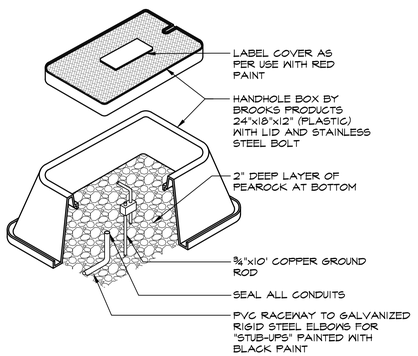


FIXTURE "F" & "F1" DETAIL N.T.S.



PRESTRESSED CONCRETE POLE

FOOTING DETAIL N.T.S.



NOTES:
1. PROVIDE A PULL BOX BY EACH PARKING LOT LIGHTING POLE.
2. PULL BOX SHALL BE UL LISTED.
3. ALL CONNECTIONS IN HANDHOLE SHALL BE WATERTIGHT.

HANDHOLE DETAIL N.T.S.

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ELECTRICAL SITE PLAN-LIGHTING AND DETAILS

revisions

issued for:
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issue date:
05.01.23

drawn by:	approved by:
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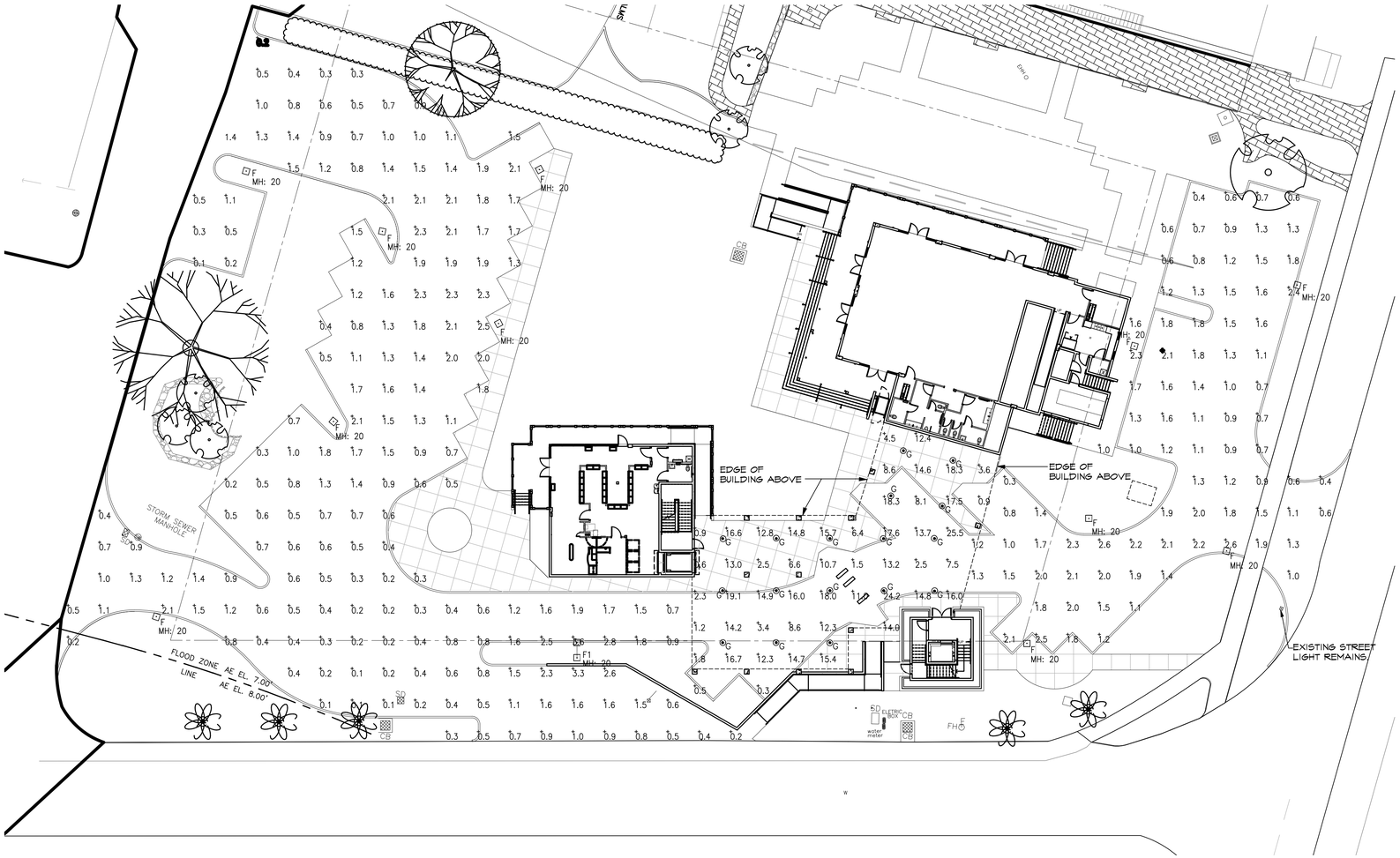

ELECTRICAL SITE PLAN PHOTOMETRICS 1"=20'

CALCULATION SUMMARY							
LABEL	CALC.TYPE	UNITS	AVG.	MAX.	MIN.	AVG/MIN	MAX/MIN.
PARKING COVERED	ILLUMINANCE	Fc	10.81	25.5	0.3	36.03	85.00
PARKING EAST	ILLUMINANCE	Fc	1..39	2.6	0.3	4.63	8.67
PAKING WEST	ILLUMINANCE	Fc	1.06	3.6	0.1	10.60	36.00

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Electrical Engineer
License Number 14099

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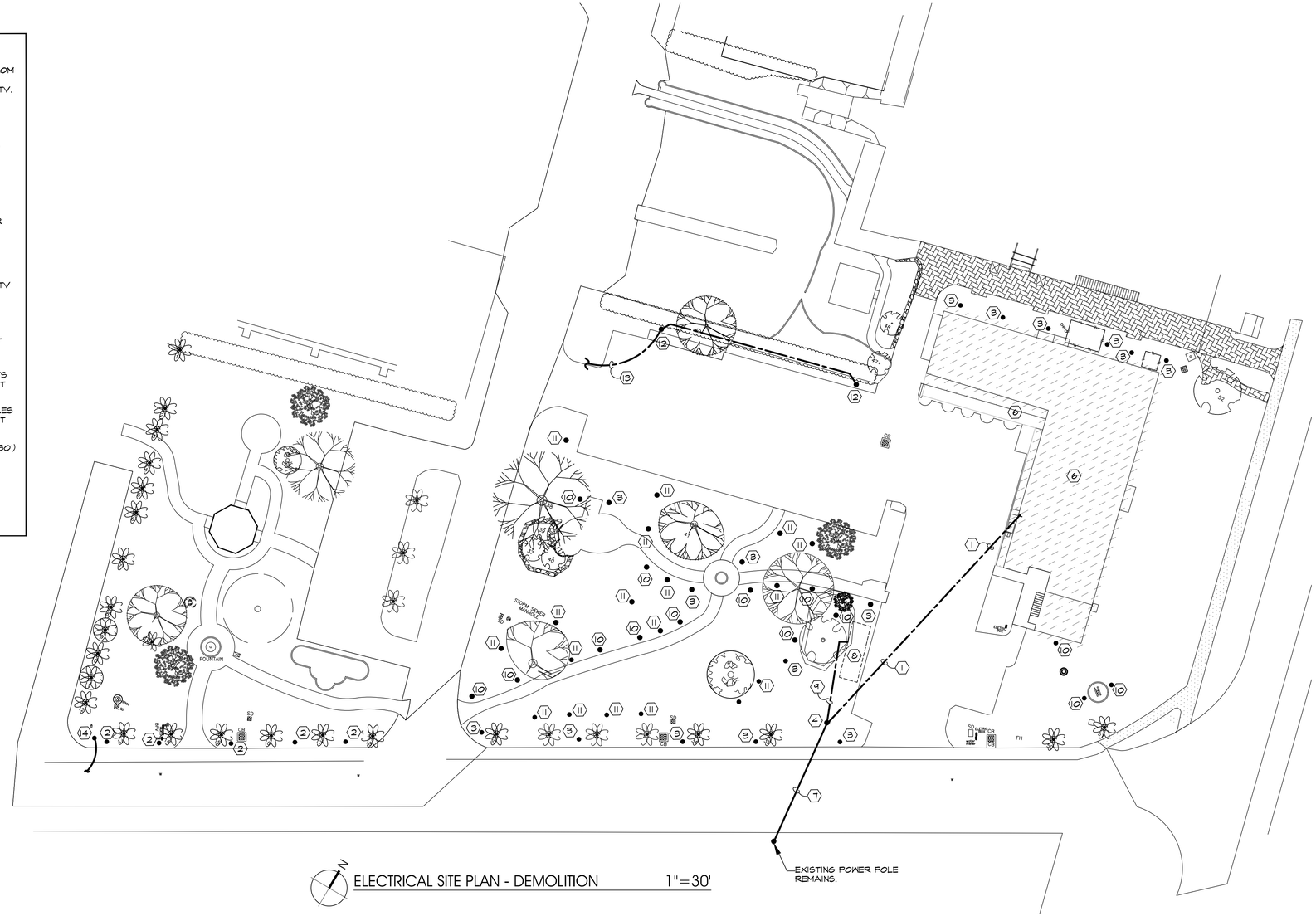
ELECTRICAL WORK NOTES:

1. DISCONNECT AND REMOVE EXISTING UNDERGROUND DUCT BANK FROM RISER POLE TO EXISTING CITY HALL BUILDING ELECTRICAL ROOM INCLUDING WIRING & CONDUIT (250A. SERVICE), AND TELEPHONE & TV. UNDERGROUND WIRING. REFER TO CIVIL DRAWINGS FOR ROUTING LOCATION.
2. EXISTING DECORATIVE POLE LIGHTS REMAIN.
3. DISCONNECT & REMOVE DECORATIVE POLE (10') LIGHTS INCLUDING UNDERGROUND WIRING & CONDUIT TO SOURCE.
4. DISCONNECT & REMOVE EXISTING RISER POLE INCLUDING WEATHERHEADS (2), LOADCENTER SERVING PATH LIGHTING & RECEPTACLES, METER FOR CITY HALL & TRAILER BUILDINGS.
5. DISCONNECT & REMOVE CONCRETE POLE & FLOOD LIGHT, AND AERIAL CIRCUIT WIRING COORDINATE REMOVAL WORK WITH POWER COMPANY.
6. EXISTING ONE STORY BUILDING TO BE DEMOLISH DISCONNECT & REMOVE MAIN ELECTRICAL SERVICE & COORDINATE EXTEND OF INTERIOR ELECTRICAL DEMOLITION WITH GENERAL CONTRACTOR.
7. REMOVE EXISTING AERIAL SERVICE FOR POWER, TELEPHONE & CATV SYSTEMS. COORDINATE REMOVAL WITH FLORIDA KEYS ELECTRIC COOPERATIVE, TELEPHONE, & CATV REPRESENTATIVE.
8. EXISTING OFFICE TRAILER TO BE REMOVED.
9. DISCONNECT & REMOVE EXISTING UNDERGROUND WIRING & CONDUIT FOR POWER & COMMUNICATION FROM RISER POLE TO OFFICE TRAILER.
10. DISCONNECT & REMOVE EXISTING WALKWAY OR LANDSCAPE LIGHTS ON 24" STAND INCLUDING UNDERGROUND BRANCH WIRING & CONDUIT TO LOADCENTER ON RISER POLE.
11. DISCONNECT & REMOVE EXISTING LANDSCAPE DUPLEX RECEPTACLES ON 24" STAND INCLUDING UNDERGROUND BRANCH WIRING & CONDUIT TO LOADCENTER ON RISER POLE.
12. DISCONNECT & REMOVE EXISTING PARKING LOT CONCRETE POLE (30') INCLUDING LIGHT AND AERIAL WIRING.
13. DISCONNECT & REMOVE AERIAL WIRING TO POWER POLE. COORDINATE WITH FLORIDA KEY ELECTRIC COOPERATIVE REPRESENTATIVE.
14. EXISTING RISER POLE FOR WALKWAY LIGHTS & LANDSCAPE RECEPTACLES INCLUDING WEATHERHEAD, METER & LOADCENTER REMAINS.



ELECTRICAL SITE PLAN - DEMOLITION 1"=30'

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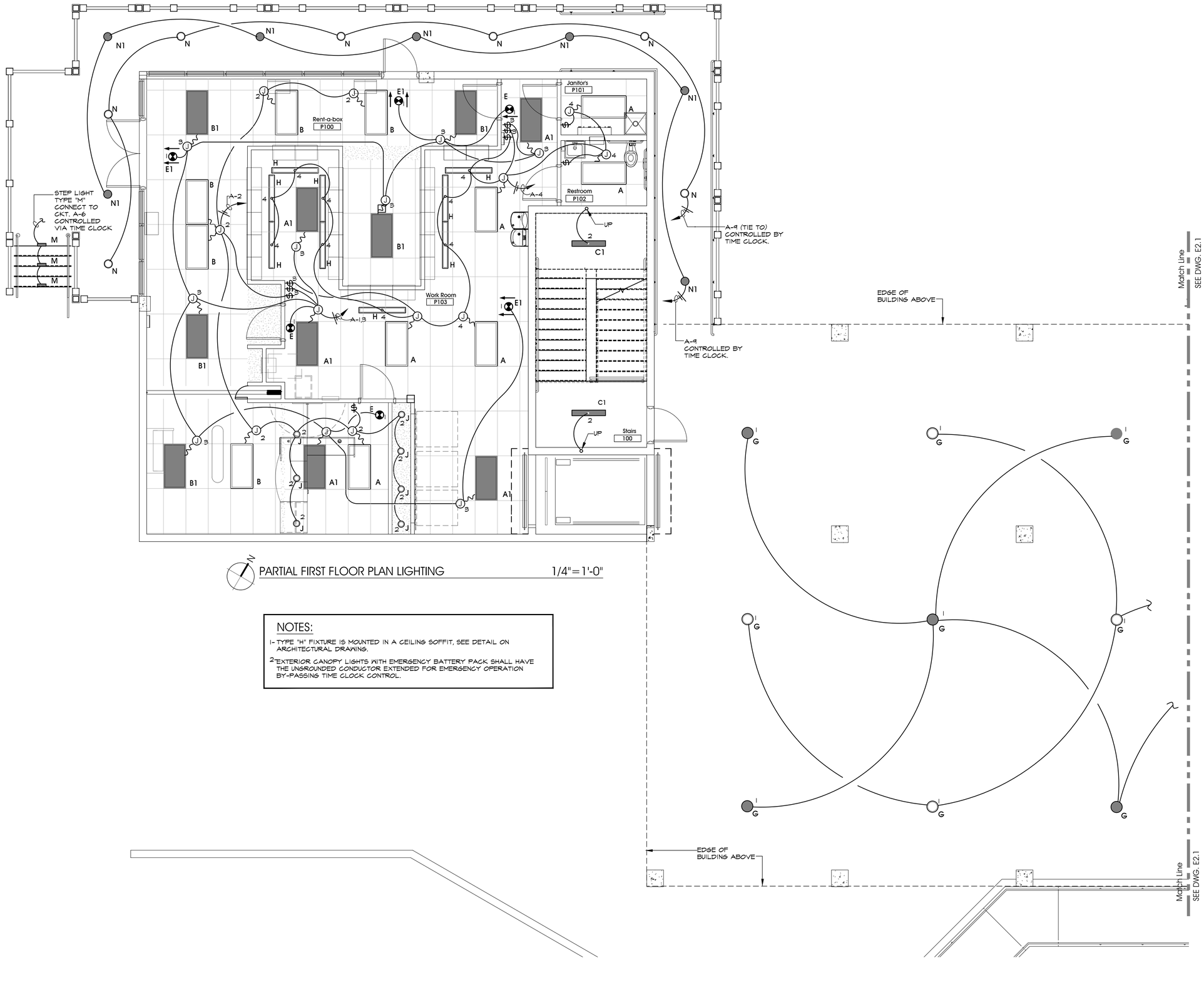

PARTIAL FIRST FLOOR PLAN LIGHTING 1/4"=1'-0"

NOTES:

1- TYPE "H" FIXTURE IS MOUNTED IN A CEILING SOFFIT, SEE DETAIL ON ARCHITECTURAL DRAWING.

2- EXTERIOR CANOPY LIGHTS WITH EMERGENCY BATTERY PACK SHALL HAVE THE UNGROUNDED CONDUCTOR EXTENDED FOR EMERGENCY OPERATION BY-PASSING TIME CLOCK CONTROL.

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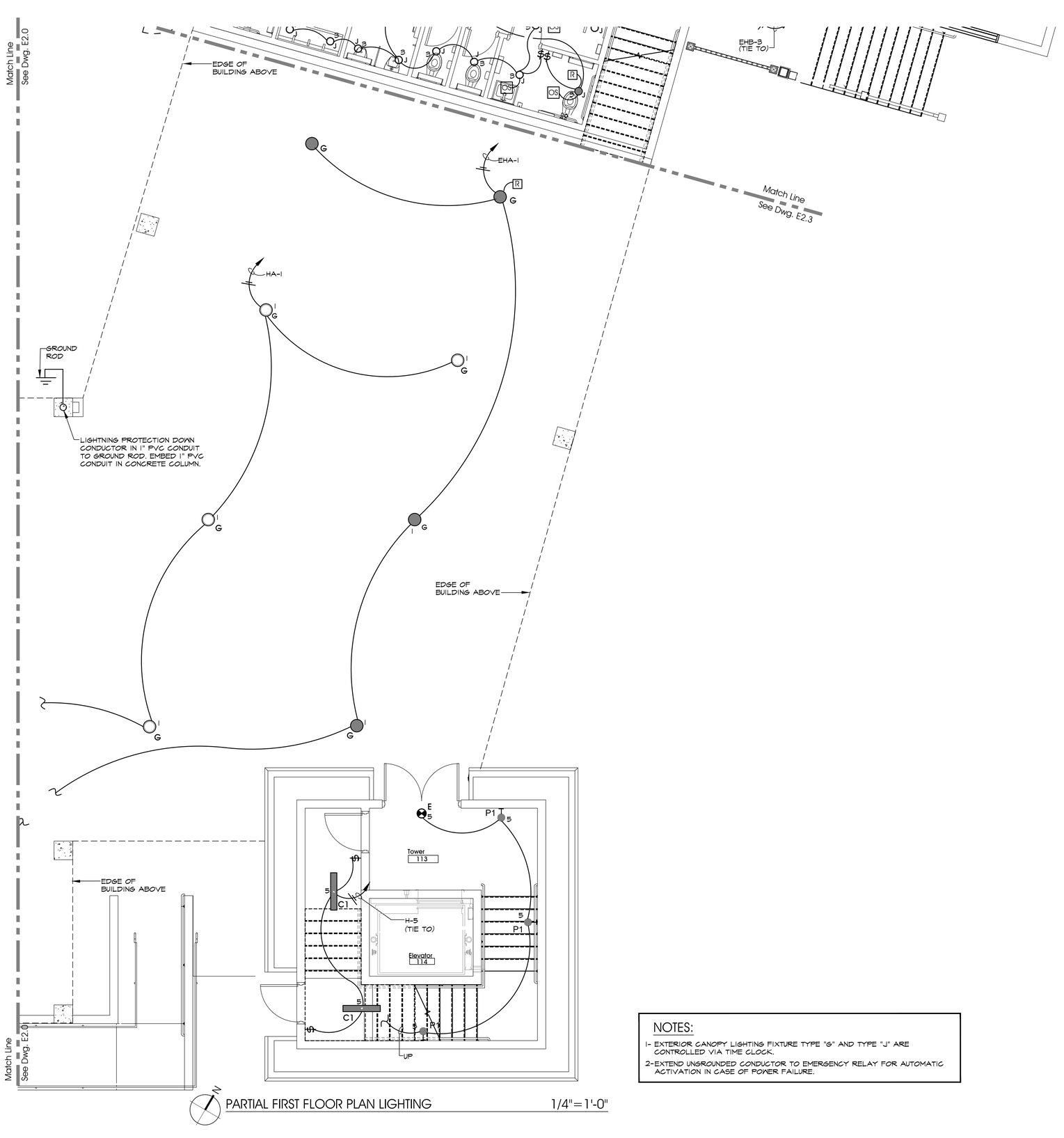

PARTIAL FIRST FLOOR PLAN LIGHTING 1/4"=1'-0"

NOTES:

1- EXTERIOR CANOPY LIGHTING FIXTURE TYPE "G" AND TYPE "J" ARE CONTROLLED VIA TIME CLOCK.

2-EXTEND UNGROUNDED CONDUCTOR TO EMERGENCY RELAY FOR AUTOMATIC ACTIVATION IN CASE OF POWER FAILURE.

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PARTIAL FIRST PLANLIGHTING
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License No. 14099

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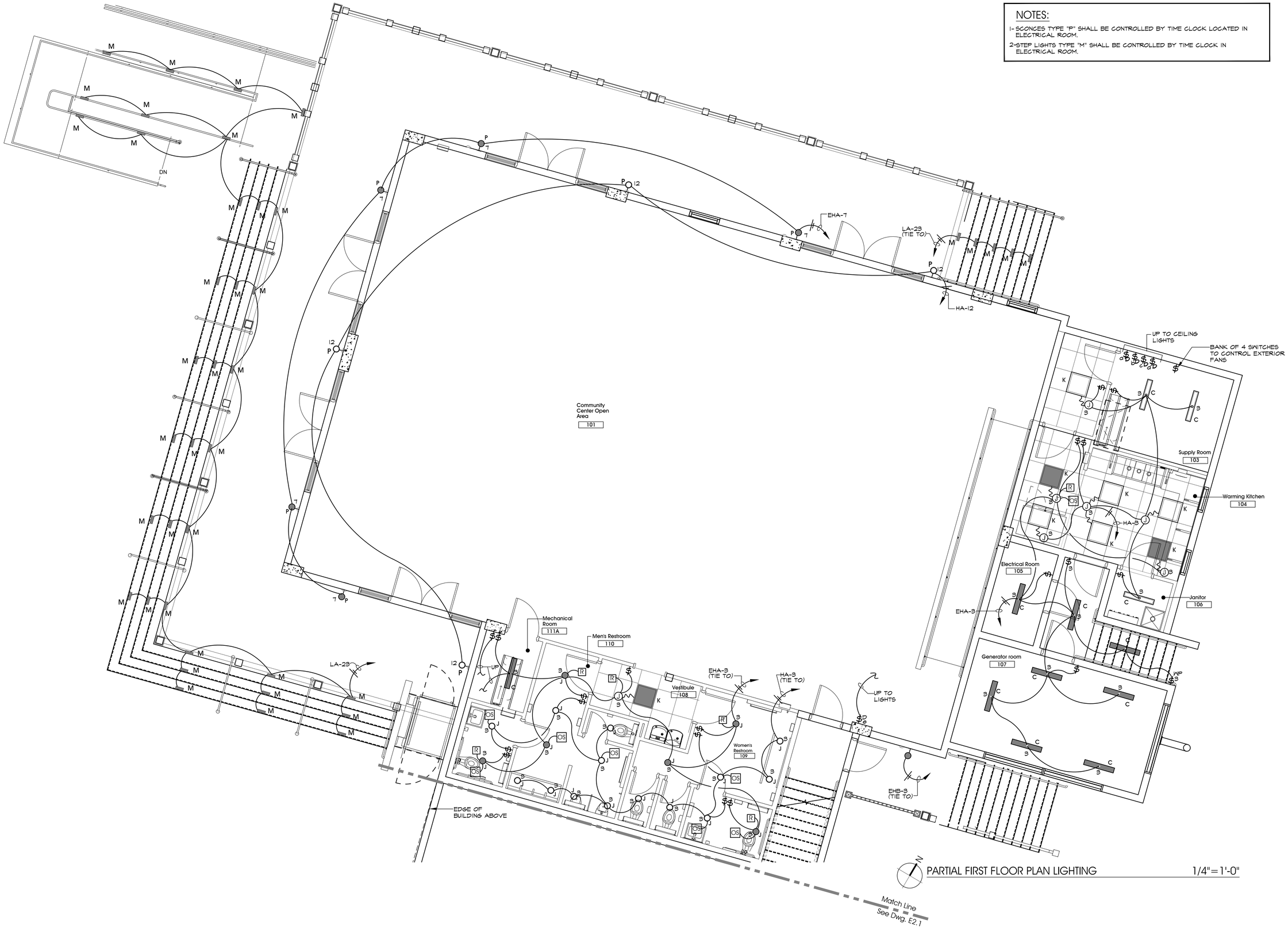
NOTES:

1- SCONCES TYPE "P" SHALL BE CONTROLLED BY TIME CLOCK LOCATED IN ELECTRICAL ROOM.

2-STEP LIGHTS TYPE "M" SHALL BE CONTROLLED BY TIME CLOCK IN ELECTRICAL ROOM.



