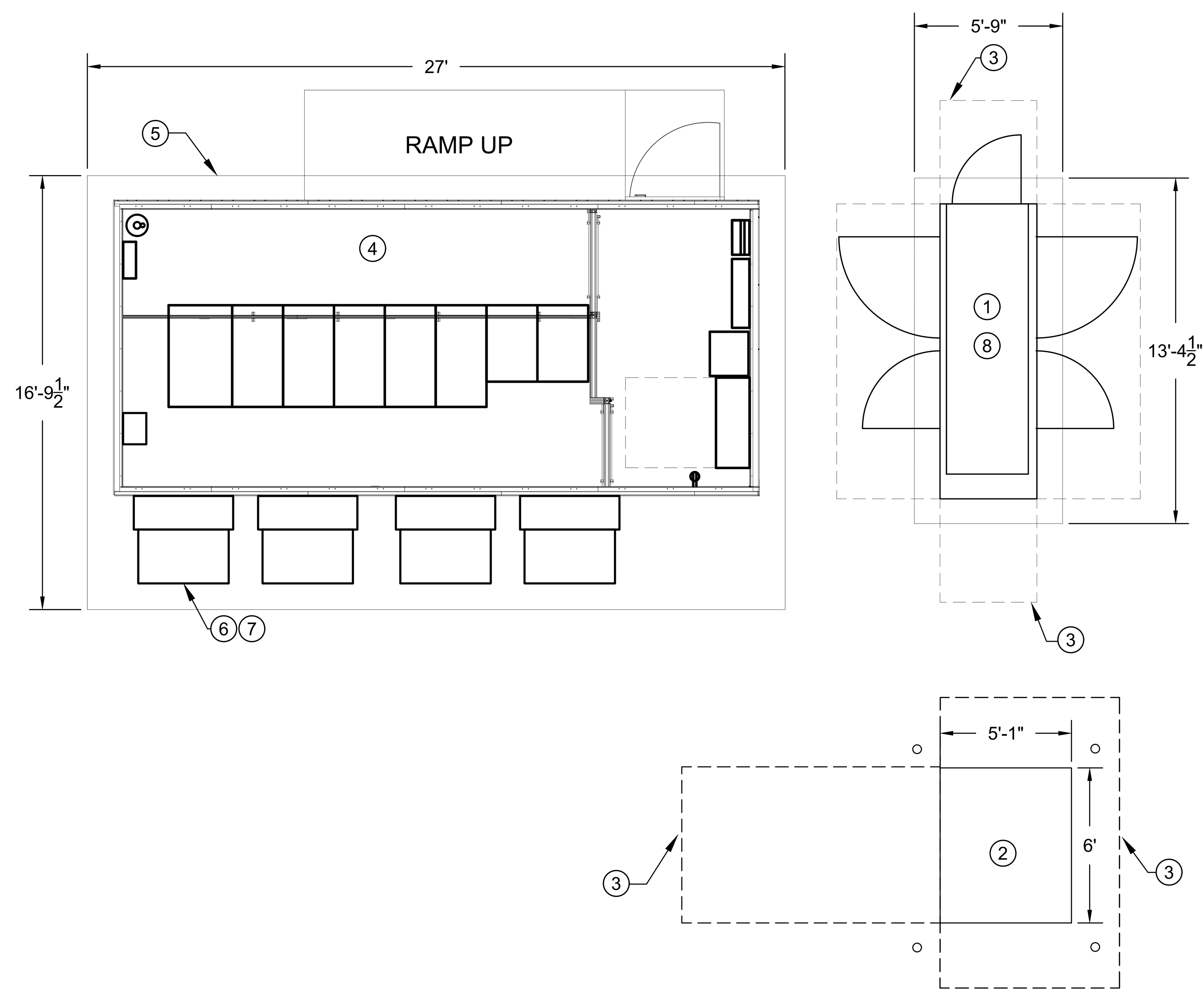
PREFAB CONFIGURATION-2

PREFAB FRAME SIZE (KW)	MAX IT LOAD (KW)	PREFAB MODULE DIMENSIONS (APPROXIMATE)			MDP-100 SYSTEM VOLTAGE LEVEL (V)	UPS SYSTEM MODEL	ATS MODEL	ATS (A)	WALL MOUNT COOLING UNIT WITH HEATER (MODEL)	NO. OF WALL MOUNT COOLING UNITS WITH HEATER	IT RACK (MODEL)/ NETWORKING IT RACK(MODEL)	NO. OF IT RACKS	IT RACK DENSITY (KW/RACK)	NUMBER OF SINGLE PHASE POLES IN MBP	IT RACK DIMENSIONS (APPROXIMATE)			RACK PDU (MODEL)
		DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)											DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)	
40	35	25	11.5	11.5	480	SYMMETRA PX40	ASCO-300	250	WMF0661	4	AR3300/ AR3350	6	5.83	42	4	2	6.5	AP8865



GENERAL NOTES:

1. REFER TO ONE LINE DIAGRAM ON SHEET E400 FOR ADDITIONAL DETAILS ON THE ELECTRICAL SYSTEM.
2. FOR ELECTRICAL SCHEDULES, SEE DRAWINGS ON SHEETS E600 AND E601.

PLAN NOTES:

(1) 125KW/156KVA STAND BY GENERATOR.

(2) UTILITY TRANSFORMER.

(3) REQUIRED CLEARANCE (TYPICAL).

(4) REFER TO DRAWING E102 FOR PREFAB MODULE DETAILS.

(5) CONCRETE PAD(TYPICAL).

(6) WMF0661 WALL MOUNT COOLING UNIT(TYPICAL OF 4).

(7) A READILY ACCESSIBLE, LOCAL DISCONNECT SHALL BE INSTALLED WITH EACH WALL MOUNT COOLING UNIT (TYPICAL OF 4).

(8) GENERATOR SHALL INCLUDE A BUILT-IN CIRCUIT BREAKER. SEE ONE LINE DRAWING E400 FOR DETAILS.

ELECTRICAL SITE LAYOUT PLAN
CONFIGURATION-2
SCALE: 1/4" = 1'-0"

| 02/17/20 | C:\Users\sesa517137\Box\MCS\01 Projects\2018\ENGR18-0024 - PreFab Reference Designs\CONFIG 2 PF - (35kW_25'_480_WM)\03 CAD\ENGRXX -CONFIG-2- 35kW Data Center - ELEC.dwg

CONSULTANTS:

Schneider Electric
IT MISSION CRITICAL SERVICES, INC.
12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
PH: 703-968-0300 FX: 703-654-3680

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

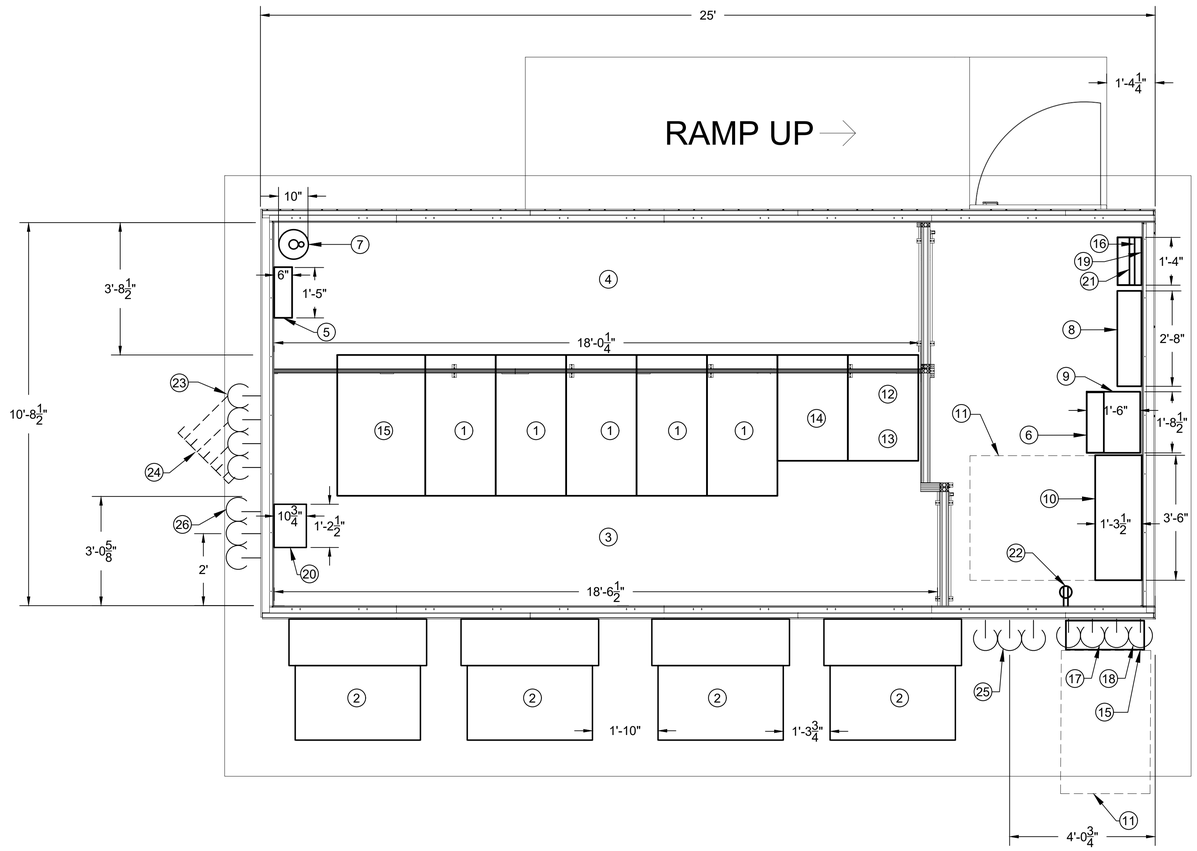
SHEET TITLE:
ELECTRICAL SITE LAYOUT PLAN CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E101

