ADVANCED POWER TECHNOLOGIES

Rapid Deployment Electrical House (e-House) Walk-In Switchgear Container Module

PwrContainer
03 Outdoor Walk-In & Skid-Mounted Switchgear
Solutions Brochure

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SAFE SMART SERVICEABLE SWITCHGEAR & ENGINEERED POWER SYSTEM SOLUTIONS

MADE IN THE USA

ALN: 546 Rev. 01

Features & Benefits

Figure 1: Modified 40' container down to 30' Mobile Container-Based Walk-in Switchgear

Figure 2: Interior of Mobile Container-Based Walk-in Switchgear including Isolated Master Control Panel

Paralleling, Transfer, Distribution & Motor Control Applications

- Fully designed & manufactured low or medium voltage switchgear
- Packaged in a modified and reinforced 20 foot or 40 foot ISO container, or in a custom equipment building to meet your exact needs, and for the ease of transportation, handling, and installation
- Walk-in switchgear isle is constructed as one piece of custom building or enclosure to simplify onsite installation
- All Equipment inside is factory installed and wired.
- Available with insulated walls, floor, and ceiling
- Optional aluminum diamond plate provides a safe, long lasting, easy to clean floor
- Complete with internal lighting (AC and/or DC) and convenience receptacles
- Heating and/or cooling units designed for its operating environment
- Separate Rooms when appropriate for the application (transformer compartment, etc.)
- Rugged, durable, weather Resistant construction for the worlds harshest environments
- Long life, no maintenance aluminum, insulated walls, and ceiling
- For operator safety and a finished look and feel, all internal wiring is run in enclosed ducts, or conduit
- Utility metering compartments can be integrated in the switchgear
- Configurable for a wide range of applications:
  - Automatic and/or manual generator paralleling switchgear
  - AC or DC variable speed motor control
  - Power distribution switchgear
- Side, top, or bottom cable entry and exit
  - Power and control quick connect receptacles are available
- Optional site control and monitoring:
  - Modbus serial or Ethernet communications
  - SCADA computer systems
  - Master control panels

20’ 2.4kV:480V Switchgear PwrContainer

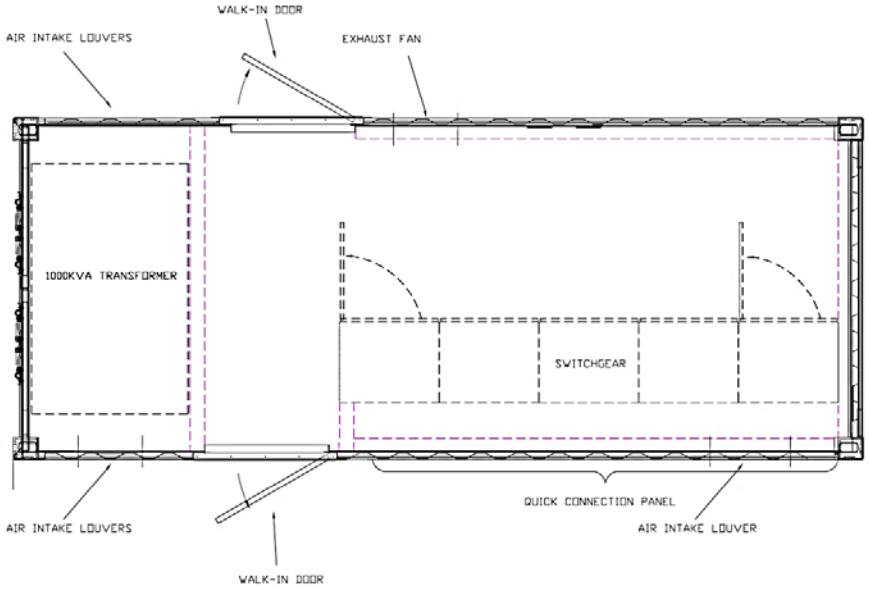


Figure 3: 20’ ISO Container-Based Walk-in Switchgear Module Sample Layout

Figure 4: Low voltage Switchgear inside Container Module

Figure 5: 20’ ISO Container-Based Walk-in Switchgear Module

Figure 6: 20’ Inside ISO Container-Based Walk-in Switchgear Module

40’ 15kV Switchgear PwrContainer

Figure 6: 40’ ISO Container-Based Walk-in Switchgear Module

Figure 7: Front Access Switchgear, Isolated from Local and Remote Operator Control Stations

