STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

NOT TO BE USED FOR TITLE V APPLICATIONS

9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531
Telephone: (615) 532-0554
FAX: (615) 532-0614

PERMIT APPLICATION

FEB 2 1 2012

APC 20

PLEASE TYPE OR PRINT AND SUBMIT IN DUPLICATE FOR EACH EMISSION SOURCE. ATTACH APPROPRIATE SOURCE DESCRIPTION FORMS.

1. **ORGANIZATION'S LEGAL NAME** American Tower Corporation - Paw Paw, TN #308881		/ / / FOR	APC COMPANY--POINT NO. 78-0229-01
2. **MAILING ADDRESS** (ST/RD/P.O. BOX) PO Box 63604		/ / / APC	APC LOG/PERMIT NO. 965492
CITY Phoenix	STATE AZ	ZIP CODE 85082	PHONE WITH AREA CODE 602-284-0280
3. **PRINCIPAL TECHNICAL CONTACT** Scot Sandefur			PHONE WITH AREA CODE same
4. **SITE ADDRESS** (ST/RD/HWY) 4309 Douglas Dam Rd			COUNTY NAME Sevier
CITY OR DISTANCE TO NEAREST TOWN Kodak		ZIP CODE 37764	PHONE WITH AREA CODE same
5. **EMISSION SOURCE NO.** (NUMBER WHICH UNIQUELY IDENTIFIES THIS SOURCE) E1		PERMIT RENEWAL YES ( ) NO (x)	

6. **BRIEF DESCRIPTION OF EMISSION SOURCE**

Emergency Backup Power - Industrial generator set: 131 hp, 80kW, with 500 gallon diesel fuel belly tank

7. **TYPE OF PERMIT REQUESTED**

CONSTRUCTION (x)	STARTING DATE 3/1/2012	COMPLETION DATE 3/30/2012	LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
OPERATING (x)	DATE CONSTRUCTION STARTED 3/1/2012	DATE COMPLETED 3/30/2012	LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
LOCATION TRANSFER ( )	TRANSFER DATE		LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER

ADDRESS OF LAST LOCATION

8. **DESCRIBE CHANGES THAT HAVE BEEN MADE TO THIS EQUIPMENT OR OPERATION SINCE THE LAST CONSTRUCTION OR OPERATING PERMIT APPLICATION.**

9. SIGNATURE (APPLICATION MUST BE SIGNED BEFORE IT WILL BE PROCESSED)		DATE 2/14/12
10. **SIGNER'S NAME** (TYPE OR PRINT) Scot D. Sandefur	TITLE Director, EHS	PHONE WITH AREA CODE 602-284-0280

(OVER)

CN-0730

RDA 1298

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EMISSION POINT DESCRIPTION

APC 22

PLEASE TYPE OR PRINT AND SUBMIT IN DUPLICATE FOR EACH STACK OR EMISSION POINT.
ATTACH TO THE PERMIT APPLICATION.

1. ORGANIZATION NAME American Tower Corporation - Paw Paw, TN - #308881			/ / / FOR	APC COMPANY POINT NO.
2. EMISSION SOURCE NO. (FROM APPLICATION) E1	FLOW DIAGRAM POINT NUMBER		/ / / APC	APC SEQUENCE NO.
3. LOCATION: 4309 DouglasDam	LATITUDE 36.00434	LONGITUDE 183.6397	UTM VERTICAL 3987652.98	UTM HORIZONTAL 262,076.93
4. BRIEF EMISSION POINT DESCRIPTION (ATTACH A SKETCH IF APPROPRIATE): Emergency back-up generator - 131 hp, 80kW, and 300 gal diesel belly tank				DISTANCE TO NEAREST PROPERTY LINE (FT) 75'

COMPLETE LINES 5 AND 6 IF DIFFERENT FROM THAT ON THE PROCESS OR FUEL BURNING SOURCE DESCRIPTION (APC 21)

5. NORMAL OPERATION: emergency	HOURS/DAY varies	DAYS/WEEK varies	WEEK/YEAR varies	DAYS/YEAR varies
6. PERCENT ANNUAL THROUGHPUT:	DEC.-FEB. 25%	MARCH-MAY 25%	JUNE-AUG. 25%	SEPT.-NOV. 25%

7. STACK OR EMISSION POINT DATA:	HEIGHT ABOVE GRADE (FT) 4'	DIAMETER (FT) 3"	TEMPERATURE (°F) 887	% OF TIME OVER 125°F	DIRECTION OF EXIT (UP, DOWN OR HORIZONTAL) UP
DATA AT EXIT CONDITIONS:	FLOW (ACTUAL FT^3/MIN.)	VELOCITY (FT/SEC)	MOISTURE (GRAINS/FT^3)		MOISTURE (PERCENT)
DATA AT STANDARD CONDITIONS:	FLOW (DRY STD. FT^3/MIN)	VELOCITY (FT/SEC)	MOISTURE (GRAINS/FT^3)		MOISTURE (PERCENT)

8. AIR CONTAMINANTS	ACTUAL EMISSIONS						
	EMISSIONS (LBS/HR)		CONCENTRATION	AVG. EMISSIONS (TONS/YR)	EMISSIONS* EST. METHOD	CONTROL DEVICES*	CONTROL EFFICIENCY%
	AVERAGE	MAXIMUM					
PARTICULATES	0.0346		**	0.0346			
SULFUR DIOXIDE	0.5		***	0.13			
CARBON MONOXIDE	0.202		PPM 0.0505				
ORGANIC COMPOUNDS			PPM				
NITROGEN OXIDES	0.807		PPM	0.202			
FLUORIDES							
OTHER(SPECIFY)	0.75			0.19			
OTHER(SPECIFY)							

(OVER)

9. CHECK TYPES OF MONITORING AND RECORDING INSTRUMENTS THAT ARE ATTACHED:
OPACITY MONITOR ( ), SO2 MONITOR ( ), NOX MONITOR ( ), OTHER (SPECIFY IN COMMENTS) ( )

10. COMMENTS

11. SIGNATURE	**DATE**
	2/14/12

* REFER TO THE BACK OF THE PERMIT APPLICATION FORM FOR ESTIMATION METHOD AND CONTROL DEVICE CODES.

** EXIT GAS PARTICULATE CONCENTRATION UNITS: PROCESS — GRAINS/DRY STANDARD FT3 (70°F); WOOD FIRED BOILERS — GRAINS/DRY STANDARD FT3 (70°F); ALL OTHER BOILERS — LBS/MILLION BTU HEAT INPUT.

*** EXIT GAS SULFUR DIOXIDE CONCENTRATIONS UNITS: PROCESS — PPM BY VOLUME, DRY BASES; BOILERS — LBS/MILLION BTU HEAT INPUT.

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PROCESS OR FUEL BURNING SOURCE DESCRIPTION

APC21(& 24)

PLEASE TYPE OR PRINT, SUBMIT IN DUPLICATE AND ATTACH TO THE PERMIT APPLICATION.

1. **ORGANIZATION NAME** American Tower Corporation - Paw Paw, TN #308881		/ / / FOR	APC COMPANY-POINT NO.
2. **EMISSION SOURCE NO.** (AS ON PERMIT APPLICATION) E1	SIC CODE	/ / / APC	APC PERMIT/LOG NO.

3. **DESCRIPTION OF PROCESS OR FUEL BURNING UNIT**

Emergency back-up power - Industrial diesel generator set; 131 hp, 80kW, 300 gallon diesel belly tank

4. **NORMAL OPERATION:** →	HOURS/DAY varies	DAYS/WEEK varies	WEEKS/YEAR varies	DAYS/YEAR varies
5. **PERCENT ANNUAL THROUGHPUT:** →	DEC.-FEB. 25%	MARCH-MAY 25%	JUNE-AUG. 25%	SEPT.-NOV. 25%

6. **TYPE OF PERMIT APPLICATION**	(CHECK BELOW ONE ONLY)
PROCESS SOURCE: APPLY FOR A SEPARATE PERMIT FOR EACH SOURCE. (CHECK AT RIGHT, AND COMPLETE LINES 7, 8, 13, AND 14).	( )
PROCESS SOURCE WITH IN-PROCESS FUEL: PRODUCTS OF COMBUSTION CONTACT MATERIALS HEATED. APPLY FOR A SEPARATE PERMIT FOR EACH SOURCE. (CHECK AT RIGHT, AND COMPLETE LINES 7, 8, AND 10 THROUGH 14)	( )
NON-PROCESS FUEL BURNING SOURCE: PRODUCTS OF COMBUSTION DO NOT CONTACT MATERIALS HEATED. COMPLETE THIS FORM FOR EACH BOILER OR FUEL BURNER AND COMPLETE AN EMISSION POINT DESCRIPTION FORM (APC 22) FOR EACH STACK. (CHECK AT RIGHT, AND COMPLETE LINES 9 TO 14)	( )

7. **TYPE OF OPERATION:** CONTINUOUS ( )	BATCH ( )	NORMAL BATCH TIME	NORMAL BATCHES/DAY

8. **PROCESS MATERIAL INPUTS AND IN-PROCESS SOLID FUELS**	DIAGRAM* REFERENCE	INPUT RATES (POUNDS/HOUR) DESIGN	ACTUAL	/ /	(FOR APC USE ONLY) SCC CODE
A.				/ /	
B.				/ /	
C.				/ /	
D.				/ /	
E.				/ /	
F.				/ /	
G.				/ /	
	TOTALS			/ /	

* A SIMPLE PROCESS FLOW DIAGRAM MUST BE ATTACHED.