PREFAB CONFIGURATION-2

PREFAB FRAME SIZE (KW)	MAX IT LOAD (KW)	PREFAB MODULE DIMENSIONS (APPROXIMATE)			MDP-100 SYSTEM VOLTAGE LEVEL (V)	UPS SYSTEM MODEL	ATS MODEL	ATS (A)	WALL MOUNT COOLING UNIT WITH HEATER (MODEL)	NO. OF WALL MOUNT COOLING UNITS WITH HEATER	IT RACK (MODEL)/ NETWORKING IT RACK(MODEL)	NO. OF IT RACKS	IT RACK DENSITY (KW/RACK)	NUMBER OF SINGLE PHASE POLES IN MBP	IT RACK DIMENSIONS (APPROXIMATE)			RACK PDU (MODEL)
		DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)											DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)	
40	35	25	11.5	11.5	480	SYMMETRA PX40	ASCO-300	250	WMF0661	4	AR3300/ AR3350	6	5.83	42	4	2	6.5	AP8865



GENERAL NOTES:

1. REFER TO THE ONE LINE DIAGRAM ON SHEET E400 FOR ADDITIONAL DETAILS ON THE ELECTRICAL SYSTEM.
2. FOR ELECTRICAL SCHEDULES, SEE DRAWINGS ON SHEETS E600 AND E601.

ELECTRICAL PREFAB MODULE DETAILS CONFIGURATION-2

SCALE: 1/2" = 1'-0"

PLAN NOTES:

1. IT RACK.
2. WMF0661 WALL MOUNT COOLING UNIT WITH HEATER.
3. HOT AISLE.
4. COLD AISLE.
5. FIRE ALARM CONTROL PANEL. THE FIRE ALARM SYSTEM INSTALLATION SHALL BE AS PER NFPA 72 REQUIREMENTS.
6. 208/120V DISTRIBUTION PANEL (PDB-200).
7. FIRE SUPPRESSION CYLINDER.
8. 480V MAIN(I-LINE/NF) DISTRIBUTION PANEL(MDP-100).
9. 480-208/120V STEP DOWN TRANSFORMER(TRF-2).
10. ASCO-300 MODEL(480V) SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH WITH PROGRAMMABLE DELAYED TRANSITION(ATS-MDP-100).
11. REQUIRED CLEARANCE (TYPICAL).
12. PX40 UPS MODULE.
13. PX40 UPS BATTERY CABINET.
14. PX40 UPS POWER DISTRIBUTION CABINET.
15. NETWORKING IT RACK.
16. GENERATOR ANNUNCIATOR PANEL(OPTIONAL).
17. PROVIDE ONE(1) 2-1/2" CONCRETE ENCASED UNDERGROUND PVC SCH-80 CONDUITS FOR POWER FROM UTILITY.
18. PROVIDE ONE(1) 2-1/2" AND TWO(2) 3/4" CONCRETE ENCASED UNDERGROUND PVC SCH-80 CONDUITS FOR POWER AND CONTROLS FROM GENERATOR.
19. CP-100 CONTROL PANEL.
20. HUMIDIFIER(OPTIONAL).
21. ACCESS CONTROL PANEL(OPTIONAL).
22. 120V RECEPTACLE(TYPICAL).
23. PROVIDE FOUR(4) 3" CONDUITS FOR DATA/FIBER OPTICS. CONDUITS SHALL BE CONNECTED PERPENDICULARLY TO MODULE WALL AT 114" ABOVE FINISHED SLAB AT LOCATION SHOWN. TURN VERTICALLY WITH A 36" RADIUS DOWN TO SLAB FOR UNDERGROUND RUN. PROVIDE UNDERGROUND PORTION TO JUST OUTSIDE OF SLAB EDGE AS SHOWN. PROVIDE STRUCTURAL SUPPORT FOR ABOVEGROUND PORTION. CO-ORDINATE HEIGHT OF CONDUITS ABOVE FINISHED SLAB AS REQUIRED.
24. RUN UNDERGROUND PORTION DIAGONALLY AT 45 DEGREES TO THE LEFT, AS SHOWN, TO EXTEND 48" BEYOND THE EDGE OF THE PAD TO BE CONTINUED BY OTHERS. CAP CONDUIT ENDS AT THIS POINT.
25. CONDUITS FOR POWER CONNECTIONS TO WALL MOUNT COOLING UNITS. CONDUITS SHALL BE CONNECTED PERPENDICULARLY TO MODULE WALL AT 114" ABOVE FINISHED SLAB AT LOCATION SHOWN. CO-ORDINATE HEIGHT OF CONDUITS ABOVE FINISHED SLAB AS REQUIRED.
26. PIPES FOR HUMIDIFICATION AND DEHUMIDIFICATION. PIPES SHALL BE CONNECTED PERPENDICULARLY TO MODULE WALL AT 7-1/2" ABOVE FINISHED SLAB AT LOCATION SHOWN.

CONSULTANTS:

Schneider Electric

IT MISSION CRITICAL SERVICES, INC.
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SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

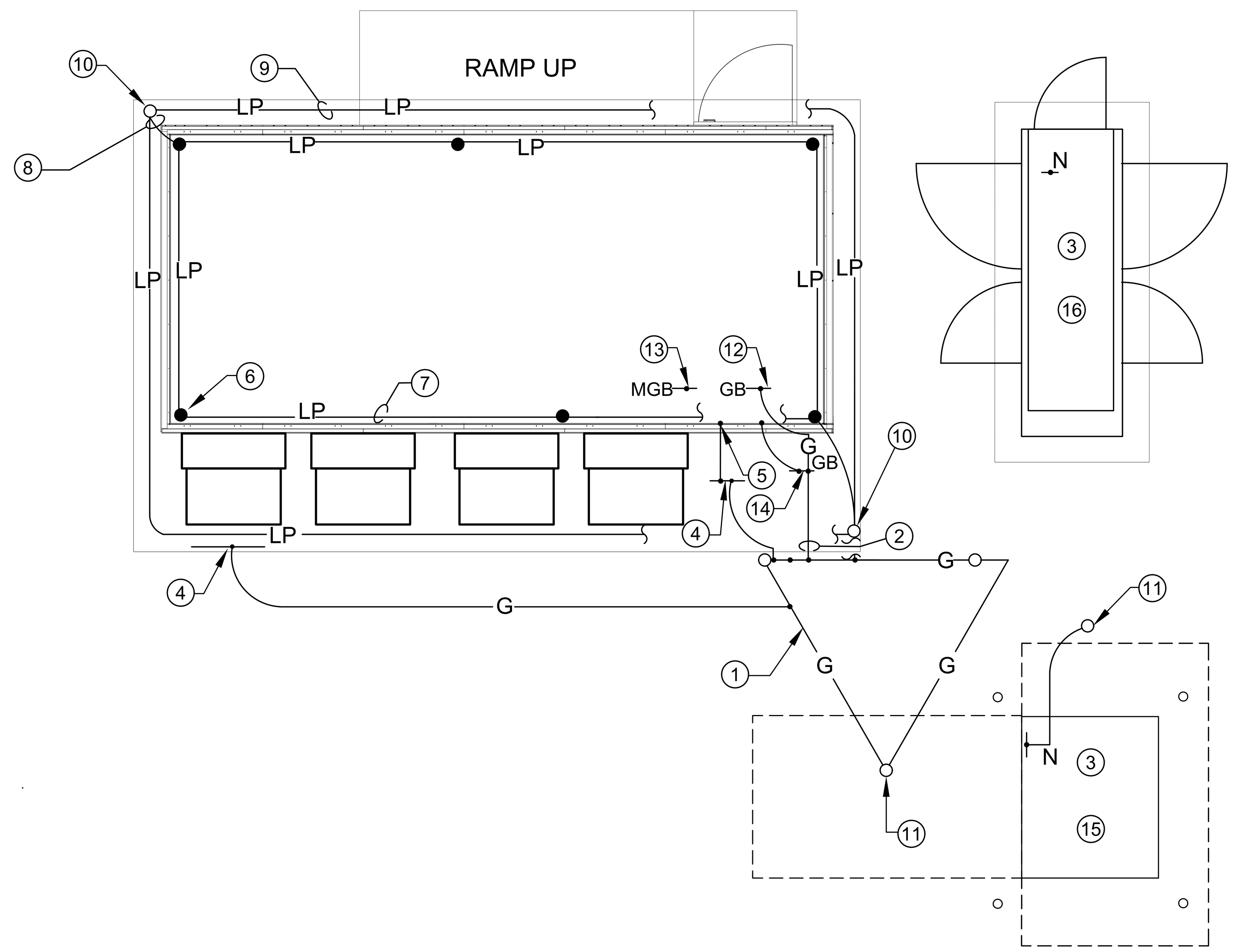
PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL
PREFAB MODULE DETAILS
CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E102



GENERAL NOTES:

1. REFER TO ELECTRICAL GROUNDING DIAGRAM ON SHEET E401 FOR ADDITIONAL INFORMATION.
2. SEE DRAWING E500 FOR DETAILS ON MAIN GROUNDING SYSTEM AND GROUND BUS.
3. ALL GROUNDING CONNECTIONS AND BONDINGS SHALL BE BY ARTICLE 250 OF NFPA 70.
4. ALL GROUND WIRES SHALL BE #1/0 AWG BARE COPPER, STRANDED.
5. ALL LIGHTNING PROTECTION WIRES SHALL BE #2 AWG BARE COPPER, STRANDED.
6. ALL LIGHTNING PROTECTION COMPONENTS SHALL BE PROPERLY SUPPORTED TO THE STRUCTURE PER NFPA 780.
7. ALL LIGHTNING PROTECTION CONNECTIONS AND BONDINGS SHALL BE PER NFPA 780.