Figure 8: Inside of ISO Container based Switchgear Module with Ultra Compact Front Access (FA) Air Insulated Vacuum Circuit Breaker Switchgear

Unprecedented Safety & Peace of Mind to Switchgear Operators In a Sheltered Isle Environment

FAC-Series Switchgear Design

Figure 3: Dead Front Removed Exposing Main Bus Compartment with Cover Over Visual Disconnect Window

Figure 4: Main Bus with Visual Disconnect Window Removed

Figure 2: Single Front Access Section with Dead Fronts Attached

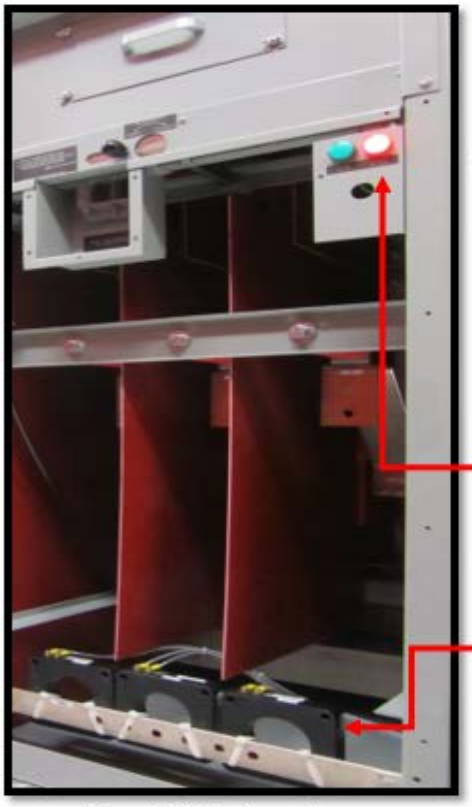


Figure 5: Cable Connection Compartment Dead Front Removed

Figure 6: Inside cable connection compartment

Drawout Auxiliary Drawers

Figure 3: Carbon Steel NEMA 1 Metal Enclosed Type 5kV Drawout Auxiliary Drawer

Accommodates Drawout:
Fuses
Control Power Transformers
Voltage Transformers

Figure 4: Carbon Steel NEMA 1 Metal Clad Type 15kV Drawout Auxiliary Drawer

For operator safety, these devices are automatically grounded during movement to disconnected position

Circuit Breaker Ratings

Table 1: Available Circuit Breaker Ratings												
			Voltage		Dielectric Ratings		Short Circuit Current					Mechanical Endurance
MVA Rating (reference only)	Actual MVA @ Operating Voltage	Rated Continuous Current	Max Rated Voltage	Range Factor	Power Frequency	Impulse 1.2 x 50µs	System Interrupting	Close and Latch Rating	Short-Time Current Rating	Short-Time Current Duration	Interrupting Time	No Load Mechanical Operations
		A RMS	kV RMS	K	kV RMS	kV peak	kA RMS	kA peak	kA RMS	s	Cycles	
250	330	1200	4.76	1.0	19	60	40	104	40	2	3	10,000
250	330	2000	4.76	1.0	19	60	40	104	40	2	3	10,000
250	330	3000	4.76	1.0	19	60	40	104	40	2	3	5000
350	412	1200	4.76	1.0	19	60	50	130	50	2	3	5000
350	412	2000	4.76	1.0	19	60	50	130	50	2	3	5000
350	412	3000	4.76	1.0	19	60	50	130	50	2	3	5000
500	572	1200	8.25	1.0	36	95	40	104	40	2	3	10,000
500	572	2000	8.25	1.0	36	95	40	104	40	2	3	10,000
500	572	3000	8.25	1.0	36	95	40	104	40	2	3	5000
500	650	1200	15	1.0	36	95	25	65	25	2	3	10,000
500	650	2000	15	1.0	36	95	25	65	25	2	3	10,000
500	650	3000	15	1.0	36	95	25	65	25	2	3	5000
750	1039	1200	15	1.0	36	95	40	104	40	2	3	10,000
750	1039	2000	15	1.0	36	95	40	104	40	2	3	10,000
750	1039	3000	15	1.0	36	95	40	104	40	2	3	5000
1000	1299	1200	15	1.0	36	95	50	130	50	2	3	5000
1000	1299	2000	15	1.0	36	95	50	130	50	2	3	5000
1000	1299	3000	15	1.0	36	95	50	130	50	2	3	5000

MetalClad vs. FAC-Series Construction

Our traditional air insulated SF6-free Medium Voltage Switchgear utilizes drawout circuit breakers to provide visible disconnect. This gives the switchgear a larger, heavier, and more bulky foot print.

