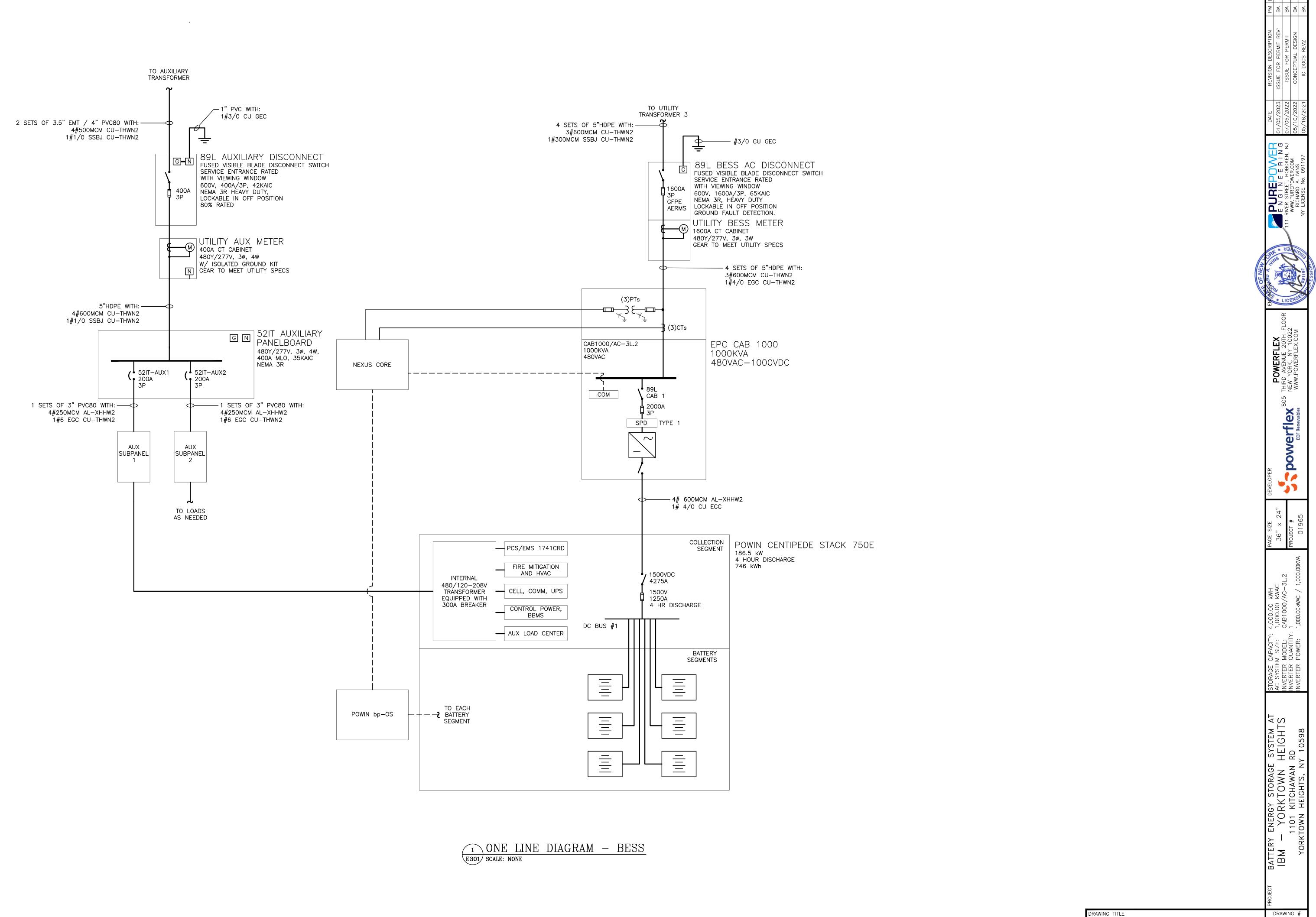