PLAN NOTES:

(1) MAIN GROUNDING ELECTRODE SYSTEM. SEE GROUNDING DETAIL ON SHEET E500.

(2) MAIN GROUNDING ELECTRODE CONDUCTOR.

(3) GENERATOR NEUTRAL AND UTILITY TRANSFORMER NEUTRAL SHALL BE INTERCONNECTED AT THE NEUTRAL BUS OF SERVICE ENTRANCE ATS (SOLID NEUTRAL SYSTEM). MAIN BONDING JUMPER SHALL CONNECT NEUTRAL BUS TO THE GROUND BUS. SEE ELECTRICAL GROUNDING ONE LINE DIAGRAM ON SHEET E401 FOR DETAILS.

(4) CONNECT STRUCTURAL STEEL TO MAIN GROUNDING ELECTRODE SYSTEM (TYPICAL). CONTRACTOR SHALL ENSURE THAT ALL STRUCTURAL STEEL COMPONENT WITHIN THE SLAB ARE PROPERLY BONDED WITH EACH OTHER.

(5) CONNECT EQUIPMENT ENCLOSURE TO STRUCTURAL STEEL (TYPICAL).

(6) LIGHTNING PROTECTION AIR TERMINAL (TYPICAL OF 6).

(7) LIGHTNING PROTECTION ROOF WIRE.

(8) LIGHTNING PROTECTION DOWN WIRE (TYPICAL OF 2).

(9) LIGHTNING PROTECTION RING WIRE. INSTALL ENCASED IN CONCRETE SLAB, BUT IN DIRECT CONTACT WITH EARTH.

(10) LIGHTNING PROTECTION GROUNDING ELECTRODE(TYPICAL OF 2). PROVIDE MIN. 8FT X 1/2IN DIAM. COPPER ROD. DRIVE TO A MINIMUM OF 10FT INTO THE EARTH.

(11) GROUNDING ELECTRODE(TYP.). PROVIDE MINIMUM 8FT X 3/4IN DIAM. COPPER ROD. DRIVE TO A MINIMUM OF 10FT INTO THE EARTH.

(12) GROUND BAR AT THE SERVICE ENTRANCE ATS. REFER TO ELECTRICAL GROUNDING ONE LINE DIAGRAM ON SHEET E401 FOR DETAILS.

(13) MAIN GROUNDING BAR.REFER TO ELECTRICAL GROUNDING DIAGRAM ON SHEET E401 FOR DETAILS.

(14) GROUND BAR LOCATED OUTSIDE AND MOUNTED ON THE MODULE ENCLOSURE.

(15) UTILITY TRANSFORMER.

(16) 125KW/156KVA STANDBY GENERATOR.

LEGEND:

—— G ——	GROUND WIRE.
——LP——	LIGHTNING PROTECTION WIRE.
GB	GROUND BAR.
MGB	MAIN GROUNDING BUS.

GROUNDING AND LIGHTNING PROTECTION PLAN, CONFIGURATION-2

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

CONSULTANTS:

IT MISSION CRITICAL SERVICES, INC.
12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
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SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

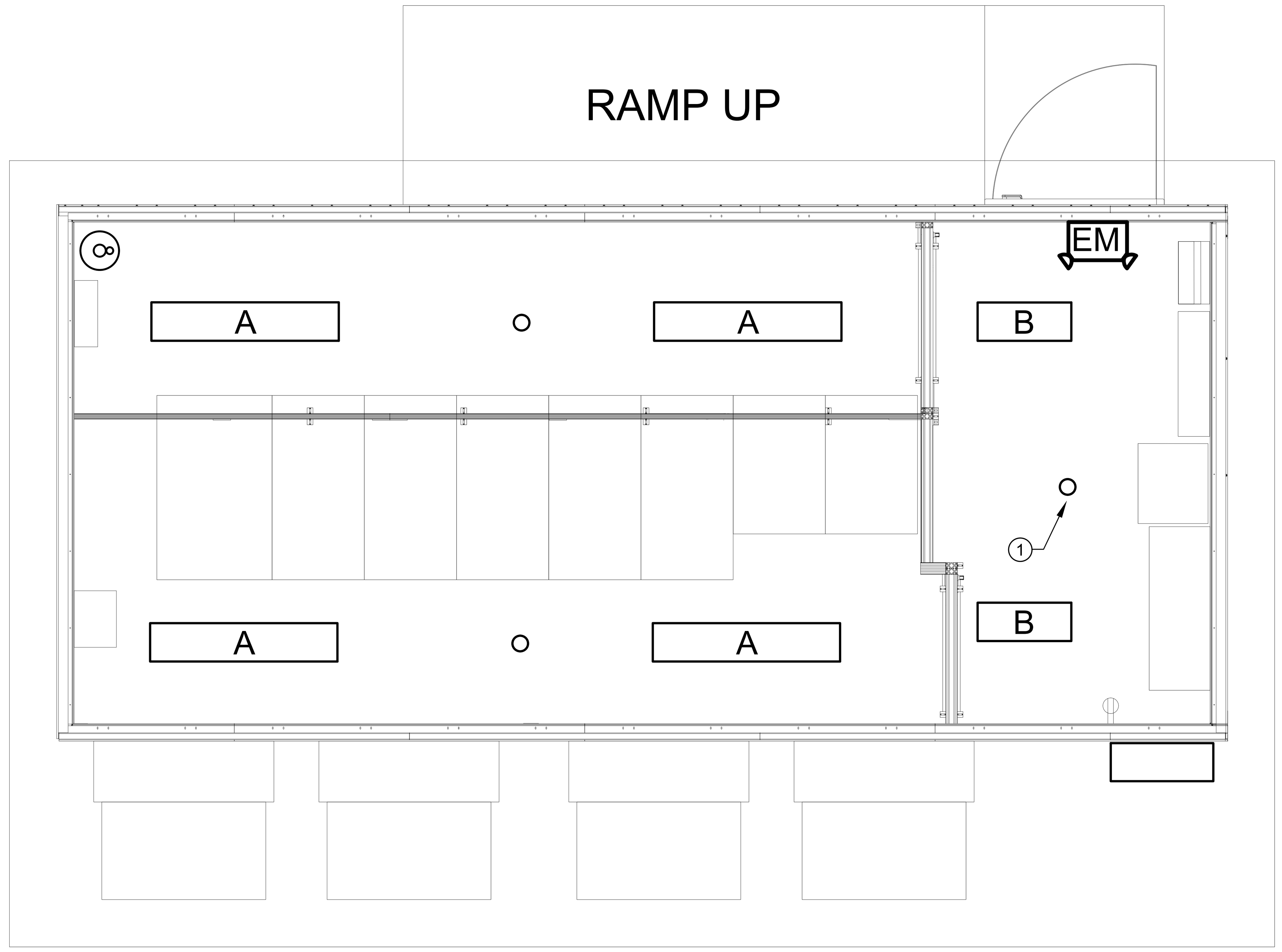
SHEET TITLE:

GROUNDING AND LIGHTNING PROTECTION PLAN, CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:

E103



LIGHTING FIXTURE SCHEDULE

TYPE		MANUFACTURER PRODUCT #	VOLTAGE	WATTAGE	LAMP	NUMBER OF FIXTURES	MOUNTING	REMARKS
A	LED 4FT VAPORTIGHT	LITHONIA LIGHTING 4VT2-LD4-4-DR-UNVL840-CD1-WL-U	120V	38W	LED	4	SURFACE	4' LED VAPOR TIGHT FIXTURE DIMMABLE
B	LED 2FT VAPORTIGHT	LITHONIA LIGHTING 2VT2-LD4-3-DR-UNVL840-CD1-WL-U	120V	28.4W	LED	2	SURFACE	2' LED VAPOR TIGHT FIXTURE DIMMABLE
EM	LED COMBO EXIT/EMERGENCY LIGHTS	LITHONIA LIGHTING LHQM LED R HO M6	120V	4.3W	LED	1	SURFACE	THERMOPLASTIC WHITE (2) HEAD, BATTERY BACKED EMERGENCY LIGHT

GENERAL NOTES:

1. REFER TO ONE LINE DIAGRAM ON SHEET E400 FOR ADDITIONAL DETAILS ON THE ELECTRICAL SYSTEM.
2. FOR ELECTRICAL SCHEDULES, SEE DRAWINGS ON SHEETS E600 AND E601.

PLAN NOTES:

(1) OCCUPANCY SENSOR(TYP.) MODEL DT-305 OR CX-100-3 OR SIMILAR.