(OVER)

APC 21 (& 24)

9. BOILER OR BURNER DATA: (COMPLETE LINES 9 TO 14 USING A SEPARATE FORM FOR EACH BOILER)

BOILER NUMBER	STACK NUMBER**	TYPE OF FIRING***	RATED BOILER HORSEPOWER	RATED INPUT CAPACITY (10^6 BTU/HR)	OTHER BOILER RATING (SPECIFY CAPACITY AND UNITS)

BOILER SERIAL NO.	DATE CONSTRUCTED	DATE OF LAST MODIFICATION (EXPLAIN IN COMMENTS BELOW).

** BOILERS WITH A COMMON STACK WILL HAVE THE SAME STACK NUMBER.
*** CYCLONE, SPREADER (WITH OR WITHOUT REINJECTION), PULVERIZED (WET OR DRY BOTTOM, WITH OR WITHOUT REINJECTION), OTHER STOKER (SPECIFY TYPE), HAND FIRED, AUTOMATIC, OR OTHER TYPE (DESCRIBE BELOW IN COMMENTS).

10. FUEL DATA: (COMPLETE FOR A PROCESS SOURCE WITH IN-PROCESS FUEL OR A NON-PROCESS FUEL BURNING SOURCE)

PRIMARY FUEL TYPE (SPECIFY) | STANDBY FUEL TYPE(S) (SPECIFY)

FUELS USED	ANNUAL USAGE	HOURLY USAGE		% SULFUR	% ASH	BTU VALUE OF FUEL		(FOR APC ONLY) SCC CODE
		DESIGN	AVERAGE					
NATURAL GAS:	10^6 CUFT	CUFT	CUFT	/ / / / / / / /	/ / / / / /	1,000		
#2 FUEL OIL:	10^3 GAL	GAL	GAL		/ / / / / /			
#5 FUEL OIL:	10^3 GAL	GAL	GAL		/ / / / / /			
#6 FUEL OIL:	10^3 GAL	GAL	GAL		/ / / / / /			
COAL:	TONS	LBS	LBS					
WOOD:	TONS	LBS	LBS	/ / / / / / / /	/ / / / / /			
LIQUID PROPANE:	10^3 GAL	GAL	GAL	/ / / / / / / /	/ / / / / /	85,000		
OTHER (SPECIFY TYPE & UNITS.):								

11. IF WOOD IS USED AS A FUEL, SPECIFY TYPES AND ESTIMATE PERCENT BY WEIGHT OF BARK

12. IF WOOD IS USED WITH OTHER FUELS, SPECIFY PERCENT BY WEIGHT OF WOOD CHARGED TO THE BURNER.

13. COMMENTS

14. SIGNATURE	**DATE**
	2/14/12

SD080

GENERAC | INDUSTRIAL POWER

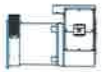
80 kW Diesel

Industrial Diesel Generator Set

EPA Emissions Certification: Tier III

Standby Power Rating
100 kVA 80 kW 60 Hz

Prime Power Rating
90 kVA 72 kW 60 Hz



features	benefits
Generator Set	
• PROTOTYPE & TORSIONALLY TESTED	▶ PROVIDES A PROVEN UNIT
• UL2200 TESTED	▶ ENSURES A QUALITY PRODUCT
• RHINOCOAT PAINT SYSTEM	▶ IMPROVES RESISTANCE TO ELEMENTS
• WIDE RANGE OF ENCLOSURES AND TANKS	▶ PROVIDES A SINGLE SOURCE SOLUTION
Engine	
• EPA TIER COMPLIANT	▶ ENVIRONMENTALLY FRIENDLY
• INDUSTRIAL TESTED, GENERAC APPROVED	▶ ENSURES INDUSTRIAL STANDARDS
• POWERMATCHED OUTPUT	▶ ENGINEERED FOR PERFORMANCE
• INDUSTRIAL GRADE	▶ IMPROVES LONGEVITY AND RELIABILITY
Alternator	
• TWO-THIRDS PITCH	▶ ELIMINATES HARMFUL 3RD HARMONIC
• LAYER WOUND ROTOR & STATOR	▶ IMPROVES COOLING
• CLASS H MATERIALS	▶ HEAT TOLERANT DESIGN
• DIGITAL 3-PHASE VOLTAGE CONTROL	▶ FAST AND ACCURATE RESPONSE
Controls	
• ENCAPSULATED BOARD W/ SEALED HARNESS	▶ EASY, AFFORDABLE REPLACEMENT
• 4-20mA VOLTAGE-TO-CURRENT SENSORS	▶ NOISE RESISTANT 24/7 MONITORING
• SURFACE-MOUNT TECHNOLOGY	▶ PROVIDES VIBRATION RESISTANCE
• ADVANCED DIAGNOSTICS & COMMUNICATIONS	▶ HARDENED RELIABILITY

primary codes and standards

NEMA ISO

GENERAC | INDUSTRIAL POWER

80 kW Diesel

SD080 application and engineering data

ENGINE SPECIFICATIONS

General

Make	Iveco / FPT
EPA Emissions Compliance	Tier III
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	4
Type	Diesel
Displacement - L (cu. in.)	4.5 (274)
Bore - mm (in.)	105 (4.1)
Stroke - mm (in.)	132 (5.2)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head Type	2 Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel
Engine Block Type	Cast Iron / Wet Sleeve

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	+/-0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (gal)(qts)	13.6 (3.6) (14.4)

Cooling System

Cooling System Type	Closed
Water Pump	Belt Driven Centrifugal
Fan Type	Pusher
Fan Blade Number	2538 (10)
Fan Diameter (in.)	26
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120

Fuel System

Fuel Type*	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Inject Pump Make	Standyne
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Engine Type	Direct Injection
Fuel Supply Line - mm (in.)	1/4 inch Npt
Fuel Return Line - mm (in.)	1/4 inch Npt

Engine Electrical System

System Voltage	12VDC
Battery Charging Alternator	90 Amp
Battery Size (at 0 oC)	995 CCA
Battery Group	31
Battery Voltage	12 Volt DC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Model	390 mm Generac
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Alternator Type	Synchronous Brushless, Opt PMG
Bearings	One - Pre Lubed & Sealed
Coupling	Direct, Flexible Disc
Load Capacity - Standby	80
Load Capacity - Prime	72
Prototype Short Circuit Test	Y

Voltage Regulator Type	Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	+/-0.25%

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99
NFPA 110
ISO 8528-5
ISO 1708A.5
ISO 3046
BS5514
SAEJ1349
DIN6271
IEEE C62.41 TESTING
NEMA ICS 1

Rating Definitions:
Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)
Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every
12 hours

GENERAC | INDUSTRIAL POWER

80 kW Diesel

SD080 — operating data (60Hz)

POWER RATINGS (kW)

	STANDBY		PRIME	
Single-Phase 120/240VAC @1.0pf	80 Amps:	333	72 Amps:	300
Three-Phase 120/208VAC @0.8pf	80 Amps:	278	72 Amps:	250
Three-Phase 120/240VAC @0.8pf	80 Amps:	241	72 Amps:	217
Three-Phase 277/480VAC @0.8pf	80 Amps:	120	72 Amps:	108
Three-Phase 346/600VAC @0.8pf	80 Amps:	96	72 Amps:	87

STARTING CAPABILITIES (sKVA)

sKVA v. Voltage Dip

		480VAC						208/240VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard*	80	59	88	117	147	176	205	44	59	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	79	118	148	177	206
Upsize 2	125	116	174	232	290	348	406	87	116	174	218	261	305

*All Generac Industrial alternators utilize Class H materials. Standard alternator provides less than or equal to Class F temperature rise. Upsize 1 provides less than or equal to Class A temperature rise.