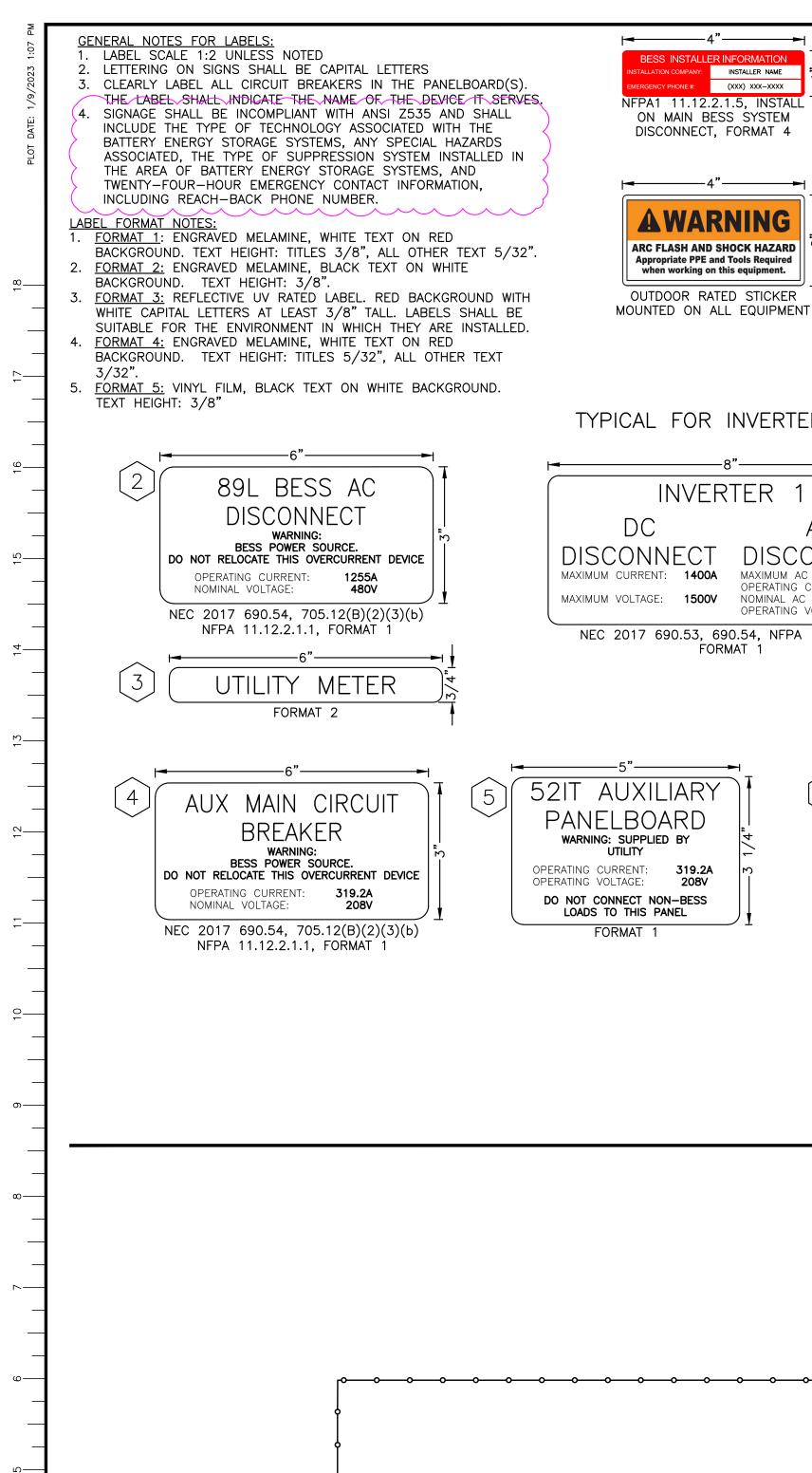