PARTIAL FIRST FLOOR PLAN LIGHTING 1/4"=1'-0"

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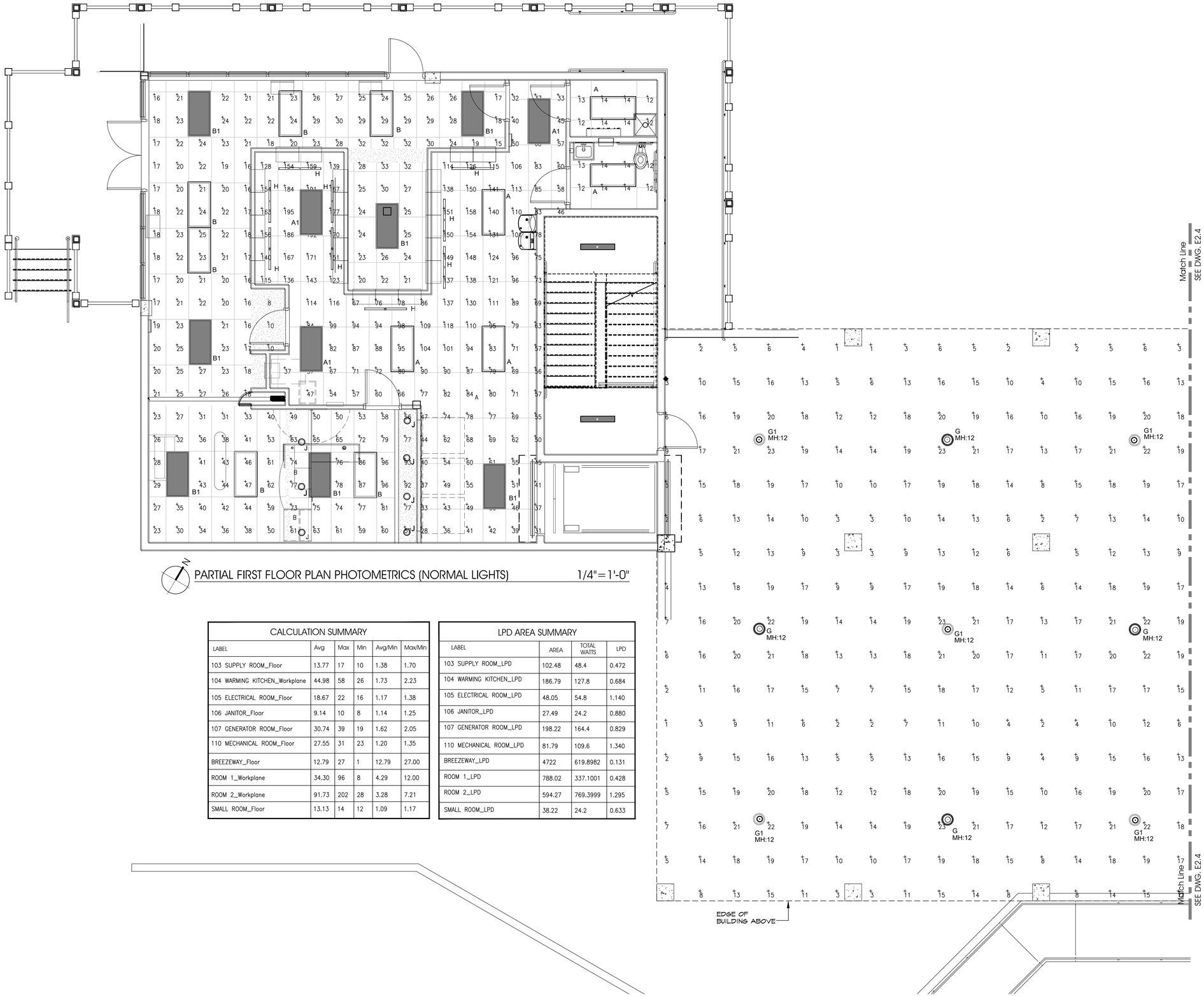

PARTIAL FIRST FLOOR PLAN PHOTOMETRICS (NORMAL LIGHTS) 1/4"=1'-0"

CALCULATION SUMMARY					
LABEL	Avg	Max	Min	Avg/Min	Max/Min
103 SUPPLY ROOM_Floor	13.77	17	10	1.38	1.70
104 WARMING KITCHEN_Workplane	44.98	58	26	1.73	2.23
105 ELECTRICAL ROOM_Floor	18.67	22	16	1.17	1.38
106 JANITOR_Floor	9.14	10	8	1.14	1.25
107 GENERATOR ROOM_Floor	30.74	39	19	1.62	2.05
110 MECHANICAL ROOM_Floor	27.55	31	23	1.20	1.35
BREEZEWAY_Floor	12.79	27	1	12.79	27.00
ROOM 1_Workplane	34.30	96	8	4.29	12.00
ROOM 2_Workplane	91.73	202	28	3.28	7.21
SMALL ROOM_Floor	13.13	14	12	1.09	1.17

LPD AREA SUMMARY			
LABEL	AREA	TOTAL WATTS	LPD
103 SUPPLY ROOM_LPD	102.48	48.4	0.472
104 WARMING KITCHEN_LPD	186.79	127.8	0.684
105 ELECTRICAL ROOM_LPD	48.05	54.8	1.140
106 JANITOR_LPD	27.49	24.2	0.880
107 GENERATOR ROOM_LPD	198.22	164.4	0.829
110 MECHANICAL ROOM_LPD	81.79	109.6	1.340
BREEZEWAY_LPD	4722	619.8982	0.131
ROOM 1_LPD	788.02	337.1001	0.428
ROOM 2_LPD	594.27	769.3999	1.295
SMALL ROOM_LPD	38.22	24.2	0.633

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PARTIAL FIRST FLOOR PLAN PHOTOMETRICS NORMAL LIGHTS

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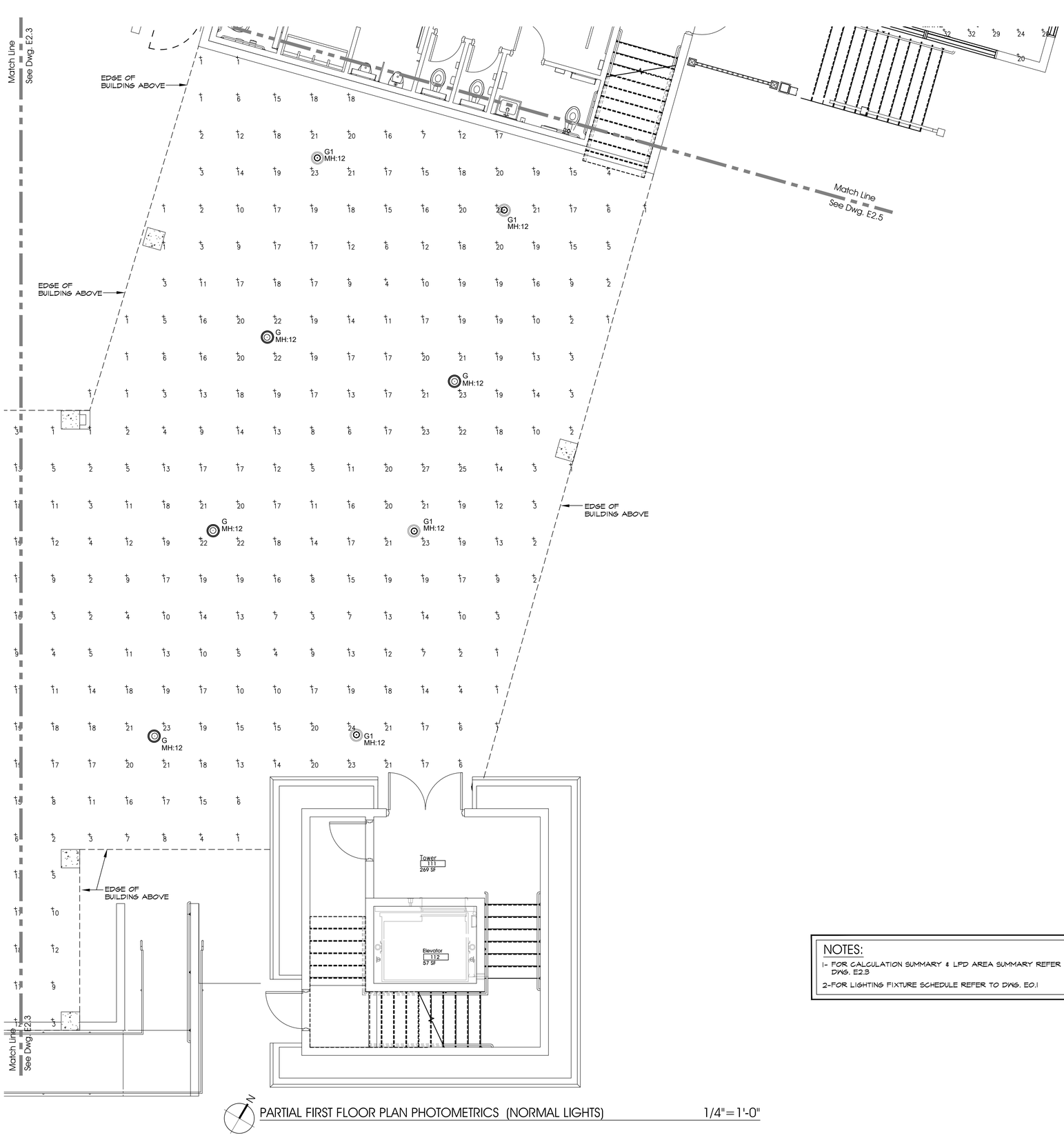

PARTIAL FIRST FLOOR PLAN PHOTOMETRICS (NORMAL LIGHTS) 1/4"=1'-0"

NOTES:

1- FOR CALCULATION SUMMARY & LPD AREA SUMMARY REFER TO DWG. E2.3

2-FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1

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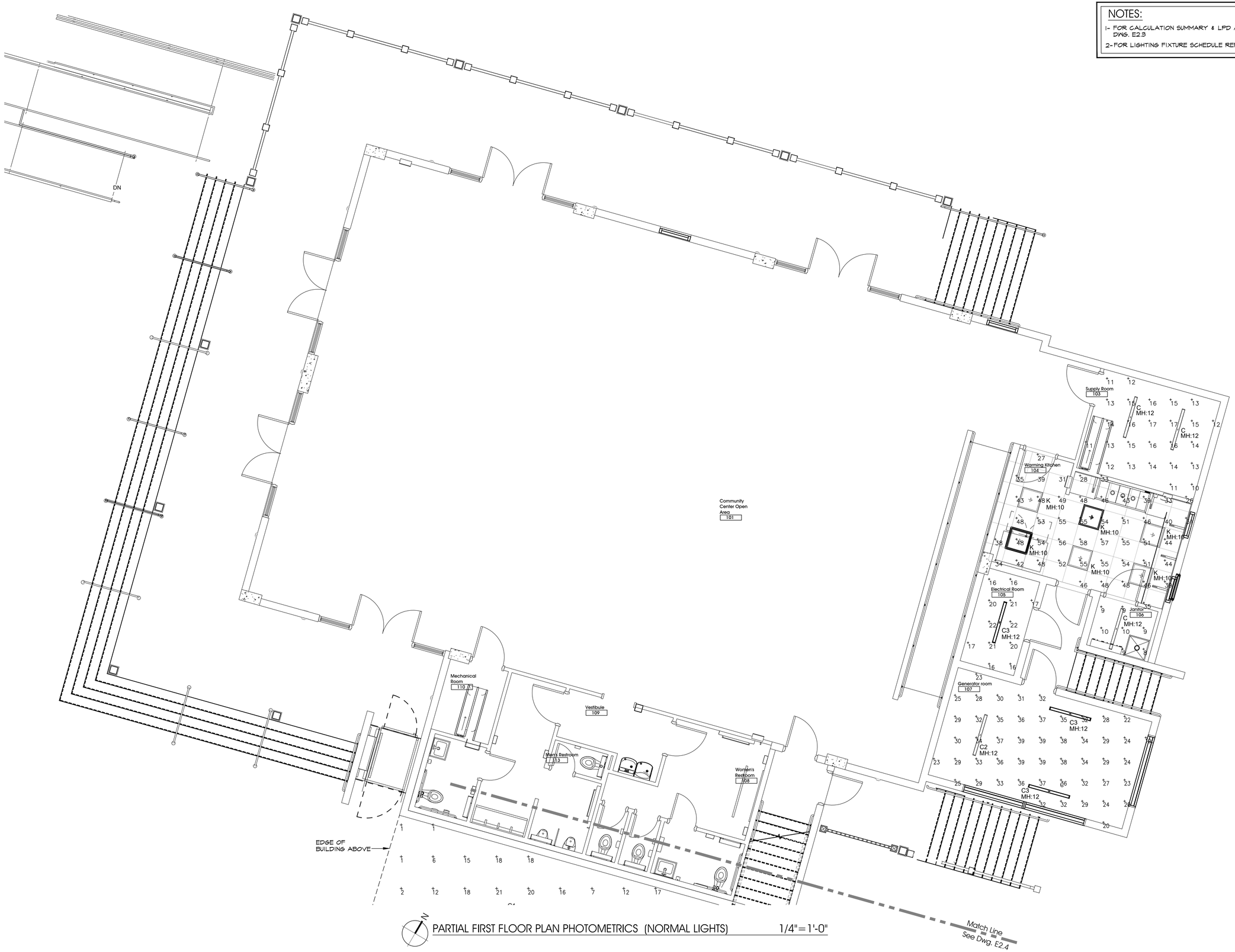
NOTES:

1- FOR CALCULATION SUMMARY & LPD AREA SUMMARY REFER TO DWG. E2.3

2- FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1



PARTIAL FIRST FLOOR PLAN PHOTOMETRICS (NORMAL LIGHTS) 1/4"=1'-0"

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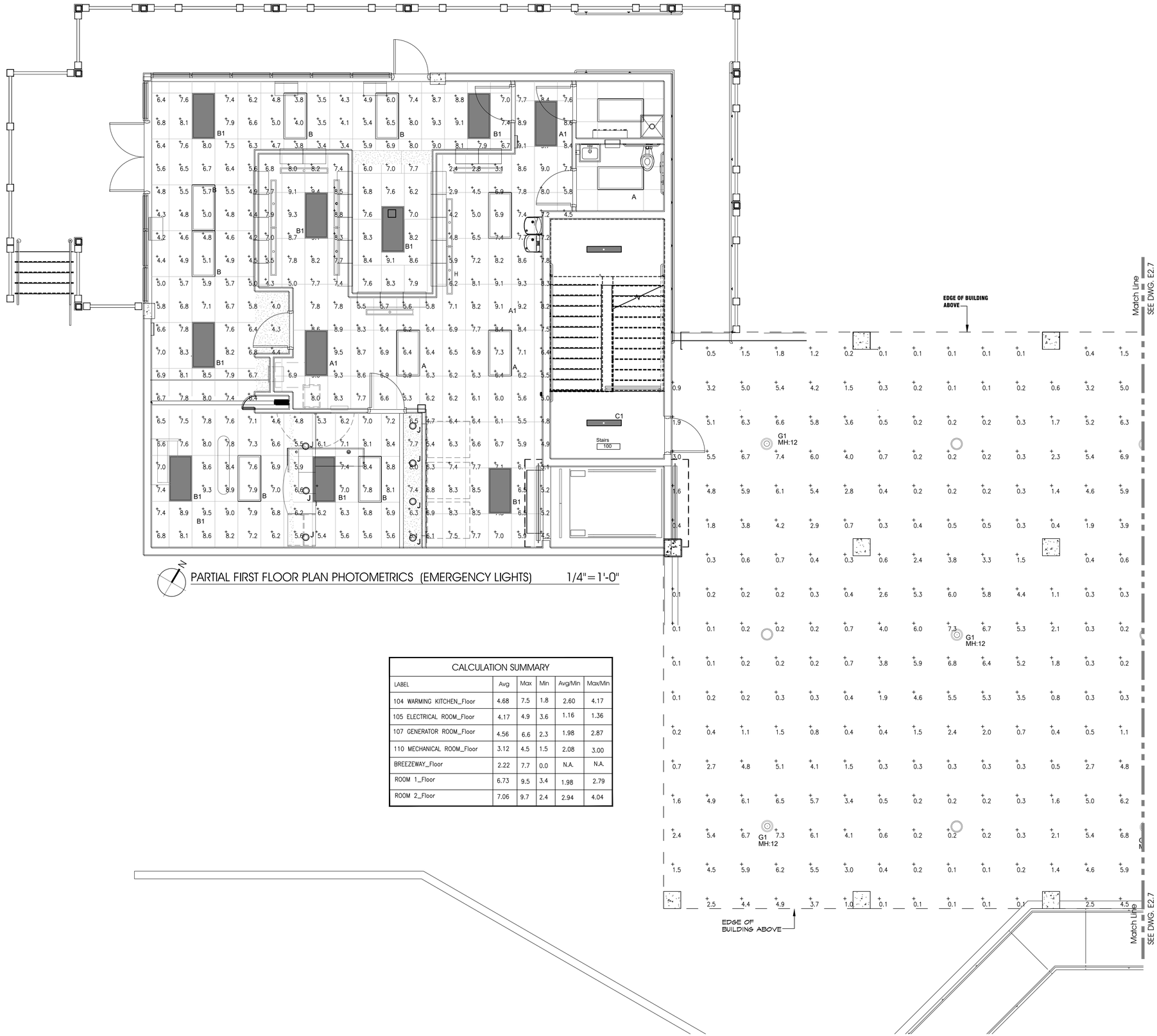

PARTIAL FIRST FLOOR PLAN PHOTOMETRICS (EMERGENCY LIGHTS) 1/4"=1'-0"

CALCULATION SUMMARY					
LABEL	Avg	Max	Min	Avg/Min	Max/Min
104 WARMING KITCHEN_Floor	4.68	7.5	1.8	2.60	4.17
105 ELECTRICAL ROOM_Floor	4.17	4.9	3.6	1.16	1.36
107 GENERATOR ROOM_Floor	4.56	6.6	2.3	1.98	2.87
110 MECHANICAL ROOM_Floor	3.12	4.5	1.5	2.08	3.00
BREEZEWAY_Floor	2.22	7.7	0.0	N.A.	N.A.
ROOM 1_Floor	6.73	9.5	3.4	1.98	2.79
ROOM 2_Floor	7.06	9.7	2.4	2.94	4.04

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Professional Engineer No. 14099

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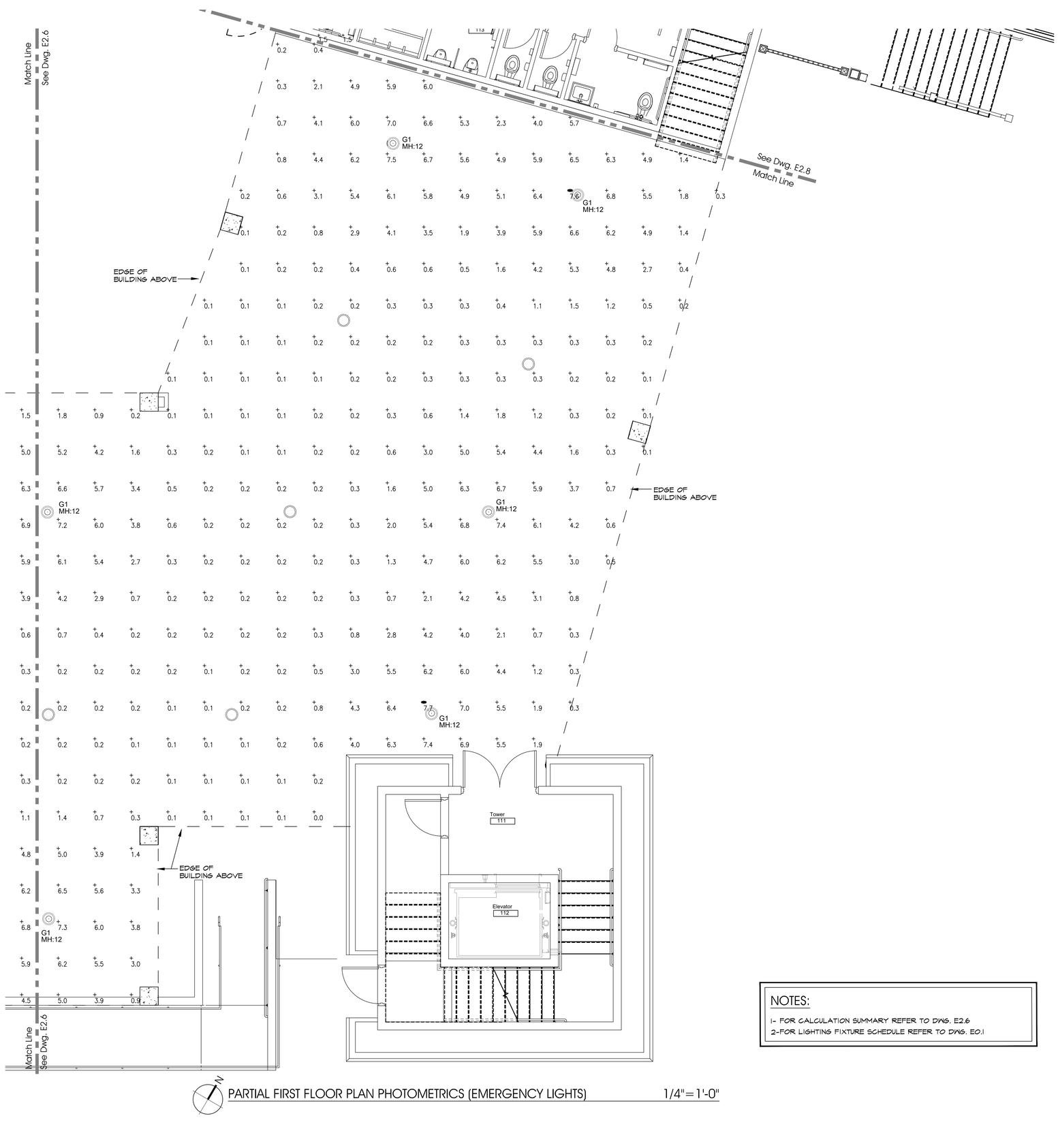

PARTIAL FIRST FLOOR PLAN PHOTOMETRICS (EMERGENCY LIGHTS) 1/4"=1'-0"

NOTES:

1- FOR CALCULATION SUMMARY REFER TO DWG. E2.6
2-FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1

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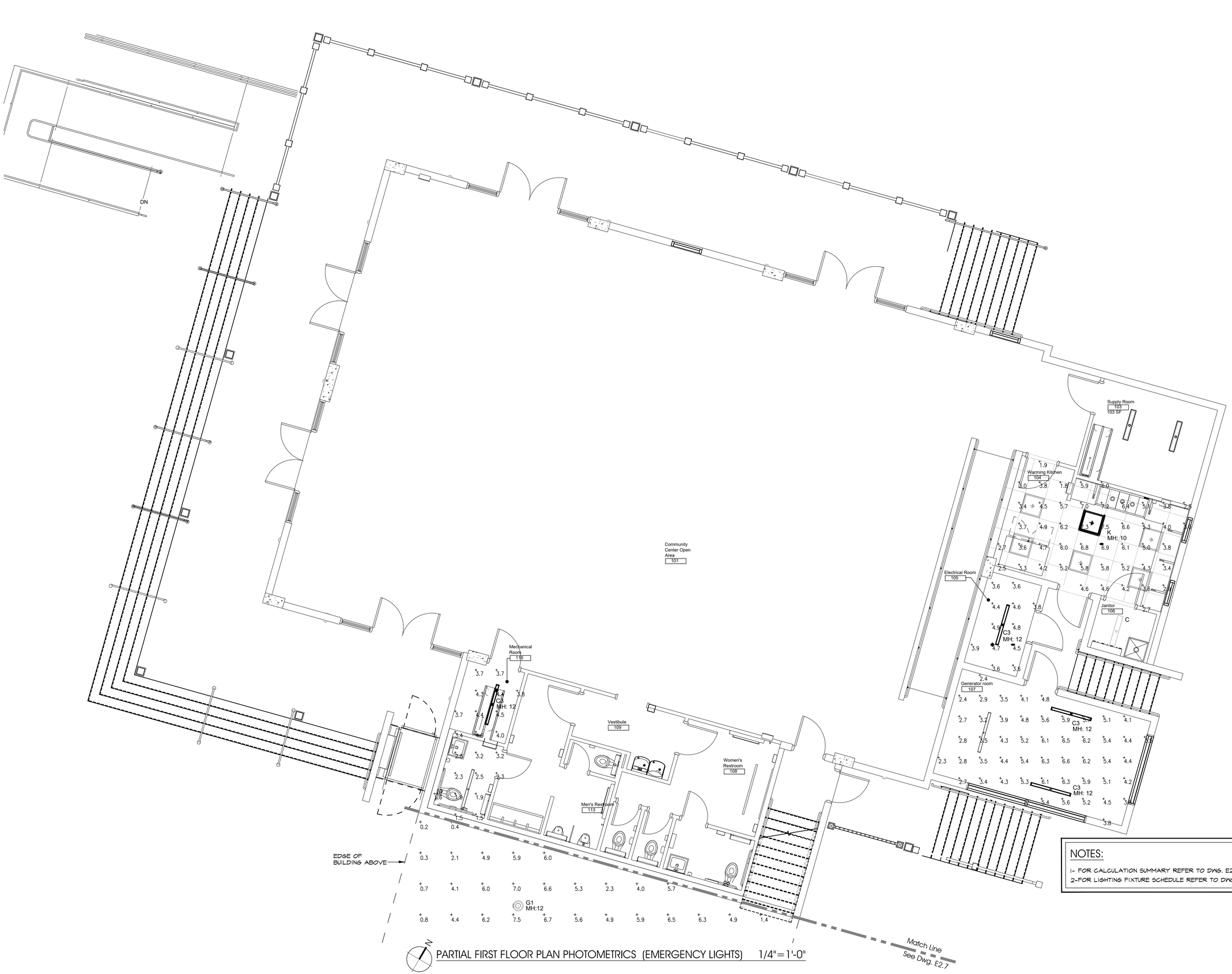

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PARTIAL FIRST FLOOR PLAN PHOTOMETRICS EMERGENCY LIGHTS

revisions

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FL P.E. No. 14099
Professional Engineer
Date: 05.01.23

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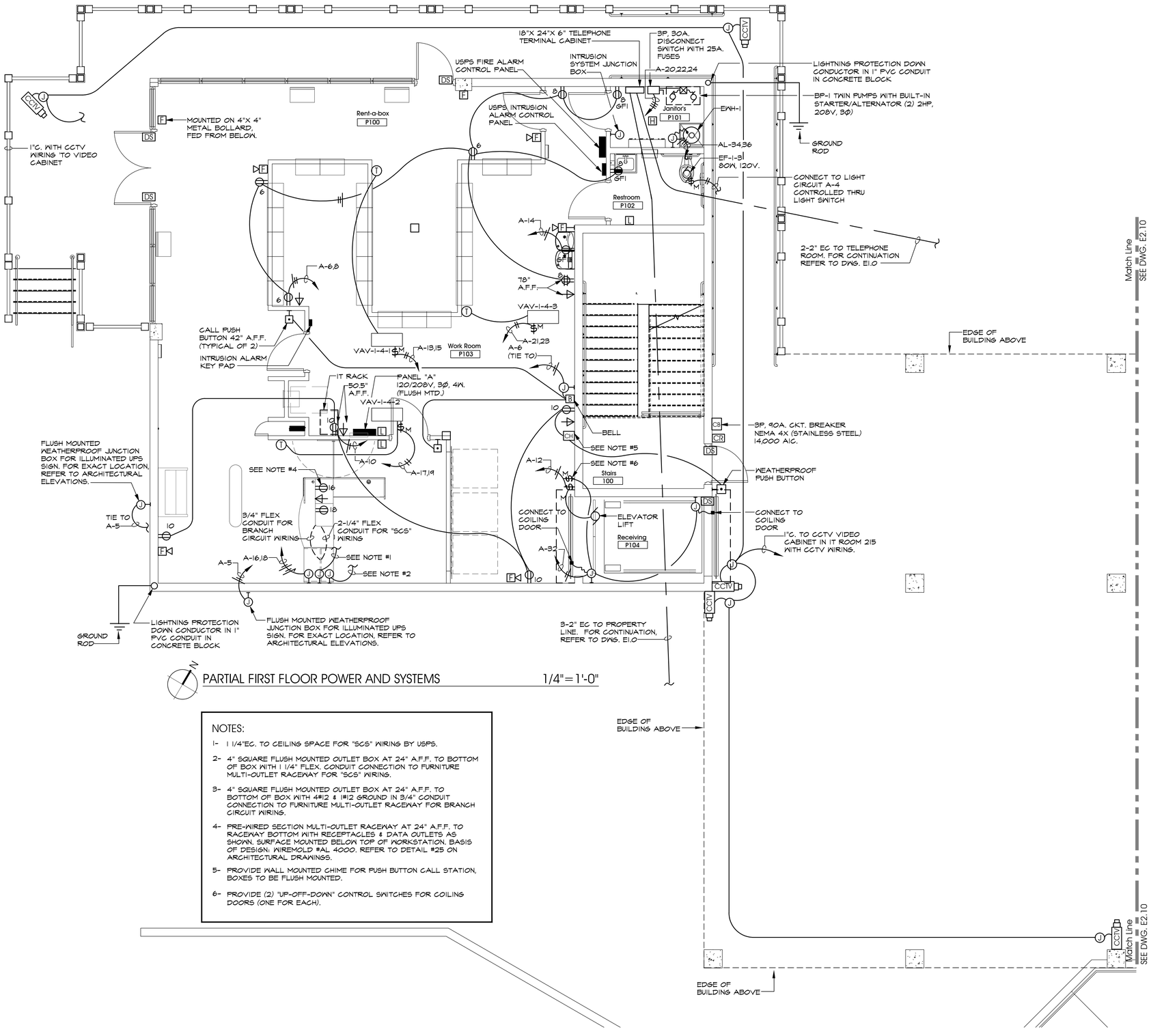

PARTIAL FIRST FLOOR POWER AND SYSTEMS 1/4"=1'-0"

NOTES:

1- 1 1/4"EC. TO CEILING SPACE FOR "SCS" WIRING BY USPS.