Fuel

Fuel Pump Lift - in (m): 36(.9)

Total Fuel Pump Flow (Combustion + Return): 13.6 gph

Fuel Consumption Rates**

Percent Load	STANDBY gph		lph	Percent Load	PRIME gph		lph
25%	2.1		7.9	25%	1.9		7.2
50%	3.7		14.0	50%	3.4		12.9
75%	5.2		19.7	75%	4.7		17.8
100%	6.3		23.8	100%	5.8		22.0

**Refer to "Emissions Data Sheets" for maximum fuel flow for EPA and SCAQMD permitting purposes.

COOLING

Coolant System Capacity - Gal (L): 4.5 (17.44)

Maximum Radiator Backpressure: 1.5" H_2O Column

		STANDBY	PRIME
Coolant Flow per Minute	gpm (lpm)	32.7(123.8)	32.7(123.8)
Heat rejection to Coolant	BTU/hr	137,140	137,140
Inlet Air	cfm (m3/min)	6360(180.0)	6360(180.0)
Max. Operating Radiator Air Temp	F° (C°)	122(50)	122(50)
Max. Operating Ambient Temperature	F° (C°)	122(50)	122(50)

COMBUSTION AIR REQUIREMENTS

		STANDBY		PRIME	
Intake Flow at Rated Power	cfm (m3/min)	306	(8.67)	275	(7.80)

EXHAUST

Exhaust Outlet Size (Open Set): 3.0"

Maximum Backpressure (Post-Silencer): 1.5"

		STANDBY	PRIME
Exhaust Flow (Rated Output)	cfm (m3/hr)	790(134.4)	790(134.4)
Maximum Backpressure	inHg (Kpa)	1.5(5.1)	1.5(5.1)
Exhaust Temp (Rated Output)	F° (C°)	887(475)	887(475)

ENGINE

		STANDBY	PRIME
Rated Engine Speed	rpm	1,800	1800
Horsepower at Rated kW***	hp	131	127
Piston Speed	ft/min (m/min)	1559(44.1)	1559(44.1)
BMEP	psi	210	194

*** Refer to "Emissions Data Sheets" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration - Operational characteristics consider maximum ambient conditions. Derte factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performing ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

GENERAC | INDUSTRIAL POWER

80 kW Diesel

SD080 — standard features and options

GENERATOR SET

● Genset Vibration Isolation	Std
○ IBC Seismic Certified/Seismic Rated Vibration Isolators	Opt
○ Extended warranty	Opt
○ Export boxing	Opt
○ Gen-Link Communications Software	Opt
○ Steel Enclosure	Opt
○ Aluminum Enclosure	Opt

ENGINE SYSTEM

General

● Oil Drain Extension	Std
○ Oil Make-Up System	Opt
○ Oil Heater	Opt

Fuel System

● Fuel lockoff solenoid	Std
● Secondary fuel filter	Std
● Stainless steel flexible exhaust connection	Std
● Industrial Exhaust Silencer	Std
○ Critical Exhaust Silencer	Opt
● Flexible fuel lines	Opt
○ Primary fuel filter	Opt
○ Single Wall Tank (Export Only)	-
○ UL 142 Fuel Tank	Opt

Cooling System

○ 120VAC Coolant Heater	Opt
○ 208VAC Coolant Heater	Opt
○ 240VAC Coolant Heater	Opt
○ Other Coolant Heater_____	-
● Closed Coolant Recovery System	Std
● UV/Ozone resistant hoses	Std
● Factory-Installed Radiator	Std
● Radiator Drain Extension	Std

Engine Electrical System

● Battery charging alternator	Std
● Battery cables	Std
● Battery tray	Std
● Battery box	Opt
● Battery heater	Opt
● Solenoid activated starter motor	Std
● Air cleaner	Std
● Fan guard	Std
● Radiator duct adapter	Std
○ 2A battery charger	Opt
○ 10A UL float/equalize battery charger	Opt
● Rubber-booted engine electrical connections	Std

ALTERNATOR SYSTEM

● UL2200 GENprotect	Std
○ Main Line Circuit Breaker	Opt
○ 2nd Circuit Breaker	Opt
○ 3rd Circuit Breaker	-
○ Alternator Upsizing	Opt
○ Anti-Condensation Heater	Opt
○ Tropical coating	Opt
○ Permanent Magnet Excitation	Opt

CONTROL SYSTEM

General

● Digital H Control Panel - Dual 4x20 Display	Std
● Digital G-100 Control Panel - Touchscreen	na
● Digital G-200 Paralleling Control Panel - Touchscreen	na
● Programmable Crank Limiter	Std
● 21-Light Remote Annunciator	Opt
● Remote relay Panel (8 or 16)	Opt
● 7-Day Programmable Exercier	-
● Special Applications Programmable PLC	-
● RS-232	-
● RS-485	-
● All-Phase Sensing DVR	-
● Full System Status	-
● Utility Monitoring (Req. H-Transfer Switch)	-
● 2-Wire Start Compatible	-
● Power Output (kW)	-
● Power Factor	-
● Reactive Power	-
● All phase AC Voltage	-
● All phase Currents	-
● Oil Pressure	-
● Coolant Temperature	-
● Coolant Level	-
● Oil Temperature	-
● Fuel Pressure	-
● Engine Speed	-
● Battery Voltage	-
● Frequency	-
● Date/Time Fault History (Event Log)	-
● UL2200 GENprotect	-
● Low-Speed Exercise	-
● Isochronous Governor Control	-
● -40deg C - 70deg C Operation	-
● Waterproof Plug-in Connectors	-
● Audible Alarms and Shutdowns	-
● Not in Auto (Flashing Light)	-
● Dry/Off/Manual Switch	-
● E-Stop (Red Mushroom-Type)	-
○ Remote E-Stop (Break Glass-Type, Surface Mount)	-
○ Remote E-Stop (Red Mushroom-Type, Surface Mount)	-
○ Remote E-Stop (Red Mushroom-Type, Flush Mount)	-
● NFPA 110 Level I and II (Programmable)	-
● Remote Communication - RS232	-
● Remote Communication - Modem	-
● Remote Communication - Ethernet	-
○ 10A Run Relay	-

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

● Low Fuel	-
● Oil Pressure (Pre-programmed Low Pressure Shutdown)	-
● Coolant Temperature (Pre-programmed High Temp Shutdown)	-
● Coolant Level (Pre-programmed Low Level Shutdown)	-
● Alternator Overload	-
● Fuel Pressure	-
● Engine Speed (Pre-programmed Overspeed Shutdown)	-
● Voltage (Pre-programmed Overvoltage Shutdown)	-
● Battery Voltage	-

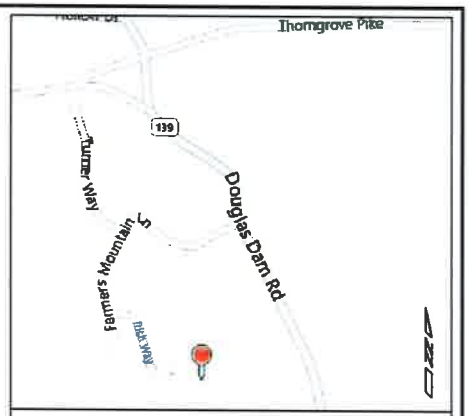
Other Options

○ _____

○ _____

○ _____

VICINITY MAP 1"=2500'



LOCAL MAP 1"=500'

AMERICAN TOWER®

BACKUP POWER PROJECT

ATC SITE IDENTIFICATION:

SITE NUMBER: 308881
SITE NAME: PAWPAW HOLLOW

SITE ADDRESS: 4309 DOUGLAS DAM ROAD
KODAK, TN 37764-1258

CUSTOMER SITE IDENTIFICATION:

SITE NUMBER: 10089968
SITE NAME:

811 Know what's below. Call before you dig.

THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.

PROJECT TEAM

ARCHITECT:
AMERICAN TOWER CORPORATION
1898 LELAND DRIVE SUITE A
MARIETTA, GA 30067
TEL: (678) 265-6705
FAX: (678) 265-6781
CONTACT: JAMES JUSTICE
A & E MANAGER

CUSTOMER OPERATIONS CONTACT:
AMERICAN TOWER CORPORATION
1898 LELAND DRIVE SUITE A
MARIETTA, GA 30067
TEL: (678) 265-6705
FAX: (678) 265-6781
CONTACT: JAMES JUSTICE
A & E MANAGER

ZONING AND BUILDING PERMIT:
CONTACT AGENT:
JEFFREY STEWART
678-265-6738

LANDLORD:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801
TEL: (781) 926-4500
FAX: 781-926-4500

GROUND OWNER:
J R JOHNSON M D
236 E MAIN ST # 123
SEVIERVILLE, TN 37862-3531

UTILITIES:
POWER COMPANY:
KNOXVILLE UTILITY BOARD
TEL: (865) 524-2911

TELEPHONE COMPANY:
BELLSOUTH
TEL:

PROJECT SUMMARY

ATC SITE SUPERVISOR:
(MUST GIVE 24 HOUR NOTICE BEFORE INSTALL)
JORDAN HILL
TEL: (615) 828-8733

GEOGRAPHIC COORDINATES:
LATITUDE: 36° 0' 15.65" N
LONGITUDE: 83° 38' 22.9" W
GROUND ELEVATION: 1146.7 FT.