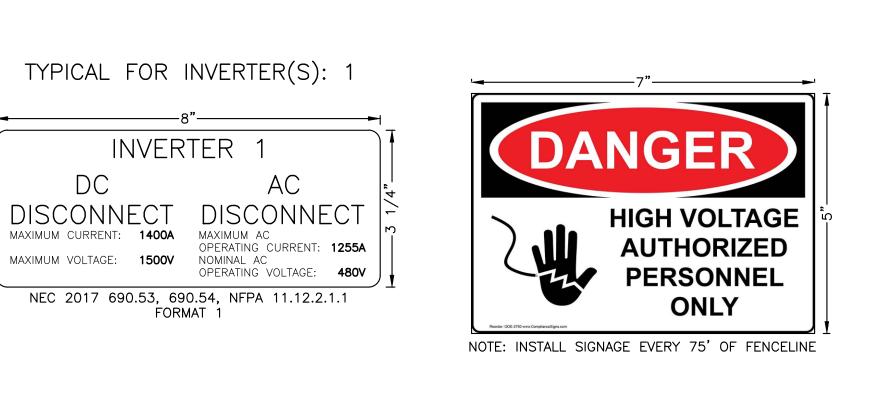
MEDIUM VOLTAGE



ONE LINE DIAGRAM

BESS E301





89L AUXILIARY AC

DISCONNECT

WARNING:
BESS POWER SOURCE.
DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 2017 690.54, 705.12(B)(2)(3)(b) NFPA 11.12.2.1.1, FORMAT 1

OPERATING CURRENT:

NOMINAL VOLTAGE:

AUXILIARY

TRANSFORMER

PRIMARY & SECONDARY

DISCONNECTING MEANS LOCATION:

<u>PRIMARY:</u> TRANSFORMER MAIN DISCONNECT LOCATED AT UTILITY STS

<u>SECONDARY:</u> 52-IT AUXILIARY MAIN CIRCUIT BREAKER WITHIN BESS FENCE.

UTILITY

TRANSFORMER 3

PRIMARY & SECONDARY

DISCONNECTING MEANS LOCATION:

PRIMARY: TRANSFORMER MAIN

DISCONNECT LOCATED AT UTILITY STS

<u>SECONDARY:</u> 89L BESS AC DISCONNECT PAD—MOUNTED WITHIN

BESS FENCE.