2- 4" SQUARE FLUSH MOUNTED OUTLET BOX AT 24" A.F.F. TO BOTTOM OF BOX WITH 1 1/4" FLEX. CONDUIT CONNECTION TO FURNITURE MULTI-OUTLET RACEWAY FOR "SCS" WIRING.

3- 4" SQUARE FLUSH MOUNTED OUTLET BOX AT 24" A.F.F. TO BOTTOM OF BOX WITH 4#12 & 1#12 GROUND IN 3/4" CONDUIT CONNECTION TO FURNITURE MULTI-OUTLET RACEWAY FOR BRANCH CIRCUIT WIRING.

4- PRE-WIRED SECTION MULTI-OUTLET RACEWAY AT 24" A.F.F. TO RACEWAY BOTTOM WITH RECEPTACLES & DATA OUTLETS AS SHOWN. SURFACE MOUNTED BELOW TOP OF WORKSTATION. BASIS OF DESIGN: WIREMOLD #AL 4000. REFER TO DETAIL #25 ON ARCHITECTURAL DRAWINGS.

5- PROVIDE WALL MOUNTED CHIME FOR PUSH BUTTON CALL STATION, BOXES TO BE FLUSH MOUNTED.

6- PROVIDE (2) "UP-OFF-DOWN" CONTROL SWITCHES FOR COILING DOORS (ONE FOR EACH).

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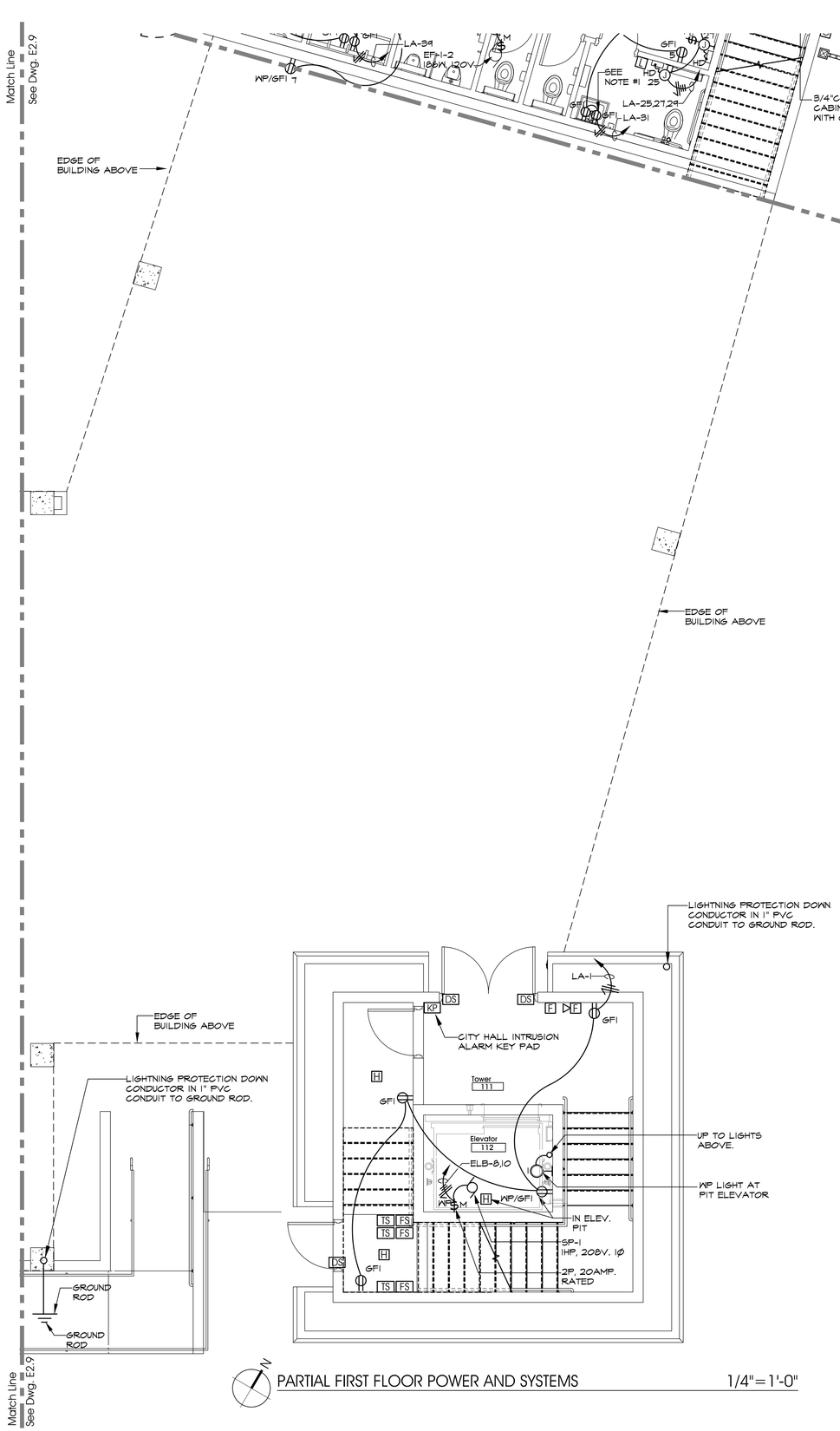

PARTIAL FIRST FLOOR POWER AND SYSTEMS 1/4"=1'-0"

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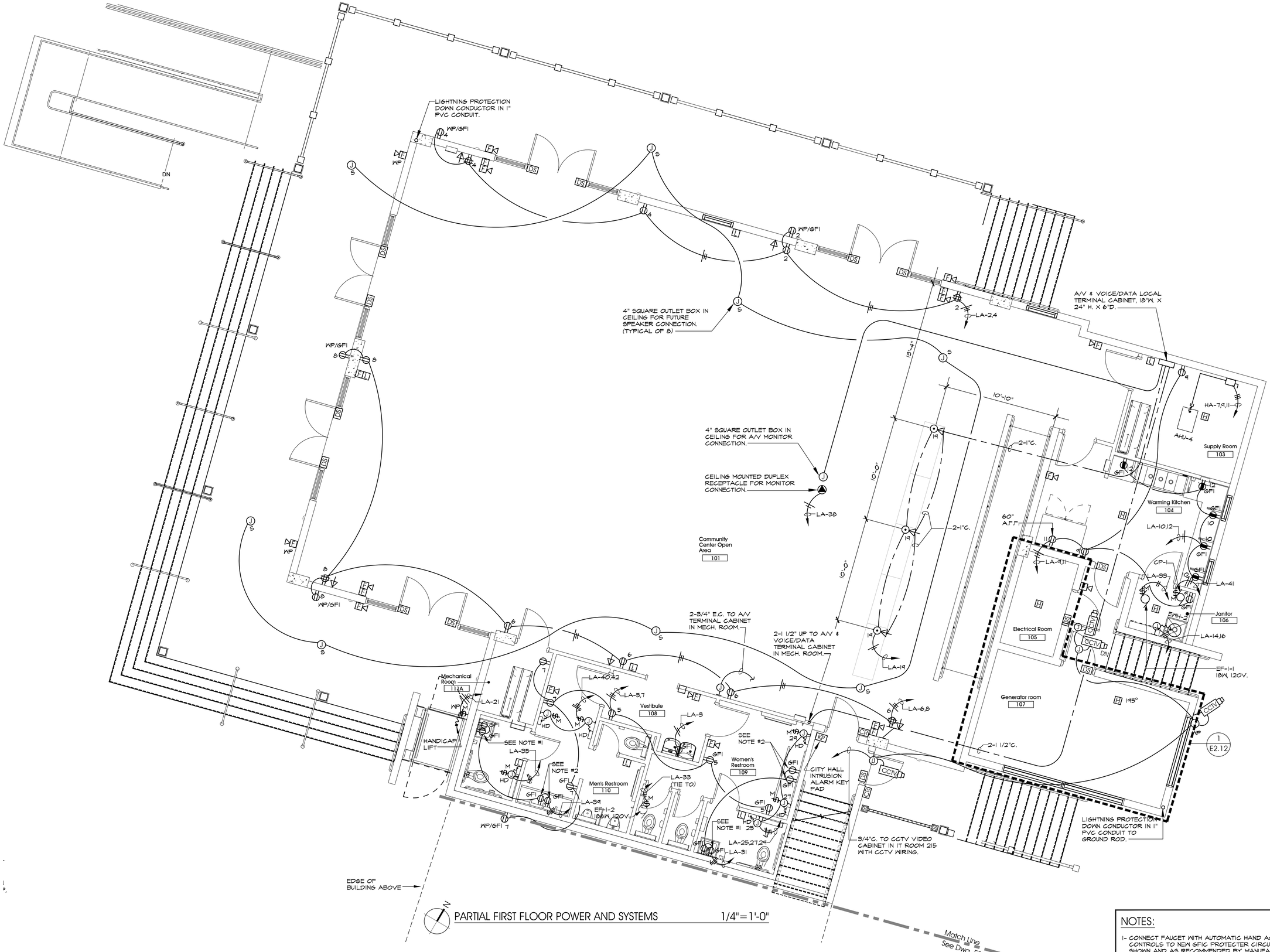

NOTES:

1- CONNECT FAUCET WITH AUTOMATIC HAND ACTIVATED CONTROLS TO NEW GFIC PROTECTED CIRCUIT, AS SHOWN AND AS RECOMMENDED BY MANUFACTURER.

2-SEE BATHROOM 109 & 110 ELEVATION DWG. E2.12

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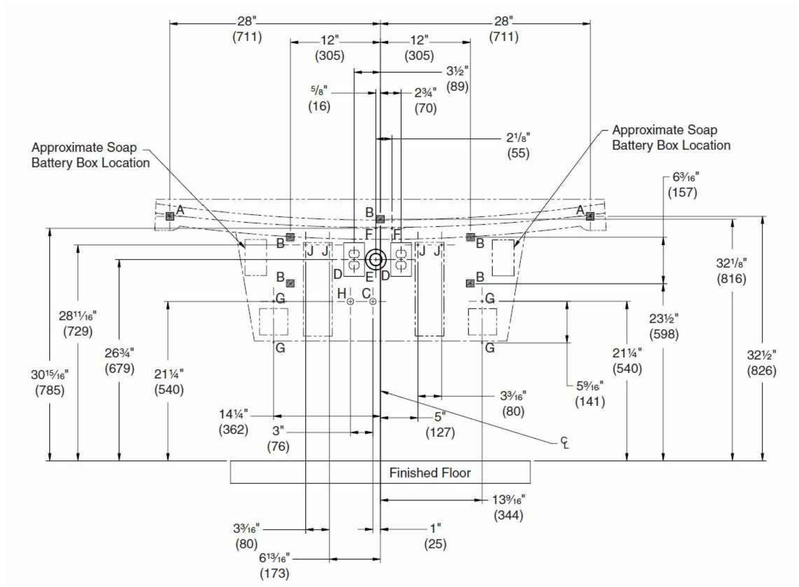
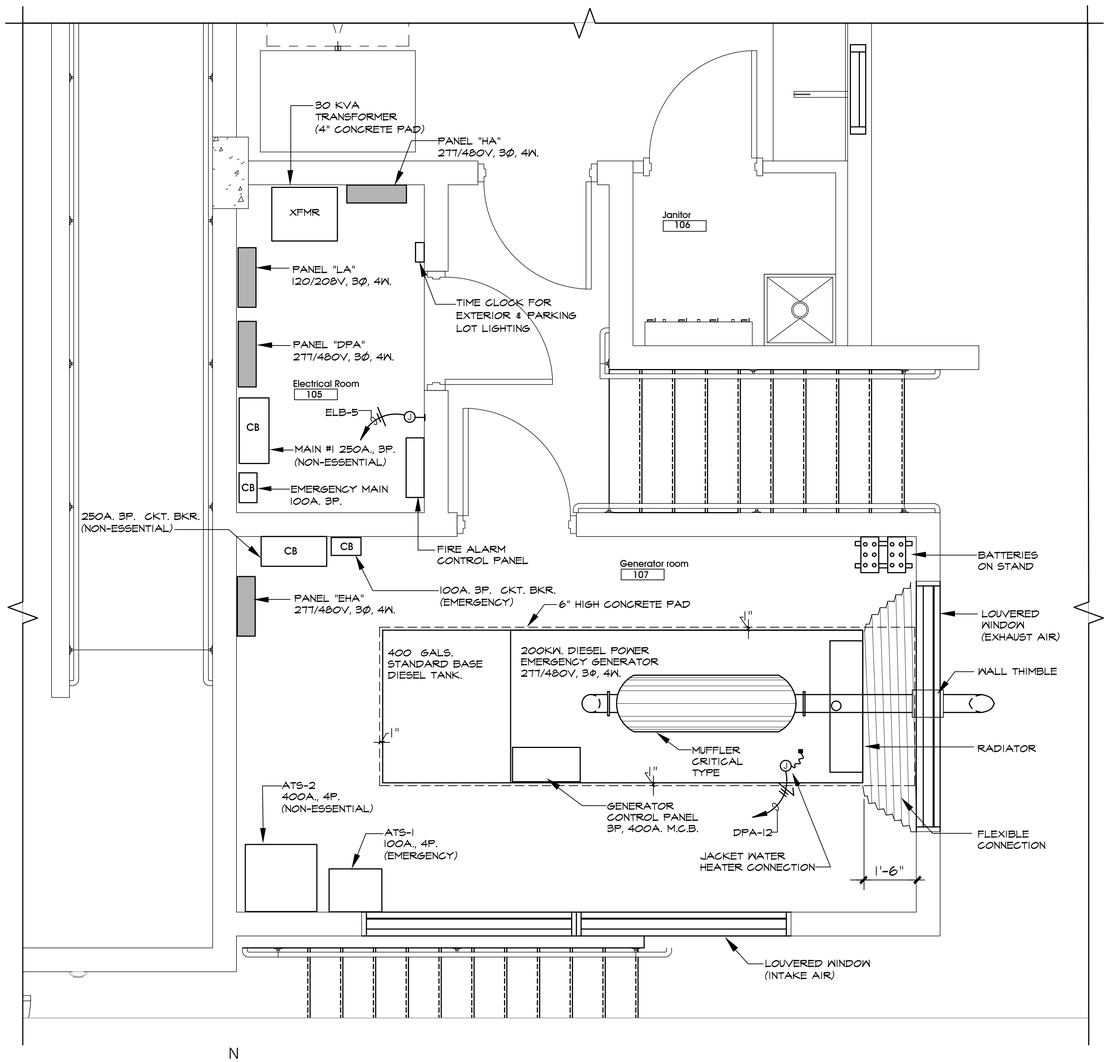


BATHROOMS 109 & 110 ELEVATION N.T.S.



N

1 E2.12 GENERATOR ROOM & ELECTRICAL ROOM 1/2"=1'-0"

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ENLARGED FLOOR PLAN GENERATOR ROOM & ITS ROOM.

revisions

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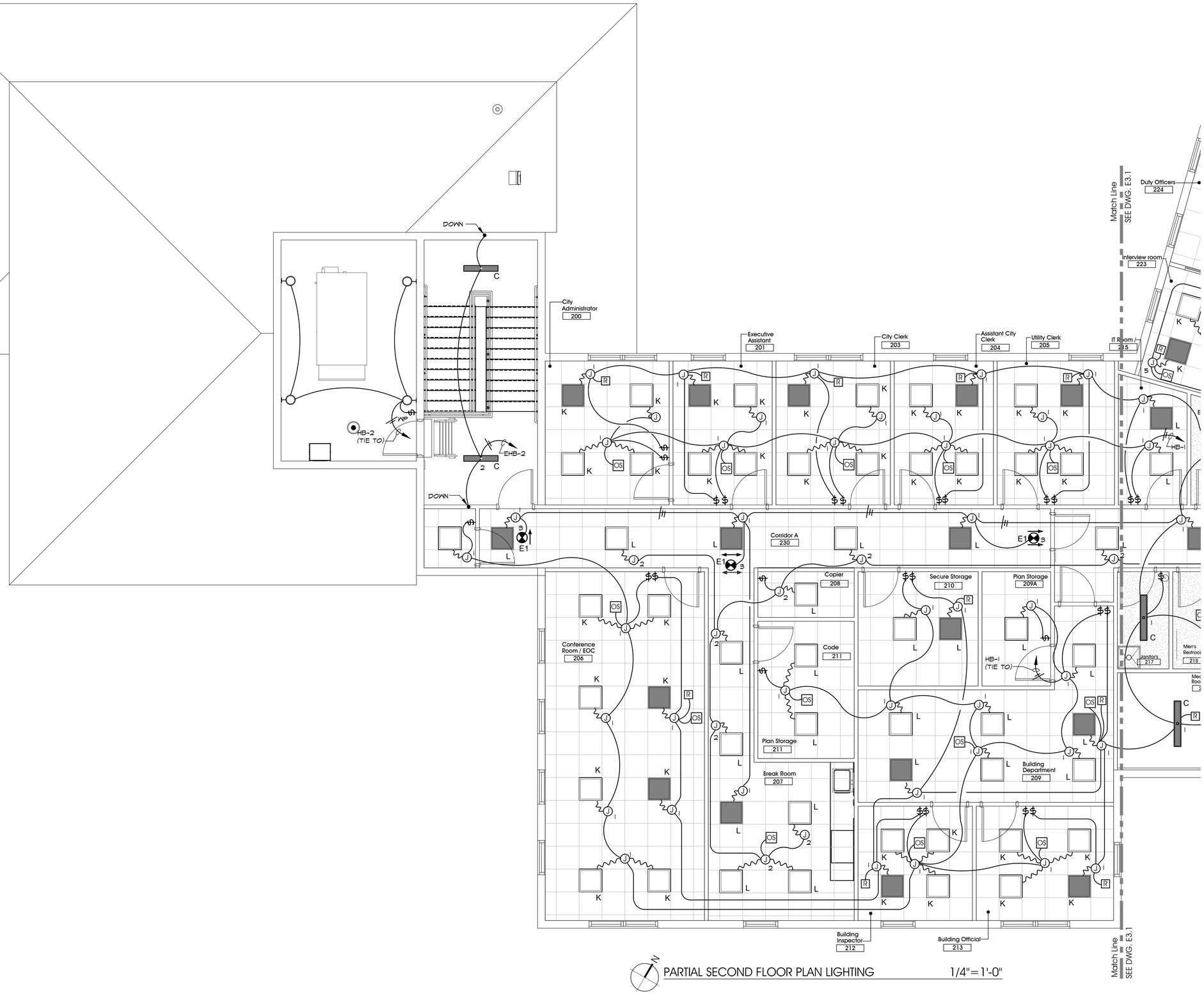

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PARTIAL SECOND FLOOR PLAN LIGHTING

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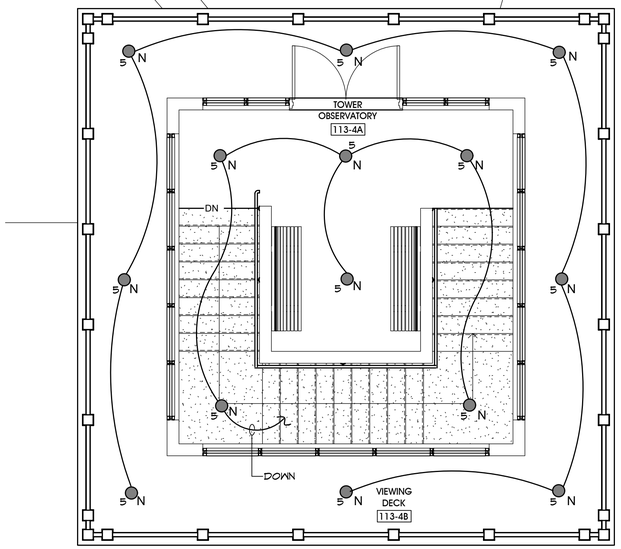
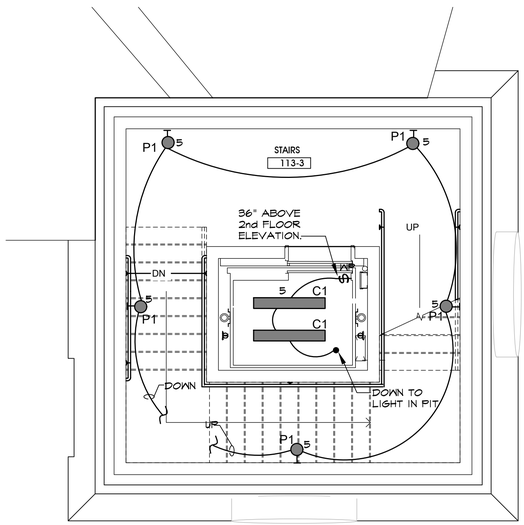
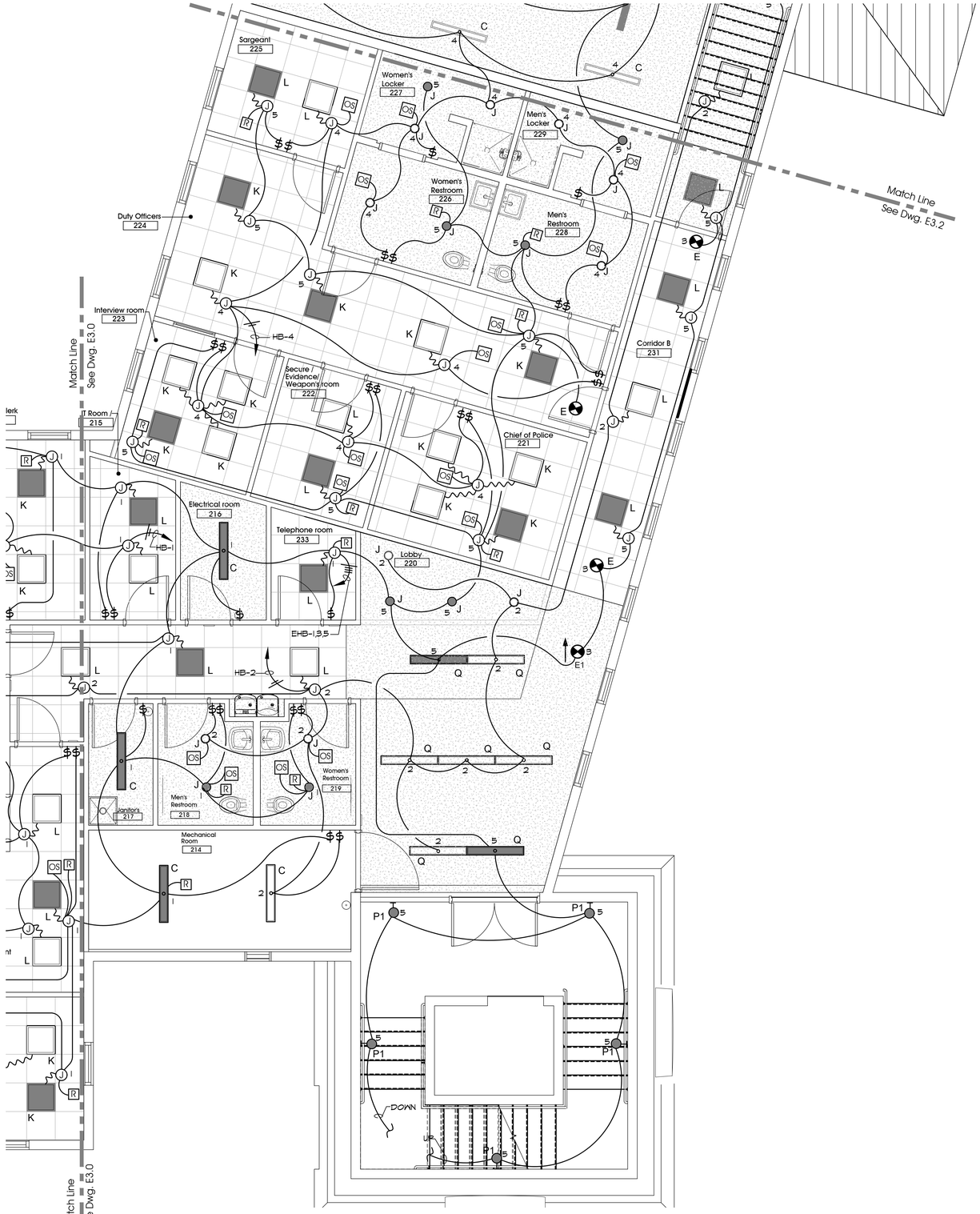


TOWER TOP LEVEL LIGHTING 1/4"=1'-0"



TOWER MID LEVEL LIGHTING 1/4"=1'-0"



PARTIAL SECOND FLOOR PLAN LIGHTING 1/4"=1'-0"

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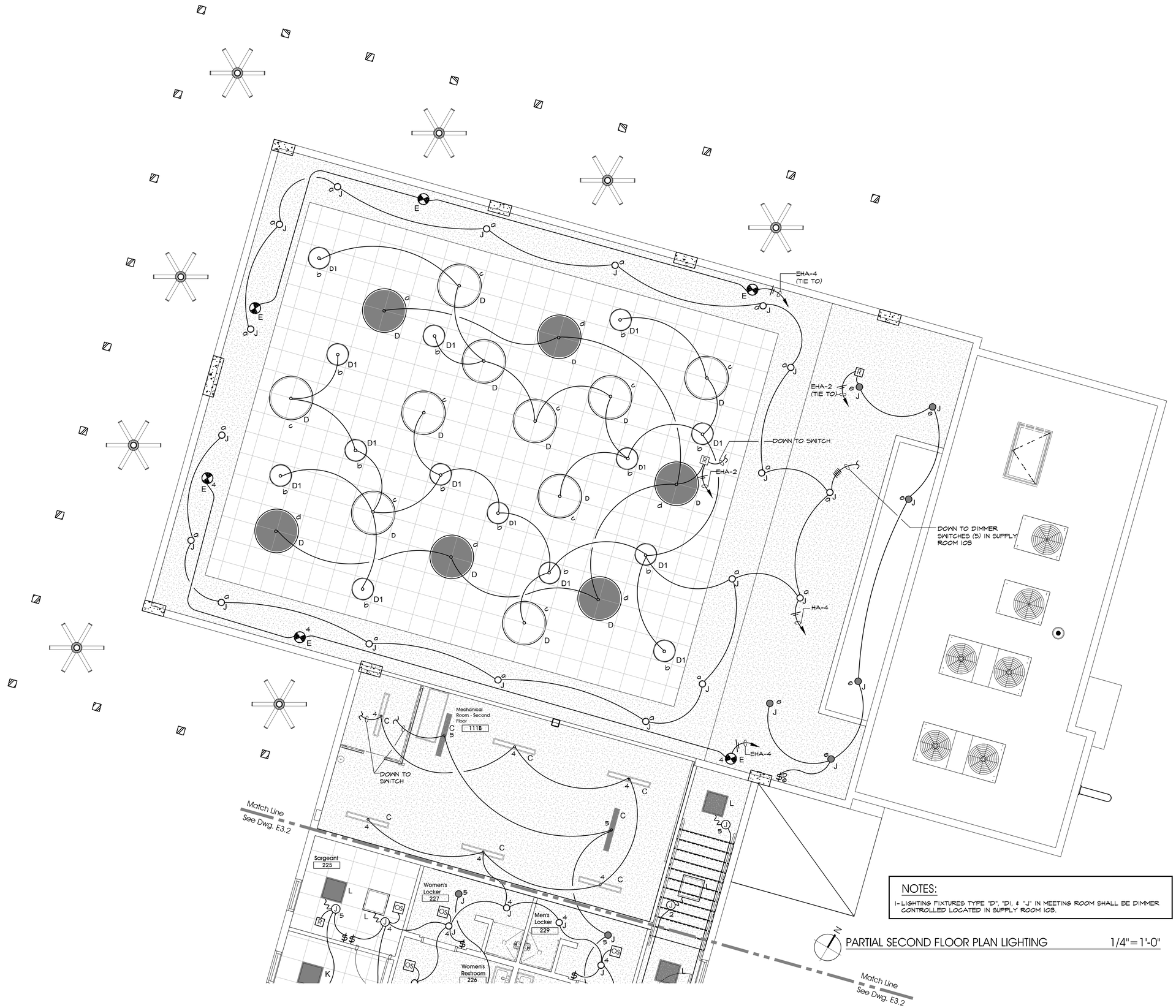

NOTES:

1- LIGHTING FIXTURES TYPE "D", "D1, & "J" IN MEETING ROOM SHALL BE DIMMER CONTROLLED LOCATED IN SUPPLY ROOM 103.

