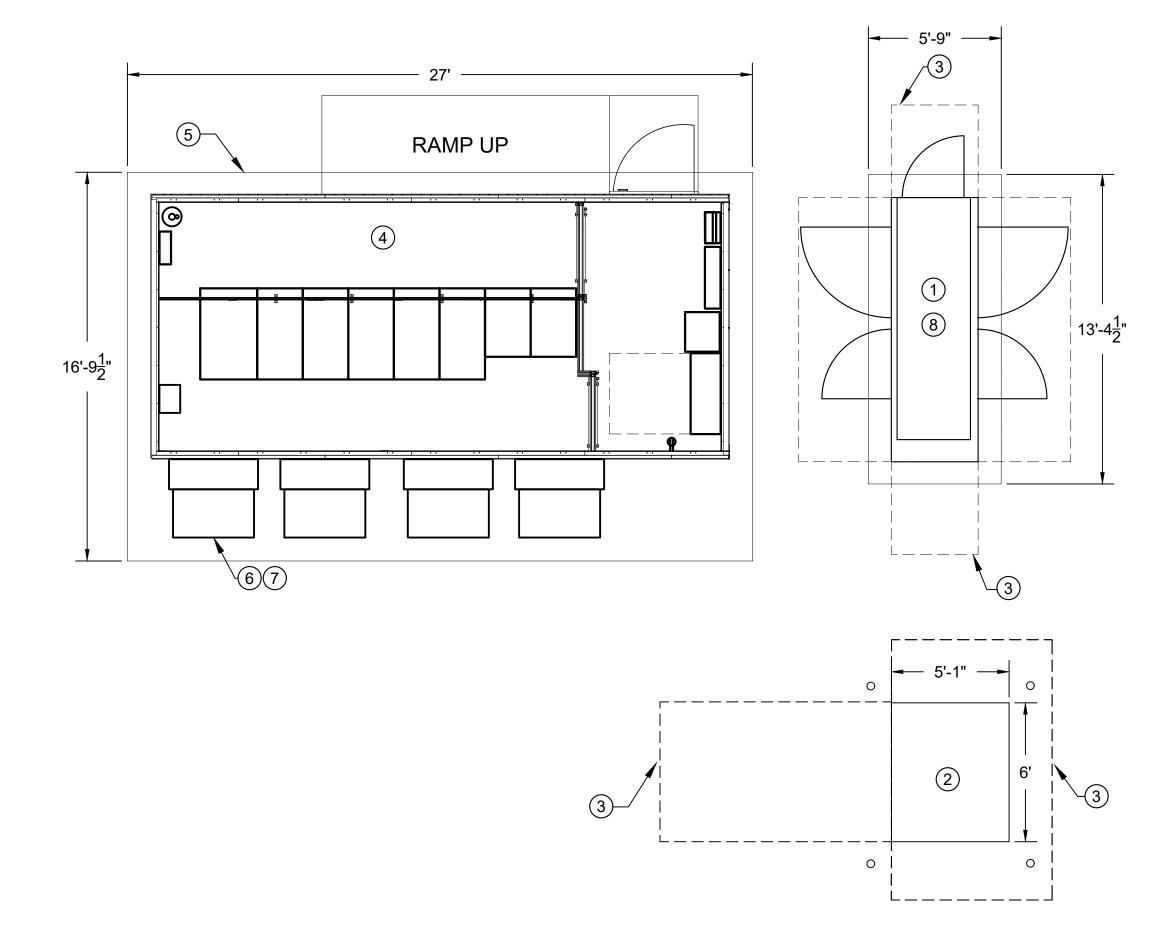
# PREFAB CONFIGURATION-2

PREFAB FRAME	MAX IT LOAD (KW)		JLE DIMENSIONS (A	PPROXIMATE)	MDP-100 SYSTEM VOLTAGE LEVEL	UPS SYSTEM	ATS MODEL	ATS (A)	WALL MOUNT COOLING UNIT	NO. OF WALL MOUNT COOLING	IT RACK (MODEL)/	NO. OF IT	IT RACK DENSITY	NUMBER OF SINGLE PHASE	IT RACK D	DIMENSIONS (APPR	OXIMATE)	RACK PDU
SIZE (KW)	IVIAX II LOAD (KVV)	DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)	(V)	MODEL	ATS MODEL	A13 (A)	WITH HEATER (MODEL)	UNITS WITH HEATER	NETWORKING IT RACK(MODEL)	RACKS	(KW/RACK)	POLES IN MBP	DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)	(MODEL)
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:**

- 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:**

- E400 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).

CONSULTANTS:



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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.

SEAL:



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:

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

PROJECT NUMBER:

\_\_\_\_\_DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL
SITE LAYOUT PLAN
CONFIGURATION-2