BESS INSTALLER INFORMATION

ALLATION COMPANY: INSTALLER NAME

RGENCY PHONE #: (XXX) XXX-XXXX

NFPA1 11.12.2.1.5, INSTALL

ON MAIN BESS SYSTEM

DISCONNECT, FORMAT 4

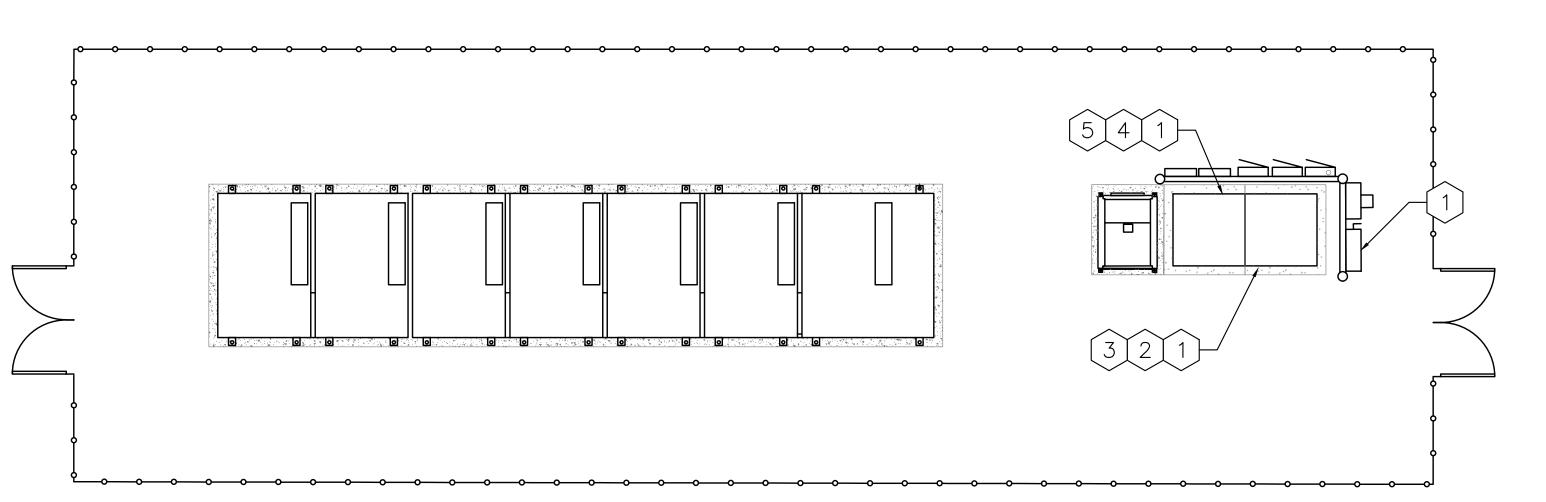
ARC FLASH AND SHOCK HAZARD

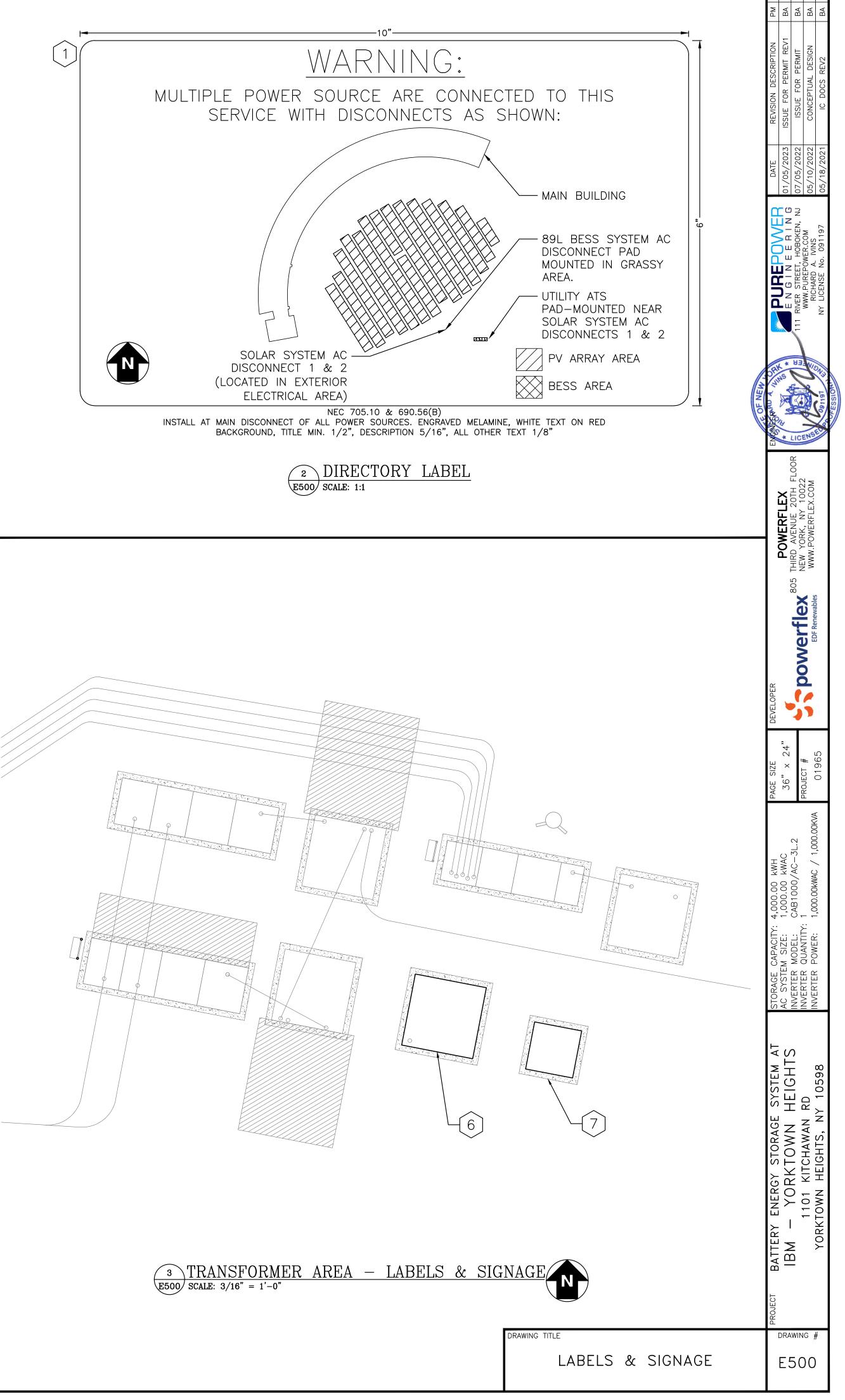
Appropriate PPE and Tools Required when working on this equipment.