PARTIAL SECOND FLOOR PLAN LIGHTING 1/4"=1'-0"

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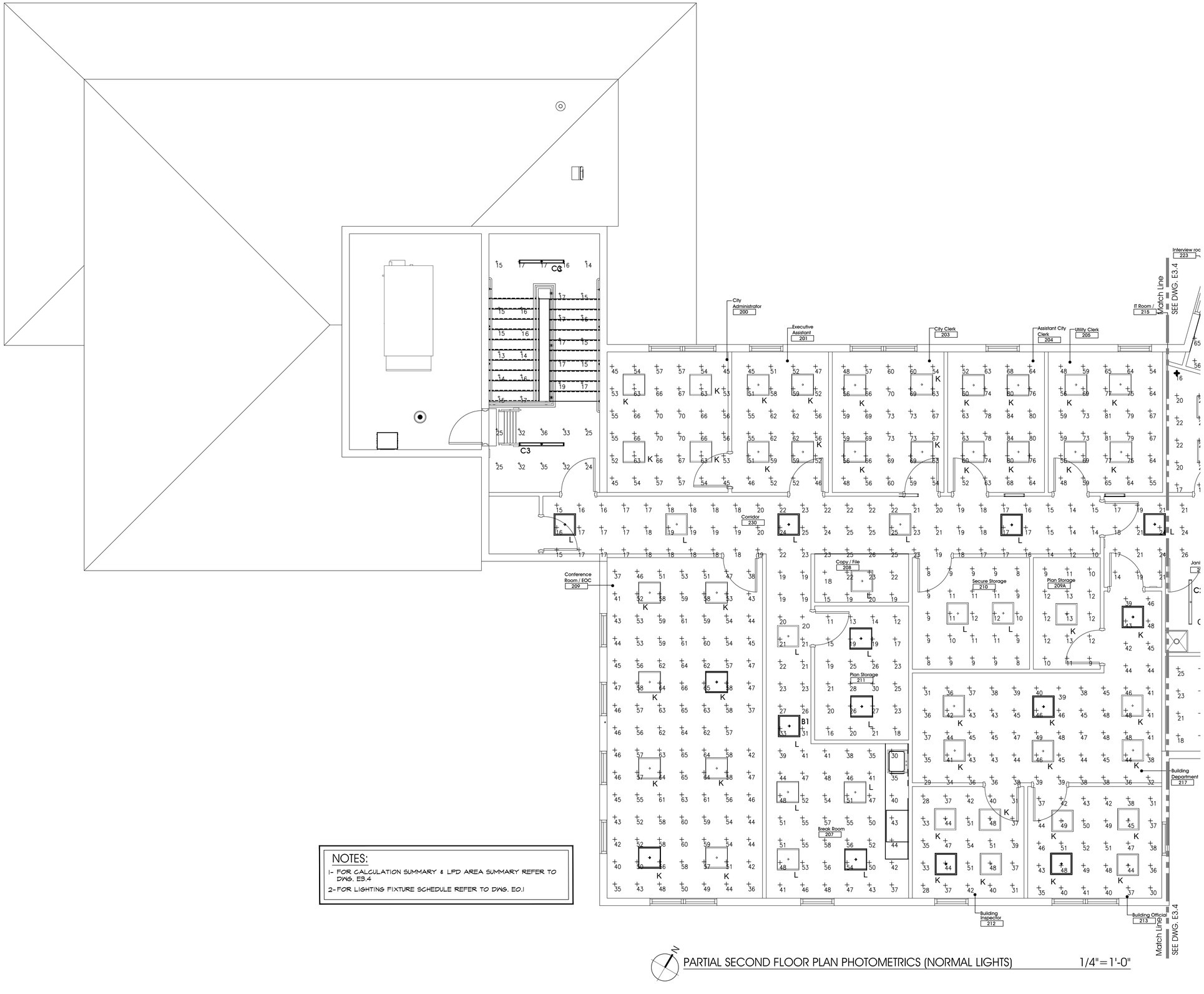

NOTES:

1- FOR CALCULATION SUMMARY & LPD AREA SUMMARY REFER TO DWG. E3.4

2- FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1

PARTIAL SECOND FLOOR PLAN PHOTOMETRICS (NORMAL LIGHTS) 1/4"=1'-0"

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PARTIAL 2ND. FLOOR PLAN PHOTOMETRICS NORMAL LIGHTS

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CALCULATION SUMMARY

LABEL	AVG.	MAX.	MIN.	AVG/MIN	MAX/MIN.
101 COMMUNITY CENTER OPEN AREA_Workplane	61.32	79	26	2.36	3.04
111B MECHANICAL ROOM 2ND FLOOR_Floor	28.55	34	18	1.59	1.89
200 CITY ADMINISTRATOR_Workplane	58.86	70	45	1.31	1.56
201 EXECUTIVE ASSISTANT_Floor	54.25	62	45	1.21	1.38
203 CITY CLERK_Workplane	62.83	73	48	1.31	1.52
204 ASST CITY CLERK_Workplane	70.17	84	52	1.35	1.62
205 UTILITY CLERK_Workplane	66.03	81	48	1.38	1.69
206 CONFERENCE ROOM_EOC_Workplane	53.38	66	35	1.53	1.89
209 BUILDING DEPARTMENT_Workplane	41.68	49	29	1.44	1.69
209A PLAN STORAGE_Floor	11.40	13	9	1.27	1.44
210 SECURE STORAGE_Floor	9.64	12	8	1.21	1.50
211 CODE_Workplane	20.33	30	11	1.85	2.73
212 INSPECTOR_Workplane	40.32	54	28	1.44	1.93
213 BUILDING OFFICIAL_Workplane	42.77	52	30	1.43	1.73
214 MECHANICAL ROOM_Floor	23.03	28	17	1.35	1.65
215 IT_Floor	20.81	24	16	1.30	1.50
218 MEN RR_Workplane	42.18	51	32	1.32	1.59
219 WOMEN RR_Workplane	28.45	33	24	1.19	1.38
221 CHIEF OF POLICE_Workplane	62.26	80	39	1.60	2.05
222 SECURE EVIDENCE WEAPON'S RM_Workplane	27.95	35	21	1.33	1.67
223 INTERVIEW ROOM_Workplane	75.63	94	56	1.35	1.68
224 DUTY OFFICERS_Workplane	38.41	51	22	1.75	2.32
225 SARGEANT_Workplane	43.00	55	33	1.30	1.67
226-227 WOMENS LOCKER_Workplane	46.54	72	21	2.22	3.43
228-229 MENS LOCKER_Workplane	47.08	78	22	2.14	3.55
232 STAIRS_Floor	20.07	23	16	1.25	1.44
233 TELEPHONE_Floor	26.73	31	23	1.16	1.35
TELEPHONE_1_Floor	26.00	31	20	1.30	1.55
100 STAIRS	19.83	36.0	13.0	1.53	2.77
207 BREAK ROOM	46.88	58.0	30.0	1.56	1.93
220 LOBBY	23.83	30.0	7.0	3.40	4.29
CORRIDOR	19.35	40.0	10.0	1.94	4.00

LPD AREA SUMMARY

LABEL	AREA	TOTAL WATTS	LPD
101 COMMUNITY CENTER OPEN AREA_L	2849	2130	0.748
111B MECHANICAL ROOM 2ND FLOOR_LPD	469.71	275	0.585
200 CITY ADMINISTRATOR_LPD	143.85	132.4	0.920
201 EXECUTIVE ASSISTANT_LPD	108.85	132.4	1.216
203 CITY CLERK_LPD	125.06	132.4	1.059
204 ASST CITY CLERK_LPD	108.72	132.4	1.218
205 UTILITY CLERK_LPD	127.47	132.4	1.039
209 BUILDING	256.60	154	0.600
209 CONFERENCE ROOM_EOC_LPD	422.23	264.8	0.627
209A PLAN STORAGE	58.30	22	0.377
210 SECURE STORAGE	99.59	22	0.221
211 CODE	101.76	33.1	0.325
212 INSPECTOR	97.22	66.2	0.681
213 INSPECTOR_LPD	119.88	88	0.734
215 IT_LPD	62.87	44	0.700
218 MEN RR_LPD	52.92	33.1	0.625
219 WOMEN RR_LPD	55.05	33.1	0.601
223 INTERVIEW ROOM_LPD	97.17	132.4	1.363
224 SECURE EVIDENCE WEAPON'S RM_LPD	81.34	44	0.541
225 CHIEF OF POLICE_LPD	131.82	132.4	1.004
226 ROOM_LPD	294.52	165.5	0.562
226-227 WOMENS LOCKER_LPD	140.39	165	1.175
227 ROOM_LPD	85.55	66.2	0.774
228-229 MENS LOCKER_LPD	140.72	165	1.173
232 STAIRS_LPD	111.29	66	0.593
233 TELEPHONE_LPD	41.18	55	1.336
TELEPHONE_1_LPD	52.64	55	1.045
XX_LPD	1247	550.4	0.441



PARTIAL SECOND FLOOR PLAN PHOTOMETRICS (NORMAL LIGHTS) 1/4"=1'-0"

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PARTIAL 2ND. FLOOR PLAN PHOTOMETRICS NORMAL LIGHTS

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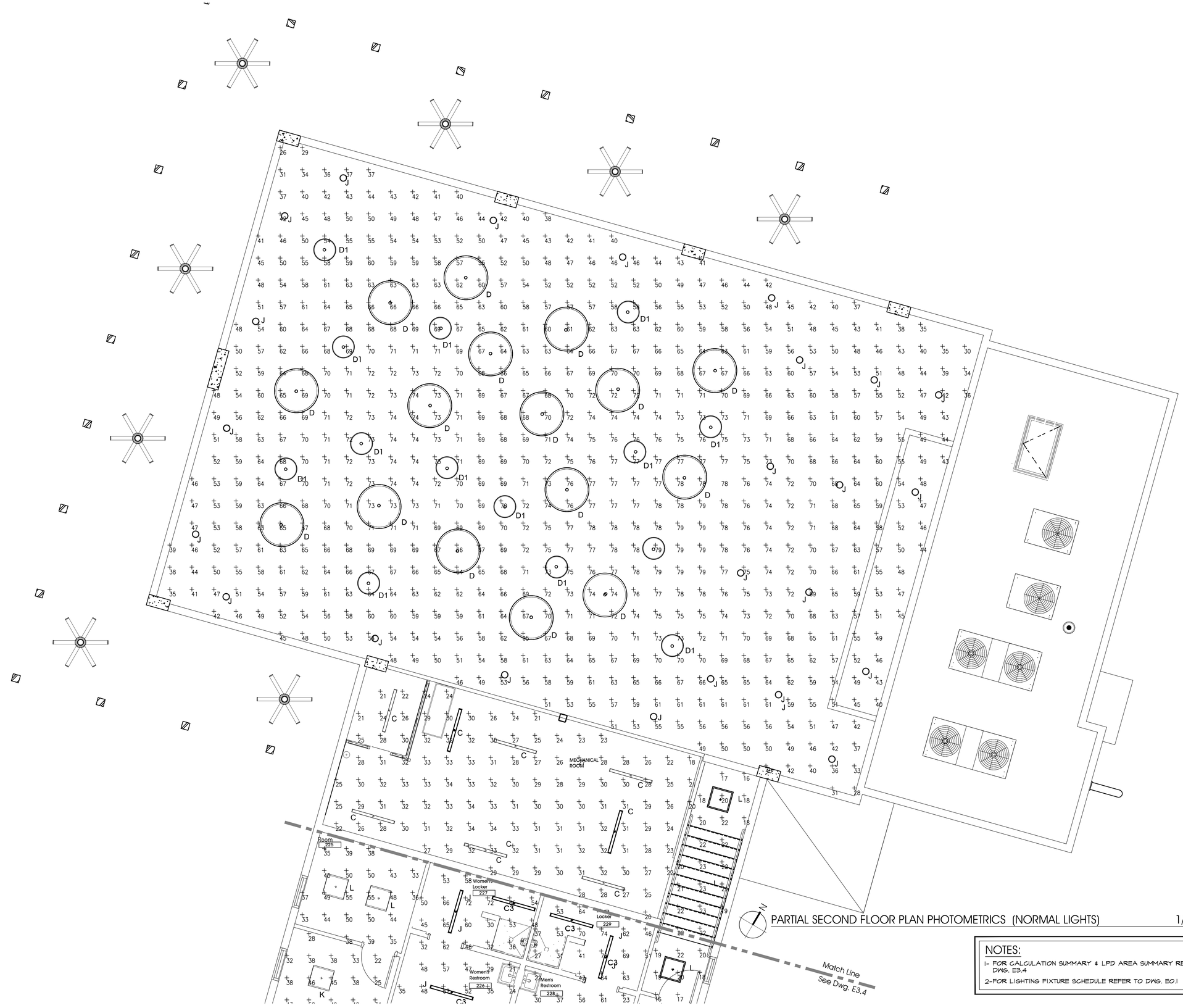

PARTIAL SECOND FLOOR PLAN PHOTOMETRICS (NORMAL LIGHTS) 1/4"=1'-0"

NOTES:

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2-FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1

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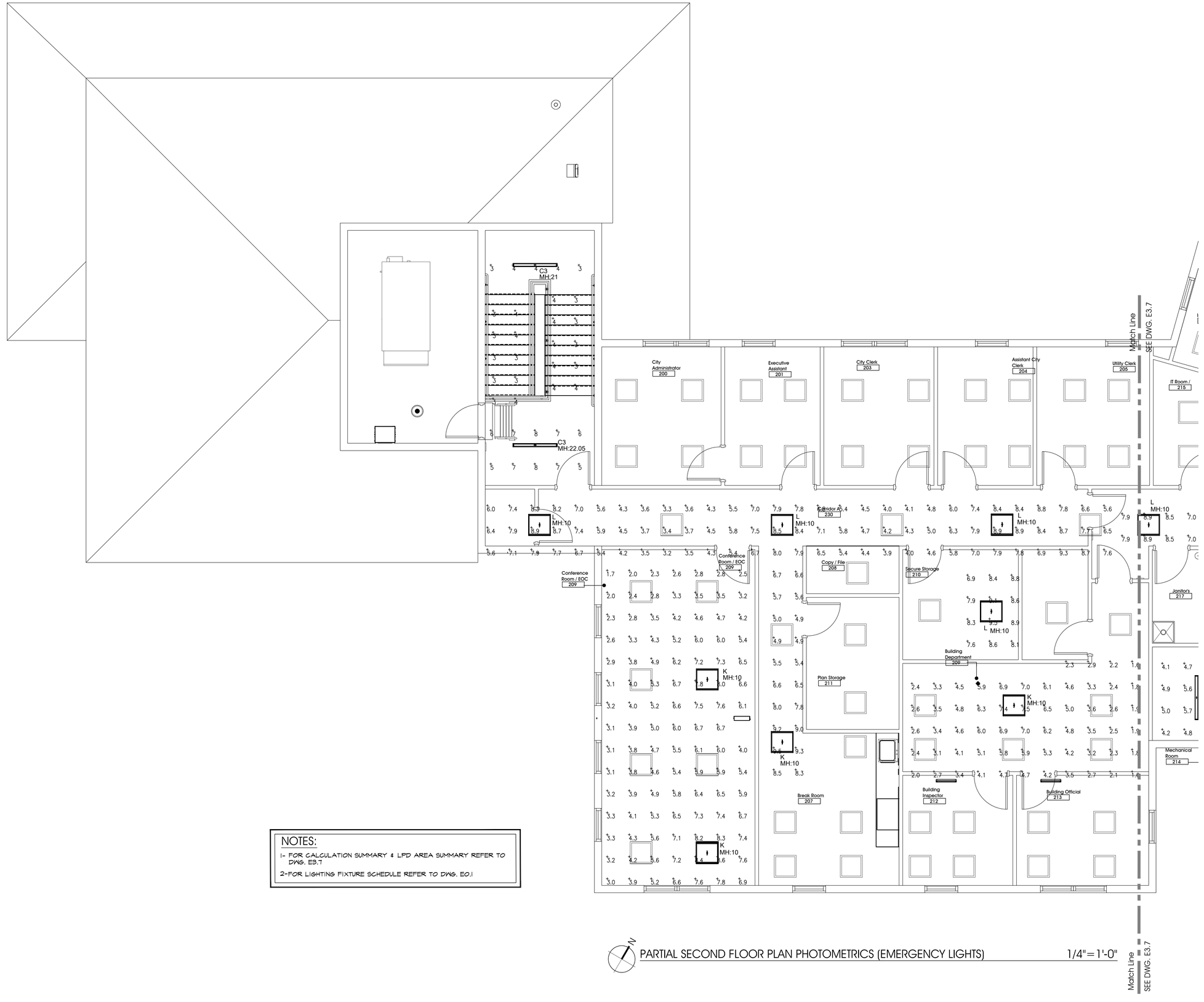

NOTES:

1- FOR CALCULATION SUMMARY & LPD AREA SUMMARY REFER TO DWG. E3.7

2-FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1

PARTIAL SECOND FLOOR PLAN PHOTOMETRICS (EMERGENCY LIGHTS) 1/4"=1'-0"

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ARCHITECTURE • ENGINEERING
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consultant:

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600 W Ocean Dr , Key Colony , Florida 33051

LIVS project number:
201913

Client project number:
-

sheet title
PARTIAL 2ND.FLOOR PLAN PHOTOMETRICS EMERGENCY LIGHTS

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

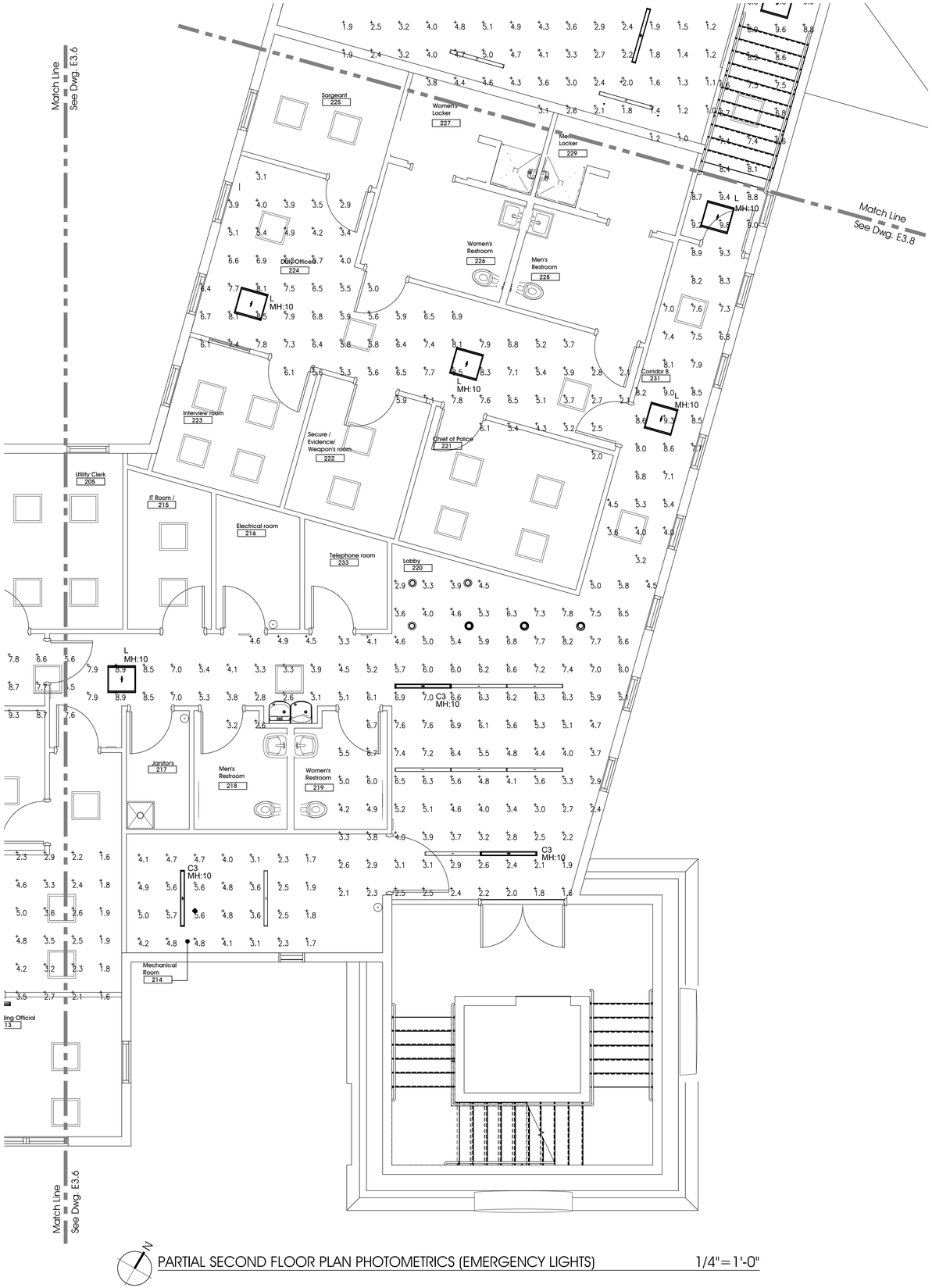
CARLOS A. ALVAREZ
LICENSE
No. 14099
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Carlos A. Alvarez, P.E.
License No. 14099

sheet number
E3.6

sheet:
of

CALCULATION SUMMARY					
LABEL	AVG.	MAX.	MIN.	AVG/MIN	MAX/MIN.
101 COMMUNITY CENTER OPEN AREA_Floor	1.99	3.6	0.7	2.84	5.14
207 ELECTRICAL ROOM_Floor	5.44	6.5	4.2	1.30	1.55
208 CORRIDOR_Floor	6.58	9.5	3.2	2.06	2.97
209 CONFERENCE ROOM_EOC_Floor	5.03	8.6	1.7	2.96	5.06
217 BUILDING DEPARTMENT_Floor	4.02	7.5	1.6	2.51	4.69
218 MECHANICAL ROOM_Floor_Floor	3.84	5.7	1.7	2.26	3.35
222 ROOM_Floor	4.81	8.9	1.6	3.01	5.56
226 ROOM_Floor	5.71	8.5	2.0	2.86	4.25
232 CORRRIDOR_Floor	7.68	9.8	3.2	2.40	3.06
MECHANICAL ROOM_Floor	2.99	5.1	1.0	2.99	5.10
100 STAIRS	4.37	8.0	3.0	1.46	2.67



N

PARTIAL SECOND FLOOR PLAN PHOTOMETRICS (EMERGENCY LIGHTS) 1/4"=1'-0"

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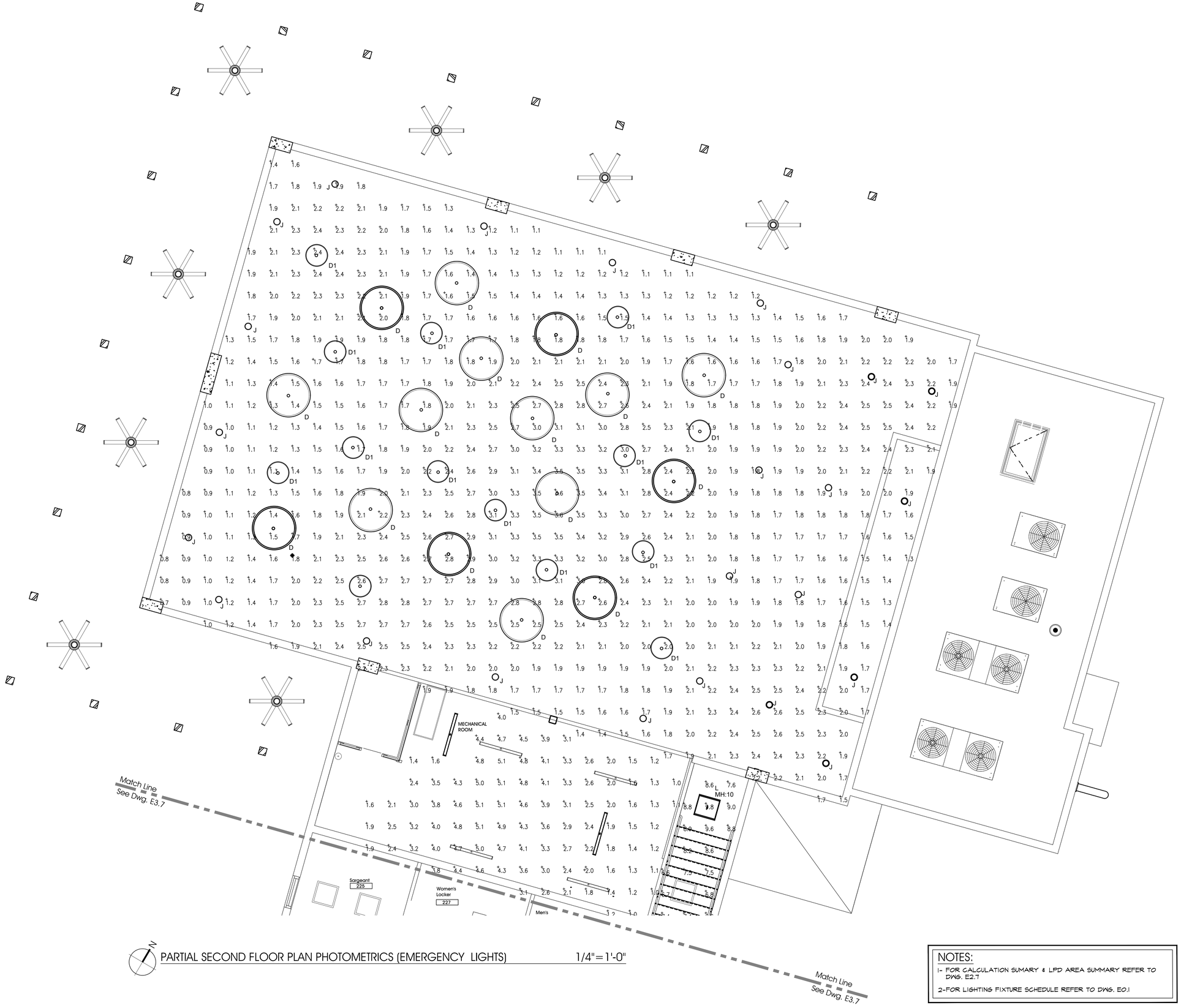
sheet number
E3.7

sheet:
of



PARTIAL SECOND FLOOR PLAN PHOTOMETRICS (EMERGENCY LIGHTS) 1/4"=1'-0"

NOTES:

1- FOR CALCULATION SUMARY & LPD AREA SUMMARY REFER TO DWG. E2.7

2-FOR LIGHTING FIXTURE SCHEDULE REFER TO DWG. E0.1

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Carlos A. Alvarez, P.E.
Licensed Professional Engineer
No. 14099

sheet number
E3.8

sheet:
of

18"X 24"X 8" DEEP STAINLESS STEEL & WEATHER PROOF TERMINAL CABINET 24" ABOVE ROOF TO BOTTOM OF BOX.