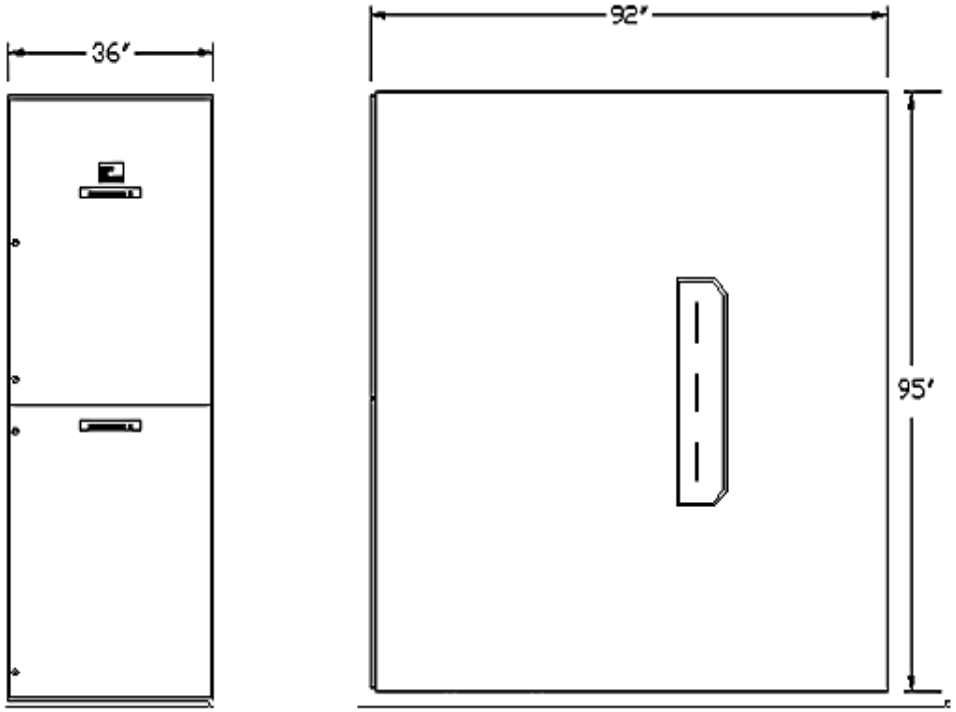


Figure 13: Traditional APT 15A-Series MetalClad Switchgear Single Section Dimensions (rear access required)

Our Front Access Compact air insulated SF6-free Medium Voltage Switchgear utilizes state-of-the-art innovative switchgear design methods and technology and utilizes an air insulated isolation switch on the line side of the circuit breaker and a clear Lexan viewing window to provide visible disconnect