OUTDOOR RATED STICKER

MOUNTED ON ALL EQUIPMENT

FORMAT 1





1 LABELS & SIGNAGE BESS AREA
E500 SCALE: 3/16" = 1'-0"



## PRODUCT: Stack750E PLATFORM: Centipede

Centipede is Powin's modular battery energy storage platform, purpose-built for the most grueling environments and use cases. Designed to dramatically increase site energy density, decrease installation times and simplify capacity augmentation, Centipede is ready to perform a diverse set of market applications including Frequency Response/Regulation, T&D Deferral, Flexible Peaking Capacity, Renewable Integration and more.

## and Configurable

Centipede's modular design allows you to easily scale up your project size from a single standalone unit to gigawatt-hours per project site. Centipede utilizes Powin's field-proven Stack hardware and StackOS software platform to ensure continuity and familiarity between Powin's product lines to perform a variety of simple and

advanced market applications.

## Enhanced Safety and Quality

Centipede combines Powin's safest-in-class LFP Stack hardware and integrated enclosures into one standardized, factory-built, quality control. Each Centipede unit energy density also reduces the includes a comprehensive package of amount of land that is required to explosion prevention and fire safety install a system per MWh. The highly features, such as hydrogen detection serviceable design includes fieldand active ventilation, fire detection, swappable, redundant components fireproof insulation, and optional clean agent fire suppression.

## \$ End to End Cost Savings

Centipede's factory-built and tested design allows for units to be installed on site in a fraction of the time it takes for traditional enclosure-based outdoor product to ensure maximum systems to be installed. The increased that minimizes downtime and service costs. These advantages, paired with Powin's diverse supply chain and Tier 1 cell procurement strategy give Powin's customers continual cost advantages upfront and over the lifespan of a system.