RTU-1 26.0 FLA, 480V, 3Ø

RTU-1

A-25,27,29

3P, 60A. NEMA 3R. DISC. SWITCH WITH 40 FUSES.

3P, 150A. CKT. BREAKER NEMA 4X (STAINLESS STEEL), 10,000 AIC.

45 KVA XFMR.

WP/GFI

LB-1 (TIE TO)

1-4" E.C. TO TELEPHONE ROOM, SEE SHEET E3.10

Match Line SEE DWG. E3.10

2-4"EC. & 2-2"EC. FROM GRADE, REFER TO DWG E1.0

City Administrator 200

Executive Assistant 201

City Clerk 203

Utility Clerk 205

Assistant City Clerk 204

Corridor A 230

Copier 208

Plan Storage 209A

Secure Storage 210

Code 211

Building Department 209

Building Inspector 212

Building Official 213

Conference Room / EOC 206

Break Room 207

Mechc Room 214

Jani 2

HB-3 VAV-1-3-3

HB-5 VAV-1-3-4

HB-4 VAV-1-3-2

LB-4,6,8

LB-10,12

LB-3,5 HB-7 VAV-1-3-5

LB-1,3 HB-6 VAV-1-3-6

LB-15,17 HB-10 VAV-1-3-8

HB-8 VAV-1-3-7

LB-7,9

LB-19-21

LB-36

LB-2

LB-1

EF-1

CP-2

EWH-3

3P, 30A SWITCH WITH 2C

72" A.F.F.

60" A.F.F.

6'-11"

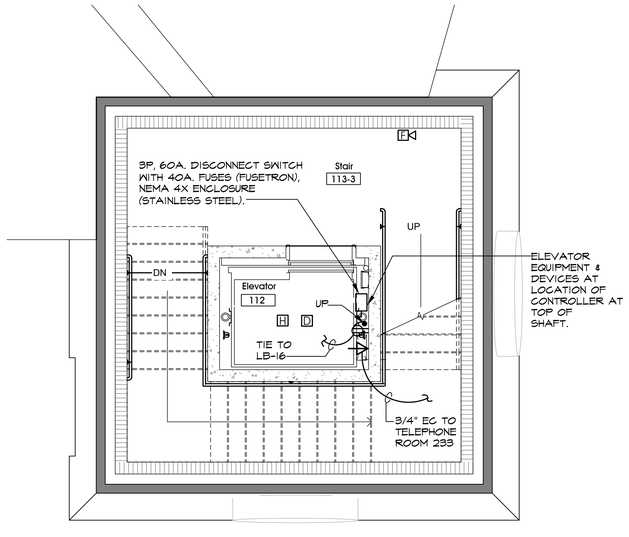
15'-2"

6'-3"

3'-6"

3'-6"

PARTIAL SECOND FLOOR PLAN POWER AND SYSTEMS 1/4"=1'-0"



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CITY HALL
600 W Ocean Dr . Key Colony . Florida 33051

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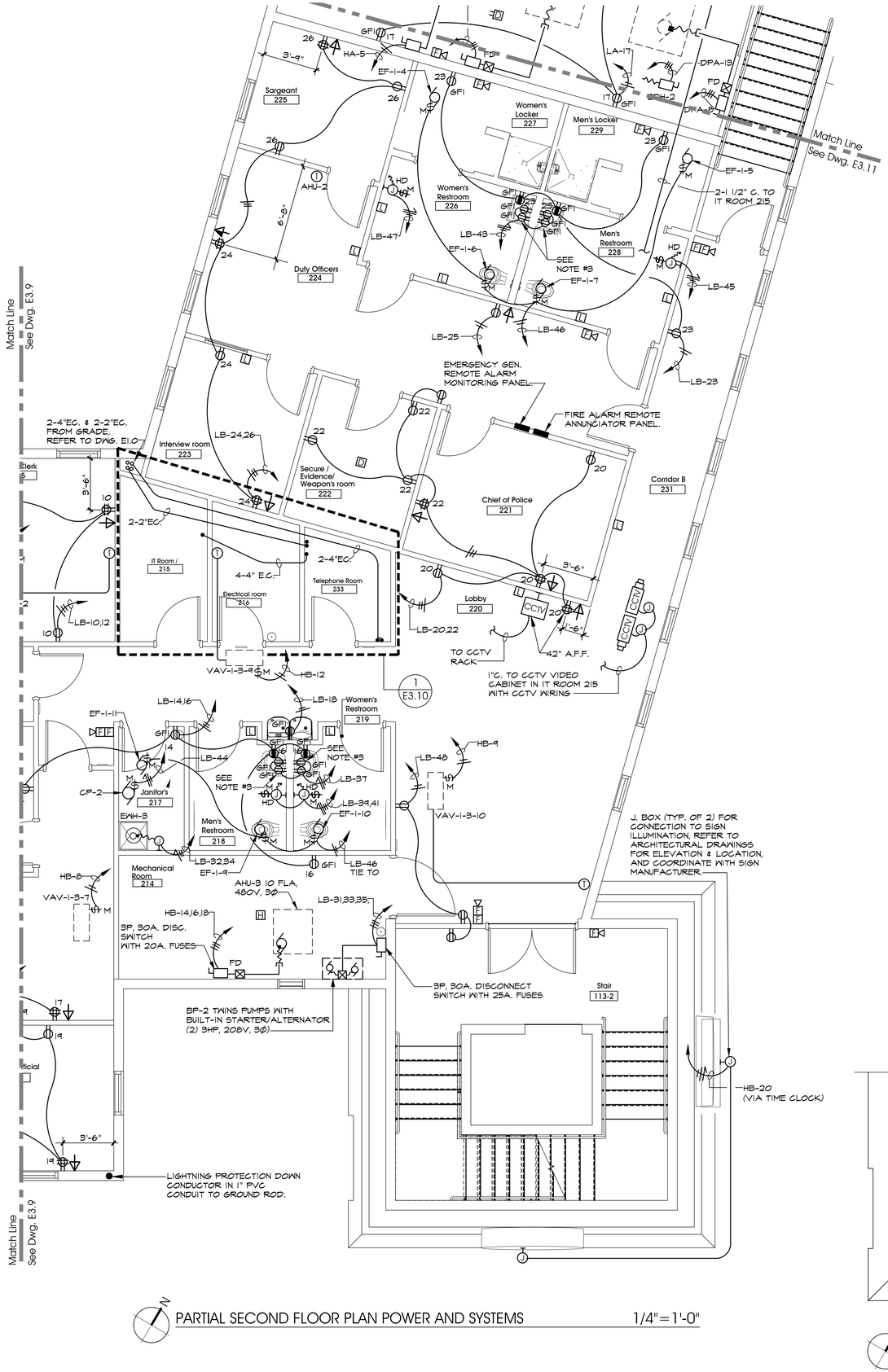
Electrical Engineer
Florida License No. 14099

sheet number
E3.9

sheet:
of



PARTIAL SECOND FLOOR PLAN POWER AND SYSTEMS 1/4"=1'-0"

ELECTRICAL ROOM CODED NOTES:

1. PANEL "HB" 277/480V, 3Ø, 4W.
2. 30 KVA TRANSFORMER 480V, 3Ø, TO 120/208V, 3Ø, 4W. FLOOR MOUNTED ON 4" HIGH CONCRETE PAD.
3. PANEL "LB" 120/208, 3Ø, 4W.
4. PANEL "ELB" 120/208, 3Ø, 4W.
5. 15 KVA TRANSFORMER 480V, 3Ø, TO 120/208V, 3Ø, 4W. WALL MOUNTED.
6. PANEL "EHB" 277/480V, 3Ø, 4W.
7. FIRE ALARM TERMINAL CABINET (18"X 24"X 6"D.)
8. FIRE ALARM NAC PANEL
9. FIRE ALARM NAC PANEL
10. 1/4" THICK COPPER GROUNDING BAR 10"X 2" ON 1/2" WALL BRACKET SEE DETAIL THIS DWG.

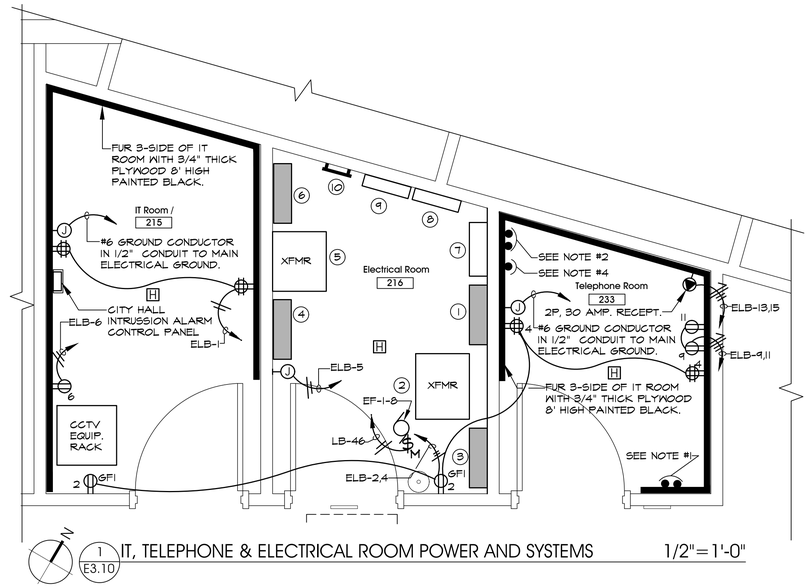
NOTES:

1- 2-4" EC. WITH PULL STRINGS TO PROPERTY LINE. FOR CONTINUATION SEE SHEET E1.0

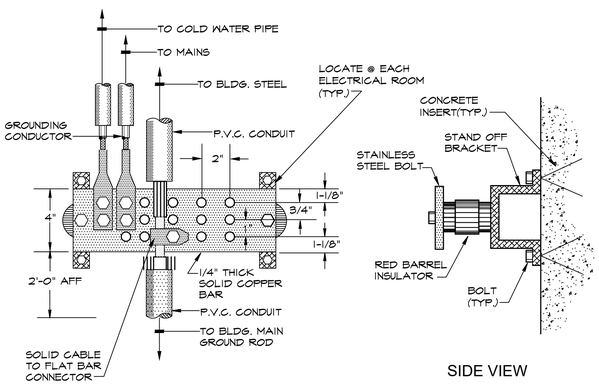
2-2-2" EC. WITH PULL STRING TO USPS TEL/DATA CABINET. FOR CONTINUATION SEE SHEET E1.0

3-CONNECT FAUCET WITH AUTOMATIC HAND ACTIVATED CONTROLS TO NEW GFIC PROTECTER CIRCUIT, AS SHOWN AND AS RECOMMENDED BY MANUFACTURER.

4-1-4" E.C. WITH PULL STRING TO 18"X 24"X 8" DEEP TERMINAL BOX WALL MOUNTED AT RTU ROOF AREA, SEE SHEET E3.9 FOR LOCATION. TERMINATE 4" E.C. AT 8'-0" A.F.F. IN TELEPHONE ROOM.

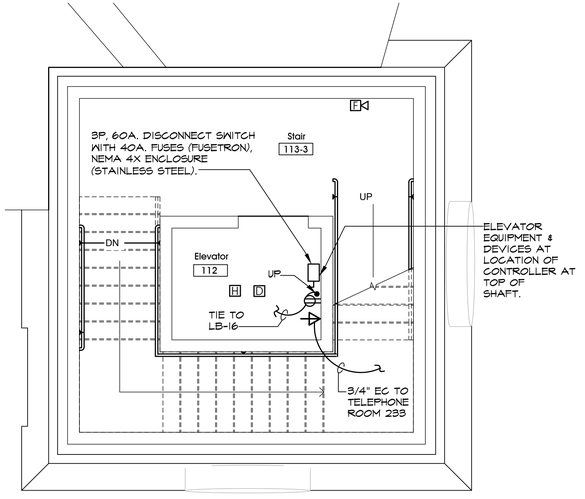


1 E3.10 IT, TELEPHONE & ELECTRICAL ROOM POWER AND SYSTEMS 1/2"=1'-0"

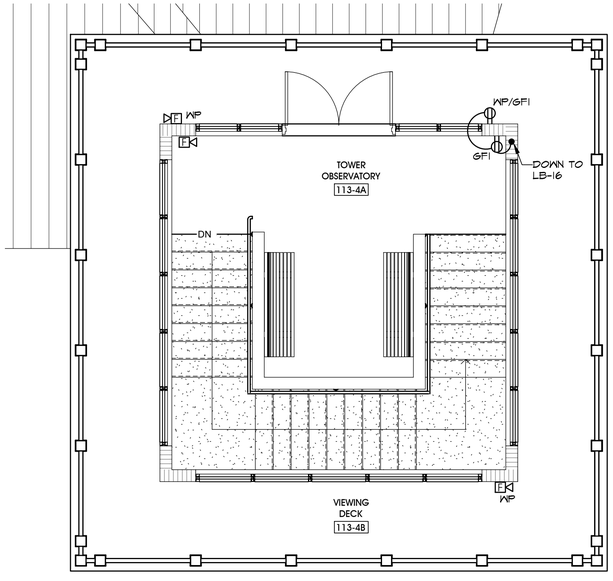


SIDE VIEW

GROUND BAR DETAIL N.T.S.



TOWER MID LEVEL POWER AND SYSTEMS 1/4"=1'-0"



TOWER TOP LEVEL POWER AND SYSTEMS 1/4"=1'-0"

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consultant:

CITY OF KEY COLONY BEACH — CITY HALL
600 W Ocean Dr . Key Colony . Florida 33051

LIVS project number:
201913

Client project number:
-

sheet title
PARTIAL SECOND FLOOR PLAN POWER AND SYSTEMS

revisions

issued for:
BID SET

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05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
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Carlos A. Alvarez, P.E.
Florida License No. 14099

sheet number
E3.10

sheet:
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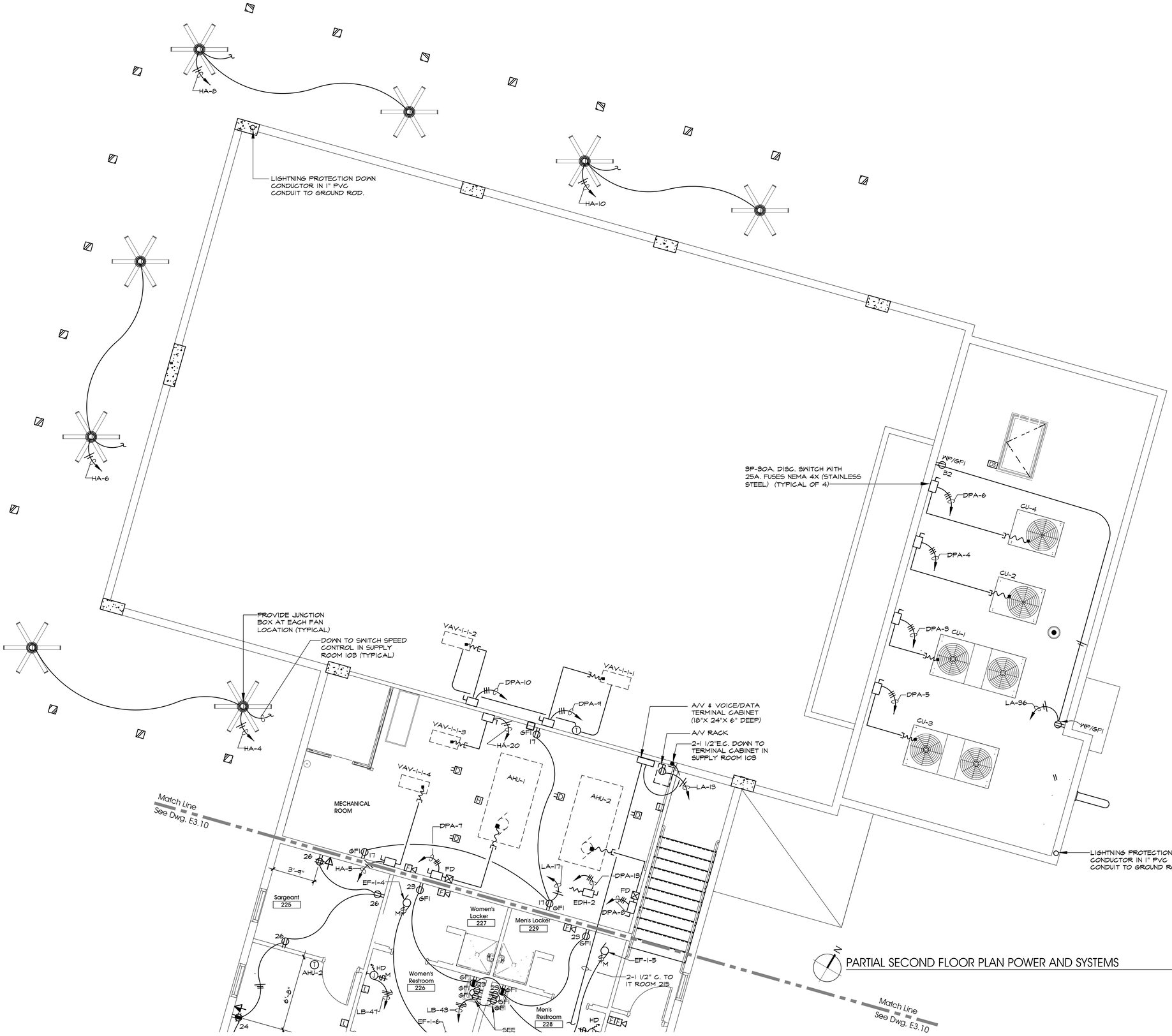

PARTIAL SECOND FLOOR PLAN POWER AND SYSTEMS 1/4"=1'-0"

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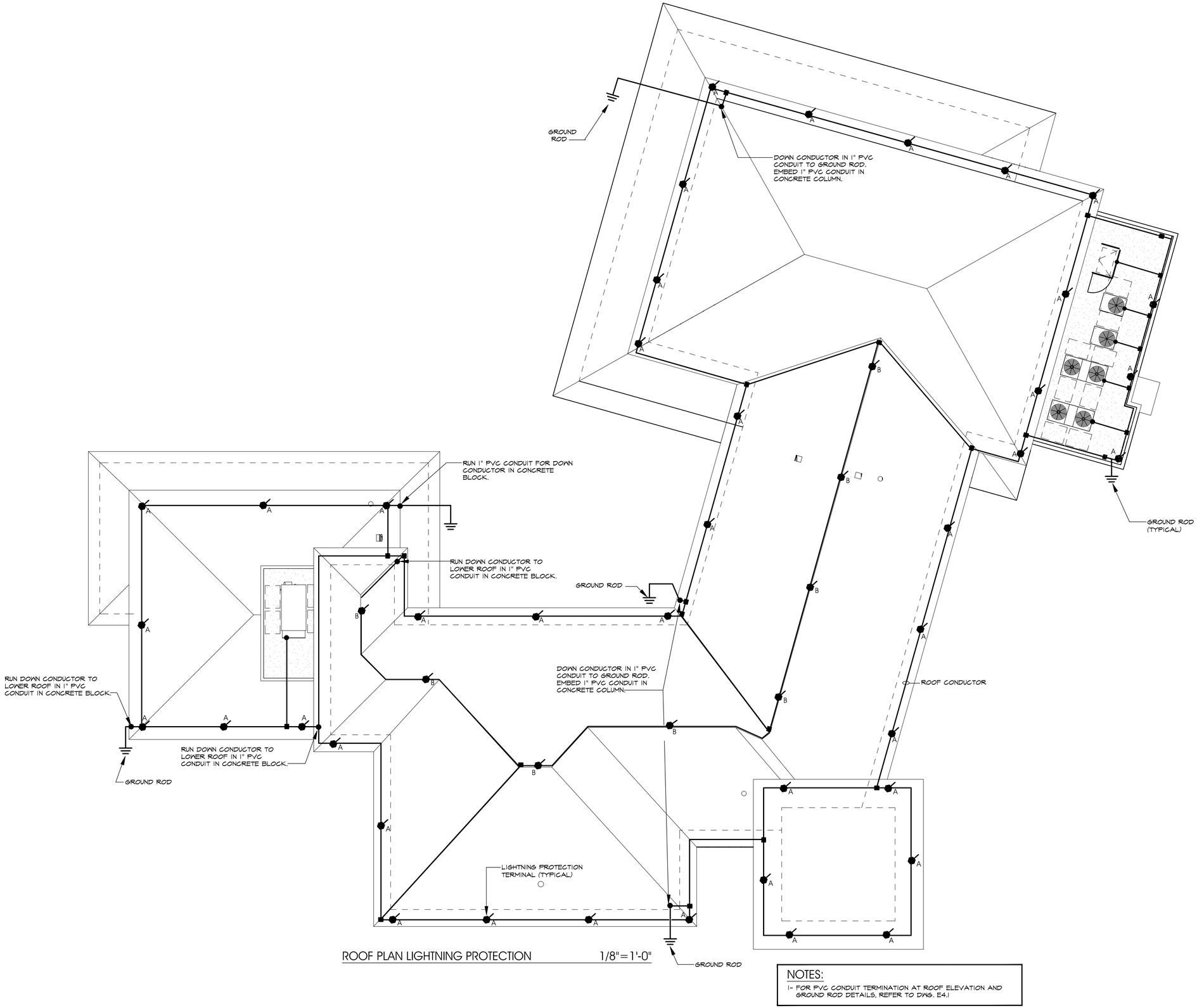
Carlos A. Alvarez, P.E.
Registered Professional Engineer
No. 14099

sheet number
E3.11

sheet:
of



ROOF PLAN LIGHTNING PROTECTION 1/8"=1'-0"

NOTES:

1- FOR PVC CONDUIT TERMINATION AT ROOF ELEVATION AND GROUND ROD DETAILS, REFER TO DWG. E4.1

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Carlos A. Alvarez, P.E.
Electrical Engineer
Registered Engineer No. 14099

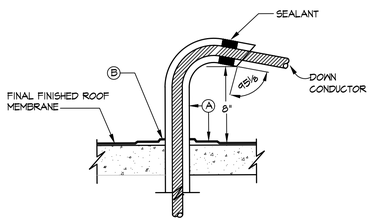
sheet number
E4.0

sheet:
of

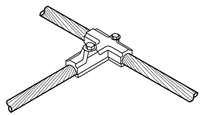
NOTE:

(A) 1 1/4" X 0.095" WALL TUBING WELDED TO 9" DIA. X 0.095 ALUM. FLAT FLANGE. ANCHOR WITH 4 #12 S/S SHT. METAL SCREWS THRU METAL DECK BELOW.

(B) REFER TO ARCH. DETAIL FOR INSTALLATION OF GOOSENECK.

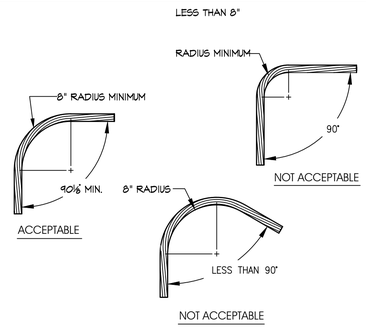


THRU-ROOF AIR TERMINAL
N.T.S



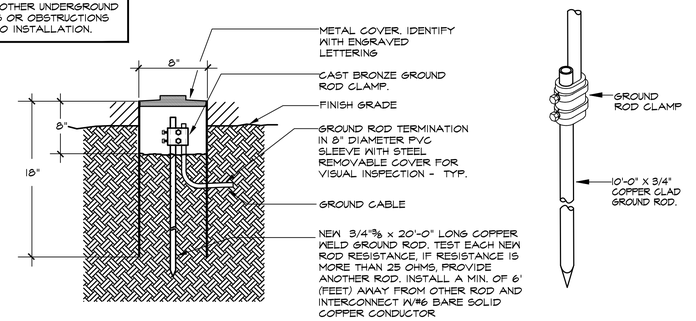
HEAVY DUTY CAST BRONZE PRESSURE TYPE TEE SPLICER.

CONDUCTOR SPLICER (C)
N.T.S

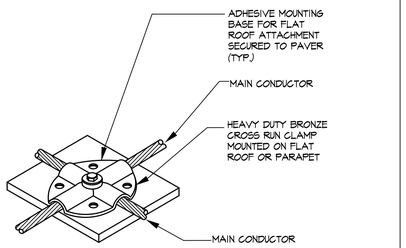


TYPICAL CABLE BEND REQUIREMENTS
N.T.S

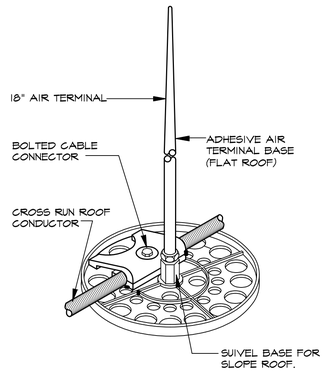
NOTE:
VERIFY OTHER UNDERGROUND UTILITIES OR OBSTRUCTIONS PRIOR TO INSTALLATION.



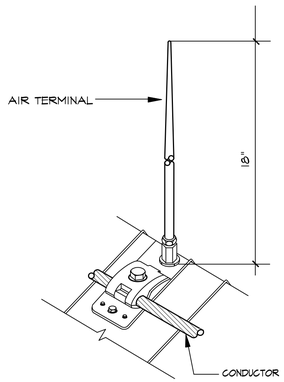
GROUND ROD (D)
N.T.S



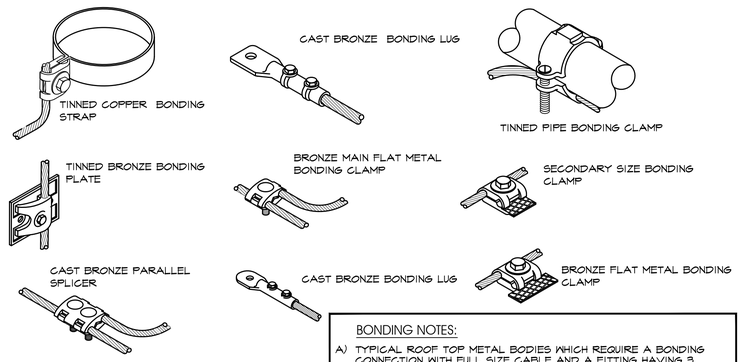
CABLE CLAMP
N.T.S



AIR TERMINAL (A) 18"
N.T.S



AIR TERMINAL (B) 18" - AT RIDGE
N.T.S



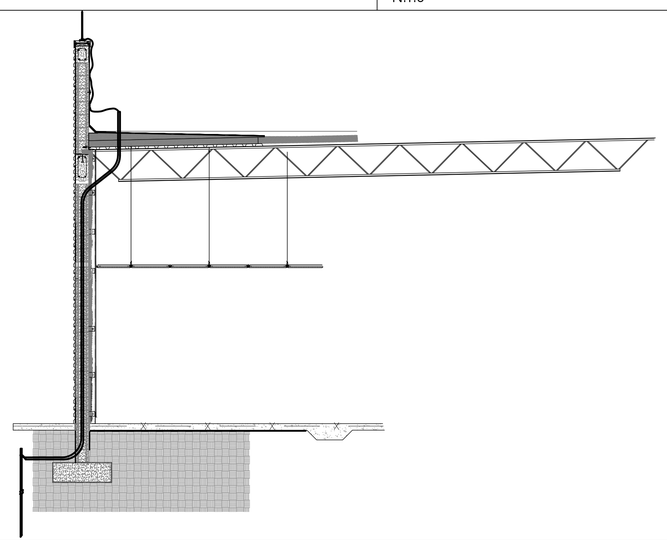
BONDING NOTES:

A) TYPICAL ROOF TOP METAL BODIES WHICH REQUIRE A BONDING CONNECTION WITH FULL SIZE CABLE AND A FITTING HAVING 3 SQUARE INCHES OF CONTACT SURFACE PROVIDED THEY ARE NOT WITHIN A ZONE OF PROTECTION AND/OR MORE THAN 6'-0" FROM THE SYSTEM.