ELECTRICAL LIGHTING PLAN CONFIGURATION-2

SCALE: 1/2" = 1'-0"

CONSULTANTS:

Schneider Electric
IT MISSION CRITICAL SERVICES, INC.
12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
PH: 703-968-0300 FX: 703-654-3680

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

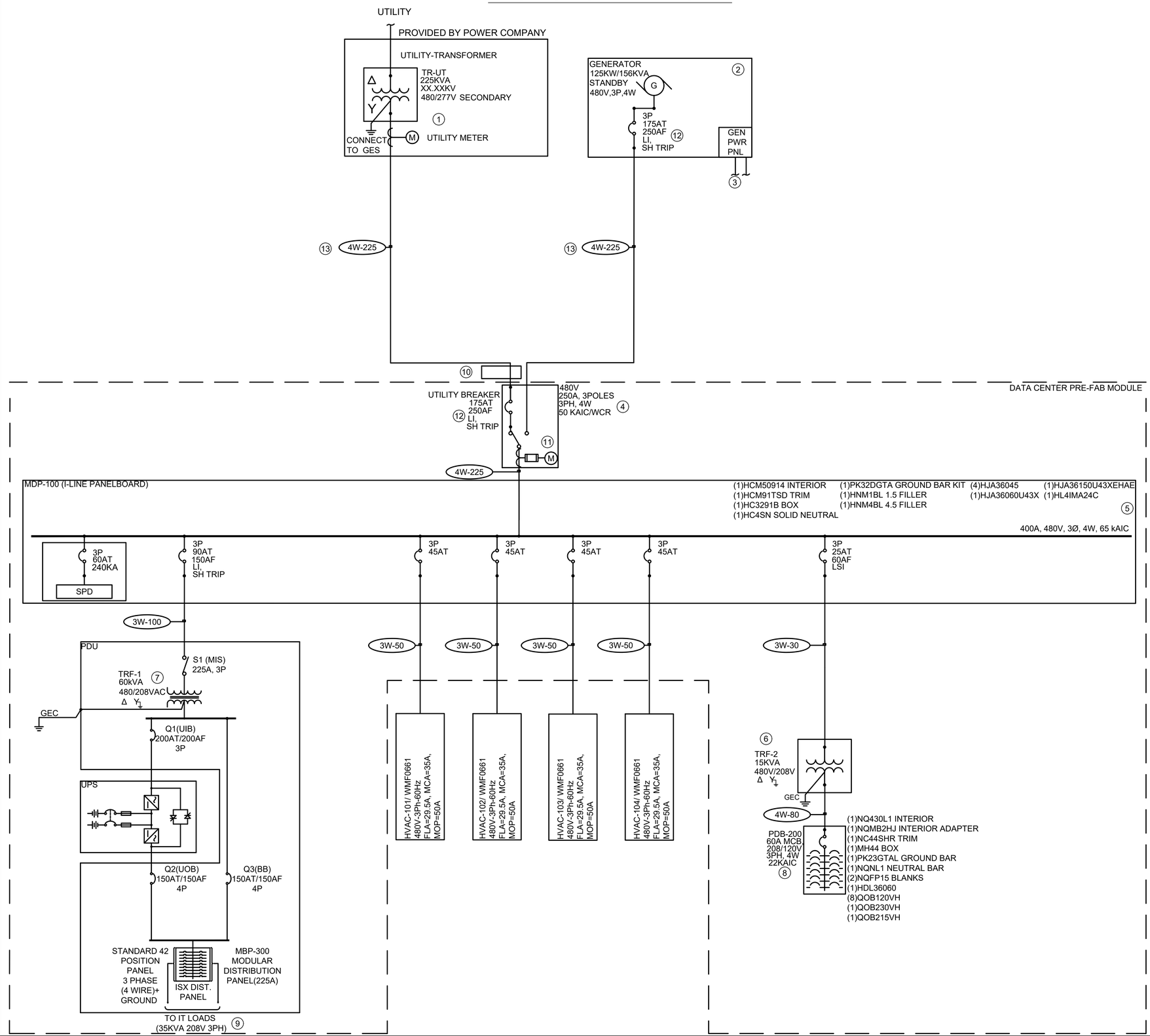
DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL LIGHTING PLAN CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E104

ELECTRICAL ONE LINE DIAGRAM:



GENERAL NOTES:

- SEE DRAWING E001 FOR ABBREVIATIONS AND SYMBOLS.
- SEE DRAWING E002 AND E003 FOR ELECTRICAL SPECIFICATIONS.
- SEE DRAWING E600 AND E601 FOR ELECTRICAL SCHEDULES.

CONTROLS NOTES:

- SUPPLY OF CONTROL PANELS ALONG WITH THEIR INTEGRATION SERVICES WITH THE DATA CENTER SYSTEM SHALL BE PROVIDED BY SCHNEIDER EPMS DIVISION.
- PROVIDE A SEPARATE CONDUIT FOR CONNECTING THE SPD WITH POWER QUALITY METER(IF PROVIDED) FOR SPD FAILURE MONITORING.
- PROVIDE A 1KVA 480V/120V CPT FOR PROVIDING 120V CONTROL POWER TO CONTROL EQUIPMENT ON 120V AC SUPPLY.
- PROVIDE A 120V AC TO 24V DC POWER SUPPLY FOR 24V DC CONTROL POWER REQUIREMENTS.
- THE CIRCUIT BREAKER INSIDE THE GENERATOR ENCLOSURE SHALL BE EQUIPPED WITH A 24V DC SHUNT TRIP UNIT. SHUNT TRIPS ARE TO BE WIRED TO EPO PANEL.
- PROVIDE AN ETHERNET SWITCH WITH SUFFICIENT PORTS FOR CONNECTING THE POWER QUALITY METER(IF PROVIDED), UPS SYSTEM COMPONENTS AND ALL OTHER COMPONENTS THAT REQUIRE REMOTE MONITORING AND CONFIGURATION.

PLAN NOTES:

1. UTILITY METER (TO BE PROVIDED BY POWER COMPANY).
2. 125KW/156KVA STANDBY GENERATOR.
3. RUN TWO PHASE WIRES, A NEUTRAL WIRE AND A GROUND WIRE IN A 3/4" CONDUIT FROM PDB-200 PANEL TO GENERATOR POWER PANEL. REFER TO PANEL SCHEDULE ON DRAWING E-600 FOR DETAILS.
4. ASCO-300 MODEL(480V) SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH WITH PROGRAMMABLE DELAYED TRANSITION.
5. 400AMP I-LINE PANELBOARD.
6. 15KVA TRANSFORMER MODEL EX15T3H.
7. 60KVA UPS INPUT TRANSFORMER.
8. 100AMP NQ PANEL.
9. SEE PANEL MBP-300 SCHEDULE ON DRAWING E601 FOR DETAILS.
10. OPTIONAL 250A SERVICE ENTRANCE RATED DISCONNECT SWITCH (PROVIDED BY OTHERS).
11. ASCO 5210 POWER METER(OPTIONAL).
12. CIRCUIT BREAKER WILL BE EQUIPPED WITH MICROLOGIC 5.2E LI (OR LSI) ELECTRONIC TRIP UNIT AND A SHUNT TRIP UNIT. SHUNT TRIPS ARE TO BE WIRED TO EPO PANEL.
13. CONDUCTORS FROM UTILITY AND GENERATOR SHOWN AS PER WIRE SCHEDULE SHALL BE RUN IN 2-1/2" PVC SCH-80 CONDUITS.

CONSULTANTS:

Schneider Electric

IT MISSION CRITICAL SERVICES, INC.
12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
PH: 703-968-0300 FX: 703-654-3680

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

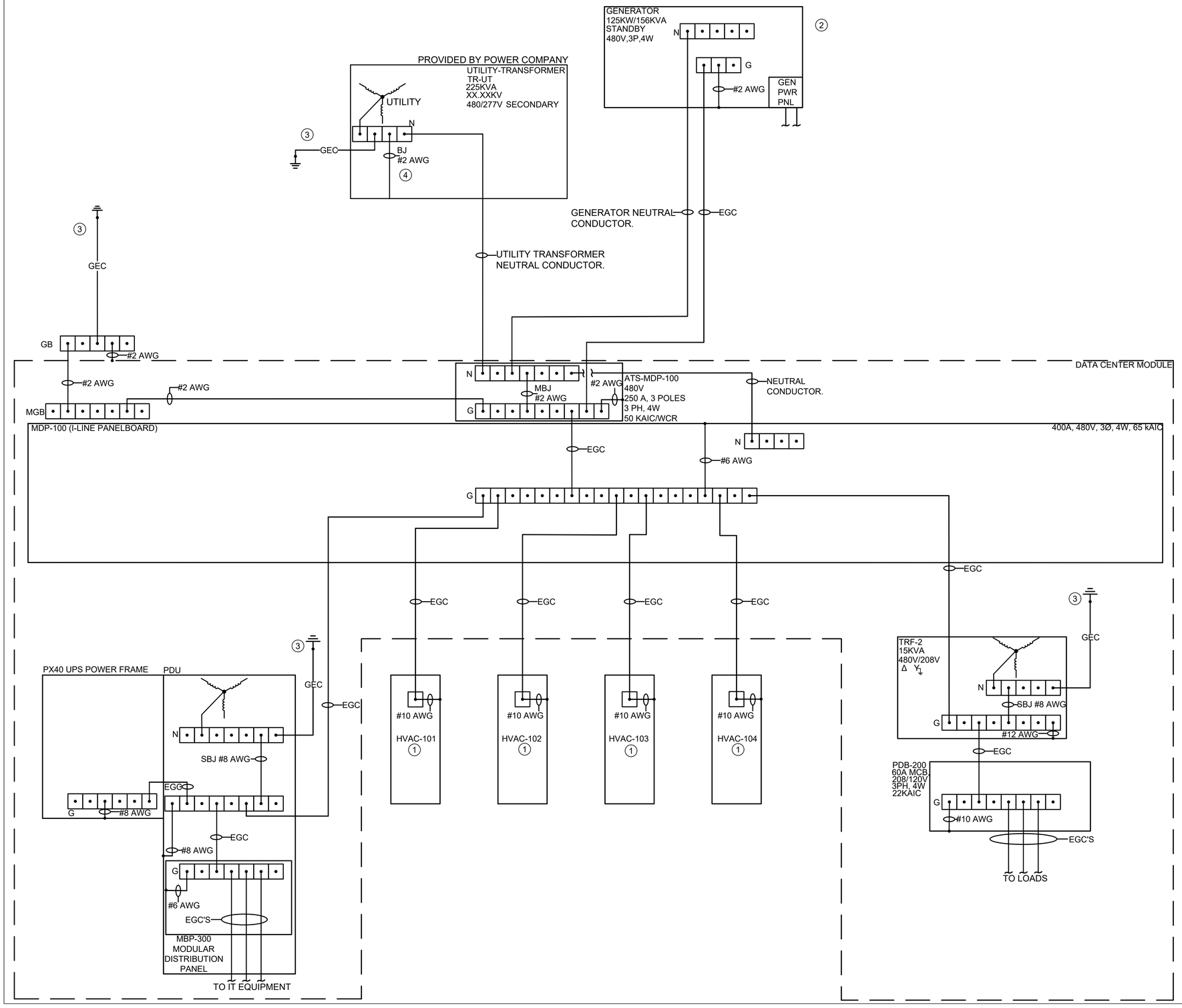
DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL ONE LINE DIAGRAM CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E400