CODE BLOCK:
BUILDING CODE: 2006 INTERNATIONAL BUILDING CODE

AT&T OPS FOR POWER CUT OVER:
NEED 24 HOUR NOTICE

ERIC BAKER
TEL: (606) 523-0081
EMAIL: JB2540@ATT.NET

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES PLACING A SHARED GENERATOR IN AN EXISTING CELLULAR TOWER COMPOUND.

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM NASHVILLE: I-40 EAST TO EXIT 407 BEAR LEFT ON SNYDER RD FOR APPROXIMATELY 1.8 MILES AND TURN LEFT ON HARDIN RD. FOR APPROXIMATELY 1 MILE AND THEN RIGHT ON DOUGLAS DAM RD. ACCESS TO SITE IS GRAVEL ROAD DIRECTLY ACROSS FROM ALLYSON DRIVE.

SHEET INDEX

SHT NO:	DESCRIPTION:	REV:	DATE:	BY:
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A-2	CONCRETE PAD DETAILS	0	01-13-12	CAB
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E-1	WIRING DIAGRAM & H-FRAME LAYOUT	0	01-13-12	CAB
E-2	ELECTRICAL DETAILS	0	01-13-12	CAB
G-1	COMPOUND GROUNDING	0	01-13-12	CAB
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(972) 999-8900 Tel
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NYSE AMT

ATC SITE NUMBER:
308881

ATC SITE NAME:
PAWPAW HOLLOW

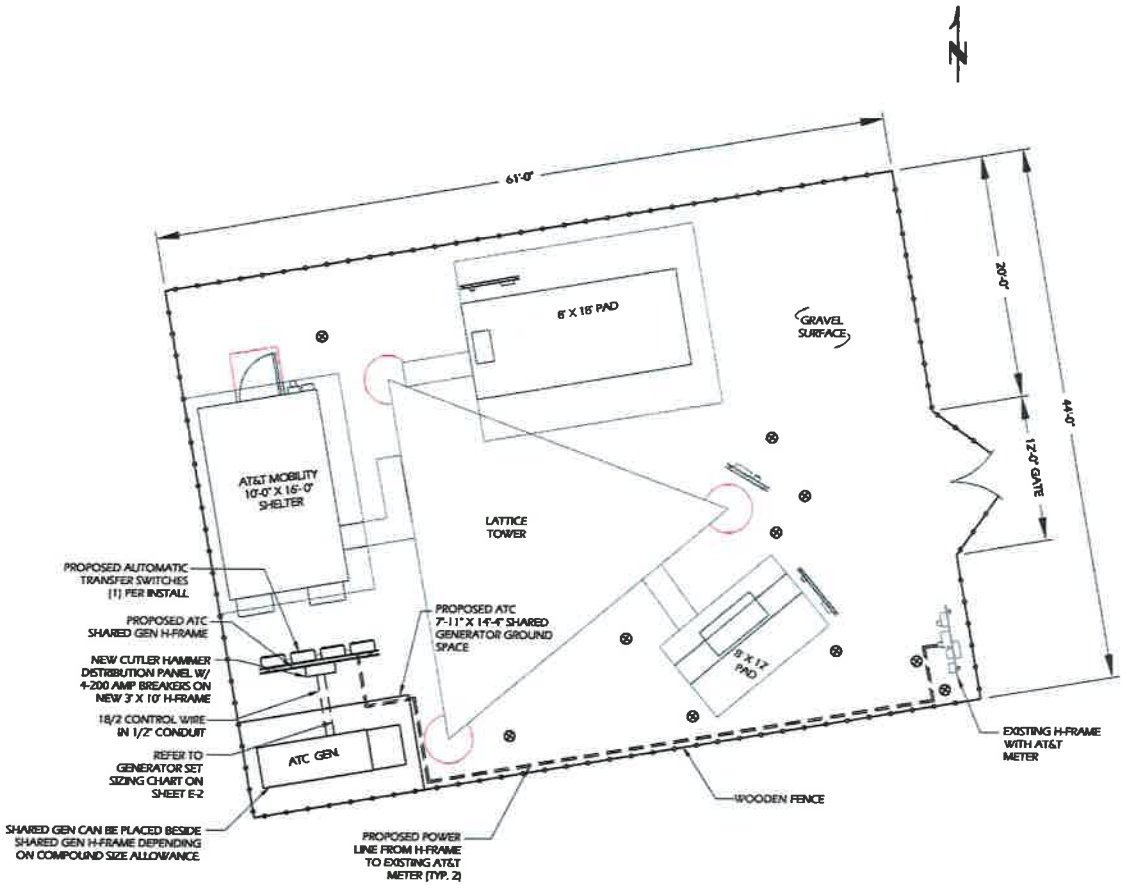
SITE ADDRESS:
4309 DOUGLAS DAM ROAD
KODAK, TN 37764-1258

STAMP HERE:

DRAWN BY:	CAB
CHECKED BY:	SAB
DATE DRAWN:	1-13-12
JOB NO:	4091482X1

SHEET TITLE:
TITLE SHEET
VICINITY MAP
AND GENERAL
INFORMATION

SHEET NUMBER: T-1
REV.: 0



ELECTRICAL CONTRACTOR SHALL MAINTAIN FACTORY RECOMMENDED CLEARANCES FOR GENERATOR, OR 48" CLEAR ON EACH SIDE OF GENERATOR AND 36" CLEAR ON EACH SIDE OF H-FRAME. CLEARANCES MAY OVERLAP.

NOTE:
SEE G-1 FOR CABLE & CONDUIT ROUTE DETAILS.

SCALE
1" = 10'-0" (11 X 17)
1" = 5'-0" (24 X 36)

1 SITE PLAN

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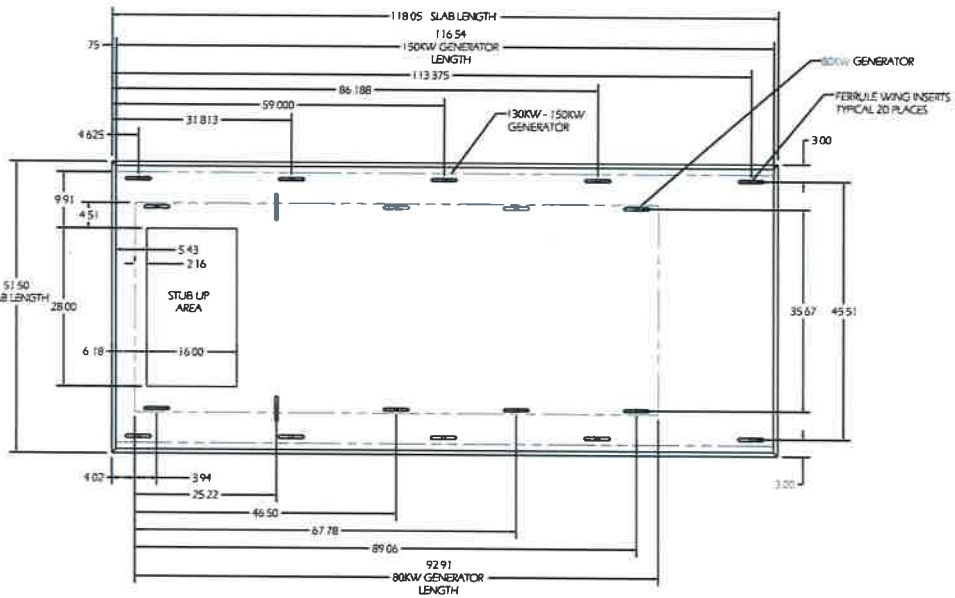
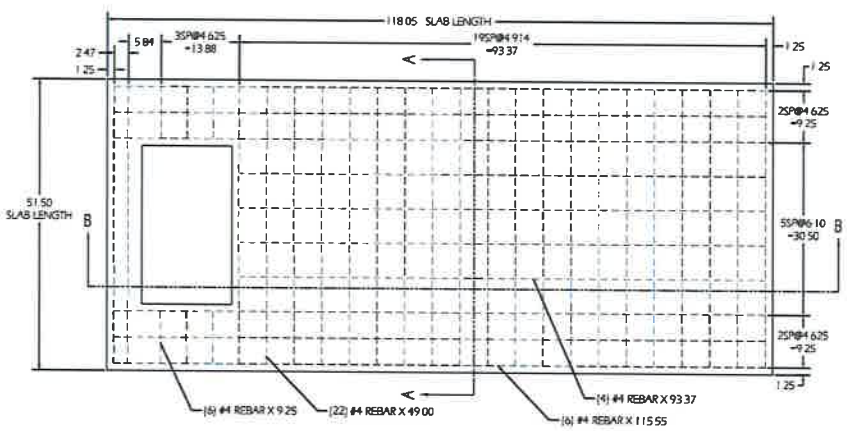
DRAWN BY:	CAB
CHECKED BY:	SAE
DATE DRAWN:	1-13-12
JOB NO:	66918261