B) IN SOME CASES WHERE THE ABOVE UNITS/ITEMS ARE TALLER THAN THE ADJACENT SYSTEM AIR TERMINALS AND HAVE A METAL THICKNESS LESS THAN 3/16", AIR TERMINAL(S) MAY BE REQUIRED. SEE PLAN LAY-OUT FOR SPECIFICS.

C) ROOF TOP METALS WHICH REQUIRE BONDS USING SECONDARY SIZE CABLES AND FITTINGS ONLY IF WITHIN 6'-0" OF THE LIGHTNING PROTECTION SYSTEM.

TYPICAL BONDING & SPLICING DETAILS
N.T.S



DOWN CONDUCTOR DETAIL
N.T.S

GENERAL INSTALLATION NOTES

1. ARRESTORS ARE REQUIRED ON ELECTRICAL SERVICE PANEL, DATA AND TELEPHONE LINE ENTRANCES BY THE ELECTRICAL CONTRACTOR.
2. TELEPHONE AND/OR ELECTRICAL SERVICE ENTRANCE GROUNDS SHALL BE INTERCONNECTED.
3. METAL BODIES OF INDUCTANCE LOCATED ABOUT THE ROOF SUCH AS; METAL FLASHING, GRAVEL STOPS, ROOF DRAINS, SOIL PIPE VENTS, INSULATION VENTS, LOUVERS AND DOOR FRAMES SITUATED WITHIN 6'-0" OF A LIGHTNING CONDUCTOR OR BONDED METAL BODY SHALL BE INTERCONNECTED TO THE LIGHTNING CONDUCTOR SYSTEM.
4. NO BEND OF A CONDUCTOR SHALL FORM A FINAL INCLUDED ANGLE OF LESS THAN 90% NOT SHALL HAVE A RADIUS OF BEND OF LESS THAN 8".
5. CONDUCTORS SHALL INTERCONNECT ALL AIR TERMINALS AND SHALL FORM A TWO-WAY PATH FROM EACH AIR TERMINAL HORIZONTALLY OR DOWNWARD TO CONNECTIONS WITH GROUND TERMINALS.
6. ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE FASTENED AT NOT MORE THAN 3'-0" MAXIMUM SPACING.
7. GROUND RODS SHALL BE DRIVEN TO A MINIMUM DEPTH OF 10'-0" BELOW GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
8. CONNECTIONS TO GROUND LOOP CONDUCTOR SHALL BE MADE AT A POINT NOT LESS THAN 18" BELOW GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
9. AIR TERMINALS SHALL BE PLACED AT ALL UNPROTECTED OUTSIDE CORNERS AND LOCATED INTERMEDIATELY ON 20'-0" MAXIMUM SPACING AROUND THE ROOF PERIMETER OR RIDGE AND WITHIN 2'-0" OD OUTSIDE EDGE.
10. SAKE OF CLARITY, WE HAVE NOT LABELED EACH INDIVIDUAL ITEM OF LIGHTNING PROTECTION MATERIALS ON THE ROOF PLAN. WE HAVE SHOWN INSTALLATION DETAILS AND HAVE CALLED OUT EACH OF THESE DETAILS ON THE ROOF PLAN ONLY AT RANDOM LOCATIONS.
11. BOND ALL METALLIC PIPES INCLUDING WATER, FIRE, GAS, SEWER, STORM, ETC. WHICH ENTER THE STRUCTURE TO THE NEAREST DOWNLEAD, GROUND ROD OR GROUND LOOP.
12. BARE COPPER LIGHTNING PROTECTION MATERIALS SHALL NOT BE INSTALLED ON ALUMINUM ROOF OR SIDING OR OTHER ALUMINUM SURFACES AND VICE VERSA. ALUMINUM LIGHTNING PROTECTION MATERIALS SHALL NOT BE INSTALLED ON COPPER ROOFING OR COPPER SIDING OR OTHER COPPER SURFACES.
13. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED IN A NEAT AND INCONSPICUOUS MANNER SO THAT ALL COMPONENTS WILL BLEND IN WITH THE APPEARANCE OF THE BUILDING. COORDINATE WITH ARCHITECTS PRIOR TO ROUGH-IN.
14. ACTUAL JOB-SITE CONDITIONS MAY NECESSITATE SLIGHT ALTERATIONS IN AIR TERMINAL AND GROUND ROD LOCATIONS.
15. MIDROOF AIR TERMINALS SHALL BE PLACED ON 50'-0" MAXIMUM SPACING.
16. ALL ADHESIVE TYPE FITTINGS SHALL BE SET IN PLACE WITH AN APPLICATION OF CHEM LINK M-1 STRUCTURAL SEALANT BEFORE ROOF GRAVEL IS APPLIED.
17. IF REQUIRED, ANY SACRIFICIAL ROOFING PADS SHALL BE FURNISHED AND INSTALLED BY THE ROOFING CONTRACTOR.
18. SEAL ENDS OF CONDUIT MOISTURE TIGHT WITH DUCT SEAL OR DUCT WEDGE.
19. ALL CONDUIT, CONDUIT FASTENERS AND MISCELLANEOUS ACCESSORIES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
20. ALL REINFORCING, STRUCTURAL, FRAMING AND MISCELLANEOUS STEEL SHALL BE MADE ELECTRICALLY CONTINUOUS THROUGHOUT CONSTRUCTION BY WELDING, CLIPPING, BOLTING OR OTHER APPROVED METHODS.
21. THE DESIGN LAYOUT AND INSTALLATION DETAILS SHOWN HEREON SHALL MEET THE REQUIREMENTS OF UNDERWRITERS' LABORATORIES STANDARD 96A FOR MASTER LABELED LIGHTNING PROTECTION SYSTEMS. THE ACTUAL MASTER LABEL WILL BE DELIVERED UPON COMPLETION OF INSTALLATION.
22. THE LIGHTNING PROTECTION INSTALLATION SHALL COMPLY IN ALL RESPECTS TO LIGHTNING PROTECTION INSTITUTE STANDARD 175. THE INSTALLATION SHALL BE MADE BY OR UNDER THE SUPERVISION OF AN L.P.I. CERTIFIED MASTER INSTALLER. THE COMPLETED INSTALLATION WILL RECEIVE SYSTEM CERTIFICATION SUBMITTAL FORM LPI 175.
23. THE DESIGN LAYOUT AND INSTALLATION DETAILS SHOWN HEREON SHALL MEET THE REQUIREMENTS OF NATIONAL FIRE PROTECTION ASSOCIATION STANDARD #780, CURRENT EDITION.
24. LIGHTNING PROTECTION SYSTEM SHALL BE CLASS I.

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consultant:

CITY OF KEY COLONY BEACH
CITY HALL
600 W Ocean Dr - Key Colony - Florida 33051

LIVS project number:
201913

Client project number:
-

sheet title
LIGHTNING PROTECTION DETAILS

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

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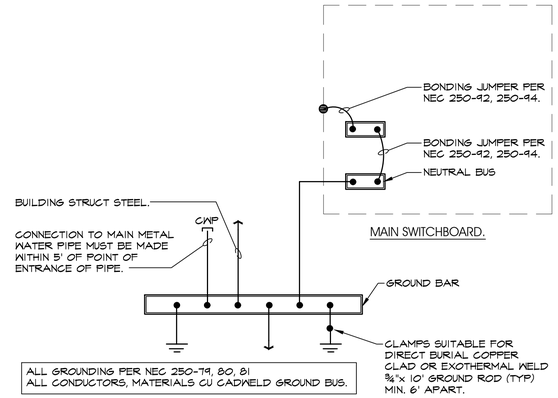
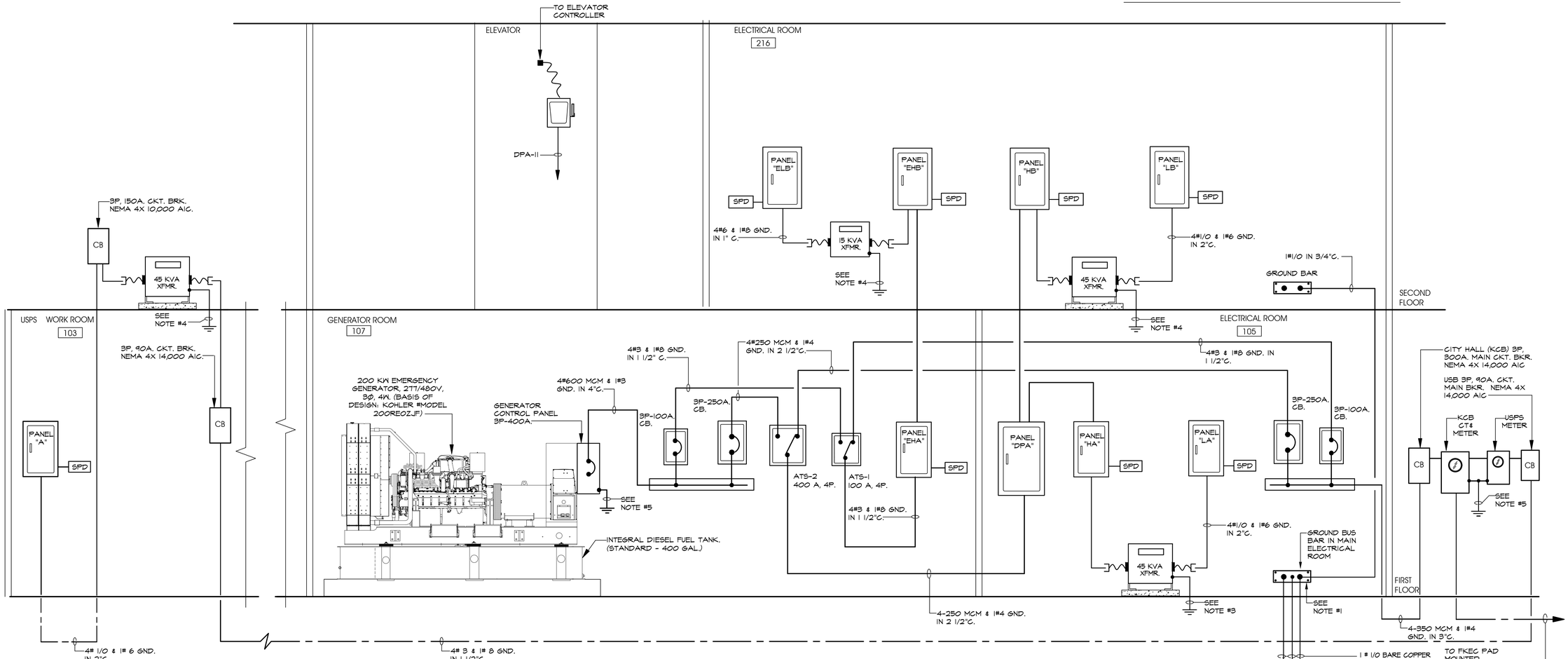
Carlos A. Alvarez, P.E.
Florida Registration No. 14099

sheet number
E4.1

sheet:
of



GROUNDING BAR DETAIL N.T.S.



POWER RISER DIAGRAM N.T.S.

NOTES:

1- MAIN ELECTRICAL GROUNDING ELECTRODE, CONNECT 1#1/0 IN 3/4"C. TO BUILDING FOUNDATION STRUCTURAL STEEL (MINIMUM 20' LONG), COLD WATER METAL PIPE (20' LONG) & TWO 3/4" COPPER CLAD GROUND RODS (10' LONG) SIX FEET APART.

2- 1 # 1/0 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 105.

3- 1 # 4 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 105.

4- 1 # 6 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 216

5- 1 # 1/0 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 105

6- PROVIDE A 10" ROUND PLASTIC ACCESS BOX TO GROUND CONNECTION.

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201913

Client project number:
-

sheet title
POWER RISER DIAGRAM

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M.T.	C.A.

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Carlos A. Alvarez, P.E.
Florida License No. 14099
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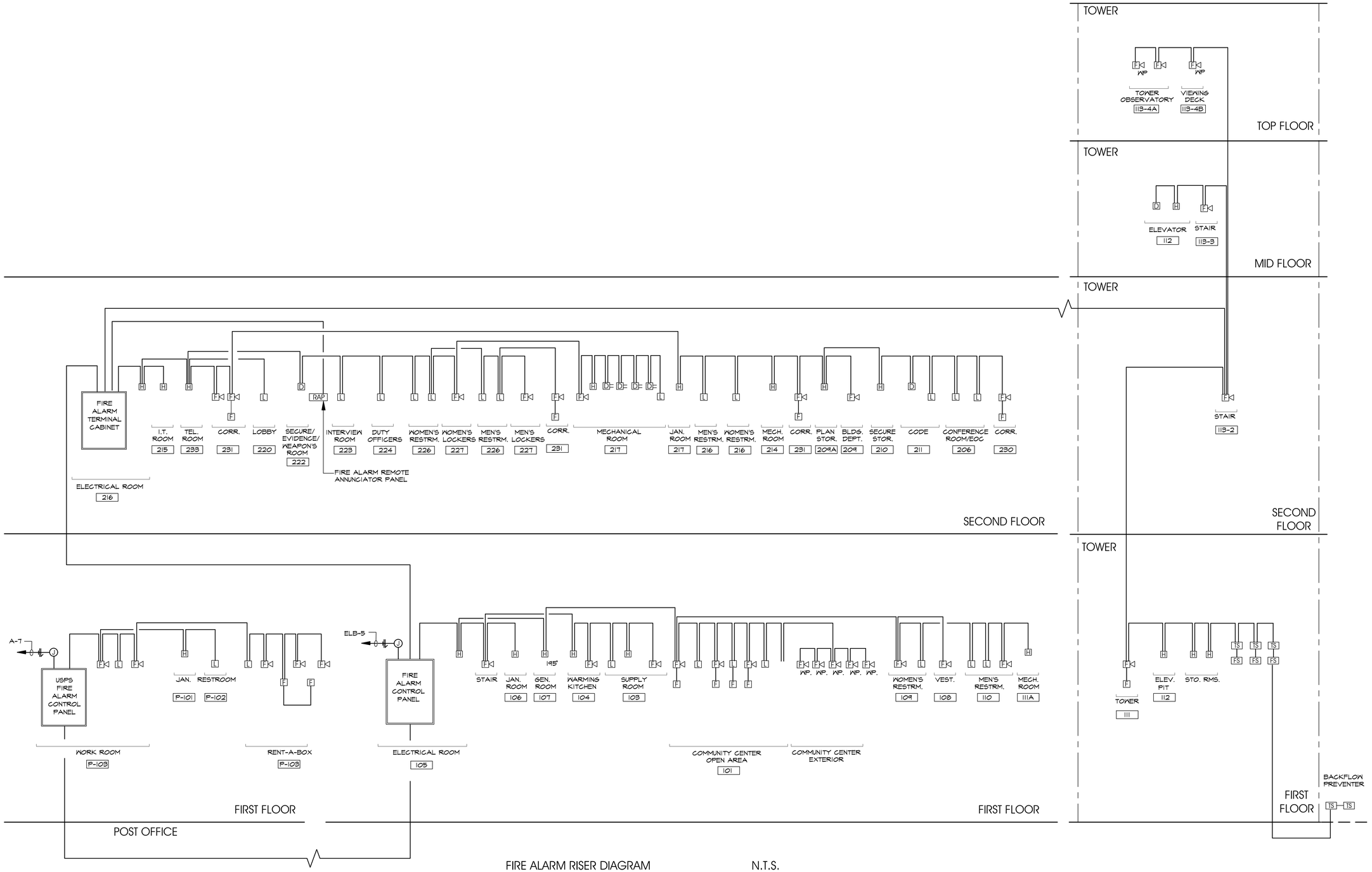

FIRE ALARM RISER DIAGRAM N.T.S.

NOTES:
1- CONNECT FIRE ALARM PANEL TO CIRCUIT ELB-3

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FIRE ALARM RISER DIAGRAM

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issued for:
BID SET

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05.01.23

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approved by: C.A.

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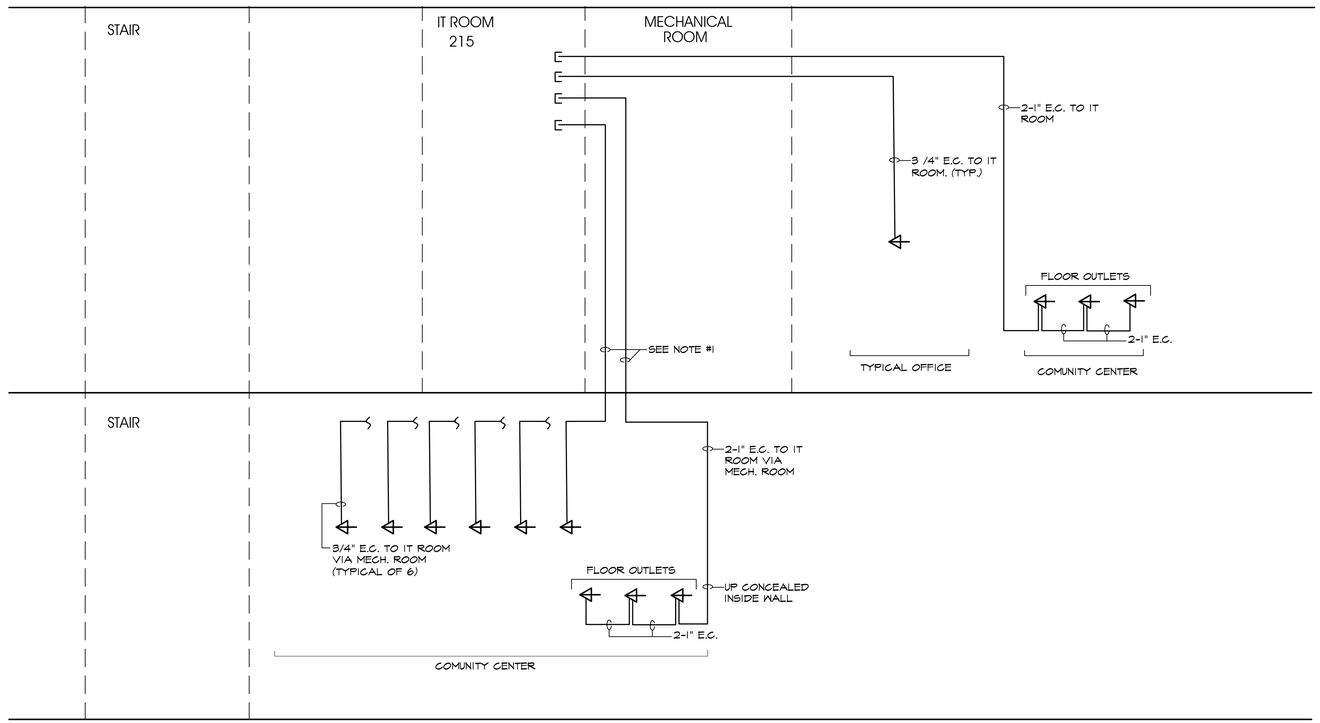
LICENSE
No. 14099
STATE OF FLORIDA
PROFESSIONAL ENGINEER
Carlos A. Alvarez, P.E.
Electrical Engineer
Signature Date: 05.01.2023
Lic. No. 14099

sheet number
E5.1

sheet:
of



USPS



CITY HALL

VOICE/DATA RISER DIAGRAM N.T.S.

NOTES:
1- PROVIDE PULL BOXES AS REQUIRED & SIZED ACCORDING TO THE N.E.C.

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Carlos A. Alvarez, P.E.
Electrical Engineer
License No. 14099

sheet number
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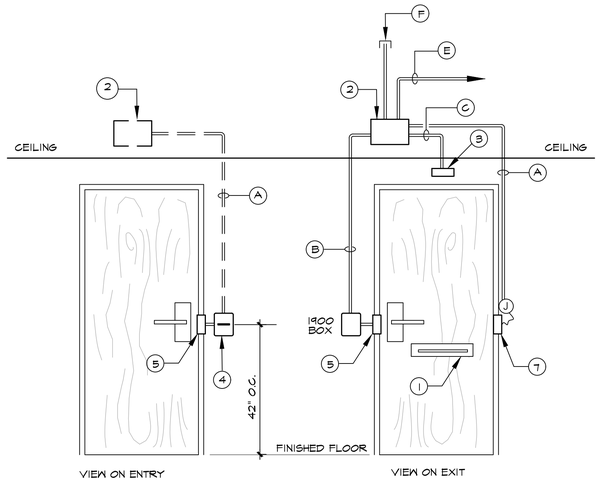


DOORS: 01-100; 02-224; 02-230A; 02-232B & 02-232C

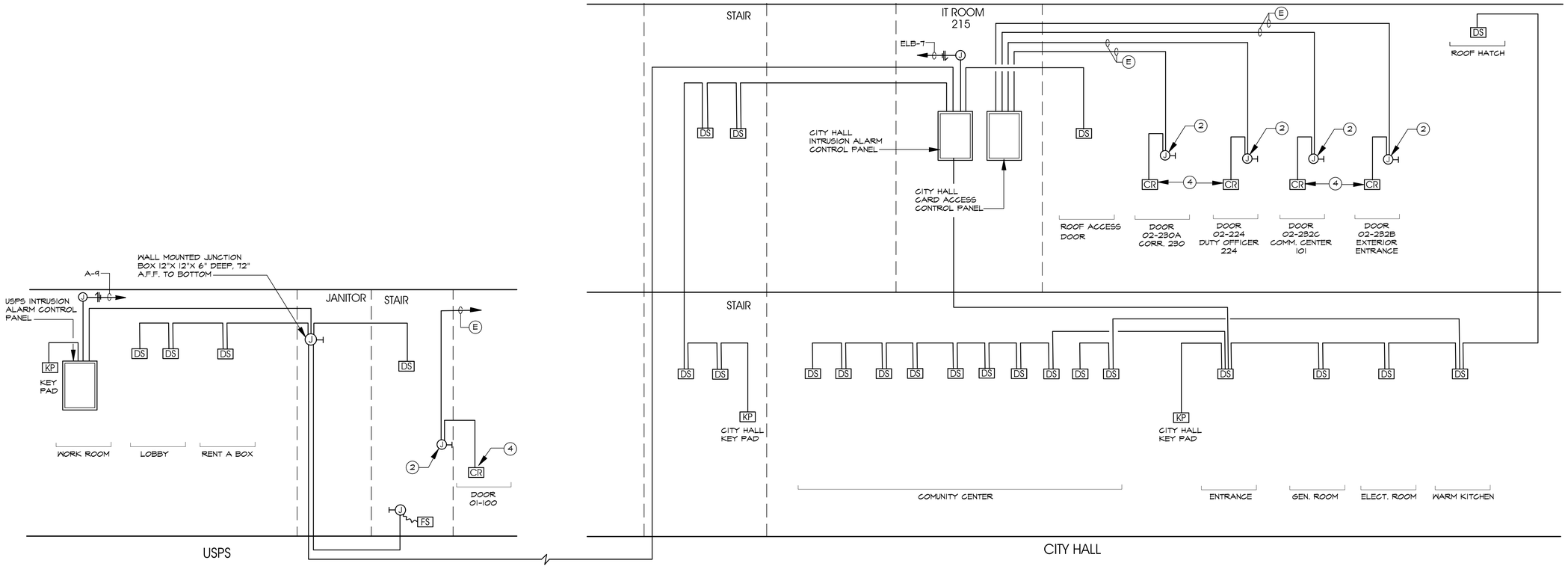
DOOR TYPE N.T.S.

SECURITY SYSTEM DEVICES LEGEND

1. PANIC PUSH BAR
2. SEMI-RECESSED JUNCTION BOX 8" X 12" X 6" DEEP, 3½ RECESSED IN WALL & 2½ EXPOSED.
3. EGRESS MOTION SENSOR WALL OR CEILING.
4. CARD READER
5. ELECTRIC STRIKE
6. ELECTRIFIED MORTISE SET
7. POWER TRANSFER HINGE
8. ELECTRIFIED CRASH BAR WITH SURFACE RODS
9. ARMORED POWER LOOP
10. AUDIO ALARM UNIT

SECURITY SYSTEM WIRING LEGEND:

- (A) 3 PR#22 AWG & 1#12 GND IN ¾" CONDUIT (CONCEALED).
- (B) 2#18 & 1#12 GND IN ¾" CONDUIT (CONCEALED).
- (C) 4 PR#22 & 1#12 GND IN ¾" CONDUIT (CONCEALED).
- (D) NOT USED
- (E) 1 COMPOSITE CABLE & 1#12 GND IN ¾" CONDUIT (CONCEALED) TO SECURITY SYSTEM PANEL IN IT ROOM 215.
- (F) 1" CONDUIT STUB-UP (CONCEALED) INTO CEILING SPACE, TERMINATE 12" ABOVE CEILING WITH AN INSULATING BUSHING.
- (G) 2#12 & 1#12 GND IN ¾" CONDUIT (CONCEALED).
- (H) 2 PR#22 & 1#12 GND IN ¾" CONDUIT (CONCEALED) TO SECURITY SYSTEM PANEL IN SERVER ROOM 228.
- (I) 4#18 & 1#12 GND IN ¾" CONDUIT (CONCEALED).
- (J) 2 PR#22 & 1#12 GND IN ¾" CONCUIT (CONCEALED).
- (K) 2#18 & 1#12 GND IN ¾" CONDUIT (CONCEALED IN DOOR).



INTRUSION ALARM/CARD READER ACCESS RISER DIAGRAM N.T.S.

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sheet title
INTRUSION ALARM/ CARD READER ACCESS RISER DIAGRAM

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M.T.	C.A.

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CARLOS A. ALVAREZ LICENSE No. 14099 STATE OF FLORIDA PROFESSIONAL ENGINEER
Carlos A. Alvarez, P.E.
FL P.E. No. 14099
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PANEL "A"

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SUFACE

WORK ROOM P103
PANEL "A"
10,000 AIC.