POWIN contact us: sales@powin.com | powin.com

8 Fire suppression and deflagration panels not required for NFPA 855 compliance

CONTACT US: sales@powin.com | powin.com

DP-C 2021 1.9 **1** 

DP-C 2021 1.9 2

	Date: November 18, 2021			ec	oc <b>power:</b>				
MODEL	50-100181		CA	AB1000/AC-3L.2					
AC	AC configuration   max. cables per phase (1)		3-wire (3P3W)	6 x 600 kcmil or 6 x 300 mm <sup>2</sup>					
	Nominal AC voltage (+/- 10%) (2)	480 VRMS	600 VRMS	630 VRMS	690 VRMS				
	Nominal AC current (export/import)			1255 ARMS					
	AC export/import capacity @ 40°C (3)	1043 kW 1304 kW 1369 kW 1500 kW							
	Export power overload capacity @ 40°C, starting from 66% full load.		120 % for 3	3 sec and 116 % for 5 min					
	Reactive power capacity (4), (5)	480 kVAr overexcited 380 kVAr underexcited	600 kVAr overexcited 480 kVAr underexcited	640 kVAr overexcited 500 kVAr underexcited	700 kVAr overexcited 550 kVAr underexcited				
	Allowed grid short ckt. current ratios		Current mode: >4   Voltage mode: all						
	Max. fault current allowed from AC source	100 kA (AC RMS) throated version   180 kA (AC RMS) non-throated version							
	Nominal frequency range	50 / 60 Hz (configurable)  UL1741 / IEEE 1547, <2% TDDi at rated power per IEEE 519							
	Harmonic distortion		<3% according to VDE-AR-N 4110/4120						
	Efficiency (@ 690 VAC): Peak   CEC   Euro			6   98,4%   98,6%					
DC	DC voltage range (6)	765 - 1500 VDC	950 - 1500 VDC	1000 - 1500 VDC	1100 - 1500 VDC				
	Maximum DC current			1400 ADC					
	Max. fault current allowed from DC source	180 kA (with internal DC fuses, per input)							
	Number of DC inputs   max. cables per pole	1   8 x 600 kcmil or 8 x 300 mm <sup>2</sup>							
nvironmental	Max. deviation of DC voltage between parallel units  Ambient temperature (operation)	150 VDC							
nvironmentat	Ambient temperature (operation)  Ambient temperature (storage)	-20°C to 55°C (-40°C as option) -40°C to 60°C							
	Relative humidity	5 to 100% non-condensing							
	Protection degree	Outdoor: IP54 / NEMA 3R. Salt fog kit available for coastal sites.							
	Max elevation	3,000m+ [9,842 ft.+] (Consult EPC for any higher elevation)							
	Airborne noise	<75 dBA @ 3m							
	Seismic	ICC-ES AC 156 Sds @ 1.35 G							
	Altitude derating (current)	10% per 1,000m above 1000m elevation							
	Altitude derating (voltage) Temperature de-rating	10% per 1,000m above 2000m elevation							
abinet		1.7% per degree °C from 40-55 °C mm: [2281 x 1000 x 1636]							
	Maximum dimensions (H x W x D)  Weight		in.: [	89.8 x 39.4 x 64.4] 370 kg [3020 lb.]					
	Mounting			mount / skid mount					
	Cooling	Hybrid liquid / air, temperature controlled							
ertifications	Safety EMC	ECC Part 15		107.1-16   IEC 62477-1, IEC 629					
	Utility interconnect	FCC Part 15 subpart B   IEC/EN 61000-6-2, 6-4   EN 55011   CISPR 32; CISPR 11   IEEE C37.90.2  UL 1741 (SA)   IEEE 1547-2003   CA Rule 21   Hawaii Rule 14   AS4777.2    VDE-AR-N 4110/4120   EN 50549-2							
rotections	AC disconnection			Contactor					
	DC disconnection		Mot	torized disconnect					
	AC fuses   DC fuses (7)			min)   3 x 750 A, 210 kAlc					
	AC   DC surge protection	Low energy/Class II SPD (Optionally heavy duty/Class I) None (Optionally heady duty/Class I)							
	Safety features	F-stop, AC / DC overvoltage, AC timed overvoltage, inst. & timed overcurrent, overtemperature (both instantaneous and time- overload), condensation, etc.							
	Ground fault detection (optional)	overtoad), concensation, etc.							
Control	Control interface	CAN, Modbus TCP/IP							
	Command latency			I), 3 ms (Modbus TCP/IP)					
	Response time; (time to accomplish full power step)	2 ms; adjustable longer via parameters							
	On-off grid transitions (optional)  Black-start capable (optional)			UPS mode available					
	Grid-tied control modes	Yes; requires external control power  Voltage mode   PQ (power)   DQ (current)   cos φ (pf)   STATCOM							
	Grid-support functions	Voltage mode   PQ (power)   DQ (current)   cos φ (pr)   STATCOM  Active/Reactive control   Volt/VAR   Hz/Watt   Volt/Watt   L/HVRT & L/HFRT   Inertia   ramp rate, etc.							
	Islanded control modes	V&f   droop control   VSG   Ok to parallel with other sources							
	Island overload avoidance		active inrush lir	miting for starting large loads					
	Control power voltage	208 V 1-ph 60 Hz <u>or</u> 240 V 1-ph 50 Hz							
	Self-consumption:	2400 W 14500 W 14200 W 1450 W							
	Abs. Max.   Typ. 100% load, 30C   50% load, 30C   2400 W   1500 W   1200 W [160 W] [standby]								
	(1) Throat connection available as an option. Max 4 unit parallel connection	allowed with throat connection due to	current limit. Up to 6 inverters paralle	el connection allowed when using cable	connection for AC.				
	(2) Nominal voltage 480-690 VAC +/- 10%. Consult EPC Power for ratings	of alternative AC voltages.							
	(3) Power ratings at nominal line voltage and at $\cos\phi = 1$ . Available power								
	(4) With minimum DC and nominal AC voltage. Capacity will vary dependi				as option.				
	<ul> <li>(5) Overexcited is reactive power that increases AC voltage at inverter terminals. Underexcited is reactive power that decreases the reactive power at inverter terminals.</li> <li>(6) DC voltage range at nominal AC line voltage and at cos φ = 1. Higher or lower AC voltages change DC voltage range proportionally.</li> </ul>								
	<ul> <li>(6) DC voltage range at nominal AC line voltage and at cos φ = 1. Higher C</li> <li>(7) Consult EPC Power for higher interrupt current requirements. Minimum</li> </ul>			ses.					
	. ,	© EPC Power Corp.   ww							
		© E. C. OWEI COIP.   WW	, apa						