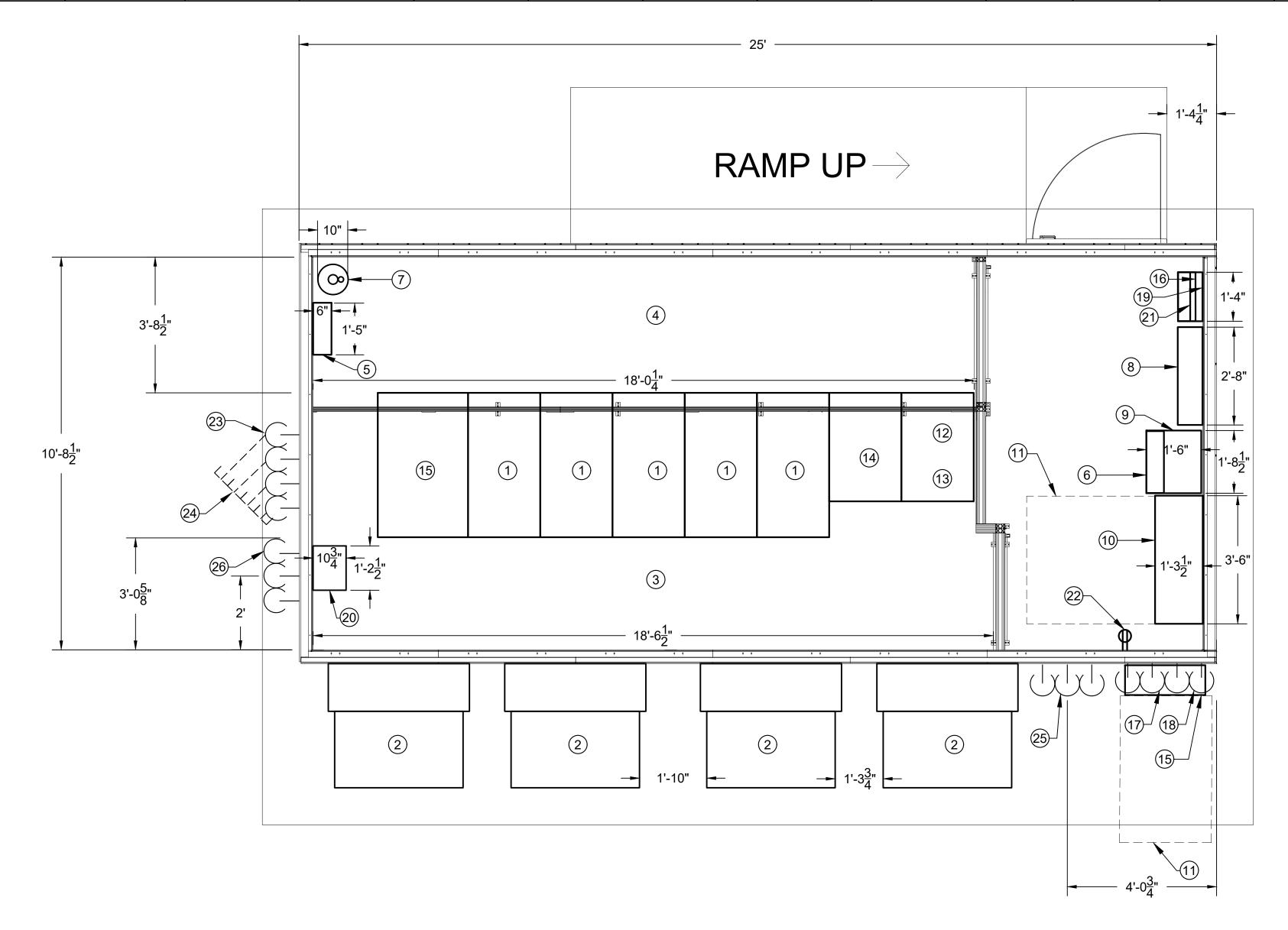
DATE: 05/2/2019

DRAWING NUMBER:

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

# PREFAB CONFIGURATION-2

PREFAB FRAME	MAY IT LOAD (KAA)		ULE DIMENSIONS (AI	PPROXIMATE)	MDP-100 SYSTEM VOLTAGE LEVEL	UPS SYSTEM	ATS MODEL	ATS (A)	WALL MOUNT COOLING UNIT	NO. OF WALL MOUNT COOLING	IT RACK (MODEL)/	NO. OF IT	IT RACK DENSITY	NUMBER OF SINGLE PHASE	IT RACK	DIMENSIONS (APPR	OXIMATE)	RACK PDU
SIZE (KW)	MAX IT LOAD (KW)	DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)	(V)	MODEL	ATS MODEL	A15 (A)	WITH HEATER (MODEL)	UNITS WITH HEATER	NETWORKING IT RACK(MODEL)	RACKS	(KW/RACK)	POLES IN MBP	DEPTH (FT)	WIDTH (FT)	HEIGHT (FT)	(MODEL)
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

- 12 PX40 UPS MODULE.
- (13) PX40 UPS BATTERY CABINET.
- 14) PX40 UPS POWER DISTRIBUTION CABINET.
- 15) NETWORKING IT RACK.
- GENERATOR ANNUNCIATOR  $^{\prime\prime}$  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).
- 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.
- 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.
- 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:



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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.



PROJECT INFORMATION:

35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

REV. DATE DESCRIPTION 05/2/2019 CONCEPTUAL DRAWINGS

GR CHECKED BY:

PROJECT NUMBER:

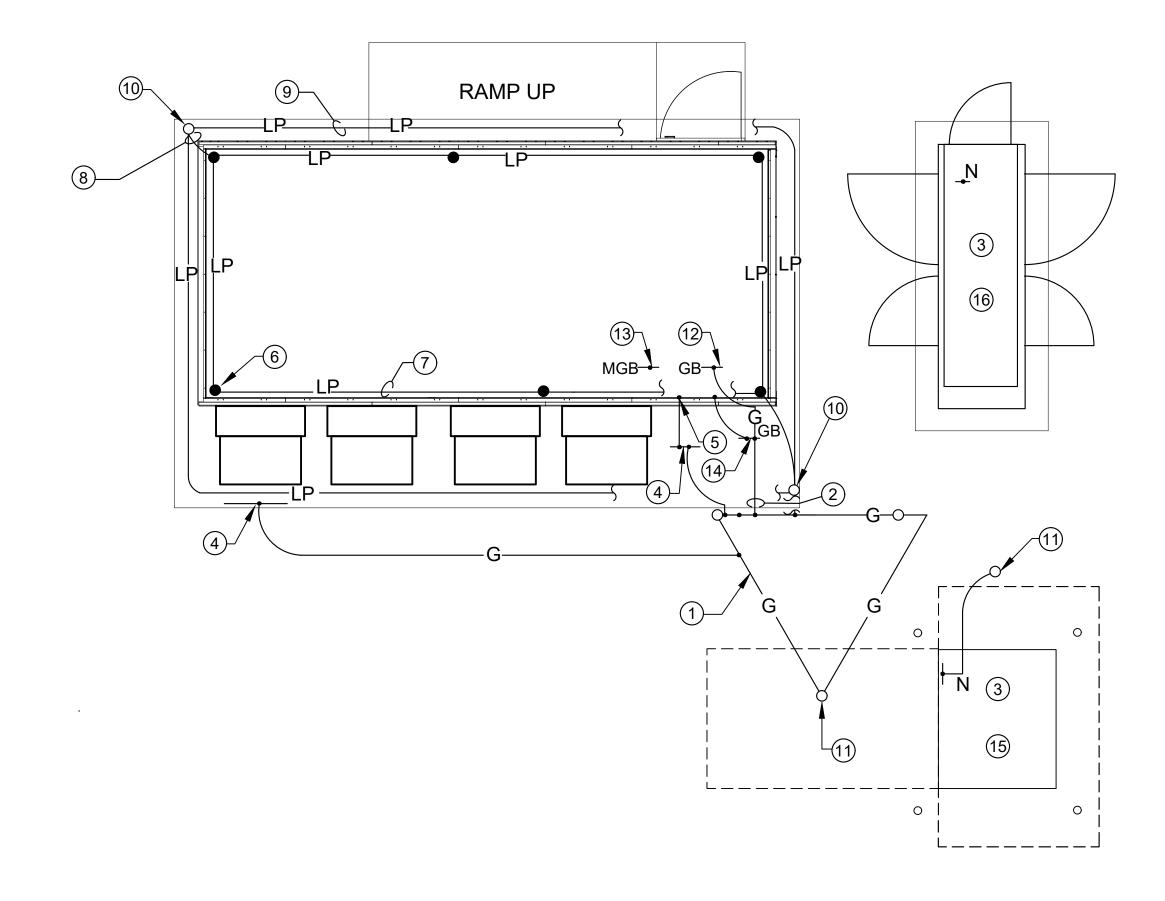
DMP-XXXXXX

DRAWING SCALE: NONE

**ELECTRICAL** PREFAB MODULE DETAILS **CONFIGURATION-2** 

05/2/2019

DRAWING NUMBER:



#### **GENERAL NOTES:**

- REFER TO ELECTRICAL GROUNDING DIAGRAM ON SHEET E401 FOR ADDITIONAL INFORMATION.
- 2. SEE DRAWING E500 FOR DETAILS ON MAIN GROUNDING SYSTEM AND GROUND
- 3. ALL GROUNDING CONNECTIONS AND BONDINGS SHALL BE BY ARTICLE 250 OF NEDA 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.
- 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.
- (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.
- (1) 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.
- $\ensuremath{\textcircled{13}}$  MAIN GROUNDING BAR.REFER TO ELECTRICAL GROUNDING DIAGRAM ON SHEET E401 FOR DETAILS.
- (14) GROUND BAR LOCATED OUTSIDE AND MOUNTED ON THE MODULE ENCLOSURE.

**LEGEND:** 

MGB

GROUND WIRE.

GROUND BAR.

MAIN GROUNDING BUS.

LIGHTNING PROTECTION WIRE.

- (15) UTILITY TRANSFORMER.
- (16) 125KW/156KVA STANDBY GENERATOR.

CONSULTANTS:



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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.

SEAL:



PROJECT INFORMATION:

35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

KEYPLAN:

DRAWN BY: GR

CHECKED BY: MN

PROJECT NUMBER:

DMP-XXXXXX

DRAWING SCALE: NONE

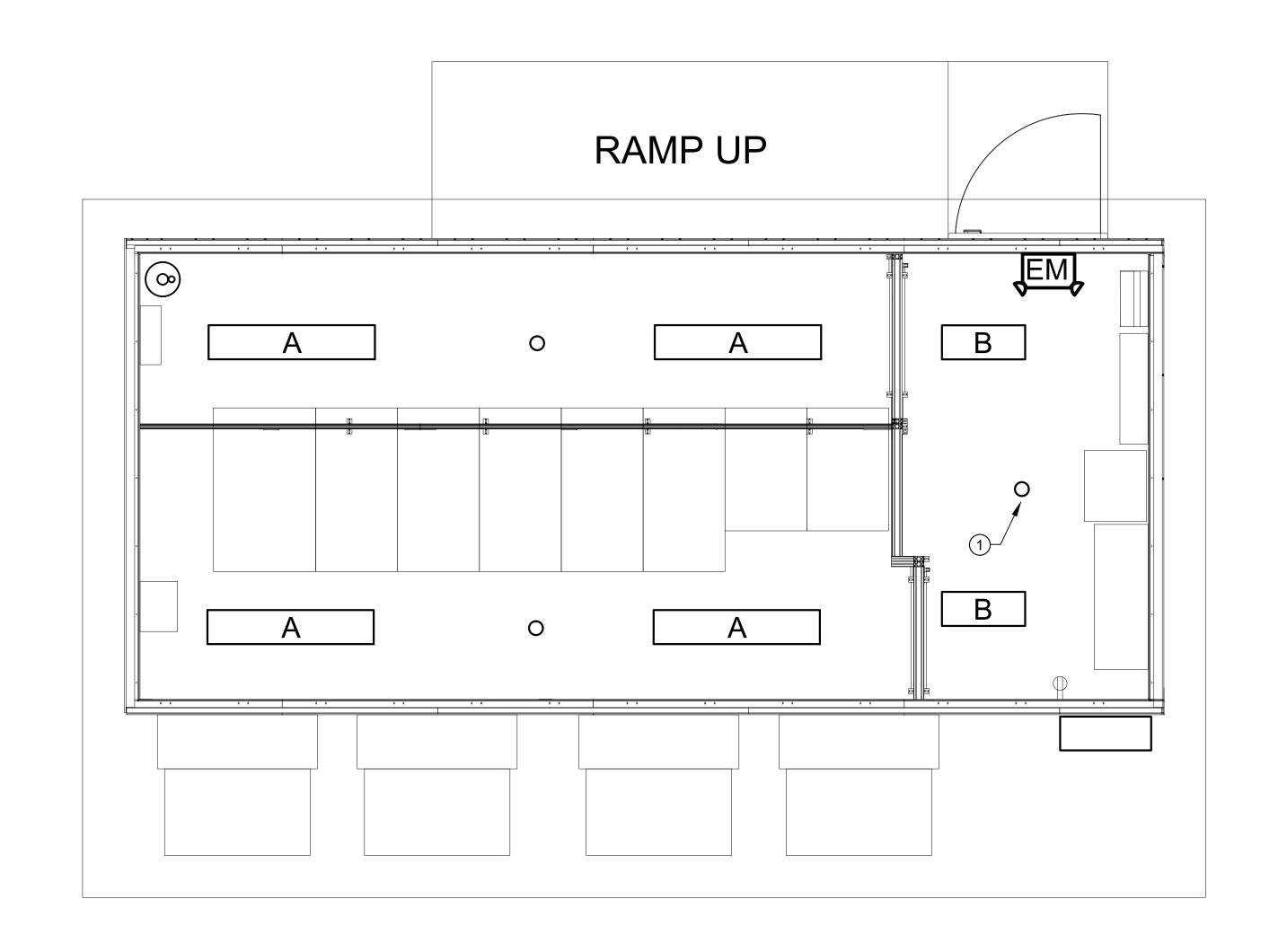
SHEET TITL

GROUNDING AND LIGHTNING PROTECTION PLAN, CONFIGURATION-2

> DATE: 05/2/2019

E103

GROUNDING AND LIGHTNING PROTECTION PLAN, CONFIGURATION-2



	LIGHTING FIXTURE SCHEDULE												
T	YPE	MANUFACTURER	VOLTAGE	WATTAGE	LAMP	NUMBER OF	MOUNTING						
'		PRODUCT #	VOLIAGE	WATTAGE	LAWII	FIXTURES	MOONTHO	REMARKS					
А	LED 4FT	LITHONIA LIGHTING	120V	38W	LED	4	SURFACE	4' LED VAPOR TIGHT FIXTURE					
	VAPORTIGHT	4VT2-LD4-4-DR-UNVL840-CD1-WL-U	1200	3077	LED	4	JONFACE	DIMMABLE					
В	LED 2FT	LITHONIA LIGHTING	120V	28.4W	LED	2	SURFACE	2' LED VAPOR TIGHT FIXTURE					
Б	VAPORTIGHT	2VT2-LD4-3-DR-UNVL840-CD1-WL-U	1200	20.4	LED	2	SURFACE	DIMMABLE					
EM	LED COMBO EXIT/EMERGENCY	LITHONIA LIGHTING	120V	4.3W	LED	1	SURFACE	THERMOPLASTIC WHITE					
□ □IVI	LIGHTS	LHQM LED R HO M6	1200	4.300	LED		SURFACE	(2) HEAD, BATTERY BACKED EMERGENCY LIGHT					

#### **GENERAL NOTES:**

#### 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:**

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

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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.

SEAL



PROJECT INFORMATION:

35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

KEYPLAN:

REV. DATE DESCRIPTION

0 05/2/2019 CONCEPTUAL DRAWINGS

N BY: GR

PROJECT NUMBER:

CHECKED BY:

DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:

ELECTRICAL

LIGHTING PLAN

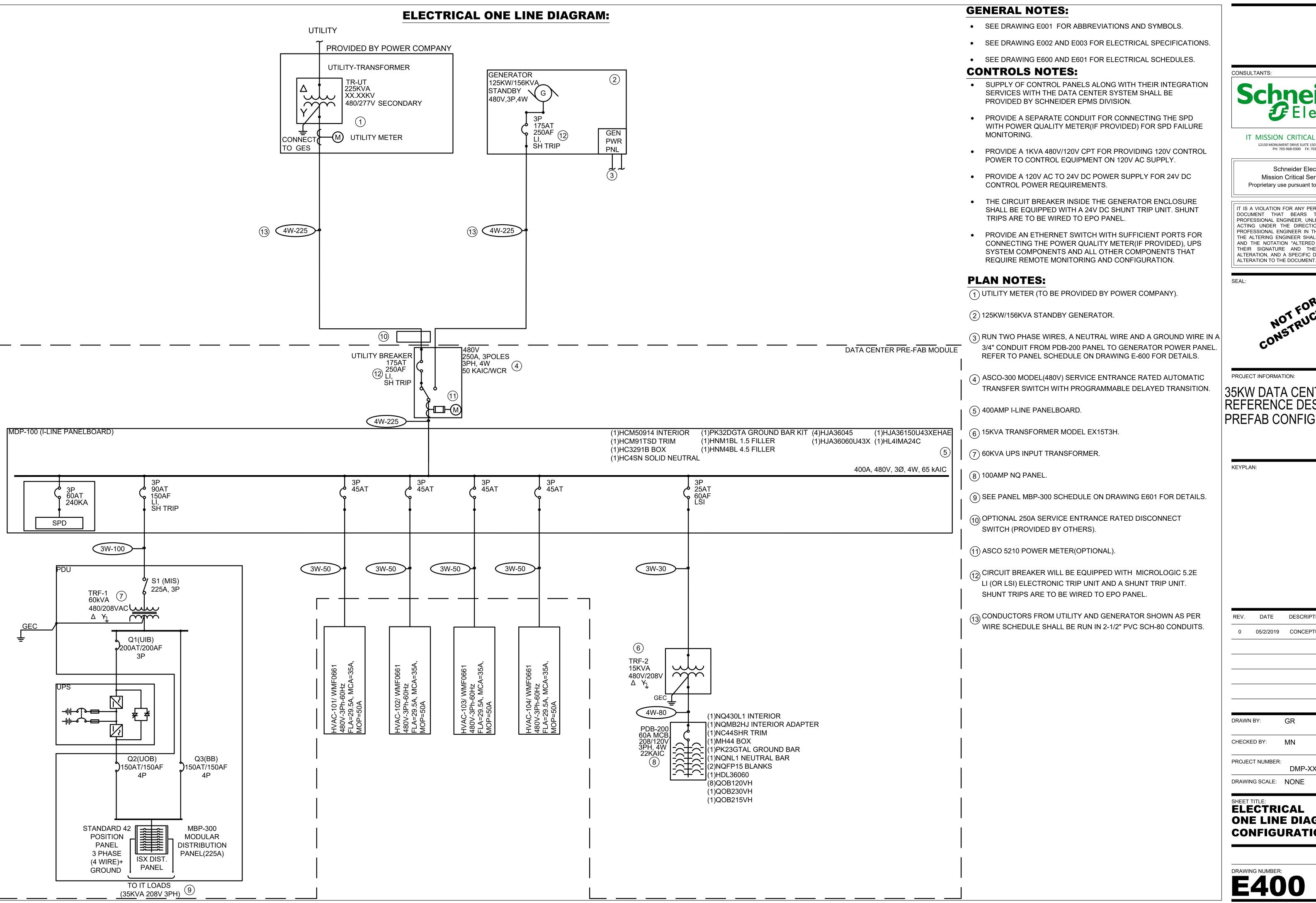
CONFIGURATION-2

DATE: 05/2/2019

E104

ELECTRICAL LIGHTING PLAN CONFIGURATION-2

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





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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE



PROJECT INFORMATION:

35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

REV. DATE DESCRIPTION

0 05/2/2019 CONCEPTUAL DRAWINGS

GR

PROJECT NUMBER:

DRAWING SCALE: NONE

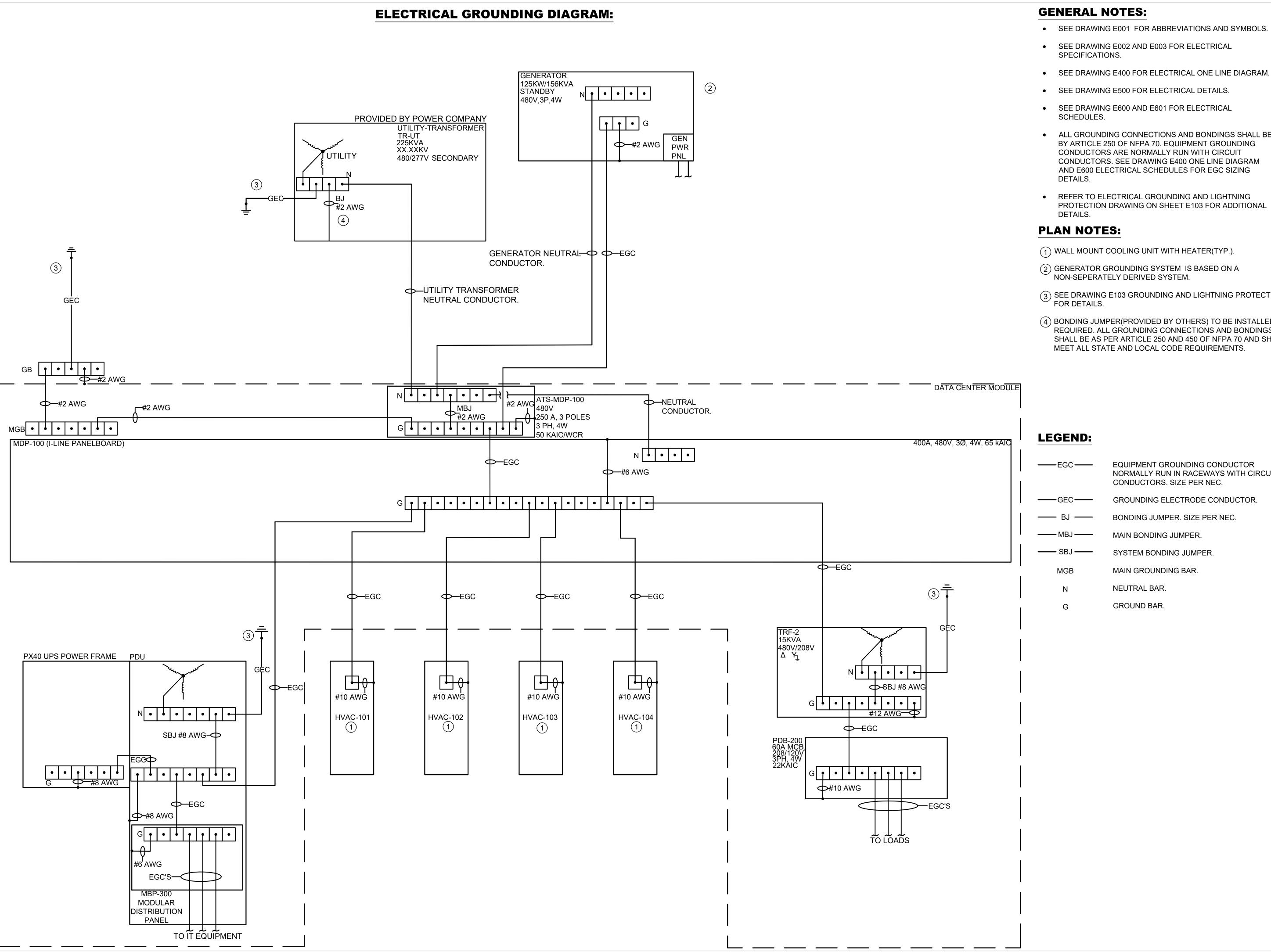
**ELECTRICAL ONE LINE DIAGRAM CONFIGURATION-2** 

MN

DMP-XXXXXX

05/2/2019

DRAWING NUMBER:



- SEE DRAWING E001 FOR ABBREVIATIONS AND SYMBOLS.
- ALL GROUNDING CONNECTIONS AND BONDINGS SHALL BE BY ARTICLE 250 OF NFPA 70. EQUIPMENT GROUNDING CONDUCTORS. SEE DRAWING E400 ONE LINE DIAGRAM
- PROTECTION DRAWING ON SHEET E103 FOR ADDITIONAL
- (3) SEE DRAWING E103 GROUNDING AND LIGHTNING PROTECTION
- (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

**EQUIPMENT GROUNDING CONDUCTOR** NORMALLY RUN IN RACEWAYS WITH CIRCUIT GROUNDING ELECTRODE CONDUCTOR.

CONSULTANTS:



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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.