VOLTAGE: 120/208V, 3Ø, 4W.
MAINS: 225A. NEUTRAL: F/N
TYPE MAINS: 3P, 150A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
EXIT LIGHTS	0.10			#12; 1/2"C.	1P-20A	1	2	1P-20A	#12; 1/2"C.	0.30			GENERAL LIGHTING
EGRESS LIGHTS		0.30		#12; 1/2"C.	1P-20A	3	4	1P-20A	#12; 1/2"C.		0.60		GENERAL LIGHTING
USPS SIGN			1.00	#12; 1/2"C.	1P-20A	5	6	1P-20A	#12; 1/2"C.			0.72	RECEPTACLES
FIRE ALARM	0.72			#12; 1/2"C.	1P-20A	7	8	1P-20A	#12; 1/2"C.	0.72			RECEPTACLES
INTRUSION PANEL		0.72		#12; 1/2"C.	1P-20A	9	10	1P-20A	#12; 1/2"C.		0.72		RECEPTACLES
SPARE			0.72	-	1P-20A	11	12	1P-20A	#12; 1/2"C.			1.00	ELEVATOR LIFT
VAV-1-4-1	1.50			#12; 1/2"C.	2P-20A.	13	14	1P-20A	#12; 1/2"C.	1.00			DRINK FOUNTAIN
-		1.50		-	-	15	16	1P-20A	#12; 1/2"C.		0.72		RECEPTACLES
VAV-1-4-2			1.25	#12; 1/2"C.	2P-20A.	17	18	1P-20A	#12; 1/2"C.			0.72	RECEPTACLES
-	1.25			-	-	19	20	-	-	0.72			-
VAV-1-4-3		1.25		#12; 1/2"C.	2P-20A.	21	22	3P-30A.	#10; 1/2"C.		0.72		BP-1 PUMPS
-			1.25	-	-	23	24	-	-			0.72	-
-	7.23			-	-	25	26	3P-30A.	4#10 & 1#10	-			-
RTU-1		7.23		#4; 1"C.	3P-80A.	27	28	-	G. IN 3/4"C		-		SPD (TVSS)
-			7.23	-	-	29	30	-	-			-	-
EXT. CANOPY LIGHTS	0.72			#12; 1/2"C.	1P-20A	31	32	1P-20A.	#12; 1/2"C.	0.72			COILING DOOR
SPARE		0.72		-	1P-20A	33	34	2P-20A.	#12; 1/2"C.		0.72		EWH-1
SPARE			0.72	-	1P-20A	35	36	-	-			0.72	
SPACE	-			-	-	37	38	-	-	-			SPACE
SPACE		-		-	-	39	40	-	-		-		SPACE
SPACE			-	-	-	41	42	-	-			-	SPACE
CONNECTED LOAD	11.52	11.72	12.17							3.46	3.48	3.88	CONNECTED LOAD

TOTAL CONNECTED KVA: 46.23 (128.4A)
TOTAL DEMAND KVA: ______

PANEL "LA"

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 105
PANEL "LA"
10,000 AIC.

VOLTAGE: 120/208V, 30, 4W.
MAINS: 225A NEUTRAL: F/N
TYPE MAINS: 3P, 150A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
RECEPTACLES	0.36			#12; 1/2"C.	1P-20A.	1	2	1P-20A	#12; 1/2"C.	0.72			COMMUNITY CENTER RECEPT.
DRINK FOUNTAIN		1.00		#12; 1/2"C.	1P-20A.	3	4	1P-20A	#12; 1/2"C.		0.72		COMMUNITY CENTER RECEPT.
RECEPTS. TOILETS			0.54	#12; 1/2"C.	1P-20A.	5	6	1P-20A	#12; 1/2"C.			0.72	COMMUNITY CENTER RECEPT.
RECEPTS. TOILETS	0.72			#12; 1/2"C.	1P-20A.	7	8	1P-20A	#12; 1/2"C.	1.50			COMMUNITY CENTER RECEPT.
RECEPTS. WARMING KITCHEN		0.54		#12; 1/2"C.	1P-20A.	9	10	1P-20A	#12; 1/2"C.		1.50		WARMING KITCHEN SMALL APP.
RECEPT. REFRIG.			1.20	#12; 1/2"C.	1P-20A.	11	12	1P-20A	#12; 1/2"C.			1.50	WARMING KITCHEN SMALL APP.
RECEPT. A/V	0.72			#12; 1/2"C.	1P-20A.	13	14	2P-20A	#12; 1/2"C.	0.75			EWH-2
SPARE		0.72		-	1P-20A.	15	16	-	-		0.75		-
RECEPT. MECH. ROOM			0.72	#12; 1/2"C.	1P-20A.	17	18	2P-20A	-			1.14	SPARE
RECEPT. COMM. CENTER	0.72			#12; 1/2"C.	1P-20A.	19	20	-	-	1.14			-
HANDICAP LIFT		0.72		#12; 1/2"C.	1P-20A.	21	22	2P-20A	-		1.14		SPARE
STEP LIGHTS			0.72	#12; 1/2"C.	1P-20A.	23	24	-	-			1.14	-
HAND DRYERS	1.00			#12; 1/2"C.	1P-20A.	25	26	2P-20A	-	1.14			SPARE
HAND DRYERS		1.00		#12; 1/2"C.	1P-20A.	27	28	-	-		1.14		-
HAND DRYERS			1.00	#12; 1/2"C.	1P-20A.	29	30	-	4#10 & 1#10			-	-
FAUCETS	0.50			#12; 1/2"C.	1P-20A.	31	32	3P-30A.	G. IN 3/4"C.	-			SPD (TVSS)
EF-1-1 & EF-1-2		0.50		#12; 1/2"C.	1P-20A.	33	34	-	-		-		
HAND DRYERS			1.00	#12; 1/2"C.	1P-20A.	35	36	1P-20A	#12; 1/2"C.			0.72	ROOF RECEPTACLE
BOLLARDS	0.50			#10; 1/2"C.	1P-20A.	37	38	1P-20A	#12; 1/2"C.	0.72			RECEPTACLE. MONITOR
FAUCETS		0.72		#12; 1/2"C.	1P-20A.	39	40	1P-20A	#12; 1/2"C.		1.00		HAND DRYERS
CP-1			0.72	#12; 1/2"C.	1P-20A.	41	42	1P-20A	#12; 1/2"C.			1.00	HAND DRYERS
SPARE	0.72			-	1P-20A.	43	44	1P-20A	-	0.72			SPARE
SPARE		0.72		-	1P-20A.	45	46	1P-20A	-		0.72		SPARE
SPARE			0.72	-	1P-20A.	47	48	1P-20A	-			0.72	SPARE
CONNECTED LOAD	5.24	5.40	6.62							7.08	7.36	6.94	CONNECTED LOAD

TOTAL CONNECTED KVA: 38.64 (107.3A.)
TOTAL DEMAND KVA: ______

PANEL "HA"

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 105
PANEL "HA"
14,000 AIC.

VOLTAGE: 277/480V, 3Ø, 4W.
MAINS: 100A NEUTRAL: F/N
TYPE MAINS: M.L.O.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
DRIVE AREA LIGHTING	0.30			#10; 1/2"C.	1P-20A.	1	2	1P-20A.	#10; 3/4"C	2.23			PARKING LOT LIGHTING
TLTS & LOUNGE LTG.		0.80		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	#12; 1/2"C.		0.75		CEILING FANS
VAV-1-1-4			1.00	#12; 1/2"C.	1P-20A.	5	6	1P-20A.	#12; 1/2"C.			0.75	CEILING FANS
-	0.50			-	1P-20A.	7	8	1P-20A.	#12; 1/2"C.	0.75			CEILING FANS
AHU-4		0.50		-	1P-20A.	9	10	1P-20A.	#12; 1/2"C.		0.75		CEILING FANS
-			0.50	-	1P-20A.	11	12	1P-20A.	#12; 1/2"C.			0.72	SCONCES
-	11.25			-	-	13	14	-	4#10 & 1#10	-			-
PANEL "LA"		11.25		4#3; 1#8G.	3P-70A.	15	16	3P-30A.	G. 3/4"C.		-		SPD (TVSS)
VIA XFMR.			11.25	1"C.	-	17	18	-	-			-	-
SPARE	1.00			-	1P-20A.	19	20	1P-20A.	#12; 1/2"C.	2.0			VAV-1-1-3
SPARE		1.00		-	1P-20A.	21	22	1P-20A.	-		1.00		SPARE
SPARE			1.00	-	1P-20A.	23	24	1P-20A.	-			1.00	SPARE
SPACE	-			-	-	25	26	-	-	-			SPACE
SPACE		-		-	-	27	28	-	-		-		SPACE
SPACE			-	-	-	29	30	-	-			-	SPACE
CONNECTED LOAD	13.05	13.55	13.75							3.98	2.50	2.47	CONNECTED LOAD

TOTAL CONNECTED KVA: 49.30 (59.3A)
TOTAL DEMAND KVA: ______

DIST. PANEL "DPA"

TYPE: SIEMENS P2
VOLTAGE: 277/480V, 3Ø, 4W.
MOUNTING: SURFACE

GENERATOR ROOM 107
DIST. PANEL "DPA"
14,000 AIC

MAIN BUS: 250A.
NEUTRAL: F/N
MAINS: 3P, 300A. M.C.B.

CIRC. #	EQUIPMENT DESIGNATION	H.P.	K.V.A.	VOLTS	ø	FEEDER CIRCUITS POLES	FRAME	TRIP	WIRE SIZE	CONDUIT	REMARKS
1	PANEL "HA"		49.30	277/480	3	3	100	100	4#3; 1#8GND.	1/2"	
2	PANEL "HB"		61.29	277/480	3	3	100	100	4#3; 1#8GND.	1/2"	
3	CU-1		16.50	480	3	3	100	30	3#10;1#10GND	1/2"	
4	CU-2		14.10	480	3	3	100	30	3#10;1#10GND	1/2"	
5	CU-3		16.50	480	3	3	100	30	3#10;1#10GND	1/2"	
6	CU-4		14.10	480	3	3	100	30	3#10;1#10GND	1/2"	
7	AHU-1		8.25	480	3	3	100	20	3#10;1#12GND.	1/2"	
8	AHU-2		2.70	480	3	3	100	20	3#10;1#12GND.	1/2"	
9	VAV-1-1		5.00	480	3	3	100	20	3#10;1#12GND.	1/2"	
10	VAV-1-2		5.00	480	3	3	100	20	3#10;1#12GND.	1/2"	
11	ELEVATOR		22.4	277/480	3	3	100	50	3#6 & 1#8G.	1"	
12	GEN. JACKET WATER		5.00	277/480	3	3	100	20	2#12 & 1#12G.	1/2"	
13	EDH-2		8.00	277/480	3	3	100	20	2#12 & 1#12G.	1/2"	
14	SPD (TVSS)		-	277/480	3	3	100	30	5#10	3/4"C.	
15	SPACE		-	277/480	3	3	100	-	-	-	

CONNECTED LOAD: 231.14 (278.1A).

PANEL "LB"

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 216
PANEL "LB"
10,000 AIC.

VOLTAGE: 120/208, 3Ø, 4W.
MAINS: 225A. NEUTRAL: F/N
TYPE MAINS: 3P, 150A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
RECEPT. CORRIDOR	0.72			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	#12; 1/2"C.	1.20			RECEPT. COPIER
RECEPT. CONF. ROOM		0.72		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	#12; 1/2"C.		0.72		RECEPT. OFFICES
RECEPT. CONF. ROOM			0.72	#12; 1/2"C.	1P-20A.	5	6	1P-20A.	#12; 1/2"C.			0.72	RECEPT. OFFICES
RECEPT. LOUNGE	1.50			#12; 1/2"C.	1P-20A.	7	8	1P-20A.	#12; 1/2"C.	0.72			RECEPT. OFFICES
RECEPT. REFRIG.		1.20		#12; 1/2"C.	1P-20A.	9	10	1P-20A.	#12; 1/2"C.		0.72		RECEPT. OFFICES
RECEPT. LOUNGE			0.72	#12; 1/2"C.	1P-20A.	11	12	1P-20A.	#12; 1/2"C.			0.72	RECEPT. OFFICES
RECEPT. CODE	0.72			#12; 1/2"C.	1P-20A.	13	14	1P-20A.	#12; 1/2"C.	0.72			RECEPT. OFFICES
RECEPT. BUILDING		0.72		#12; 1/2"C.	1P-20A.	15	16	1P-20A.	#12; 1/2"C.		0.72		TLTS/MECH.
RECEPT. BUILDING			0.72	#12; 1/2"C.	1P-20A.	17	18	1P-20A.	#12; 1/2"C.			0.72	DRINK. FOUNTAIN
RECEPT. BUILDING	0.72			#12; 1/2"C.	1P-20A.	19	20	1P-20A.	#12; 1/2"C.	0.72			POLICE
RECEPT. BUILDING		0.72		#12; 1/2"C.	1P-20A.	21	22	1P-20A.	#12; 1/2"C.		0.72		POLICE
RECEPT. LOCKERS			0.72	#12; 1/2"C.	1P-20A.	23	24	1P-20A.	#12; 1/2"C.			0.72	POLICE
RECEPT. POLICE	0.36			#12; 1/2"C.	1P-20A.	25	26	1P-20A.	#12; 1/2"C.	0.72			POLICE
SPARE		1.00		-	2P-20A.	27	28	2P-20A.	#12; 1/2"C.		1.00		EWH-3
-			1.00	-	-	29	30	-	-			1.00	-
-	0.72			-	-	31	32	2P-20A.	#12; 1/2"C.	1.00			SPARE
BP-2 PUMPS		0.72		#10; 1/2"C.	3P-30A.	33	34	-	-		1.00		-
-			0.72	-	-	35	36	1P-20A.	#12; 1/2"C.			1.00	MICROWAVE
FAUCETS	1.00			#12; 1/2"C.	1P-20A.	37	38	-	4#10& 1#10G.	-			-
HAND DRYER		1.00		#12; 1/2"C.	1P-20A.	39	40	3P-30A.	3/4"C.		-		SPD (TVSS)
HAND DRYER			1.00	#12; 1/2"C.	1P-20A.	41	42	-	-			-	-
FAUCETS	1.00			#12; 1/2"C.	1P-20A.	43	44	1P-20A.	#12; 1/2"C.	0.72			CP-2
HAND DRYER		1.00		#12; 1/2"C.	1P-20A.	45	46	1P-20A.	#12; 1/2"C.		0.72		EF1-4 TO EF-1-11
HAND DRYER			1.00	#12; 1/2"C.	1P-20A.	47	48	1P-20A.	#12; 1/2"C.			0.72	RECEPTACLES
SPACE	-			-	-	49	50	-	-	-			SPACE
SPACE		-		-	-	51	52	-	-		-		SPACE
SPACE			-	-	-	53	54	-	-			-	SPACE
CONNECTED LOAD	6.74	7.08	6.60							5.80	4.88	4.88	CONNECTED LOAD

TOTAL CONNECTED KVA: 35.98 (99.9A)
TOTAL DEMAND KVA: ______

RECEPT. CONF. ROOM

PANEL "HB"

MANUFACTURER: SIEMENS
TYPE:
MOUNTING: SURFACE

ELECTRICAL ROOM 216
PANEL "HB"
14,000 AIC

VOLTAGE: 277/480V, 3Ø, 4W.
MAINS: 100A. NEUTRAL: F/N
TYPE MAINS: M.L.O.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
ADMIN. & BUILDING LTG.	1.16			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	#12; 1/2"C.	0.80			LOBBY/CORRIDOR LTG.
VAV-1-3-3		1.00		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	#12; 1/2"C.		1.00		VAV-1-3-2
VAV-1-3-4			1.00	#12; 1/2"C.	1P-20A.	5	6	1P-20A.	#12; 1/2"C.			1.00	VAV-1-3-6
VAV-1-3-5	2.50			#12; 1/2"C.	1P-20A.	7	8	1P-20A.	#12; 1/2"C.	1.00			VAV-1-3-7
VAV-1-3-10		1.00		#12; 1/2"C.	1P-20A.	9	10	1P-20A.	#12; 1/2"C.		1.00		VAV-1-3-8
SPARE			0.72	-	1P-20A.	11	12	1P-20A.	#12; 1/2"C.			1.00	VAV-1-3-9
SPARE	0.72			-	1P-20A.	13	14	-	-	2.50			-
SPARE		0.72		-	1P-20A.	15	16	3P-20A.	#12; 1/2"C.		2.50		AHU-3
SPARE			0.72	-	1P-20A.	17	18	-	-			2.50	-
SPARE	0.72			-	1P-20A.	19	20	1P-20A.	#10; 1/2"C.	0.72			SIGN
SPARE		0.72		-	1P-20A.	21	22	1P-20A.	-		0.72		SPARE
SPARE			0.72	-	1P-20A.	23	24	1P-20A.	-			0.72	SPARE
	11.47			-	-	25	26	-	4#10 & 1#10	-			-
PANEL "LB" VIA XFMR.		11.47		4#3 & 1#8G.	3P-90.	27	28	3P-30A.	G. 3/4"C.		-		SPD (TVSS)
			11.47	1"C.	-	29	30	-	-			-	-
CONNECTED LOAD	16.57	14.63	14.63							5.02	5.22	5.22	CONNECTED LOAD

TOTAL CONNECTED KVA: 61.29 (73.8A)
TOTAL DEMAND KVA: ______

LOAD SUMMARY:

1. DISTRIBUTION PANEL "DPA" 189.16 KVA
2. EMERGENCY PANEL "EHA" 23.60 KVA

TOTAL: 212.76 KVA

"A"	"DPA"
"LA"	"LB"
"HA"	"HB"

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CITY HALL
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LIVS project number:
201913

Client project number:
-

sheet title
PANEL SCHEDULES

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by: M.T.
approved by: C.A.

scale:
AS INDICATED

seal
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LICENSE
No. 14099
STATE OF FLORIDA
PROFESSIONAL ENGINEER
Carlos A. Alvarez, P.E.
Electrical Engineer
Florida Registration No. PE14099

sheet number
E5.4

sheet:
of

MANUFACTURER: SIEMENS
TYPE: PI
MOUNTING: SURFACE

ELECTRICAL ROOM 216

PANEL "EHB"

-

VOLTAGE: 277/480V, 3Ø,4W.
MAINS: 100A. **NEUTRAL:** F/N
TYPE MAINS: 3P, 50A, M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
EGRESS LIGHTING	1.30			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	-	0.72			SPARE
EXIT LIGHTING		0.30		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	-		0.72		SPARE
EGRESS LIGHTING			0.90	#12; 1/2"C.	1P-20A.	5	6	1P-20A.	-			0.72	SPARE
SPARE	0.72			-	1P-20A.	7	8	-	-	-			SPACE
SPARE		0.72		-	1P-20A.	9	10	-	-		-		SPACE
SPARE			0.72	-	1P-20A.	11	12	-	-			-	SPACE
-	2.81			-	-	13	14	-	4#10,& 1#10	-			-
PANEL "ELB"		2.81		4#10,& 1#10	3P-30A.	15	16	3P-30A.	G, IN 3/4"C.		-		SPD (TVSS)
VIA XFMR.			2.81	G, IN 3/4"C.	-	17	18	-	-			-	-
CONNECTED LOAD	4.83	3.83	4.43							0.72	0.72	0.72	CONNECTED LOAD

TOTAL CONNECTED KVA: 15.25 (18.4A.)
TOTAL DEMAND KVA: _____

MANUFACTURER: SIEMENS
TYPE: PI
MOUNTING: SURFACE

GENERATOR ROOM 107

PANEL "EHA"

14,000 AIC.

VOLTAGE: 277/480V, 3Ø,4W.
MAINS: 100A. **NEUTRAL:** F/N
TYPE MAINS: 3P-70A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
DRIVE AREA LIGHTING	0.83			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	-	0.72			SPARE
EGRESS LIGHTING		0.30		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	-		0.72		SPARE
SCONCES			0.72	#12; 1/2"C.	1P-20A.	5	6	1P-20A.	-			0.72	SPARE
SPARE	0.72			-	1P-20A.	7	8	-	-	-			SPACE
SPARE		0.72		-	1P-20A.	9	10	-	-		-		SPACE
SPARE			0.72	-	1P-20A.	11	12	-	-			-	SPACE
-	5.81			-	-	13	14	-	4#10,& 1#10	-			-
PANEL "EHB"		5.81		4#6 & 1#8G	3P-50A.	15	16	3P-30A.	G, IN 3/4"C.		-		SPD (TVSS)
-			5.81	IN 1"C.	-	17	18	-	-			-	-
CONNECTED LOAD	7.36	6.83	7.25							0.72	0.72	0.72	CONNECTED LOAD

TOTAL CONNECTED KVA: 23.6 (28.4A)
TOTAL DEMAND KVA: _____

MANUFACTURER: SIEMENS
TYPE: PI
MOUNTING: SURFACE

ELECTRICAL ROOM 216

PANEL "ELB"

10,000 A.I.C.

VOLTAGE: 120/208V,3,4W
MAINS: 100A **NEUTRAL:** F/N
TYPE MAINS: 3P,50A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
RECEPT. IT ROOM	0.72			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	#12; 1/2"C.	0.72			RECEPT. ELECT. RM & IT RM.
FIRE ALARM NAC		0.50		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	#12; 1/2"C.		0.72		RECEPT. TEL. ROOM
FIRE ALARM CONTROL PANEL			0.75	#10; 1/2"C.	1P-20A.	5	6	1P-20A.	#12; 1/2"C.			0.72	CCTV RACK
INTRUSION ALARM PNL.	0.72			#12; 1/2"C.	1P-20A.	7	8	2P-20A.	#10; 1/2"C.	0.50			SP-1
RECEPT. FIBER OPTIC		0.72		#12; 1/2"C.	1P-20A.	9	10	-	-		0.50		SUMP PUMP
RECEPT. FIBER OPTIC			0.72	#12; 1/2"C.	1P-20A.	11	12	1P-20A.	-			0.72	SPARE
FIBER OPTIC SERVER	0.72			#10; 1/2"C.	2P-30A.	13	14	1P-20A.	-	0.72			SPARE
-		0.72		-	-	15	16	1P-20A.	-		0.72		SPARE
SPARE			0.72	-	1P-20A.	17	18	1P-20A.	-			0.72	SPARE
SPACE	-			-	-	19	20	-	4#10 &	-			-
SPACE		-		-	-	21	22	3P-30A.	1#10 G		-		SPD (TVSS)
SPACE			-	-	-	23	24	-	IN 1/2"C			-	-
CONNECTED LOAD	2.16	1.94	2.19							1.94	1.94	2.16	CONNECTED LOAD

TOTAL CONNECTED KVA: 12.33 (34.25A)
TOTAL DEMAND KVA: _____

"EHB"	"EHA"
-	"ELB"
-	-

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LIVS project number:
201913

Client project number:
-

sheet title
PANEL SCHEDULES

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

CARLOS A. ALVAREZ LICENSE No. 14099 STATE OF FLORIDA PROFESSIONAL ENGINEER
Carlos A. Alvarez, P.E.
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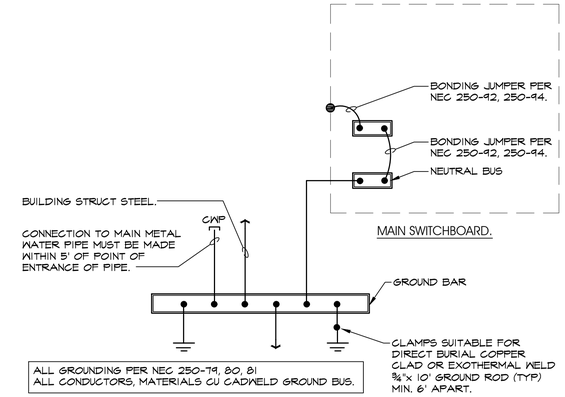
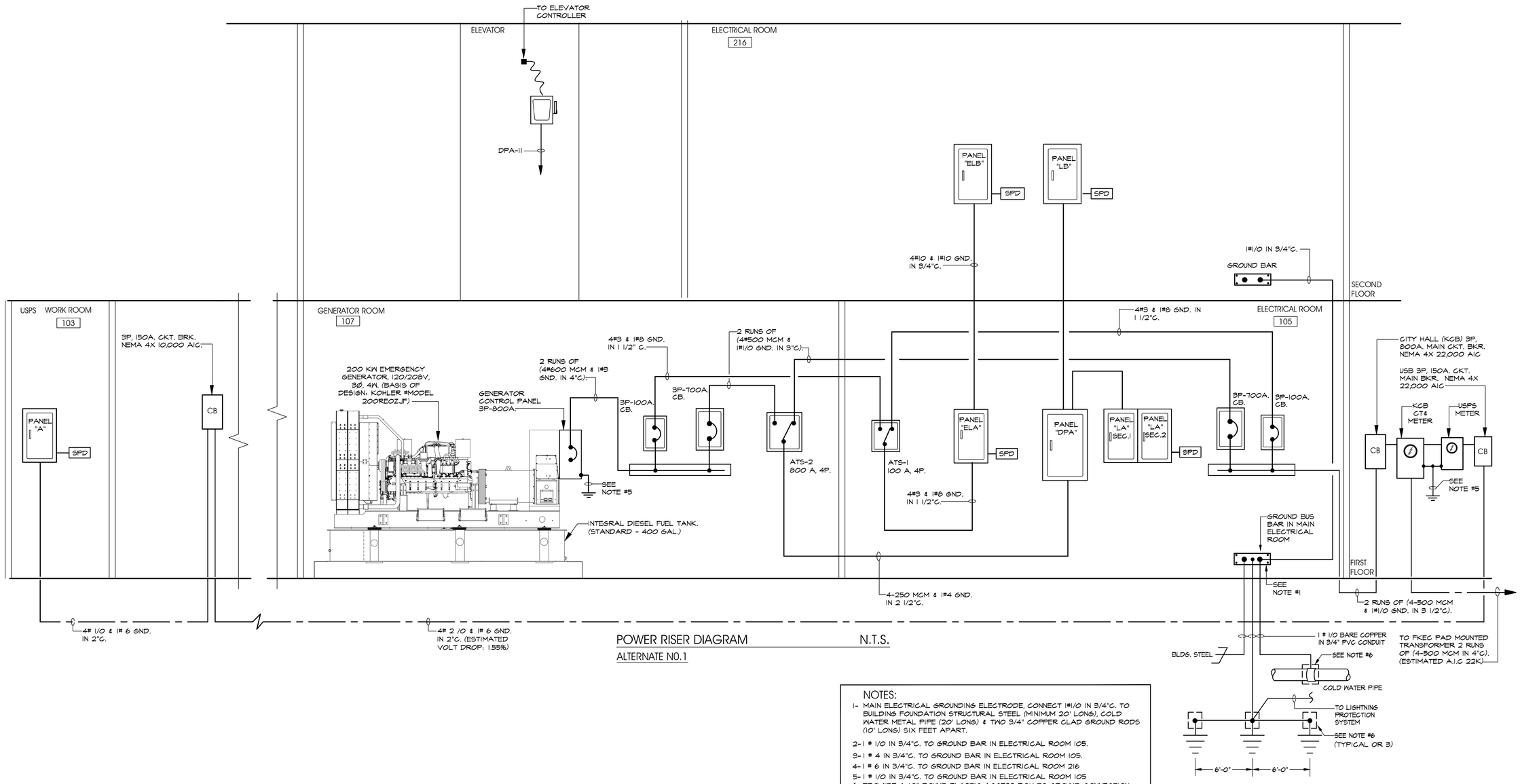
sheet number
E5.5

sheet:
of



GROUNDING BAR DETAIL N.T.S.



POWER RISER DIAGRAM N.T.S.

ALTERNATE NO.1

NOTES:

1- MAIN ELECTRICAL GROUNDING ELECTRODE, CONNECT 1#1/0 IN 3/4"C. TO BUILDING FOUNDATION STRUCTURAL STEEL (MINIMUM 20' LONG), COLD WATER METAL PIPE (20' LONG) & TWO 3/4" COPPER CLAD GROUND RODS (10' LONG) SIX FEET APART.