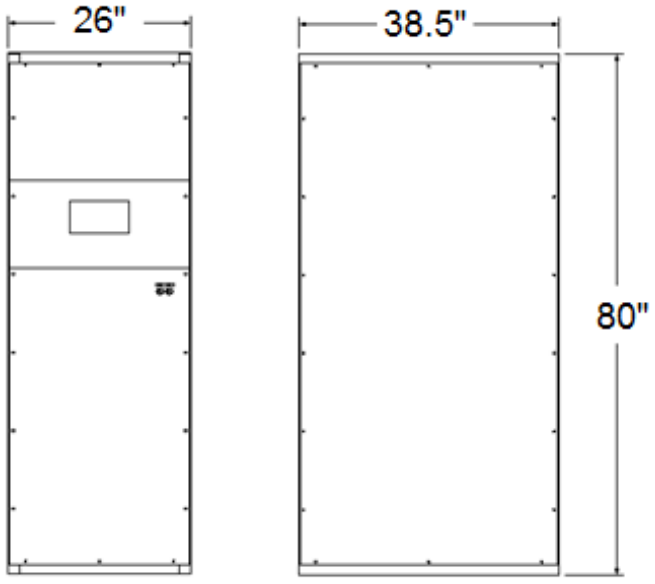
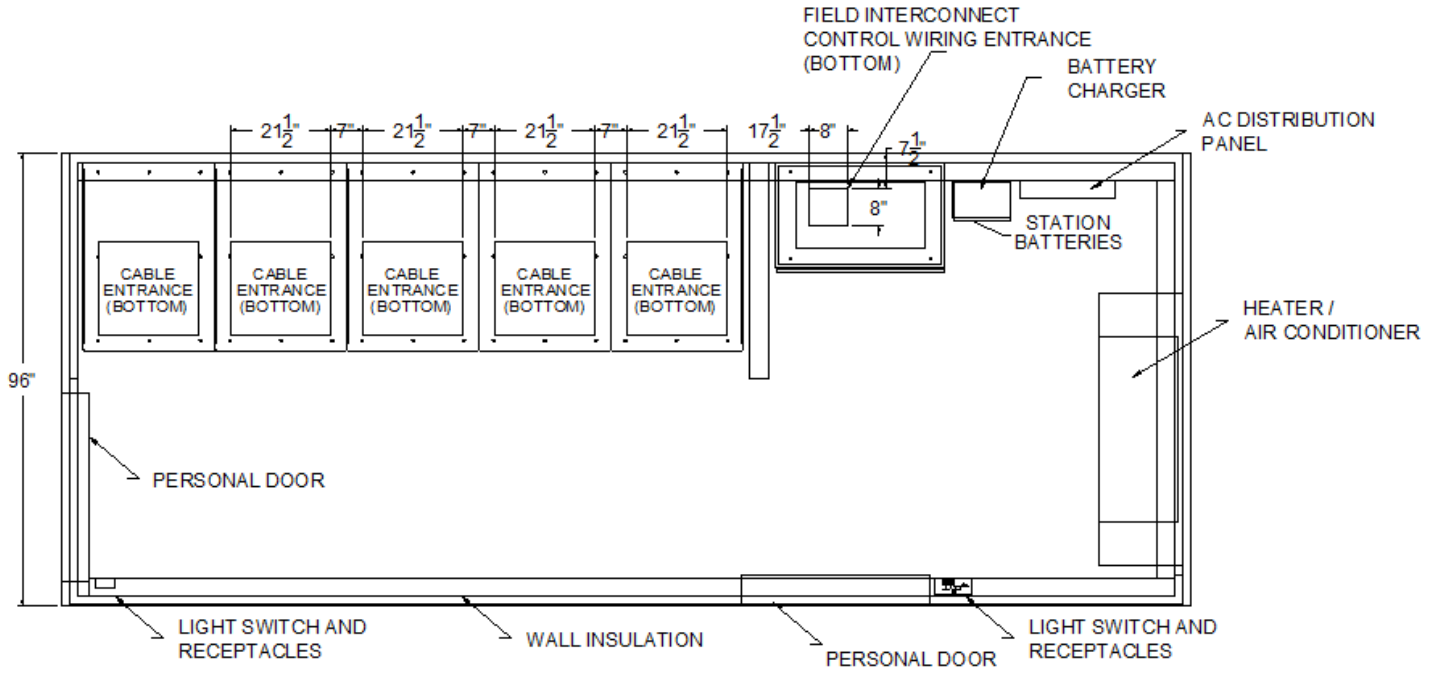