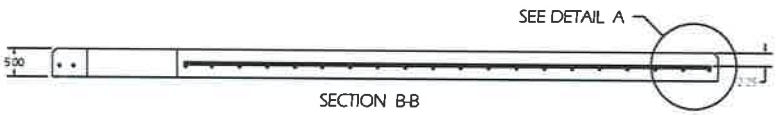
SHEET TITLE:
SITE PLAN

SHEET NUMBER: A-1
REV. 0

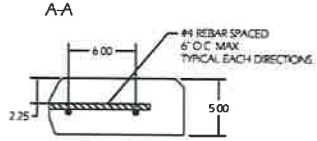




SECTION A-A



SECTION B-B



DETAIL A
SCALE 0.280

MATERIALS LIST (FOR ONE CONCRETE PAD)						
CITY RECTD	SIZE	TOTAL LENGTH	TOTAL WEIGHT	TYPE	BENDING DIAGRAM DIMENSION	BENDING DIAGRAM
20	1/2"	0'5"	-	FERRULE WING		
6	#4	115 55"	39 #	STRAIGHT	A= 115 55"	
4	#4	93 37"	21 #		A= 93 37"	
22	#4	49 00"	60 #		A= 49 00"	
6	#4	9 25"	3 #		A= 9 25"	

STANDARD REBAR SIZES & WEIGHTS			
BAR NO	LBS PER FT.	DIA. INCHES	GRADE
4	6676	500	40

CONCRETE PAD CONSTRUCTION NOTES

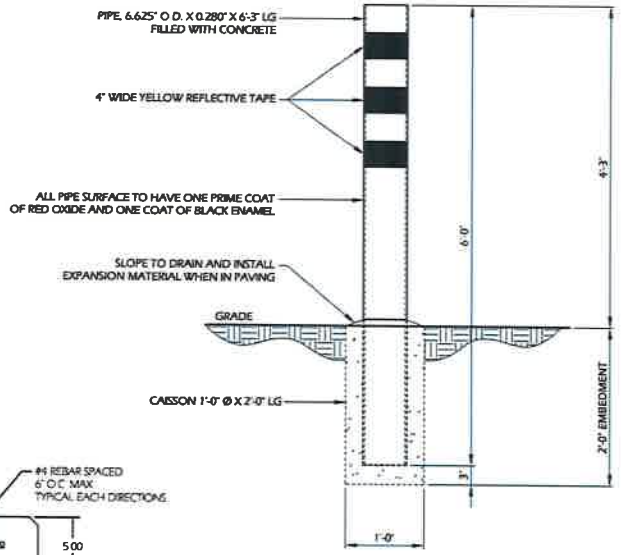
1. ALL REBAR (HORIZONTAL & VERTICAL) SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
3. REINFORCED CONCRETE CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ACI STANDARDS 318.
4. MINIMUM CONCRETE COVER OVER REBAR IS 1 1/4".
5. REINFORCING MATERIAL SHALL BE IN ACCORDANCE WITH ASTM SPECIFICATION A615-85.

CONCRETE PAD AND EMBEDMENT TOLERANCES

1. EMBEDMENTS: PLUS OR MINUS 1/16"
2. CONCRETE DIMENSIONS: PLUS OR MINUS 1/4".
3. REINFORCING STEEL PLACEMENT: PLUS OR MINUS 1/4" INCLUDING CONCRETE COVER.

NOTES

1. FOUNDATION WAS DESIGNED BY ASSUMING ALLOWABLE SOIL BEARING CAPACITY OF 1000 PSI. FOR SOFT OR WEAK SOILS, FOUNDATION WILL BE DESIGNED BASED ON THE GEOTECH SOIL REPORT.
2. THE SOIL UNDERNEATH THE CONCRETE PADS MUST BE COMPACTED AND LEVELED BEFORE PLACING THE FOUNDATION.
3. THIS CONCRETE PAD WILL BE PRE CASTED IN SHOP
4. CONCRETE SLUMPS: 1" ~ 3".
5. CONCRETE VOLUME ≈ 0.78 CUBIC YARDS
6. THE DIMENSIONS BETWEEN EACH EMBEDMENT ARE OBTAINED FROM GENERAL POWER SYSTEMS DRAWINGS (DWG NO: ATC150PAD DATED 7/8/08. AND ATC125PAD DATED 7/10/08.)



ELEVATION VIEW
(TYPICAL BOLLARD INSTALLATION DETAIL)
IF REQUIRED

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STAMP HERE:	
DRAWN BY:	CAB
CHECKED BY:	SAE
DATE DRAWN:	9-13-12
JOB NO:	669482X1

SHEET TITLE:
CONCRETE PAD DETAILS

SHEET NUMBER: A-2
REV. #: 0

H-Frame and Its Foundation Designs

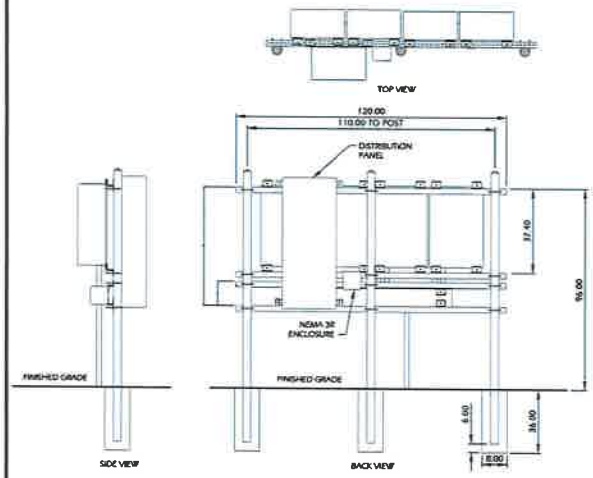
Note: This design or calculation for the H-Fram will be valid for all 80kw, 130kw and 150kw generator sites with same or less design basic wind speed as specified below.

A. Design Loads:

ASCE 3 Sec. Wind Speed for the tower site : $V_{asc} := 90$ MPH

$K_z_g := 0.85$ $K_{zt} := 1.0$ $I := 1$ $K_d := 0.95$ $C_{fa} := 1.2$ $G_f := 1.0$

Wind pressure per ASCE : $q := 0.00256 \cdot K_z_g \cdot C_f \cdot V^2 \cdot I \cdot K_{zt} \cdot K_d$ $q = 20.093$ Psf



The factored reactions used for the pier program (See the attached calculation):

$M_f := M_{max} \cdot 1.6$ $M_f = 8.622 \times 10^3$ Lbs - Ft.

Total factored shear force at the base: $V_f := V_{max} \cdot 1.6$ $V_f = 848.704$ Lbs

Total factored Axial: $N_f := N_{max} \cdot 1.2$ $N_f = 1.064 \times 10^3$ Lbs

According to the analysis results from Caisson program, the foundation was found to be adequate

B. Check the supporting pipe::

The max. moment on the supporting pole (4" f SCH 40, Sx = 3.21 in³, 36 Ksi)

$M_{ac} := M_{max} \cdot 12$ $M_{ac} = 6.467 \times 10^3$ Lbs - In

$S_{x1} := \frac{M_{ac}}{0.75 \cdot 35000}$ $S_{x1} = 2.463$ in³ < 3.21 in³, Therefore, Adequate

1. Wind area of the (4) HTS units: $A1 := \frac{24 \cdot 39.71}{144} \cdot 4 \cdot 1.4$ $A1 = 37.063$ Sq Ft.

Weight $Wt_1 := 325 \cdot 4$ $Wt_1 = 1.3 \times 10^3$ Lbs

Moment to the base: $M1 := A1 \cdot q \cdot 6 + Wt_1 \cdot \frac{11}{2}$ $M1 = 3.162 \times 10^4$ Lbs - Ft.

2. Wind area of the distribution panel: $A2 := \frac{24 \cdot (58 - 39.71)}{144} \cdot 1.4$ $A2 = 4.268$ Sq Ft.

Weight: $Wt_2 := 150$ $Wt_2 = 150$ Lbs (Assumed)

Moment to the base: $M2 := A2 \cdot q \cdot 5.5 - Wt_2 \cdot \frac{15.73}{2}$ $M2 = -709.619$ Lbs - Ft

3. Wind area of the (3) Pole (4" Std Pipe, 35 Kis Minimum strength):

Pipe Length: $L := 8$ Ft.