SEAL:



PROJECT INFORMATION:

# 35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

KEYPLAN:

REV.	DATE	DESCRIPTION
0	05/2/2019	CONCEPTUAL DRAWINGS
DRAWN I	RV.	GR
DIVAVVIV	וט.	GK
CHECKE	D BY <sup>.</sup>	MNI

# SHEET TITLE: ELECTRICAL GROUNDING DIAGRAM **CONFIGURATION-2**

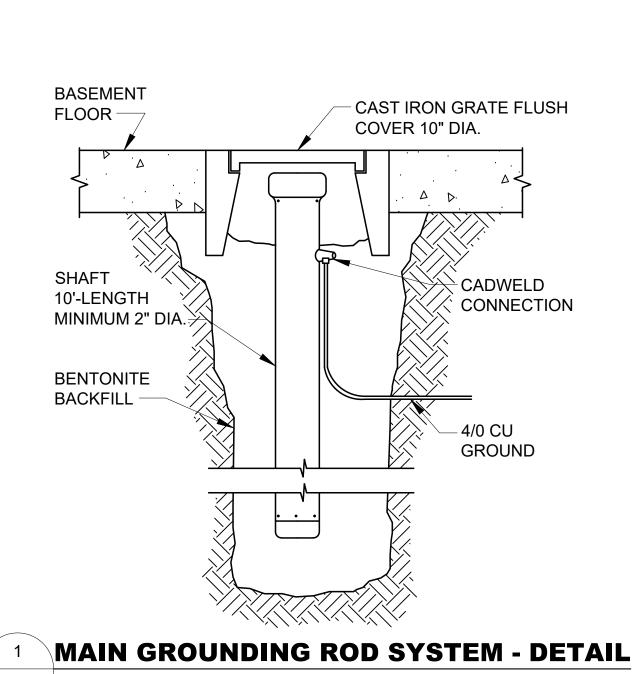
05/2/2019

DMP-XXXXXX

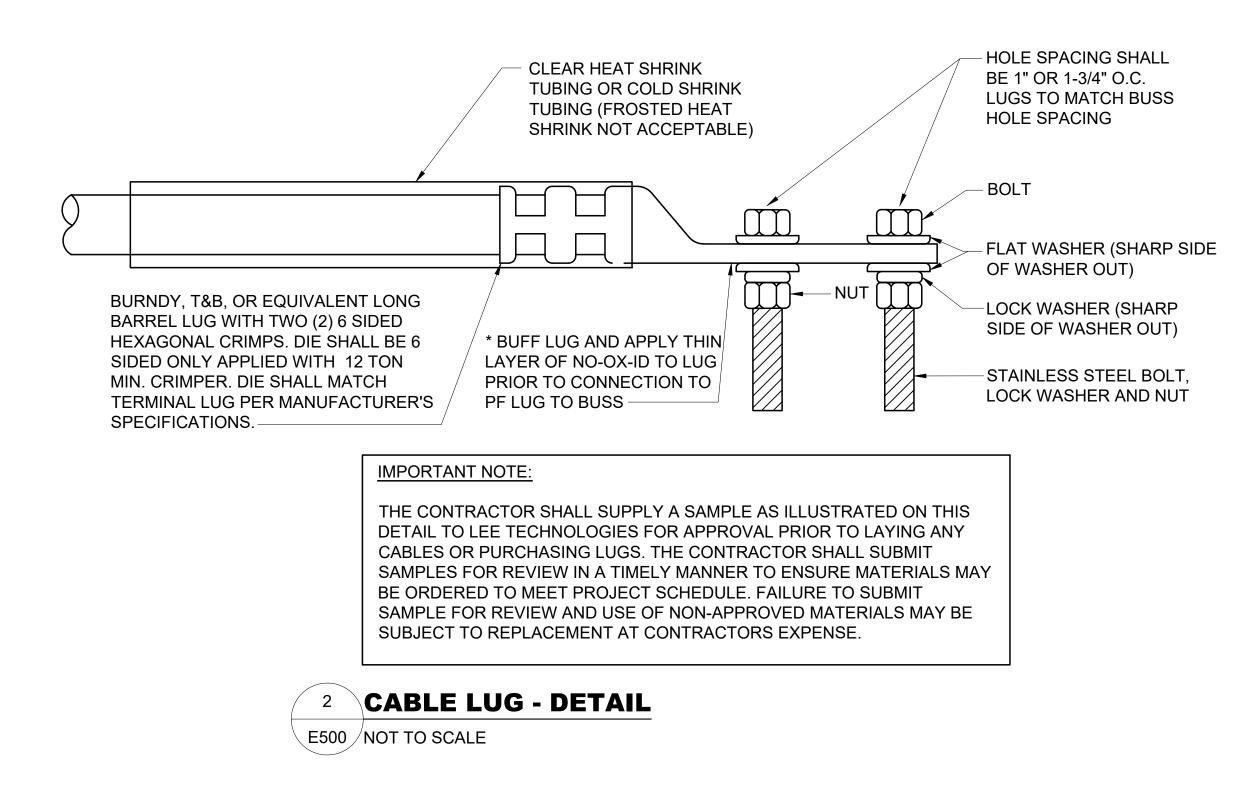
DRAWING NUMBER:

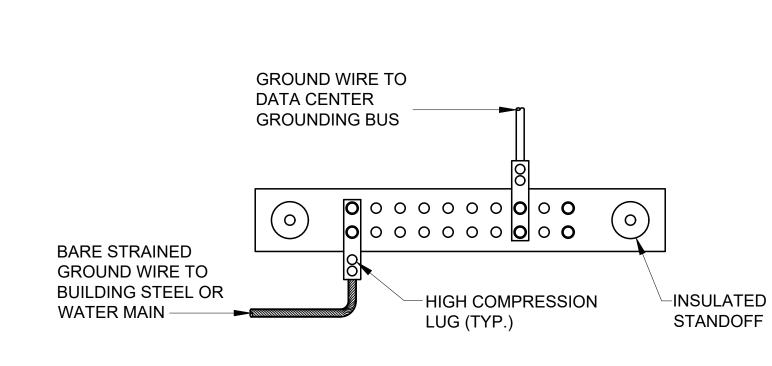
PROJECT NUMBER:

DRAWING SCALE: NONE



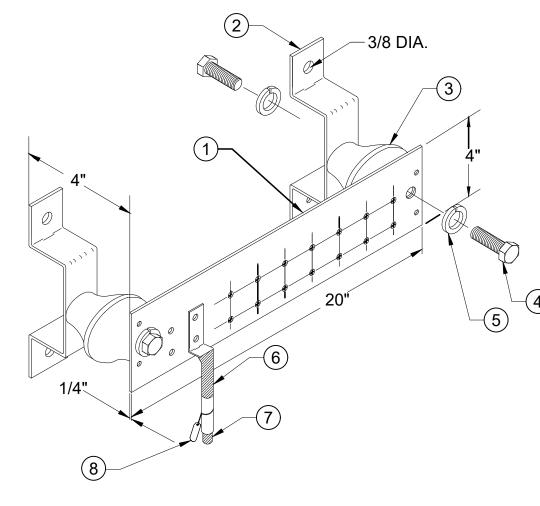
E500 NOT TO SCALE





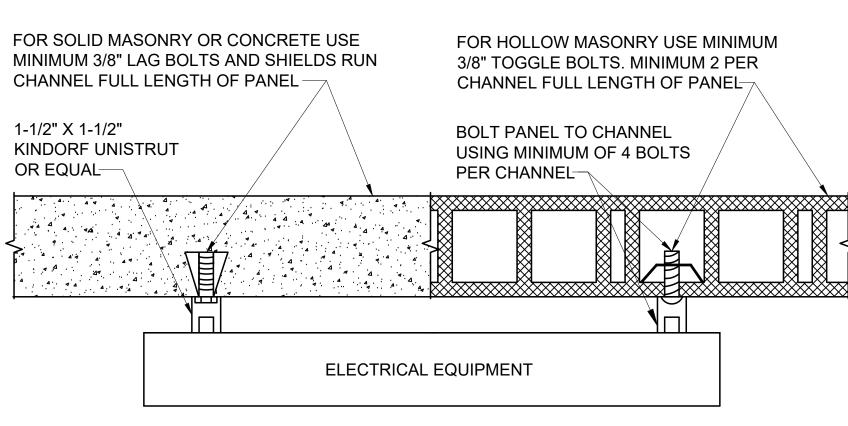
**MAIN GROUNDING BUS - DETAIL** 

E500 / 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.
4)	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.



NOTE:

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

**SURFACE EQUIPMENT MOUNTING - DETAIL** 

E500 / NOT TO SCALE

INSULATED GROUND BAR - DETAIL E500 NOT TO SCALE

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 IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT. SEAL: PROJECT INFORMATION: 35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2 KEYPLAN: DATE DESCRIPTION 05/2/2019 CONCEPTUAL DRAWINGS DRAWN BY:

CHECKED BY:

PROJECT NUMBER:

DMP-XXXXXX

DRAWING SCALE: NONE

SHEET TITLE:
ELECTRICAL DETAILS **CONFIGURATION-2** 

05/2/2019

E500

					DIS	TRI	BUT	ION	PANI	ELBO	ARD	'MDP	-100	' SCI	HEDU	LE			
	TAGE	PH	WIRE	MCB	S (A)	MLC	· ,	AIC	<u> </u>	NTING	LOCA				F	PANEL C	ATALOG	NUMBER :	
277 /	480	3	4			40		65000		FACE	MOD	ULE							_
CKT			ITEM		CIRCUI <sup>*</sup>		4	COND.	LOAD		PHASE		LOAD	COND.	WIRE		T BRKR	ITEM	CKT
#			SERVED		TRIP	Р	SIZE	SIZE	(KVA)	A	В	C	(KVA)	SIZE	SIZE	Р	TRIP	SERVED	#
						_				15.35	45.05	>			4.5	_			
1			UPS		90	3	3	1-1/4"	35.00		15.35	45.05	11.06	3/4"	10	3	20	TRF-2	2
										16.35		15.35							
3			HVAC-101		45	3	8	3/4"	24.52	10.55	16.35		24.52	3/4"	8	3	45	HVAC-103	4
			110/40-101		45	3		3/4	24.52		10.33	16.35	24.52	3/4	0	3	45	11VAC-103	+
										8.17		10.33							
5			HVAC-102		45	3	8	3/4"	24.52		8.17		0.00	3/4"	8	3	45	HVAC-104(REDUNDANT)	<b> </b> 6
												8.17				_		,	
										0.00									
7			SPACE								0.00	$\geq \leq$						SPACE	8
												0.00							
										0.00		$\geq \leq$						_	
9			SPACE								0.00		0.00	3/4"	6	3	60	SPD BREAKER	10
												0.00							
				LOAD	1				CLIDLO	39.87	39.87	39.87			TOTAL	DEM		1,10==0	
LOAD TYPE				(KVA)	PNL	PNL	PNL	PNL	PNL	ADS (KV. PNL	PNL	PNL	PNL	PNL	(KVA)	FAC	DEM LD	NOTES	
UPS				35.00	PINL	PINL	PINL	PINL	PINL	PINL	PINL	PINL	PINL		35.00	1.00	35.00	-	
TRF-2				11.06		-	-	-		-	_	<u> </u>	-	-	11.06	1.00	11.06		
HVAC				24.52	<u> </u>			<u> </u>	<u> </u>	<del>                                     </del>	<u> </u>	<del>-</del>	<u>-</u>	_	24.52	1.00	24.52		
HVAC				24.52			_	_		<del>                                     </del>			_	_	24.52	1.00	24.52		
HVAC				24.52				_		<del>                                     </del>			_	_	24.52	1.00	24.52		
		REDUND	ANT)	0.00	_	_	_	_	_		_	_	_	_	0.00	1.00	0.00		
177.10	10-1(11	CLDOIND	/ (( T)	0.00											119.62			TOTAL KVA	
25 %	OF Lar	raest Ma	otor Load	2.29	_		_	_	_	T _	_	_	_	_	2.29	1.00	2.29	101/121(7)	
			nuous Load		_	_	_	_	_	<u> </u>	_	_	_	_					
		Charging		17.05	_	_	_	_	_	<u> </u>	_	_	_	_	17.05	1.00	17.05		
			ontinuous Load	2.03	_	_	_	_	_	-	-	-	_	_	2.03	1.00	2.03		
																		SUM TOTAL KVA(125%	
																		CONTINUOUS LOAD+ 100%	6 NON
																	140.99	CONTINUOUS LOAD+100%	
																		MOTOR LOADS+ 25% LARG	
NOTE	S:																	MOTOR LOAD)	•
		CTOR I	N ACCORANCE	WITH NF	EC.													TOTAL AMPS	
																	1	1	