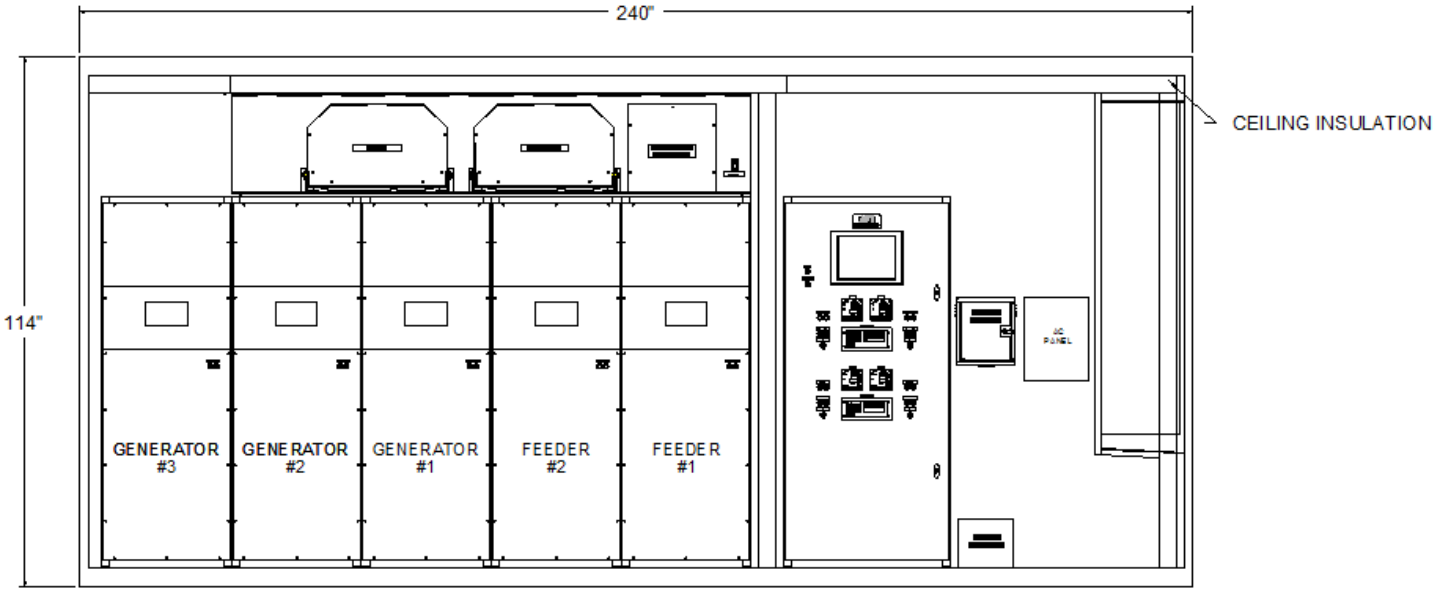