$A3 := \frac{4.5}{12} \cdot L \cdot 1.2 \cdot 3$ $A3 = 10.8$ Sq Ft.

Weight. $Wt_3 := 10.79 \cdot L \cdot 3$ $Wt_3 = 258.96$ Lbs

Moment to the base: $M3 := A3 \cdot q \cdot \frac{L}{2}$ $M3 = 868.026$ Lbs - Ft

Total Moment at the base: $M := M1 + M2 + M3$ $M = 1.178 \times 10^4$ Lbs - Ft

Total Shear force at the base: $V := A1 \cdot q + A2 \cdot q + A3 \cdot q$ $V = 1.047 \times 10^3$ Lbs

Total Weight: $Wt := Wt_1 + Wt_2 + Wt_3$ $Wt = 1.709 \times 10^3$ Lbs

4. The maximum reactions at the base of each pole:

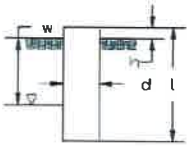
Moment: $M_{max} := M1 \cdot \frac{2}{4} + M2 + \frac{M3}{3}$ $M_{max} = 5.389 \times 10^3$ Lbs - Ft.

Shear $V_{max} := A1 \cdot q \cdot \frac{2}{4} + A2 \cdot q + A3 \cdot q \cdot \frac{1}{3}$ $V_{max} = 530.44$ Lbs

Axial: $N_{max} := Wt_1 \cdot \frac{2}{4} + Wt_2 + \frac{Wt_3}{3}$ $Wt = 1.709 \times 10^3$ Lbs

Site Name:	0
Site Number:	0
Engineer:	H. You
Engineering Number:	0
Date:	03/15/11

Program Last 5/26/2010
American Tower Corporation



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze
Foundation Mapped:	N
Moment (M):	8.6 k-ft
Shear/Leg (V):	0.9 k
Axial Load (P):	1.1 k
Uplift/Leg (U):	0.0 k
Tower Type (GT / SST / MP):	MP
Diameter of Caisson (d):	0.67 ft
Caisson Embedment (L-h):	3.0 ft
Caisson Height Above Ground (h):	0.5 ft
Depth Below Ground Surface to Water Table (w):	98.0 ft
Unit Weight of Concrete:	150.0 pcf
Unit Weight of Water:	62.4 pcf
Tension Side Friction/Compression Skin Friction:	1.00
Pullout Angle:	30.0 degrees

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	10.0	100	2000	0	500	6000
10.0	15.0	100	2000	0	500	6000

Required Embedment:	2.7 ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	1.2 ft³ - 0.0 yd³
Weight of Concrete (Buoyancy Effect Considered):	0.2 k
Average Soil Unit Weight:	100.0 pcf
Skin Friction Resistance:	3.1 k
Compressive Bearing Resistance:	2.1 k
Pullout Weight (Minus Concrete Weight):	1.5 k
Nominal Uplift Capacity per Leg ($\phi_t T_n$):	1.1 k
Nominal Compressive Capacity per Leg ($\phi_c P_n$):	3.9 k
P_u:	1.2 k
$T_u/\phi_t T_n$:	0.00 Result: OK
$P_u/\phi_c P_n$:	0.30 Result: OK
Total Lateral Resistance:	28.1 k
Inflection Point (Below Ground Surface):	1.5 ft
Design Overturning Moment At Inflection Point (M_u):	10.3 k-ft
Nominal Moment Capacity ($\phi_b M_n$):	15.8 k-ft
$M_u/\phi_b M_n$:	0.65 Result: OK
ϕ_b:	0.75

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STAMP HERE:

DRAWN BY:	CAD
CHECKED BY:	SAE
DATE DRAWN:	1-13-12
JOB NO:	869182017

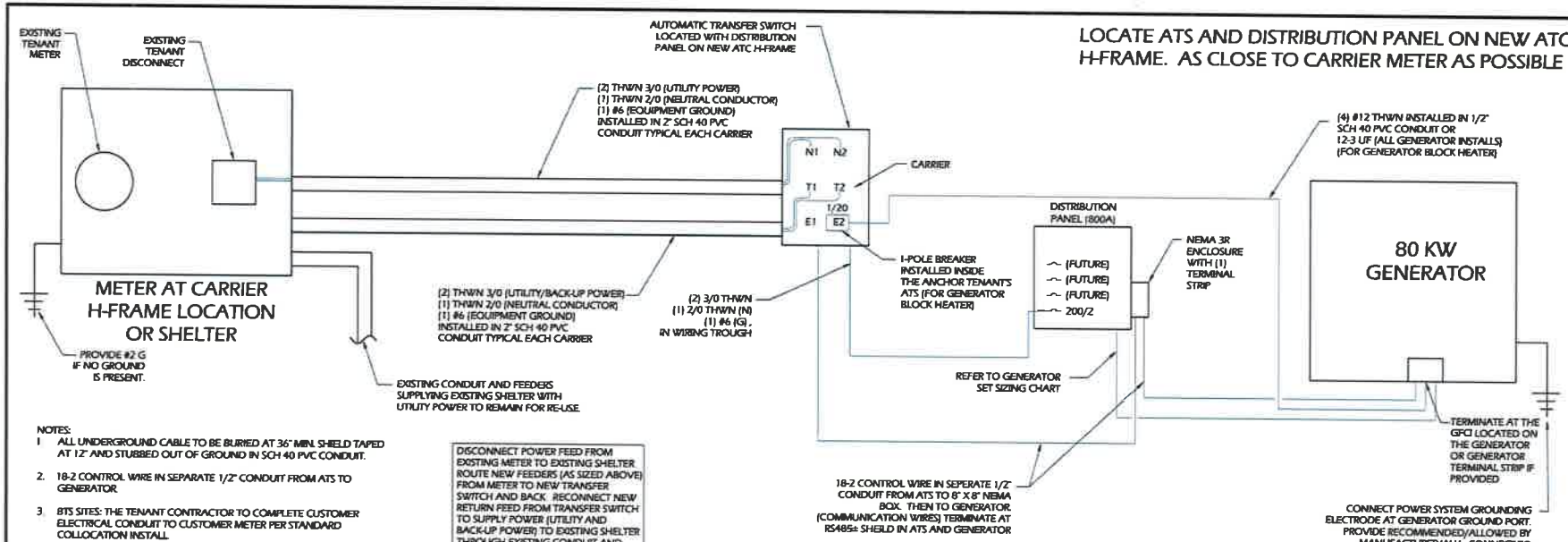
SHEET TITLE:

H-FRAME
WIND LOAD
CALCULATIONS

SHEET NUMBER: A-3

REV. #: 0

LOCATE ATS AND DISTRIBUTION PANEL ON NEW ATC H-FRAME. AS CLOSE TO CARRIER METER AS POSSIBLE



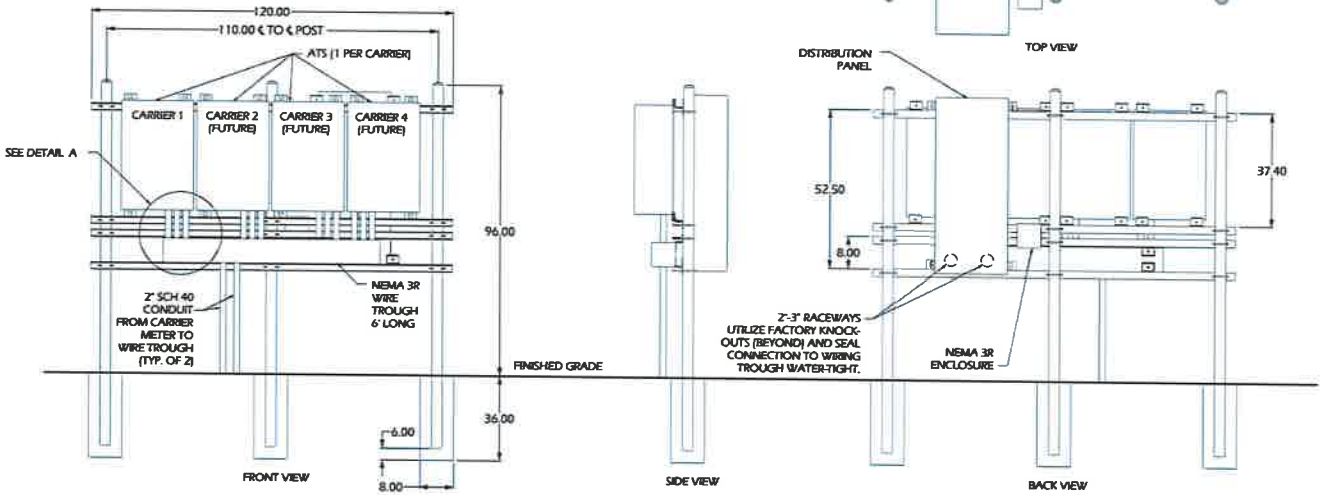
1 SINGLE CARRIER WIRING DIAGRAM
SCALE: NOT TO SCALE