ELECTRICAL GROUNDING DIAGRAM:



GENERAL NOTES:

- SEE DRAWING E001 FOR ABBREVIATIONS AND SYMBOLS.
- SEE DRAWING E002 AND E003 FOR ELECTRICAL SPECIFICATIONS.
- SEE DRAWING E400 FOR ELECTRICAL ONE LINE DIAGRAM.
- SEE DRAWING E500 FOR ELECTRICAL DETAILS.
- SEE DRAWING E600 AND E601 FOR ELECTRICAL SCHEDULES.
- ALL GROUNDING CONNECTIONS AND BONDINGS SHALL BE BY ARTICLE 250 OF NFPA 70. EQUIPMENT GROUNDING CONDUCTORS ARE NORMALLY RUN WITH CIRCUIT CONDUCTORS. SEE DRAWING E400 ONE LINE DIAGRAM AND E600 ELECTRICAL SCHEDULES FOR EGC SIZING DETAILS.
- REFER TO ELECTRICAL GROUNDING AND LIGHTNING PROTECTION DRAWING ON SHEET E103 FOR ADDITIONAL DETAILS.

PLAN NOTES:

(1) WALL MOUNT COOLING UNIT WITH HEATER(TYP.).

(2) GENERATOR GROUNDING SYSTEM IS BASED ON A NON-SEPERATELY DERIVED SYSTEM.

(3) SEE DRAWING E103 GROUNDING AND LIGHTNING PROTECTION FOR DETAILS.

(4) BONDING JUMPER(PROVIDED BY OTHERS) TO BE INSTALLED AS REQUIRED. ALL GROUNDING CONNECTIONS AND BONDINGS SHALL BE AS PER ARTICLE 250 AND 450 OF NFPA 70 AND SHALL MEET ALL STATE AND LOCAL CODE REQUIREMENTS.

LEGEND:

——EGC——	EQUIPMENT GROUNDING CONDUCTOR NORMALLY RUN IN RACEWAYS WITH CIRCUIT CONDUCTORS. SIZE PER NEC.
——GEC——	GROUNDING ELECTRODE CONDUCTOR.
—— BJ ——	BONDING JUMPER. SIZE PER NEC.
——MBJ——	MAIN BONDING JUMPER.
—— SBJ ——	SYSTEM BONDING JUMPER.
MGB	MAIN GROUNDING BAR.
N	NEUTRAL BAR.
G	GROUND BAR.

CONSULTANTS:

Schneider Electric

IT MISSION CRITICAL SERVICES, INC.

12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
PH: 703-968-0300 FX: 703-654-3680

Schneider Electric IT
Mission Critical Services, Inc.
Proprietary use pursuant to company policy

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

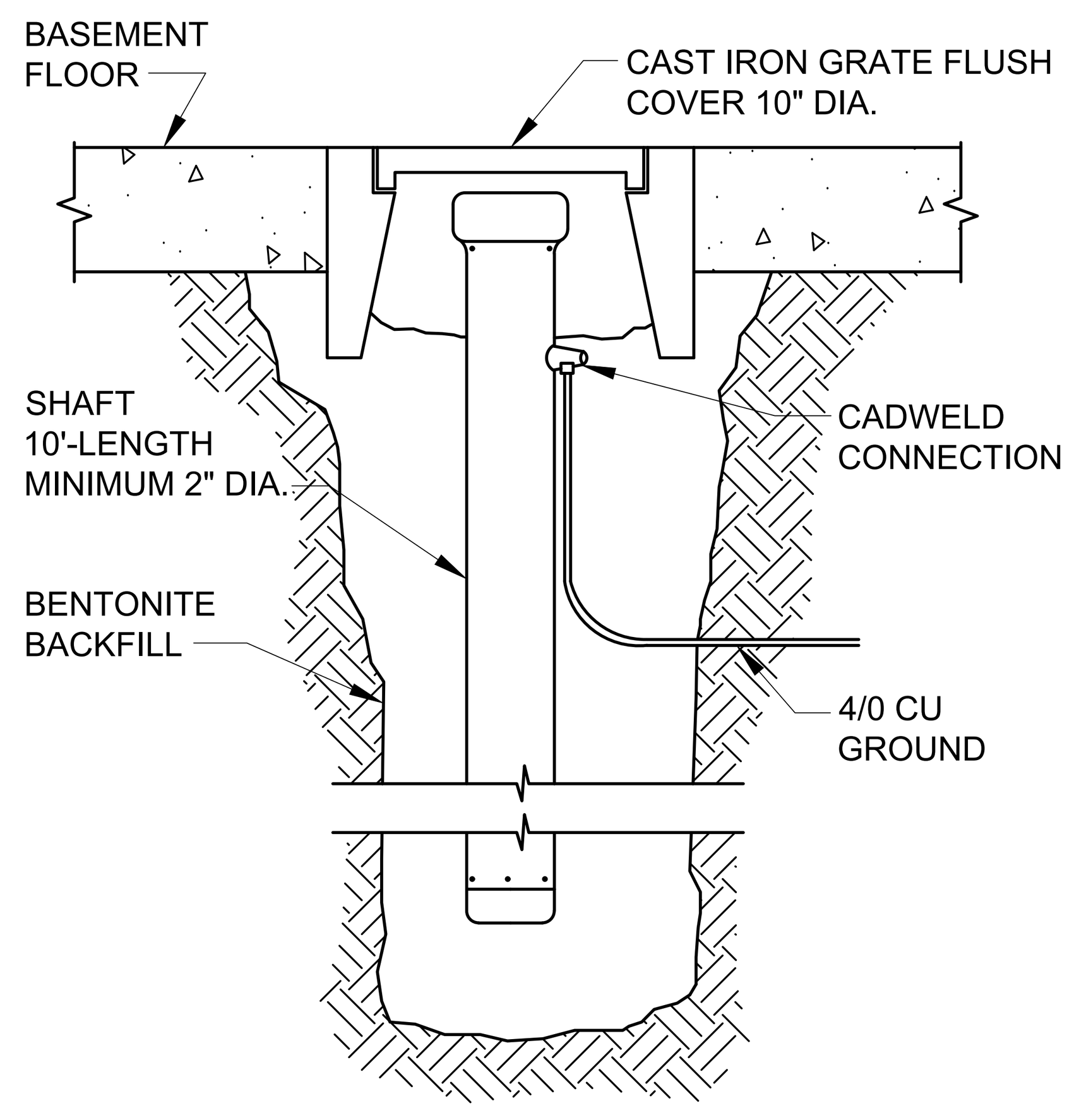
PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

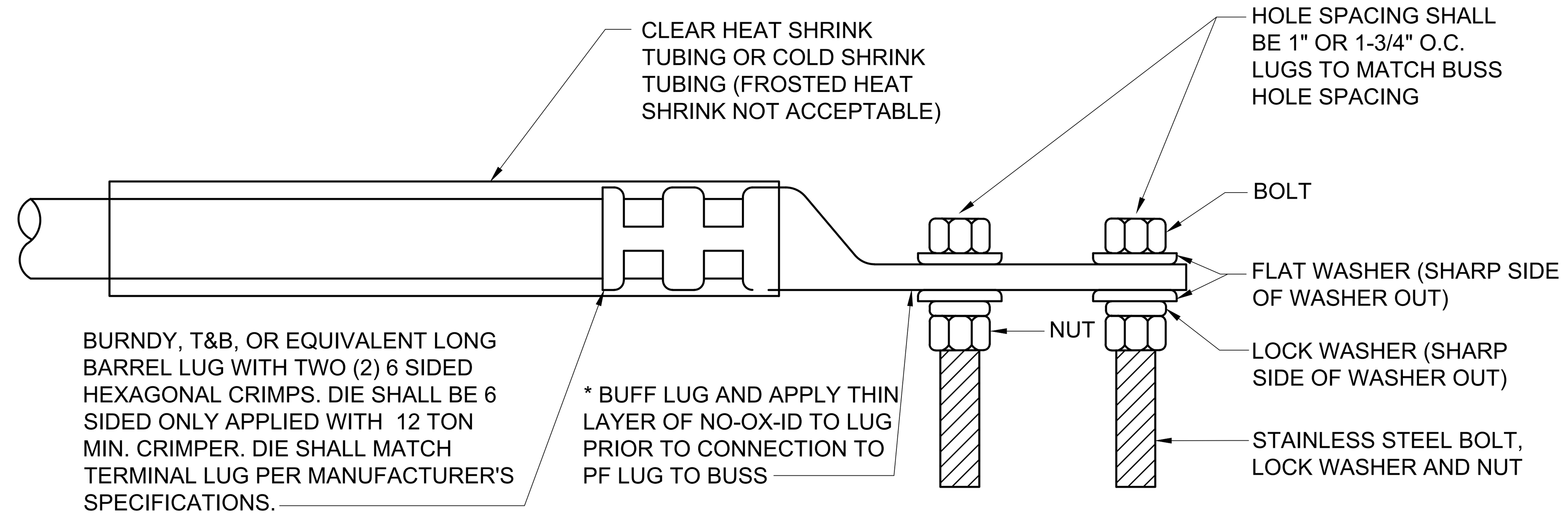
SHEET TITLE:
ELECTRICAL GROUNDING DIAGRAM CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E401