					DI	STR	BUT	ION	PAN	ELBC	ARD	'PDE	3-200	) SCI	HEDU	LE			
VOLTAG	E P	Н	WIRE	MCB	(A)	MLC	) (A)	AIC	MOU	NTING	LOCA	NOITA				PANEL C	ATALOG	NUMBER:	
120/ 208	3 3	3	4	60	)			22,000	SUR	FACE	MOI	DULE							
CKT			ITEM		CKT.	BRK	WIRE	COND.	LOAD		PHASE		LOAD	COND.	WIRE	CKT.		ITEM	CKT
#			SERVED		TRIP	Р	SIZE	SIZE	(KVA)	Α	В	С	(KVA)	SIZE	SIZE	Р	TRIP	SERVED	#
1	ERV		AMPER SYS	ГЕМ	20	1	12	3/4"	0.60	1.20			0.60	3/4"	12	1	20	FIRE SUPPRESSION	2
3		REC	EPTACLES		20	1	12	3/4"	1.26		1.26		0.00			11	20	SPARE	4
5	GENE	RATO	OR POWER F	PANFI	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		<u>ITERI</u>	OR LIGHTIN	G	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
									CLIDI O	2.25	4.76	4.05			TOTALI			1,10==0	
LOAD TYPE				LOAD (KVA)	PNL	PNL	PNL	PNL	PNL	ADS (KV. PNL	PNL	PNL	PNL	PNL	TOTAL (KVA)	DEM FAC	DEM LD	NOTES_	
	MDED	eve			FINE	FINL	FINE	FINL				FINL	FINE		` '				
ERV & DA			I ⊏IVI	0.60	-	-	-	-	-	-	-	-	-	-	0.60	1.00	0.60		
FIRE SUP		ION		0.60	-	-	-	-	-	-	-	-	-	-	0.60	1.00	0.60		
RECEPTA			<b>.</b>	1.26	-	-	-	-	-	-	-	-	_	-	1.26	1.00	1.26		
HUMIDIFIE	•			1.10	-	-	-	-	-	-	-	-	-	-	1.10	1.00	1.10		
GENERAT			RPANEL	5.00	-	-	-	-	-	-	-	-	-	-	5.00	1.00	5.00		
CONTROL	LS POV	VER		1.00	-	-	-	-	-	-	_	_	-	-	1.00	1.00	1.00		
INTERIOR	RLIGHT	TING		0.50	-	_	-	-	-	-	_	-	_	-	0.50	1.00	0.50		
EXTERIOR	R LIGH	TING		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 Co	ontinuo	us Lo	ads	2.03			-	_	-		_	_	_	-	2.03	1.00	2.03		
																		SUM TOTAL KVA(125%	
																		CONTINUOUS LOAD+ 100%	NON
NOTES:																		CONTINUOUS LOAD)	
DEMAND	<b>FACTO</b>	RIN	<b>ACCORANCI</b>	E WITH NE	C.												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"
'IG', THE FEED	ER SHAL	SYMBOL IS SHO L BE PROVIDED	WITH A SEP	ERATE

+ WHERE THE FEEDER SYMBOL IS SHOWN WITH A SUBSCI '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 SYMBOL IS SHO	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:



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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.

SEAL:



PROJECT INFORMATION:

35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

REV. DATE DESCRIPTION

0 05/2/2019 CONCEPTUAL DRAWINGS

DRAWN BY: GR

CHECKED BY: MN

DMP-XXXXXX

DRAWING SCALE: NONE

DRAWING SCALE: NONE

SHEET TITLE:

PROJECT NUMBER:

ELECTRICAL SCHEDULES CONFIGURATION-2

05/2/2019

E600

#### **PLAN NOTES:**

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

SYSTEM LOAD CA	LCULATI	ON
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

VOLTAGE	PH	WIRE	MCB	(A)	ML	O (A)	AIC	MOU	NTING	LOCATION				PANEL (	CATALOG	NUMBER	
120/ 208	3	4			2	25	65,000	SURI	FACE	MODULE							
CKT		ITEM		CKT.	BRK	WIRE	COND.	LOAD		PHASE	LOAD	COND.	WIRE	CKT.	BRK	ITEM	CK
#		SERVED		TRIP	Р	SIZE	SIZE	(KVA)	Α	ВС	(KVA)	SIZE	SIZE	Р	TRIP	SERVED	#
1 3		RACK#1		30	3	10		5.83	3.89	3.89	5.83		10	3	30	RACK#5	
5									2.00	3.89							
9		RACK#2		30	3	10		5.83	3.89	3.89	5.83		10	3	30	RACK#6	1
11									1.94	3.89							1
13 15 17		RACK#3		30	3	10		5.83	1.94	1.94	-					SPACE	1 1
19									1.94	1.34							2
21		RACK#4		30	3	10		5.83		1.94						SPACE	2
25									0.00	1.34	<del>                                     </del>						2
27 29		SPACE							0.00	0.00	-					SPACE	2
31									0.00	0.00							3
33		SPACE							0.00	0.00	-					SPACE	3
35		OD 100		4.5	4	10		4.00	1.00	0.00					4.5	ODADE	3
37		CP-100		15	1	12		1.00	1.00	0.00	-			1	15 15	SPARE	3
39 41										0.00				<u> </u>	15	SPARE	
41									12.66	11.66 11.66							
OTES:		N ACCORANCE							12.00	11.00   11.00					35.98	TOTAL KVA	

CONSULTANTS:



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

IT IS A VIOLATION FOR ANY PERSON TO ALTER THIS DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WORK. THE ALTERING ENGINEER SHALL AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION TO THE DOCUMENT.

SEAL:



PROJECT INFORMATION:

### 35KW DATA CENTER REFERENCE DESIGN PREFAB CONFIGURATION-2

KEYPLAN:

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

DRAWN BY: GR

PROJECT NUMBER:

DMP-XXXXXX

DRAWING SCALE: NONE

CHECKED BY: MN

SHEET TITLE:

#### ELECTRICAL SCHEDULES CONFIGURATION-2

DATE: 05/2/2019

DRAWING NUMBER:

E601