Electrical	DC Voltage  Duration	1,210 - 1,491 V								
Electrical		1,210 - 1,491 V								
		2+ hrs								
	Maximum DC Energy Capacity <sup>1</sup>	750 kWh DC per segment & 250 MWh AC per acre								
	Rated DC Power	369.5 kW		247.5 kW		186.5 kW				
Пес	DC Energy Capacity @ Rated Power <sup>2</sup>	739 kWh		742.5 kWh		746 kWh				
	Duration @ Rated Power	2 hrs		3 hrs		4 hrs				
	Aux Load per Stack (Standby/Peak) <sup>3</sup>	0.25 kW / 5.6 kW		0.24 kW / 5.5 kW		0.23 kW / 5.4 kW				
	Daily Aux Energy per Stack <sup>4</sup>	29 - 31 kWh		21 - 23 kWh		17 - 19 kWh				
	Daily Aux Energy per Stack, Net of Balancing <sup>5</sup>	28 - 30 kWh		20 - 22 kWh		16 - 18 kWh				
	Calendar Life	20 years			•					
	Cycle Life <sup>6</sup>	7,300 cycles								
	DC Round Trip Efficiency @ Rated Power	93%		94%		95%				
	Cell Model	EVE LF280K	CATL CB2W0	EVE LF280K	CATL CB310	EVE LF280K	CATL CB310			
	Cell Chemistry	Lithium Iron Phosphate (LFP)								
	Cell Operating Temperature Range <sup>7</sup>	20 - 35° C								
	Depth of Discharge	100%								
	Explosion Prevention & Mitigation <sup>8</sup>	Off-gas detection with dedicated, fail-safe active & passive ventilation system								
	Fire Suppression <sup>8</sup>	Smoke & heat detectors, heat activated sprinkler system with remote FDC dry standpipe connection, fire proof insulation, strobes, and horn; optional clean agent fire suppression								
	Heating & Cooling	Dual field-swappable, high efficiency HVAC with humidity control								
	Codes & Compliance <sup>9</sup>	UL 9540A, UL 1642, UL 1973, NFPA 1, NFPA 69, NFPA 855, IFC, IEC 62619, IEC 6100-6-2, IEC 62477, UN3480, UN38.3								
	Weight (Approximate)	20,000 lbs (9,074 kg)								
eg B	Enclosure Dimensions	7'11" W x 5'2" D x 9'10" H (2,410 mm x 1,560 mm x 3,001 mm)								
Mecnanical	Enclosure Type / Rating	IP56								
	Ambient Operating Temperature Range	-30° C to +50° C								
Software	BMS + EMS + Solar + Environmental Controls	StackOS™								
	Analytics + Optimization + Data Warehouse	StackOS+™								
	First Responder HMI	Powin for First Responders <sup>™</sup>								
	Communications Interface	Modbus TCP (MESA/Sunspec) & REST API								

EQUIPMENT DATA SHEETS

E600