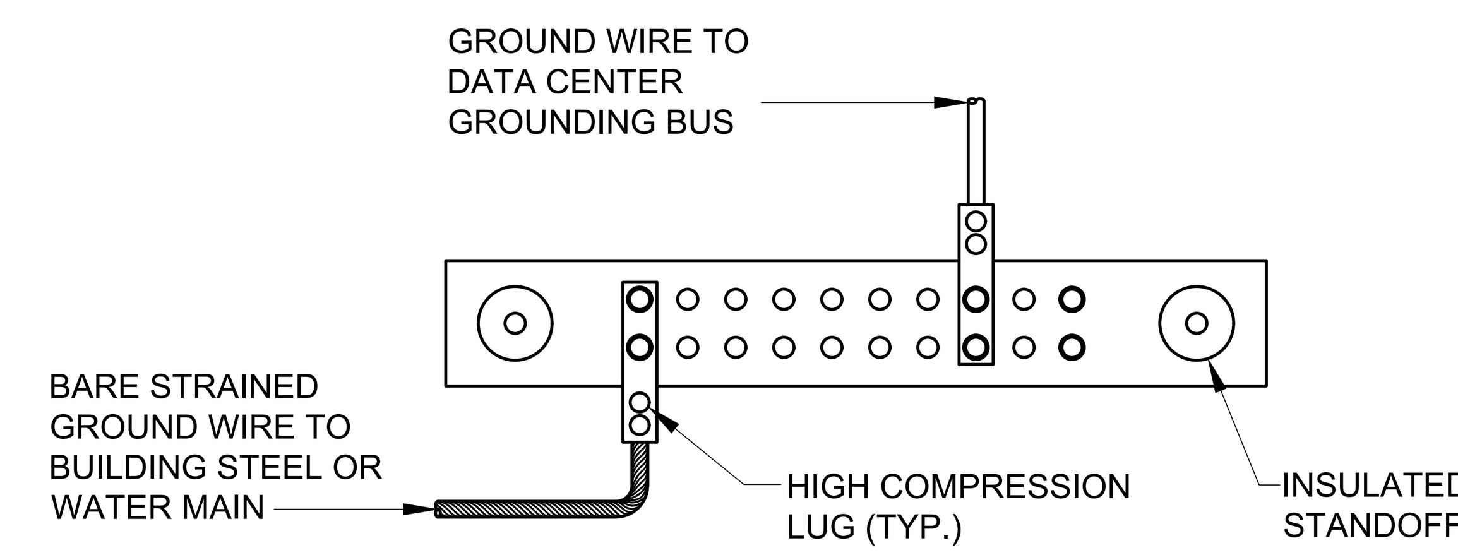
1 E500
MAIN GROUNDING ROD SYSTEM - DETAIL
NOT TO SCALE



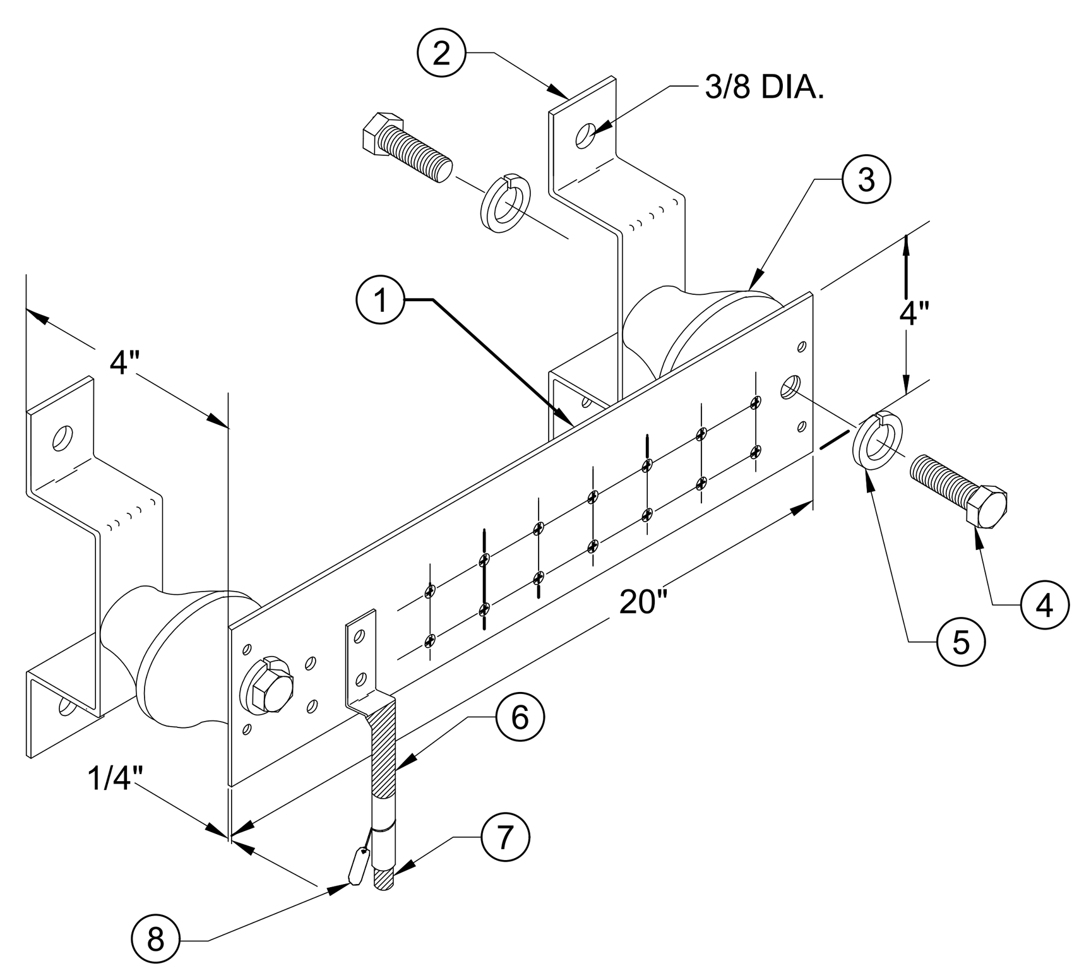
IMPORTANT NOTE:

THE CONTRACTOR SHALL SUPPLY A SAMPLE AS ILLUSTRATED ON THIS DETAIL TO LEE TECHNOLOGIES FOR APPROVAL PRIOR TO LAYING ANY CABLES OR PURCHASING LUGS. THE CONTRACTOR SHALL SUBMIT SAMPLES FOR REVIEW IN A TIMELY MANNER TO ENSURE MATERIALS MAY BE ORDERED TO MEET PROJECT SCHEDULE. FAILURE TO SUBMIT SAMPLE FOR REVIEW AND USE OF NON-APPROVED MATERIALS MAY BE SUBJECT TO REPLACEMENT AT CONTRACTORS EXPENSE.