NOTES:

1. ALL UNDERGROUND CABLE TO BE BURIED AT 36" MIN. SHIELD TAPED AT 12" AND STUBBED OUT OF GROUND IN SCH 40 PVC CONDUIT.
2. 18-2 CONTROL WIRE IN SEPARATE 1/2" CONDUIT FROM ATS TO GENERATOR.
3. BTS SITES: THE TENANT CONTRACTOR TO COMPLETE CUSTOMER ELECTRICAL CONDUIT TO CUSTOMER METER PER STANDARD COLLOCATION INSTALL.
4. TENANT CONTRACTOR HAS NOTHING TO INSTALL OR COMPLETE FOR ATC SHARED GEN DURING CUSTOMER COLLOCATION ON ATC TOWER.
5. ATC SHARED GEN INSTALL IS COMPLETED AFTER CUSTOMER TOWER COLLOCATION IS COMPLETE WITH LOAD ON CUSTOMER METER.
6. ALL CONDUCTORS ARE COPPER.

DISCONNECT POWER FEED FROM EXISTING METER TO EXISTING SHELTER ROUTE NEW FEEDERS (AS SIZED ABOVE) FROM METER TO NEW TRANSFER SWITCH AND BACK. RECONNECT NEW RETURN FEED FROM TRANSFER SWITCH TO SUPPLY POWER (UTILITY AND BACK-UP POWER) TO EXISTING SHELTER THROUGH EXISTING CONDUIT AND FEEDERS.

DETAIL A



NOTE:
THE FOUNDATION DESIGNS ARE BASED ON NORMAL SOILS WITH THE DESIGN PARAMETERS (SOIL UNIT WEIGHT 100 LB/CU FT. AND COHESION C=2000 PSF)

2 H-FRAME LAYOUT
SCALE: NOT TO SCALE

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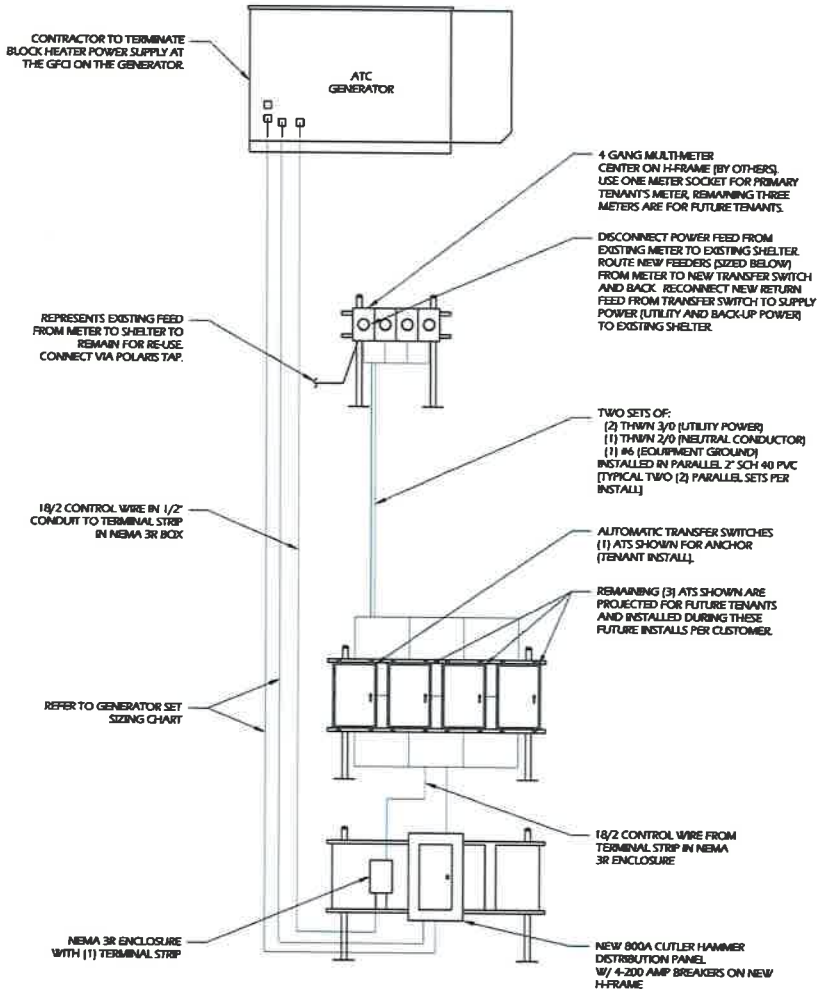
JOB NO:	4691U231

SHEET TITLE:
WIRING DIAGRAM & H-FRAME LAYOUT

SHEET NUMBER: E-1
REV.#: 0



1 4-GANG MULTI - METER CONFIGURATION

GENERATOR SET SIZING CHART & DESIGN NOTES

GEN SET SIZE	VOLTS-PHASE	PRIME RATING KW-AMPS	MAIN BREAKER SIZE	FEEDER SIZES FROM GEN SET TO DISTRIBUTION PANEL/ATS
50KW	120/240V-1PHASE	48KW-200A	200A C/B INTEGRAL IN GEN SET	(3#3/0, 1#6G. IN 2"C.) OR (1#1/0G-GC CABLE)
80KW	120/240V-1PHASE	72KW-300A	200A C/B IN 800A MLO DISTRIBUTION PANEL	(1 SET OF 3#350 KCMIL, 1#4G. IN 4"C.) OR (1#250G-GC CABLE)
130KW	120/240V-1PHASE	113KW-469A	200A C/B IN 800A MLO DISTRIBUTION PANEL	(2 SETS OF 3#250 KCMIL, 1#2G. IN 2-3"C.) OR (2#4/0G-GC CABLE)
150KW	120/240V-1PHASE	135KW-563A	200A C/B IN 800A MLO DISTRIBUTION PANEL	(2 SETS OF 3#300 KCMIL, 1#1G. IN 2-4"C.) OR (2#250G-GC CABLE)

NOTES:

1. Service voltage for each carrier is 120/240 1-phase, and service sizes are typically 100-200A per carrier.
2. Distribution panel is 800A, 120/240, 1-phase 22K AIC, with 200A C/B for the listed carrier output. And (3) 200A spaces for future carriers.
3. Automatic transfer switch (ATS) are 200A 3-poles, 120/240V 1-phase per carrier.
4. All electrical equipment is NEMA 3R rated.
5. The generator electrical loads are adequate for our connected loads.
6. All equipment furnished shall be provided with equipment rated to withstand fault current available at project site.
7. All wire and panel bussing shall be copper.
8. A new set of plans will be provided and submitted for additional carriers.
9. All G-GC Cable to be in 3" schedule 40 PVC.

2 GENERATOR SET SIZING CHART

at&t

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STRUCTURAL ENGINEERING
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SUITE 135
IRVING, TX 75063
(972) 999-8900 Tel
(972) 999-8940 Fax
NYSE AMT

ATC SITE NUMBER:
308881

ATC SITE NAME:
PAWPAW HOLLOW

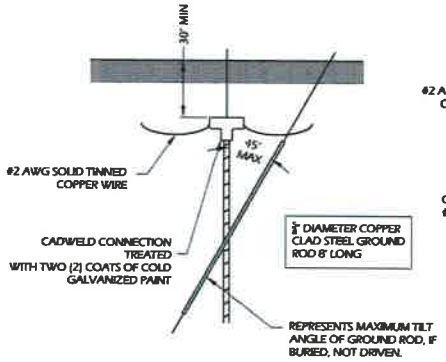
SITE ADDRESS:
4309 DOUGLAS DAM ROAD
KODAK, TN 37764-1258

STAMP HERE:

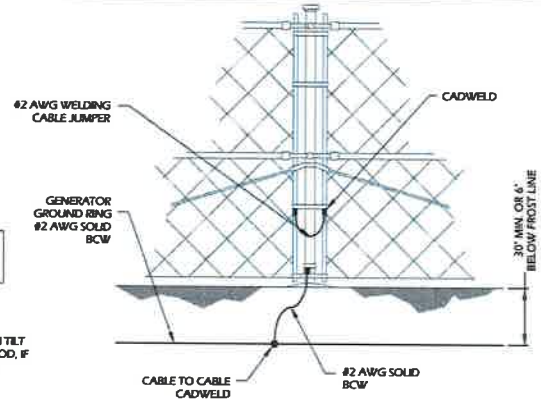
DRAWN BY:	CAE
CHECKED BY:	SAE
DATE DRAWN:	1-13-12
JOB NO:	4091620.1