2- 1 # 1/0 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 105.

3- 1 # 4 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 105.

4- 1 # 6 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 216

5- 1 # 1/0 IN 3/4"C. TO GROUND BAR IN ELECTRICAL ROOM 105

6- PROVIDE A 10" ROUND PLASTIC ACCESS BOX TO GROUND CONNECTION.

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LIVS project number:
201913

Client project number:
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sheet title
POWER RISER DIAGRAM

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

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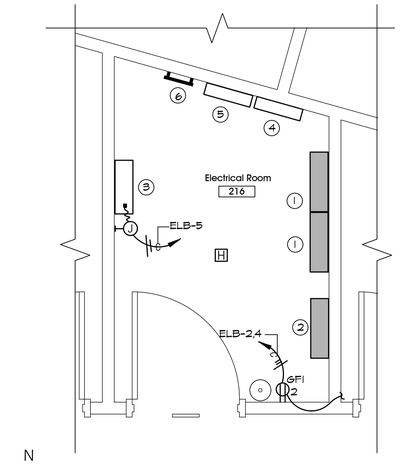
sheet number
E6.0A

sheet:
of



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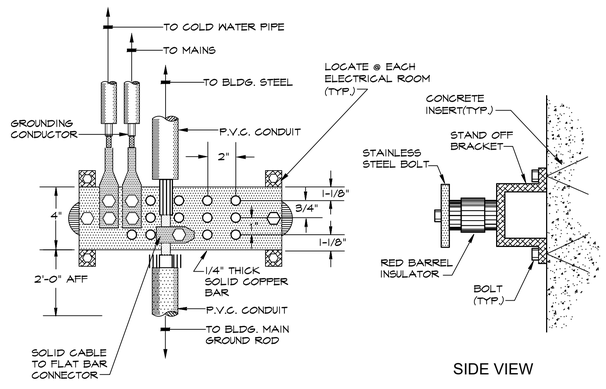
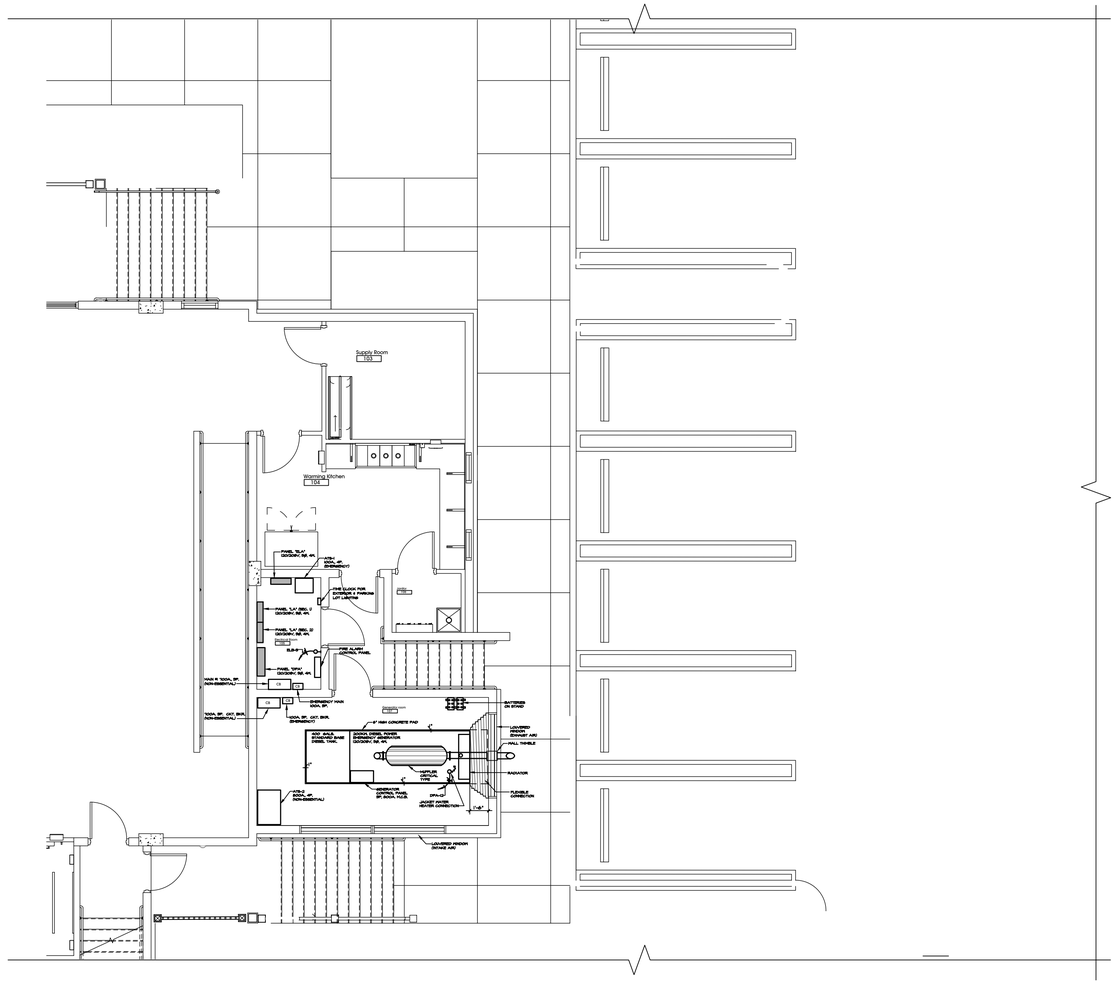
ELCTRICAL ROOM 216 1 /2"=1'-0"

ELECTRICAL ROOM CODED NOTES:

1. PANEL "LB" 120/208, 3Ø, 4W. (2 SECTIONS)
2. PANEL "ELB" 120/208, 3Ø, 4W.
3. FIRE ALARM TERMINAL CABINET (18"X 24"X 6"D.)
4. FIRE ALARM NAC PANEL
5. FIRE ALARM NAC PANEL
6. 1/4" THICK COPPER GROUNDING BAR 10"X 2" ON 1/2" WALL BRACKET SEE DETAIL THIS DWG.



GROUND BAR DETAIL N.T.S.



N

GENERATOR ROOM & ELECTRICAL ROOM 1/2"=1'-0"

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consultant:

CITY OF KEY COLONY BEACH | CITY HALL
600 W Ocean Dr . Key Colony . Florida 33051

LIVS project number:
201913

Client project number:
-

sheet title
ENLARGED FLOOR PLAN GENERATOR AND ELECTRICAL ROOM

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

CARLOS A. ALVAREZ LICENSE No. 14099 STATE OF FLORIDA PROFESSIONAL ENGINEER
Carlos A. Alvarez, P.E.
License Number 14099

sheet number
E6.1A

sheet:
of

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

WORK ROOM 1103
PANEL "A"
10,000 AIC.

VOLTAGE: 120/208V, 3Ø, 4W.
MAINS: 225A. NEUTRAL: F/N
TYPE MAINS: 3P, 150A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
EXIT LIGHTS	0.10			#12; 1/2"C.	1P-20A	1	2	1P-20A	#12; 1/2"C.	0.30			GENERAL LIGHTING
EGRESS LIGHTS		0.30		#12; 1/2"C.	1P-20A	3	4	1P-20A	#12; 1/2"C.		0.60		GENERAL LIGHTING
USPS SIGN			1.00	#12; 1/2"C.	1P-20A	5	6	1P-20A	#12; 1/2"C.			0.72	RECEPTACLES
FIRE ALARM	0.72			#12; 1/2"C.	1P-20A	7	8	1P-20A	#12; 1/2"C.	0.72			RECEPTACLES
INTRUSION PANEL		0.72		#12; 1/2"C.	1P-20A	9	10	1P-20A	#12; 1/2"C.		0.72		RECEPTACLES
SPARE			0.72	-	1P-20A	11	12	1P-20A	#12; 1/2"C.			1.00	ELEVATOR LIFT
VAV-1-4-1	1.50			#12; 1/2"C.	2P-20A.	13	14	1P-20A	#12; 1/2"C.	1.00			DRINK FOUNTAIN
-		1.50		-	-	15	16	1P-20A	#12; 1/2"C.		0.72		RECEPTACLES
VAV-1-4-2			1.25	#12; 1/2"C.	2P-20A.	17	18	1P-20A	#12; 1/2"C.			0.72	RECEPTACLES
-	1.25			-	-	19	20	-	-	0.72			-
VAV-1-4-3		1.25		#12; 1/2"C.	2P-20A.	21	22	3P-30A.	#10; 1/2"C.		0.72		CMBE PUMPS
-			1.25	-	-	23	24	-	-			0.72	-
-	7.23			-	-	25	26	3P-80A.	4#10 & #10	-			-
RTU-1		7.23		#4; 1"C.	3P-80A.	27	28	-	G. IN 3/4"C		-		SPD (TVSS)
-			7.23	-	-	29	30	-	-			-	-
EXT. CANOPY LIGHTS	0.72			#12; 1/2"C.	1P-20A	31	32	1P-20A	#12; 1/2"C.	0.72			COILING DOOR
SPARE		0.72		-	1P-20A	33	34	1P-20A	-		0.72		SPARE
SPARE			0.72	-	1P-20A	35	36	1P-20A	-			0.72	SPARE
CONNECTED LOAD	11.52	11.72	12.17							3.46	3.48	3.88	CONNECTED LOAD

TOTAL CONNECTED KVA: 46.23 (128.4A)
TOTAL DEMAND KVA: _____

TYPE: SIEMENS P2
VOLTAGE: 120/208V, 3Ø, 4W.
MOUNTING: SURFACE

GENERATOR ROOM 107
DIST. PANEL "DPA"
14,000 AIC

MAIN BUS: 800A.
NEUTRAL: F/N
MAINS: 3P, 800A. M.C.B.

CIRC. #	EQUIPMENT DESIGNATION	H.P.	K.V.A.	VOLTS	Ø	FEEDER CIRCUITS POLES	FRAME	TRIP	WIRE SIZE	CONDUIT	REMARKS
1	PANEL "LA"		50.35	120/208	3	3	200	200	#3/0; 1#6GND.	2"	
2	PANEL "LB"		60.14	120/208	3	3	200	200	#3/0; 1#6GND.	2"	
3	CU-1		16.50	208	3	3	100	70	3#6; 1#8 GND	3/4"	
4	CU-2		14.10	208	3	3	100	70	3#6; 1#8 GND	3/4"	
5	CU-3		16.50	208	3	3	100	70	3#6; 1#8 GND	3/4"	
6	CU-4		14.10	208	3	3	100	70	3#6; 1#8 GND	3/4"	
7	AHU-1		8.25	208	3	3	100	30	3#10; 1#10GND.	1/2"	
8	AHU-2		2.70	208	3	3	100	20	3#12; 1#10GND.	1/2"	
9	VAV-1-1		5.00	208	3	3	100	20	3#10; 1#10GND	1/2"	
10	VAV-1-2		5.00	208	3	3	100	20	3#10; 1#10GND	1/2"	
11	ELEVATOR		22.4	120/208	3	3	100	90	3#3; 1#8 GND.	1 1/4"	
12	GEN. JACKET WATER		5.00	120/208	3	3	100	30	2#10; 1#10GND	1/2"	
13	EDH-2		8.00	120/208	3	3	100	30	2#10; 1#10GND	1/2"	
14	SPD (TVSS)		-	120/208	3	3	100	30	5#10	3/4"C.	
15	SPACE		-	120/208	3	3	100	-	-	-	

CONNECTED LOAD: 230.84 (641.2A).

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 105
PANEL "LA"
22,000 AIC. - SECTION 1

VOLTAGE: 120/208V, 3Ø, 4W.
MAINS: 225A. NEUTRAL: F/N
TYPE MAINS: 3P, 150A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
RECEPTACLES	0.36			#12; 1/2"C.	1P-20A.	1	2	1P-20A	#12; 1/2"C.	0.72			COMMUNITY CENTER RECEPT.
DRINK FOUNTAIN		1.00		#12; 1/2"C.	1P-20A.	3	4	1P-20A	#12; 1/2"C.		0.72		COMMUNITY CENTER RECEPT.
RECEPTS. TOILETS			0.54	#12; 1/2"C.	1P-20A.	5	6	1P-20A	#12; 1/2"C.			0.72	COMMUNITY CENTER RECEPT.
RECEPTS. TOILETS	0.72			#12; 1/2"C.	1P-20A.	7	8	1P-20A	#12; 1/2"C.	1.50			COMMUNITY CENTER RECEPT.
RECEPTS. WARMING KITCHEN		0.54		#12; 1/2"C.	1P-20A.	9	10	1P-20A	#12; 1/2"C.		1.50		WARMING KITCHEN SMALL APP.
RECEPT. REFRIG.			1.20	#12; 1/2"C.	1P-20A.	11	12	1P-20A	#12; 1/2"C.			1.50	WARMING KITCHEN SMALL APP.
RECEPT. A/V	0.72			#12; 1/2"C.	1P-20A.	13	14	2P-20A	-	1.14			SPARE
EF-1-3		0.20		#12; 1/2"C.	1P-20A.	15	16	-	-		1.14		-
RECEPT. MECH. ROOM			0.72	#12; 1/2"C.	1P-20A.	17	18	2P-20A	-			1.14	SPARE
RECEPT. COMM. CENTER	0.72			#12; 1/2"C.	1P-20A.	19	20	-	-	1.14			-
HANDICAP LIFT		0.72		#12; 1/2"C.	1P-20A.	21	22	2P-20A	-		1.14		SPARE
STEP LIGHTS			0.72	#12; 1/2"C.	1P-20A.	23	24	-	-			1.14	-
HAND DRYERS	1.00			#12; 1/2"C.	1P-20A.	25	26	2P-20A	-	1.14			SPARE
HAND DRYERS		1.00		#12; 1/2"C.	1P-20A.	27	28	-	-		1.14		-
HAND DRYERS			1.00	#12; 1/2"C.	1P-20A.	29	30	-	4#10 & 1#10			-	-
FAUCETS	0.50			#12; 1/2"C.	1P-20A.	31	32	3P-30A.	G. IN 3/4"C	-			SPD (TVSS)
EF-1-1 & EF-1-2		0.50		#12; 1/2"C.	1P-20A.	33	34	-	-		-		
HAND DRYERS			1.00	#12; 1/2"C.	1P-20A.	35	36	1P-20A	#12; 1/2"C.			0.72	ROOF RECEPTACLE
CONNECTED LOAD	4.02	5.18	5.18							5.64	5.64	5.22	CONNECTED LOAD

TOTAL CONNECTED KVA: (SEE SECT. 2)
TOTAL DEMAND KVA: _____

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 216
PANEL "LB"
10,000 AIC. - SECTION 1

VOLTAGE: 120/208V, 3Ø, 4W.
MAINS: 225A. NEUTRAL: F/N
TYPE MAINS: M.L.O.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
RECEPT. CORRIDOR	0.72			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	#12; 1/2"C.	1.20			RECEPT. COPIER
RECEPT. CONF. ROOM		0.72		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	#12; 1/2"C.		0.72		RECEPT. OFFICES
RECEPT. CONF. ROOM			0.72	#12; 1/2"C.	1P-20A.	5	6	1P-20A.	#12; 1/2"C.			0.72	RECEPT. OFFICES
RECEPT. LOUNGE	1.50			#12; 1/2"C.	1P-20A.	7	8	1P-20A.	#12; 1/2"C.	0.72			RECEPT. OFFICES
RECEPT. REFRIG.		1.20		#12; 1/2"C.	1P-20A.	9	10	1P-20A.	#12; 1/2"C.		0.72		RECEPT. OFFICES
RECEPT. LOUNGE			0.72	#12; 1/2"C.	1P-20A.	11	12	1P-20A.	#12; 1/2"C.			0.72	RECEPT. OFFICES
RECEPT. CODE	0.72			#12; 1/2"C.	1P-20A.	13	14	1P-20A.	#12; 1/2"C.	0.72			RECEPT. OFFICES
RECEPT. BUILDING		0.72		#12; 1/2"C.	1P-20A.	15	16	1P-20A.	#12; 1/2"C.		0.72		TLTS/MECH.
RECEPT. BUILDING			0.72	#12; 1/2"C.	1P-20A.	17	18	1P-20A.	#12; 1/2"C.			0.72	DRINK. FOUNTAIN
RECEPT. BUILDING	0.72			#12; 1/2"C.	1P-20A.	19	20	1P-20A.	#12; 1/2"C.	0.72			POLICE
RECEPT. BUILDING		0.72		#12; 1/2"C.	1P-20A.	21	22	1P-20A.	#12; 1/2"C.		0.72		POLICE
RECEPT. LOCKERS			0.72	#12; 1/2"C.	1P-20A.	23	24	1P-20A.	#12; 1/2"C.			0.72	POLICE
RECEPT. POLICE	0.36			#12; 1/2"C.	1P-20A.	25	26	1P-20A.	#12; 1/2"C.	0.72			POLICE
SPARE		1.00		-	2P-20A.	27	28	2P-20A.	-		1.00		SPARE
-			1.00	-	-	29	30	-	-			1.00	-
	0.72			#10; 1/2"C.	-	31	32	2P-20A.	-	1.00			SPARE
MULTI B PUMPS		0.72		#10; 1/2"C.	3P-30A.	33	34	-	-		1.00		-
			0.72	#10; 1/2"C.	-	35	36	1P-20A.	#12; 1/2"C.			1.00	MICROWAVE
CONNECTED LOAD	4.74	5.08	4.60							5.08	4.88	4.88	CONNECTED LOAD

TOTAL CONNECTED KVA: (SEE SECT. 2)
TOTAL DEMAND KVA: _____

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 105
PANEL "LA"
22,000 AIC. - SECTION 2

VOLTAGE: 120/208,3Ø,4W
MAINS: 225A NEUTRAL: F/N
TYPE MAINS: M.L.O.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
BOLLARDS	0.50			#10; 1/2"C.	1P-20A.	37	38	1P-20A	#12; 1/2"C.	0.72			RECEPTACLE. MONITOR
FAUCETS		0.72		#12; 1/2"C.	1P-20A.	39	40	1P-20A	#12; 1/2"C.		1.00		HAND DRYERS
SPARE			0.72	-	1P-20A.	41	42	1P-20A	#12; 1/2"C.			1.00	HAND DRYERS
SPARE	0.72			-	1P-20A.	43	44	1P-20A	-	0.72			SPARE
SPARE		0.72		-	1P-20A.	45	46	1P-20A	-		0.72		SPARE
SPARE			0.72	-	1P-20A.	47	48	1P-20A	-			0.72	SPARE
DRIVE AREA LIGHTING	0.30			#10; 1/2"C.	1P-20A.	49	50	1P-30A.	#8; 3/4"C.	2.23			PARKING LOT LIGHTING
TLTS & LOUNGE LTG.		0.80		#12; 1/2"C.	1P-20A.	51	52	1P-20A.	#12; 1/2"C.		0.75		CEILING FANS
VAV-1-1-4			1.00	#12; 1/2"C.	1P-20A.	53	54	1P-20A.	#12; 1/2"C.			0.75	CEILING FANS
-	0.50			-	1P-20A.	55	56	1P-20A.	#12; 1/2"C.	0.75			CEILING FANS
AHU-4		0.50		-	1P-20A.	57	58	1P-20A.	#12; 1/2"C.		0.75		CEILING FANS
-			0.50	-	1P-20A.	59	60	1P-20A.	#12; 1/2"C.			0.72	SCONCES
SPARE	0.72			-	1P-20A.	61	62	-	4#10 & 1#10	-			-
SPARE		0.72		-	1P-20A.	63	64	3P-30A.	3/4"C.		-		SPD (TVSS)
SPARE			0.72	-	1P-20A.	65	66	-	-			-	-
SPACE	-			-	-	67	68	-	-	-			SPACE
SPACE		-		-	-	69	70	-	-		-		SPACE
SPACE			-	-	-	71	72	-	-			-	SPACE
CONNECTED LOAD	2.74	3.46	3.66							4.42	3.22	3.19	CONNECTED LOAD

TOTAL CONNECTED KVA: 50.35(139.9A).
TOTAL DEMAND KVA: _____

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 216
PANEL "LB"
10,000 AIC. - SECTION 2

VOLTAGE: 120/208,3Ø,4W
MAINS: 225A NEUTRAL: F/N
TYPE MAINS: M.L.O.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
FAUCETS	1.00			#12; 1/2"C.	1P-20A.	37	38	-	4#10 & 1#10	-			
HAND DRYER		1.00		#12; 1/2"C.	1P-20A.	39	40	3P-30A.	G. 3/4"C.		-		SPD (TVSS)
HAND DRYER			1.00	#12; 1/2"C.	1P-20A.	41	42	-	-			-	
FAUCETS	1.00			#12; 1/2"C.	1P-20A.	43	44	1P-20A.	-	0.72			SPARE
HAND DRYER		1.00		#12; 1/2"C.	1P-20A.	45	46	1P-20A.	-		0.72		SPARE
HAND DRYER			1.00	#12; 1/2"C.	1P-20A.	47	48	1P-20A.	-			0.72	SPARE
ADMIN. & BUILDING LTG.	1.16			#12; 1/2"C.	1P-20A.	49	50	1P-20A.	#12; 1/2"C.	0.80			LOBBY/CORRIDOR LTG.
VAV-1-3-3		1.00		#12; 1/2"C.	1P-20A.	51	52	1P-20A.	#12; 1/2"C.		1.00		VAV-1-3-2
VAV-1-3-4			1.00	#12; 1/2"C.	1P-20A.	53	54	1P-20A.	#12; 1/2"C.			1.00	VAV-1-3-6
VAV-1-3-5	2.50			#10; 1/2"C.	1P-30A.	55	56	1P-20A.	#12; 1/2"C.	1.00			VAV-1-3-7
SPARE		0.72		-	1P-20A.	57	58	1P-20A.	#12; 1/2"C.		1.00		VAV-1-3-8
SPARE			0.72	-	1P-20A.	59	60	1P-20A.	#12; 1/2"C.			1.00	VAV-1-3-9
SPARE	0.72			-	1P-20A.	61	62	-	-	2.50			-
SPARE		0.72		-	1P-20A.	63	64	3P-30A.	#12; 1/2"C.		2.50		AHU-3
SPARE			0.72	-	1P-20A.	65	66	-	-			2.50	-
SPACE	-			-	-	67	68	-	-	-			SPACE
SPACE		-		-	-	69	70	-	-		-		SPACE
SPACE			-	-	-	71	72	-	-			-	SPACE
CONNECTED LOAD	6.10	4.16	4.16							5.02	5.22	6.22	CONNECTED LOAD

TOTAL CONNECTED KVA: 60.14 (167.1A)
TOTAL DEMAND KVA: _____

LOAD SUMMARY:

1. DISTRIBUTION PANEL "DPA" 230.84 KVA
2. EMERGENCY PANEL "ELA" 23.60 KVA

TOTAL: 254.44 KVA

"A"	"DPA"
"LA" (SECT. 1)	"LB" (SECT. 1)
"LA" (SECT. 2)	"LB" (SECT. 2)

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consultant:

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LIVS project number:
201913

Client project number:
-

sheet title
PANEL SCHEDULES

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

CARLOS A. ALVAREZ
LICENSE
No. 14099
STATE OF FLORIDA
Carlos A. Alvarez, P.E.
Florida Registration No. 14099
This item has been digitally signed and sealed by Carlos A. Alvarez, P.E. on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.
PROFESSIONAL ENGINEER

sheet number
E6.2A

sheet:
of

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 105

PANEL "ELA"

22,000 AIC.

VOLTAGE: 120/208V, 3Ø,4W.
MAINS: 100A. **NEUTRAL:** F/N
TYPE MAINS: 3P-70A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
DRIVE AREA LIGHTING	0.83			#10; 1/2"C.	1P-20A.	1	2	1P-20A.	-	0.72			SPARE
EGRESS LIGHTING		0.30		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	-		0.72		SPARE
SCONCES			0.72	#10; 1/2"C.	1P-20A.	5	6	1P-20A.	-			0.72	SPARE
SPARE	0.72			-	1P-20A.	7	8	-	-	-			SPACE
SPARE		0.72		-	1P-20A.	9	10	-	-		-		SPACE
SPARE			0.72	-	1P-20A.	11	12	-	-			-	SPACE
-	5.81			-	-	13	14	-	4#10,&1#10	-			-
PANEL "EHB"		5.81		4#6 & 1#8G	3P-50A.	15	16	3P-30A.	G, IN 3/4"C.		-		SPD (TVSS)
-			5.81	IN 1"C.	-	17	18	-	-			-	-
CONNECTED LOAD	7.36	6.83	7.25							0.72	0.72	0.72	CONNECTED LOAD

TOTAL CONNECTED KVA: 23.6 (28.4A)
TOTAL DEMAND KVA: _____

MANUFACTURER: SIEMENS
TYPE: P1
MOUNTING: SURFACE

ELECTRICAL ROOM 216

PANEL "ELB"

10,000 A.I.C.

VOLTAGE: 120/208V,3,4W
MAINS: 100A **NEUTRAL:** F/N
TYPE MAINS: 3P,50A. M.C.B.

IDENTIFICATION	A KVA LOAD	B KVA LOAD	C KVA LOAD	WIRES AND CONDUIT	POLES AND TRIPS	CIR. NO	CIR. NO	POLES AND TRIPS	WIRES AND CONDUIT	A KVA LOAD	B KVA LOAD	C KVA LOAD	IDENTIFICATION
RECEPT. IT ROOM	0.72			#12; 1/2"C.	1P-20A.	1	2	1P-20A.	#12; 1/2"C.	0.72			RECEPT. ELECT. RM & IT RM.
FIRE ALARM NAC		0.50		#12; 1/2"C.	1P-20A.	3	4	1P-20A.	#12; 1/2"C.		0.72		RECEPT. TEL. ROOM
FIRE ALARM CONTROL PANEL			0.75	#10; 1/2"C.	1P-20A.	5	6	1P-20A.	#12; 1/2"C.			0.72	CCTV RACK
INTRUSION ALARM PNL.	0.72			#12; 1/2"C.	1P-20A.	7	8	2P-20A.	#10; 1/2"C.	0.50			SP-1
RECEPT. FIBER OPTIC		0.72		#12; 1/2"C.	1P-20A.	9	10	-	-		0.50		SUMP PUMP
RECEPT. FIBER OPTIC			0.72	#12; 1/2"C.	1P-20A.	11	12	1P-20A.	-			0.72	SPARE
FIBER OPTIC SERVER	0.72			#10; 1/2"C.	2P-30A.	13	14	1P-20A.	-	0.72			SPARE
-		0.72		-	-	15	16	1P-20A.	-		0.72		SPARE
SPARE			0.72	-	1P-20A.	17	18	1P-20A.	-			0.72	SPARE
SPACE	-			-	-	19	20	-	4#10 &	-			-
SPACE		-		-	-	21	22	3P-30A.	1#10 G		-		SPD (TVSS)
SPACE			-	-	-	23	24	-	IN 1/2"C			-	-
CONNECTED LOAD	2.16	1.94	2.19							1.94	1.94	2.16	CONNECTED LOAD

TOTAL CONNECTED KVA: 12.33 (34.25A)
TOTAL DEMAND KVA: _____

-	"ELA"
-	"ELB"
-	-

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LIVS project number:
201913

Client project number:
-

sheet title
PANEL SCHEDULES

revisions

issued for:
BID SET

issue date:
05.01.23

drawn by:	approved by:
M.T.	C.A.

scale:
AS INDICATED

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