2 E500
CABLE LUG - DETAIL
NOT TO SCALE



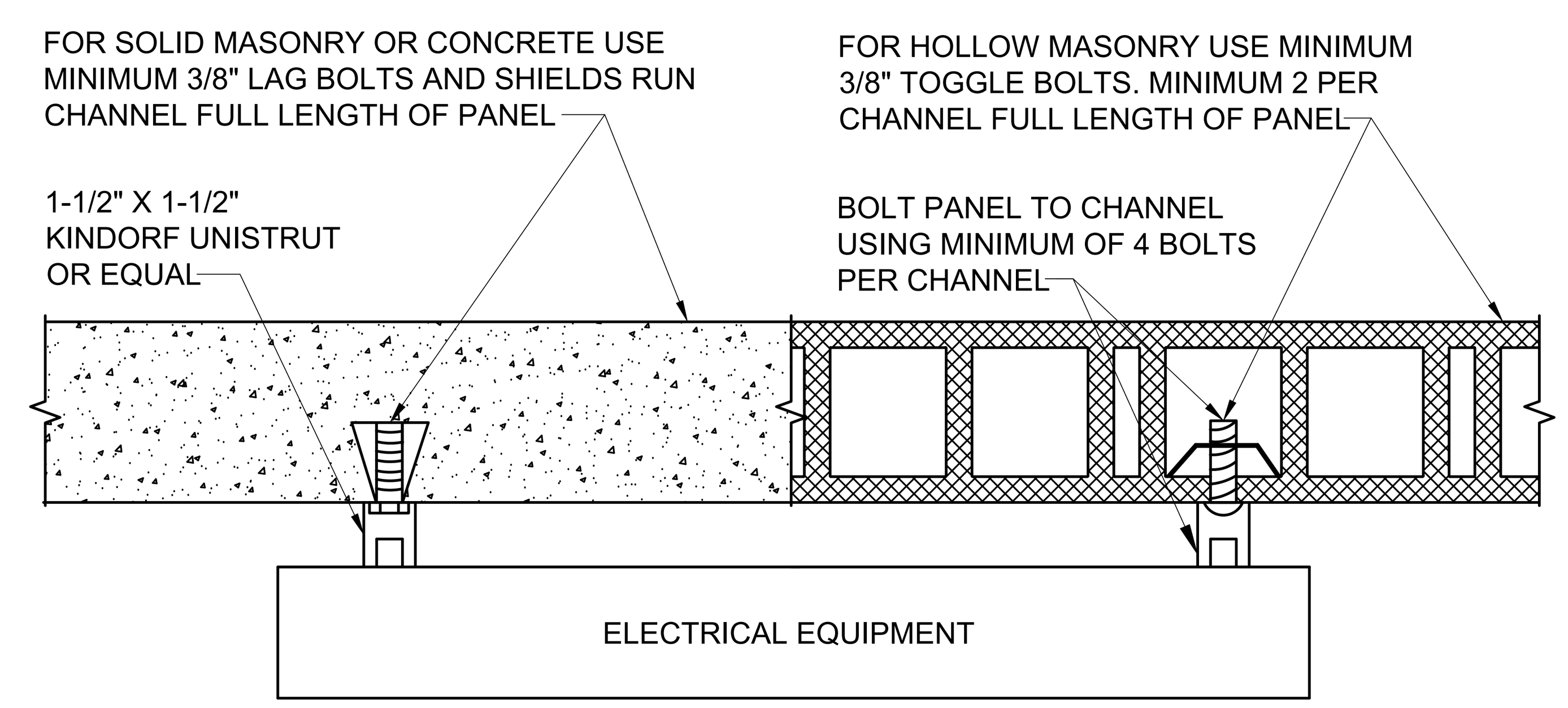
3 E500
MAIN GROUNDING BUS - DETAIL
NOT TO SCALE



ITEM NO.	REQ.	DESCRIPTION
1	1	GROUND BAR
2	2	WALL MTG. BRKT.(OR FLOOR)
3	2	INSULATORS
4	4	5/8"-11 X 1 H.H.C.S.
5	4	5/8" LOCKWASHER
6	1	SEE DETAIL #1 IN THIS SHEET
7	1	GREEN INSULATED GROUND CONDUCTOR
8	1	DESTINATION LABEL TAG DO NOT REMOVE

- BELOW RAISED FLOOR AGB +12" A.F.F.
- PROVIDE INSULATORS 24" ON CENTER ACROSS LENGTH OF GROUND BAR.
- ALL CONNECTIONS SHALL BE MADE WITH STAINLESS STEEL TAMPER PROOF HARDWARE OR EXOTHERMIC WELD.

4 E500
INSULATED GROUND BAR - DETAIL
NOT TO SCALE



NOTE:

ALL SAFETY SWITCHES, 60A AND LARGER; ALL STARTERS AND CONTROLLERS, 3 H.P. AND LARGER; ALL SURFACE MOUNTED PANELS AND ALL EQUIPMENT MOUNTED ON OUTSIDE WALLS, SHALL BE MOUNTED IN THIS MANNER.

5 E500
SURFACE EQUIPMENT MOUNTING - DETAIL
NOT TO SCALE

ELECTRICAL DETAILS, CONFIGURATION-1

CONSULTANTS:

Schneider Electric

IT MISSION CRITICAL SERVICES, INC.
12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
PH: 703-968-0300 FX: 703-654-3680

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL DETAILS CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E500

DISTRIBUTION PANELBOARD 'MDP-100' SCHEDULE

VOLTAGE	PH	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	LOCATION	PANEL CATALOG NUMBER :
277 / 480	3	4		400	65000	SURFACE	MODULE	

CKT #	ITEM SERVED	CIRCUIT BRKR TRIP	CIRCUIT BRKR P	WIRE SIZE	COND. SIZE	LOAD (KVA)	PHASE A	PHASE B	PHASE C	LOAD (KVA)	COND. SIZE	WIRE SIZE	CIRCUIT BRKR P	CIRCUIT BRKR TRIP	ITEM SERVED	CKT #
1	UPS	90	3	3	1-1/4"	35.00	15.35	15.35	15.35	11.06	3/4"	10	3	20	TRF-2	2
3	HVAC-101	45	3	8	3/4"	24.52	16.35	16.35	16.35	24.52	3/4"	8	3	45	HVAC-103	4
5	HVAC-102	45	3	8	3/4"	24.52	8.17	8.17	8.17	0.00	3/4"	8	3	45	HVAC-104(REDUNDANT)	6
7	SPACE						0.00	0.00	0.00						SPACE	8
9	SPACE						0.00	0.00	0.00	0.00	3/4"	6	3	60	SPD BREAKER	10
							39.87	39.87	39.87							

LOAD TYPE	LOAD (KVA)	SUBLOADS (KVA) PNL	PNL	PNL	PNL	PNL	PNL	PNL	PNL	PNL	PNL	TOTAL (KVA)	DEM FAC	DEM LD	NOTES
UPS	35.00	-	-	-	-	-	-	-	-	-	-	35.00	1.00	35.00	
TRF-2	11.06	-	-	-	-	-	-	-	-	-	-	11.06	1.00	11.06	
HVAC-101	24.52	-	-	-	-	-	-	-	-	-	-	24.52	1.00	24.52	
HVAC-102	24.52	-	-	-	-	-	-	-	-	-	-	24.52	1.00	24.52	
HVAC-103	24.52	-	-	-	-	-	-	-	-	-	-	24.52	1.00	24.52	
HVAC-104(REDUNDANT)	0.00	-	-	-	-	-	-	-	-	-	-	0.00		0.00	
												119.62		119.62	TOTAL KVA
25 % OF Largest Motor Load	2.29	-	-	-	-	-	-	-	-	-	-	2.29	1.00	2.29	
25 % OF UPS Continuous Load plus Battery Charging	17.05	-	-	-	-	-	-	-	-	-	-	17.05	1.00	17.05	
25 % OF TRF-2's Continuous Load	2.03	-	-	-	-	-	-	-	-	-	-	2.03	1.00	2.03	
NOTES:														140.99	SUM TOTAL KVA(125% CONTINUOUS LOAD+ 100% NON CONTINUOUS LOAD+100% MOTOR LOADS+ 25% LARGEST MOTOR LOAD)
DEMAND FACTOR IN ACCORANCE WITH NEC.														169.58	TOTAL AMPS

DISTRIBUTION PANELBOARD 'PDB-200' SCHEDULE

VOLTAGE	PH	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	LOCATION	PANEL CATALOG NUMBER :
120/ 208	3	4	60		22,000	SURFACE	MODULE	

CKT #	ITEM SERVED	CKT. BRK TRIP	CKT. BRK P	WIRE SIZE	COND. SIZE	LOAD (KVA)	PHASE A	PHASE B	PHASE C	LOAD (KVA)	COND. SIZE	WIRE SIZE	CKT. BRK P	CKT. BRK TRIP	ITEM SERVED	CKT #
1	ERV & DAMPER SYSTEM	20	1	12	3/4"	0.60	1.20			0.60	3/4"	12	1	20	FIRE SUPPRESSION	2
3	RECEPTACLES	20	1	12	3/4"	1.26		1.26		0.00			1	20	SPARE	4
5	GENERATOR POWER PANEL	30	2	10	3/4"	5.00			3.50	1.00	3/4"	12	1	20	CONTROLS POWER	6
7								3.50		1.00	3/4"	12	1	20	EXTERIOR LIGHTING	8
9	INTERIOR LIGHTING	20	1	12	3/4"	0.50	1.05			1.10	3/4"	12	2	15	HUMIDIFIER(OPTIONAL)	10
11	SPACE								0.55							12
13									0.00	0.00			1	20	SPARE	14
15	SPACE														SPACE	16
17															SPACE	18
19	SPACE														SPACE	20
21	SPACE														SPACE	22
23	SPACE														SPACE	24
25	SPACE														SPACE	26
27	SPACE														SPACE	28
29	SPACE														SPACE	30
							2.25	4.76	4.05							

LOAD TYPE	LOAD (KVA)	SUBLOADS (KVA) PNL	PNL	PNL	PNL	PNL	PNL	PNL	PNL	PNL	PNL	TOTAL (KVA)	DEM FAC	DEM LD	NOTES
ERV & DAMPER SYSTEM	0.60	-	-	-	-	-	-	-	-	-	-	0.60	1.00	0.60	
FIRE SUPPRESSION	0.60	-	-	-	-	-	-	-	-	-	-	0.60	1.00	0.60	
RECEPTACLES	1.26	-	-	-	-	-	-	-	-	-	-	1.26	1.00	1.26	
HUMIDIFIER(OPTIONAL)	1.10	-	-	-	-	-	-	-	-	-	-	1.10	1.00	1.10	
GENERATOR POWER PANEL	5.00	-	-	-	-	-	-	-	-	-	-	5.00	1.00	5.00	
CONTROLS POWER	1.00	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.00	
INTERIOR LIGHTING	0.50	-	-	-	-	-	-	-	-	-	-	0.50	1.00	0.50	
EXTERIOR LIGHTING	1.00	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.00	
SPARE	0.00	-	-	-	-	-	-	-	-	-	-	0.00		0.00	
SPARE	0.00	-	-	-	-	-	-	-	-	-	-	0.00		0.00	
SPARE	0.00	-	-	-	-	-	-	-	-	-	-	0.00		0.00	
														11.06	TOTAL KVA
25% Of Continuous Loads	2.03	-	-	-	-	-	-	-	-	-	-	2.03	1.00	2.03	
NOTES:														13.09	SUM TOTAL KVA(125% CONTINUOUS LOAD+ 100% NON CONTINUOUS LOAD)
DEMAND FACTOR IN ACCORANCE WITH NEC.														36.32	TOTAL AMPS