Figure 14: APT's FAC-Series Ultra Compact Front Access Switchgear Single Section Dimensions (Rear access is not required)

20’ 15kV Switchgear PwrContainer

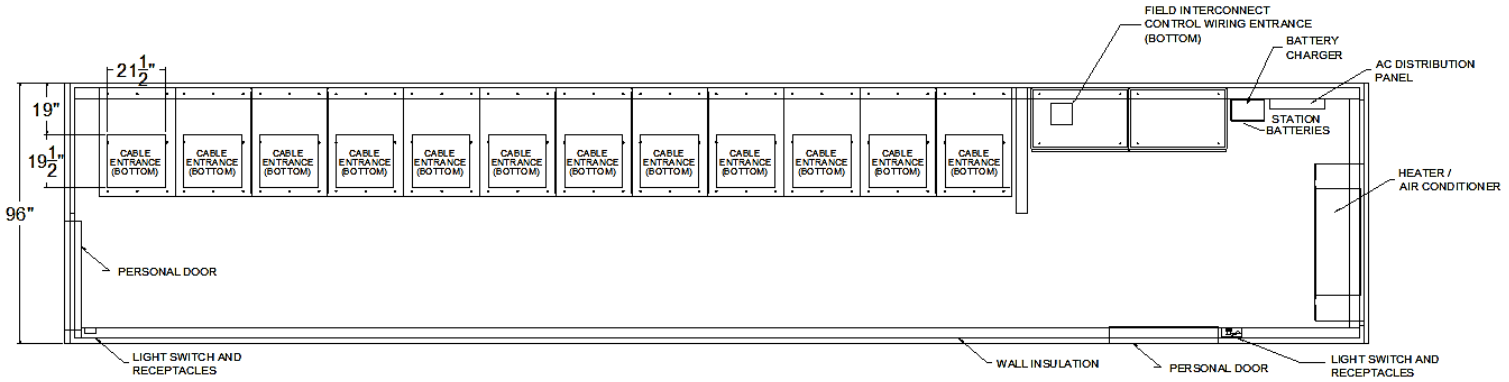


INTERNAL VIEW
TOP

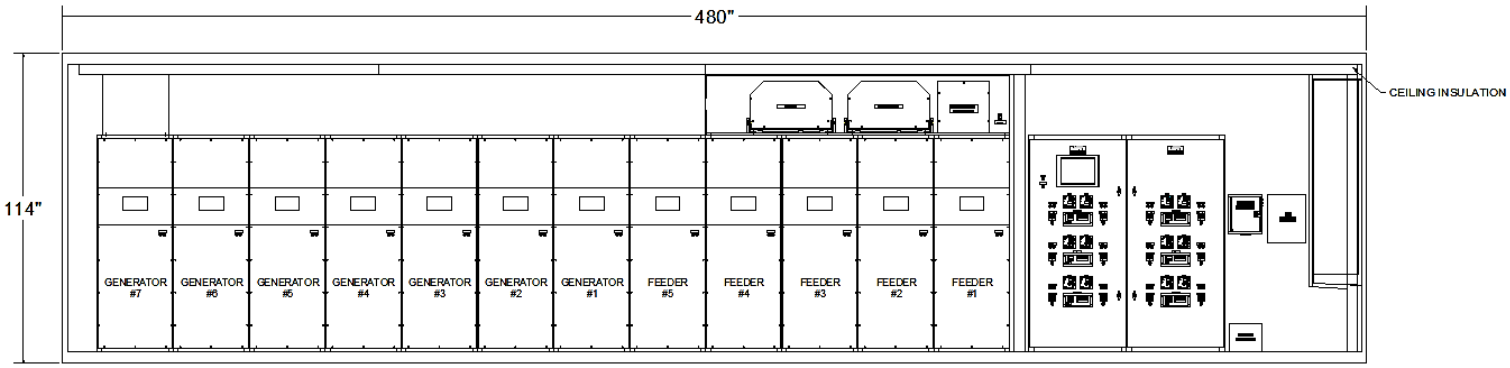


INTERNAL VIEW
FRONT

40’ 15kV Switchgear PwrContainer

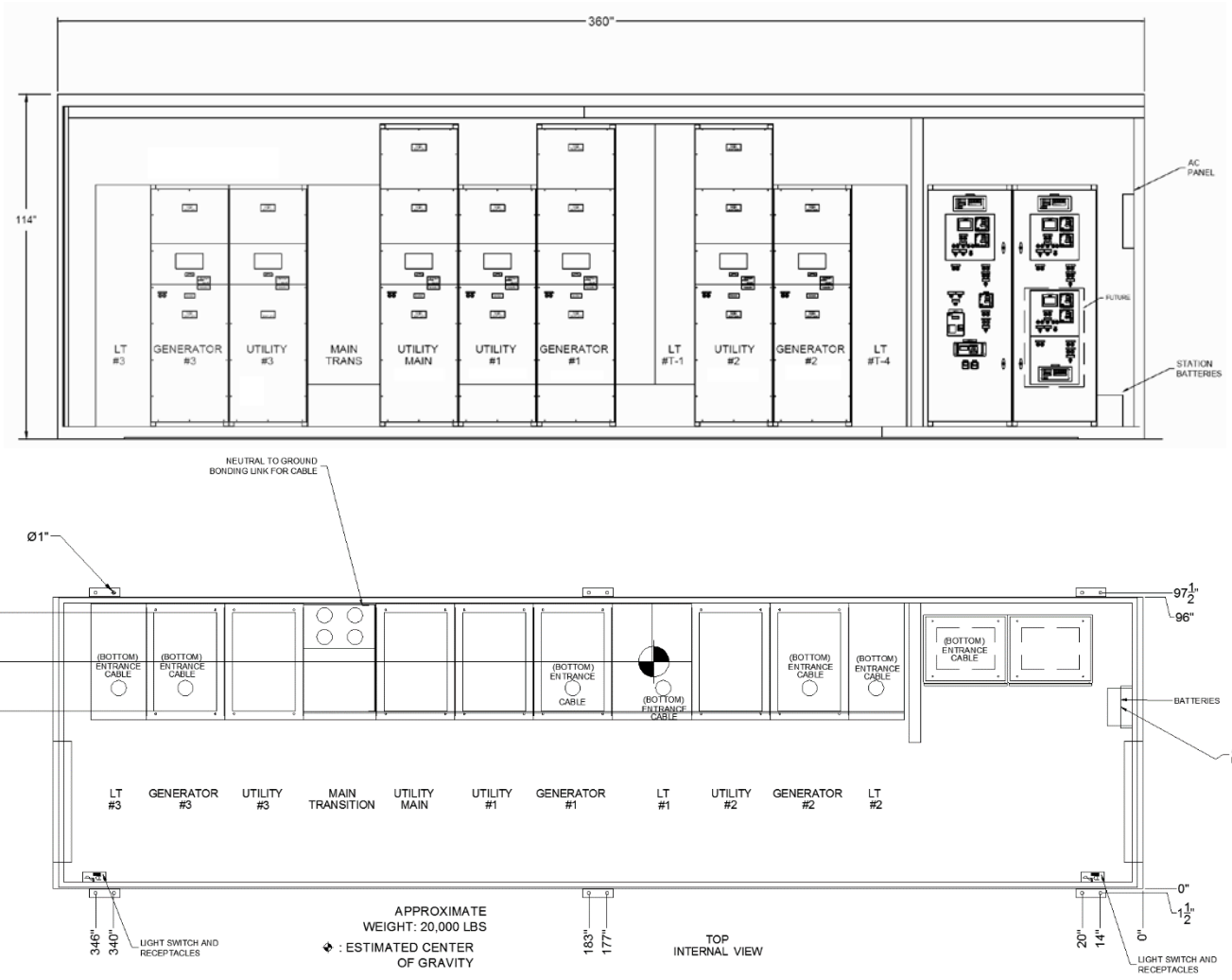


INTERNAL VIEW
TOP



INTERNAL VIEW
FRONT

30’ 5kV ATS Switchgear PwrContainer



Single 1200 A section dimensions:

38.5” deep by 26” wide by 80” high

Table 2: Standard Section Weights	
Component	Weight Per
NEMA 1 Section (Less Breakers)	1800 lbs.
1200A Circuit Breaker	380 lbs.
2000A Circuit Breaker	410 lbs.

About Advanced Power Technologies



Advanced Power Technologies (APT) is on the cutting edge of the latest engineered power system smart technologies, as it relates to microgrid & storage management, renewable & conventional energy source deployment, demand peak shaving, and facility back-up and co-generation power systems. Located in the central United States and headquartered in Lafayette, Indiana with solutions development engineers around the country, APT provides domestic and international products and services to industry leading companies from around the world. APT engineers have decades of power system experience from working with some of the largest companies in industry. Over the last two decades, we have produced successful solutions for hundreds of large-scale electric power projects involving utility/generator paralleling, transfer, peak shaving, and distribution. We pride ourselves in providing electrical power systems that are engineered and custom built, utilizing state-of-the-art technologies to fit our customer's exact needs. The core of our business is low & medium voltage engineered power systems for a wide range of indoor & outdoor applications, such as:

- Utility(ies) and Generator(s) Paralleling/Transfer/Peak Shaving/Distribution Switchgear
- Microgrids, Microgrid Master Control Panels, SCADA systems
- Containerized Battery Energy Storage Systems (BESS)
- Photovoltaic (PV) Solar Power Collection/Distribution & Renewable Energy Storage Systems
- Low & High Resistance Grounding Systems, Grounding Systems for Photovoltaic Effective Grounding
- High Efficiency Combined Heat and Power Switchgear & Control Systems (CHP, Co-generation)
- Outdoor Walk-In Electrical Houses (E-Houses) & Skid-Mounted Switchgear
- Motor Control Centers & Motor Control Switchgear
- Automatic & Manual Load Transfer Switchgear
- Bypass/Isolation & Power Distribution Circuit Breaker Switchboards
- Generator/Loadbank Quick Connection Switchgear, Switchboards, & Tap Boxes
- Industrial Control Panels

Please see our product webpages on www.apt-power.com for product brochures and relevant information. Actual products may look different from images shown on the website and in brochures, based on actual specifications.
APT cares and understands that each power system is different. We will evaluate various solutions in order to develop the best solution for a site. APT focuses on our ability to a combine several traditional pieces of equipment/functionality into as little of a footprint possible. This saves on space, the cost of equipment, cost of installation, and accomplishes the most optimal/state-of-the-art design your facilities. APT's desires to foster and grow a culture of continued open communication with each customer. Let APT be your source to provide fully engineered power system equipment solutions for the full customer facility on time, on or under budget, and in the smallest footprint possible. We are always available to assist customers and engineers representing customers in the development of complex power solutions for all facility types.