3-WIRE FEEDER SIZING SCHEDULE

SYMBOL	# OF SETS	CONDUCTORS (COPPER)	GND.	CONDUIT
3W-15	1	3 #12	#12	3/4"
3W-20	1	3 #12	#12	3/4"
3W-25	1	3 #10	#12	3/4"
3W-30	1	3 #10	#10	3/4"
3W-35	1	3 #8	#10	3/4"
3W-40	1	3 #8	#10	3/4"
3W-45	1	3 #8	#10	3/4"
3W-50	1	3 #8	#10	3/4"
3W-60	1	3 #6	#10	3/4"
3W-70	1	3 #4	#8	1"
3W-80	1	3 #4	#8	1"
3W-90	1	3 #3	#8	1-1/4"
3W-100	1	3 #3	#8	1-1/4"
3W-110	1	3 #2	#6	1-1/4"
3W-125	1	3 #1	#6	1-1/4"
3W-150	1	3 1/0	#6	1-1/2"
3W-175	1	3 2/0	#6	2"
3W-200	1	3 3/0	#6	2"
3W-225	1	3 4/0	#4	2"
3W-250	1	3 250 MCM	#4	2-1/2"
3W-300	1	3 350 MCM	#4	2-1/2"
3W-350	1	3 500 MCM	#3	3"
3W-400	2	3 3/0	#3	2"
3W-450	2	3 4/0	#2	2"
3W-500	2	3 250 MCM	#2	2-1/2"
3W-600	2	3 350 MCM	#1	2-1/2"
3W-700	2	3 500 MCM	1/0	3"
3W-800	3	3 300 MCM	1/0	2-1/2"
3W-1000	3	3 400 MCM	2/0	2-1/2"
3W-1200	4	3 350 MCM	3/0	2-1/2"
3W-1600	5	3 400 MCM	4/0	2-1/2"
3W-2000	6	3 400 MCM	250 MCM	2-1/2"
3W-2500	7	3 500 MCM	350 MCM	3"
3W-3000	8	3 500 MCM	400 MCM	3"
3W-4000	11	3 500 MCM	500 MCM	3"
3W-5000	11	3 700 MCM	700 MCM	3-1/2"
3W-6000	13	3 750 MCM	800 MCM	3-1/2"

+ WHERE THE FEEDER SYMBOL IS SHOWN WITH A SUBSCIPT 'IG', THE FEEDER SHALL BE PROVIDED WITH A SEPERATE ISOLATED GROUND CONDUCTOR SIZED TO MATCH THE EQUIPMENT GROUND.

-CONDUCTOR SIZING BASED ON NEC TABLE 310.15(B)(16) FOR COPPER CONDUCTORS RATED AT 75°C.

-EQUIPMENT GROUNDING CONDUCTOR SIZING BASED ON NEC TABLE 250.122 FOR COPPER CONDUCTORS.

-CONDUIT SIZING BASED ON NEC TABLE C.1 FOR TYPE THHN, THWN, THWN-2 CONDUCTORS IN ELECTRICAL METALLIC TUBING.

4-WIRE FEEDER SIZING SCHEDULE

SYMBOL	# OF SETS	CONDUCTORS (COPPER)	GND.	CONDUIT
4W-15	1	4 #12	#12	3/4"
4W-20	1	4 #12	#12	3/4"
4W-25	1	4 #10	#12	3/4"
4W-30	1	4 #10	#10	3/4"
4W-35	1	4 #8	#10	3/4"
4W-40	1	4 #8	#10	3/4"
4W-45	1	4 #8	#10	3/4"
4W-50	1	4 #8	#10	3/4"
4W-60	1	4 #6	#10	1"
4W-70	1	4 #4	#8	1-1/4"
4W-80	1	4 #4	#8	1-1/4"
4W-90	1	4 #3	#8	1-1/4"
4W-100	1	4 #3	#8	1-1/4"
4W-110	1	4 #2	#6	1-1/4"
4W-125	1	4 #1	#6	1-1/2"
4W-150	1	4 1/0	#6	2"
4W-175	1	4 2/0	#6	2"
4W-200	1	4 3/0	#6	2"
4W-225	1	4 4/0	#4	2-1/2"
4W-250	1	4 250 MCM	#4	2-1/2"
4W-300	1	4 350 MCM	#4	3"
4W-350	1	4 500 MCM	#3	3"
4W-400	2	4 3/0	#3	2"
4W-450	2	4 4/0	#2	2-1/2"
4W-500	2	4 250 MCM	#2	2-1/2"
4W-600	2	4 350 MCM	#1	3"
4W-700	2	4 500 MCM	1/0	3"
4W-800	3	4 300 MCM	1/0	2-1/2"
4W-1000	3	4 400 MCM	2/0	3"
4W-1200	4	4 350 MCM	3/0	3"
4W-1600	5	4 400 MCM	4/0	3"
4W-2000	6	4 400 MCM	250 MCM	3"
4W-2500	7	4 500 MCM	350 MCM	3"
4W-3000	8	4 500 MCM	400 MCM	3"
4W-4000	11	4 500 MCM	500 MCM	3"
4W-5000	11	4 700 MCM	700 MCM	4"
4W-6000	13	4 750 MCM	800 MCM	4"

+ WHERE THE FEEDER SYMBOL IS SHOWN WITH A SUBSCIPT 'IG', THE FEEDER SHALL BE PROVIDED WITH A SEPERATE ISOLATED GROUND CONDUCTOR SIZED TO MATCH THE EQUIPMENT GROUND.

-CONDUCTOR SIZING BASED ON NEC TABLE 310.15(B)(16) FOR COPPER CONDUCTORS RATED AT 75°C.

-EQUIPMENT GROUNDING CONDUCTOR SIZING BASED ON NEC TABLE 250.122 FOR COPPER CONDUCTORS.

-CONDUIT SIZING BASED ON NEC TABLE C.1 FOR TYPE THHN, THWN, THWN-2 CONDUCTORS IN ELECTRICAL METALLIC TUBING.

CONSULTANTS:

Schneider Electric

IT MISSION CRITICAL SERVICES, INC.

12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033

PH: 703-968-0300 FX: 703-654-3680

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:

ELECTRICAL SCHEDULES CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:

E600

PLAN NOTES:

1. POWER SHALL BE DISTRIBUTED TO IT RACKS AND CONTROL PANEL LOAD THROUGH CABLE TRAYS.

SYSTEM LOAD CALCULATION

ITEM	LOAD	UNIT
CRITICAL LOAD	35.000	KVA
HVAC 101	24.520	KVA
HVAC 102	24.520	KVA
HVAC 103	24.520	KVA
HVAC 104(REDUNDANT)	0.000	KVA
ERV & DAMPER SYSTEM	0.600	KVA
FIRE SUPPRESSION	0.600	KVA
RECEPTACLES	1.260	KVA
HUMIDIFIER(OPTIONAL)	0.600	KVA
GENERATOR POWER PANEL	5.000	KVA
CONTROLS POWER	1.000	KVA
INTERIOR LIGHTING	0.5	KVA
LOBBY VENTILATION	0.12	KVA
EXTERIOR LIGHTING	1	KVA
TOTAL KVA	**119.240**	**KVA**

DISTRIBUTION PANELBOARD 'MBP-300' SCHEDULE

VOLTAGE	PH	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	LOCATION	PANEL CATALOG NUMBER
120/ 208	3	4		225	65,000	SURFACE	MODULE	

CKT #	ITEM SERVED	CKT. BRK TRIP	CKT. BRK P	WIRE SIZE	COND. SIZE	LOAD (KVA)	PHASE A	PHASE B	PHASE C	LOAD (KVA)	COND. SIZE	WIRE SIZE	CKT. BRK P	CKT. BRK TRIP	ITEM SERVED	CKT #
1	RACK#1	30	3	10		5.83	3.89			5.83		10	3	30	RACK#5	2
3								3.89								4
5									3.89							6
7	RACK#2	30	3	10		5.83	3.89			5.83		10	3	30	RACK#6	8
9								3.89								10
11									3.89							12
13	RACK#3	30	3	10		5.83	1.94								SPACE	14
15								1.94								16
17									1.94							18
19	RACK#4	30	3	10		5.83	1.94								SPACE	20
21								1.94								22
23									1.94							24
25	SPACE						0.00								SPACE	26
27								0.00								28
29									0.00							30
31	SPACE						0.00								SPACE	32
33								0.00								34
35									0.00							36
37	CP-100	15	1	12		1.00	1.00						1	15	SPARE	38
39								0.00					1	15	SPARE	40
41									0.00							42
							12.66	11.66	11.66							

NOTES:
DEMAND FACTOR IN ACCORANCE WITH NEC.
RACKS SHALL HAVE (N) DISTRIBUTION. OPTIONAL UPGRADE TO (2N) DISTRIBUTION SHALL AVAILABLE ON REQUEST.

35.98	TOTAL KVA
99.87	TOTAL AMPS

CONSULTANTS:

Schneider Electric

IT MISSION CRITICAL SERVICES, INC.
12150 MONUMENT DRIVE SUITE 150 FAIRFAX, VA. 22033
PH: 703-968-0300 FX: 703-654-3680

SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

35KW DATA CENTER
REFERENCE DESIGN
PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER: DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL SCHEDULES CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:
E601