SHEET TITLE:
ELECTRICAL DETAILS

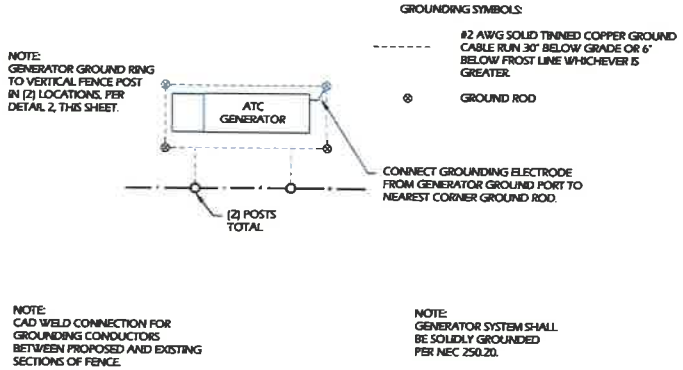
SHEET NUMBER: E-2
REV. #: 0



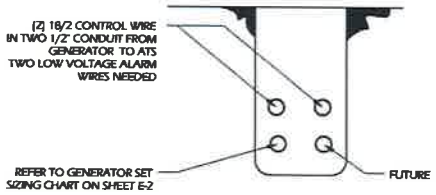
1 GROUND ROD DETAIL



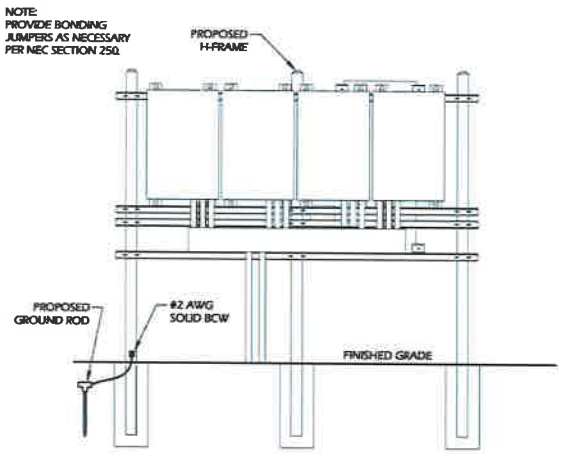
2 VERTICAL POST CONNECTED TO RING



3 GENERATOR GROUND RING DETAIL

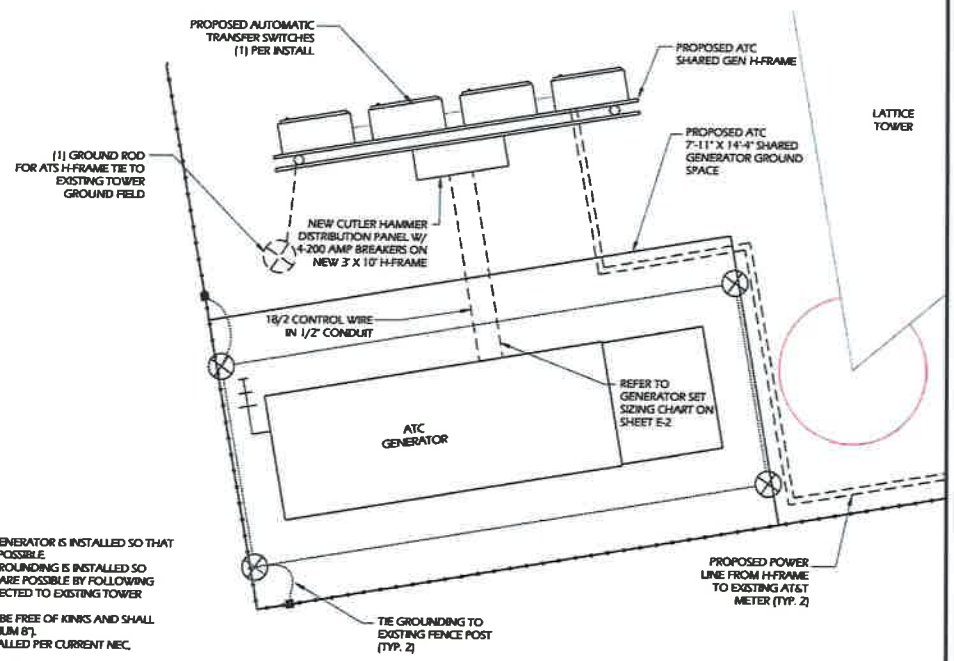


4 CONDUIT TRENCH DETAIL



5 H-FRAME ELEVATION

NOTES:
1. ELECTRICIAN SHALL VERIFY THAT GENERATOR IS INSTALLED SO THAT ELECTRICAL BACK-FEEDS ARE NOT POSSIBLE.
2. ELECTRICIAN SHALL VERIFY THAT GROUNDING IS INSTALLED SO THAT NO CIRCULATING CURRENTS ARE POSSIBLE BY FOLLOWING DETAIL 3 SO GROUNDING IS CONNECTED TO EXISTING TOWER GROUND FIELD.
3. ALL LIGHTING GROUNDING SHALL BE FREE OF KINKS AND SHALL HAVE LONG RADIUS BENDS (MINIMUM 8").
4. ALL GROUNDING SHOULD BE INSTALLED PER CURRENT NEC, SECTION 250.
5. USE #2 AWG SOLID TINNED COPPER WIRE TO EXISTING (2) FENCE POSTS AND CADWELD FROM GENERATOR GROUND RING



6 COMPOUND GROUNDING

SCALE
NOT TO SCALE

at&t

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STAMP HERE:

DRAWN BY:	CAB
CHECKED BY:	SAE
DATE DRAWN:	1-13-12
JOB NO.	[illegible]

SHEET TITLE:
COMPOUND GROUNDING

SHEET NUMBER: G-1
REV. #: 0

GENERAC 80KW

GENERAL ASSEMBLY AND INSTALLATION SUPPLEMENT

100 - 400 Amps, 600 VAC HTS

GENERAC | INDUSTRIAL POWER

Automatic Transfer Switches

200 Amp HTS NEMA 1

Description

- **The Generac HTS Transfer Switch is a "State of the Art" Smart Switch designed to operate in conjunction with the Generac H100 Series generator controller.**
- **The HTS Transfer Switch has a 2 wire RS485 communication link to the generator controller.**
- **The utility voltage is monitored by the HTS along with signal before transfer timing, time delay neutral and inphase transfer.**
- **Switch operation is instigated by the generator controller.**
- **All timers and voltage setpoints are programmable through GenLink® Communications Software.**
- **Time delay neutral and inphase monitor are included.**

Standard Features

- Single coil design, electrically operated and mechanically held
- Programmable exercise time
- SPDT aux contacts
- Main contacts are silver alloy
- Conformal coating protects the printed circuit board
- UL1008 Listed
- Indicating LED's for switch position, standby operating, utility available
- 3 position test switch: Fast Test, Auto, Normal Test
- Arc shutes on main contacts
- Signal before transfer contacts
- Rated to all classes of loads
- Remote start, stop and transfer through GenLink® Communications Software
- Up to four transfer switches per generator
- 50/60 hertz operation

Optional Accessories

- NEMA 12 enclosure (100-400 Amps)
- NEMA 3R enclosure (All)
- NEMA 4 and 4x enclosure
- 4 pole for separately derived systems

GENERAC | INDUSTRIAL POWER

Interconnections

HTS 100-400 Amp

Switches and Indicators:

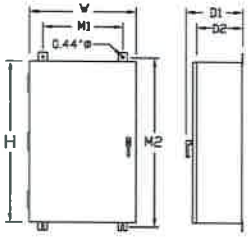
- System Ready LED
- Switch Position LED's
- Test Switch
- Return to Normal Switch
- Standby Operating LED
- Utility Available LED
- Fast Test Switch
- Safety Disconnect Switch

Standby Accept Voltage 85-95%
Standby Accept Frequency 85-95%
Nominal Voltage ..... 1 Volt Increments
Allowable Deviation of Utility 1-100%
Line Interruption Delay ..... 1-10 Seconds
Engine Warmup Time ..... 1-300 Seconds
Minimum Run Time ..... 5-60 Minutes
Return to Utility Timer ..... 1-30 Minutes
Engine Cooldown Timer ..... 1-30 Minutes
Signal Before Transfer Timer ..... 1-30 Seconds
Transfer Type ..... Inphase Time Delay Neutral
Phase Difference for Inphase Transfer ..... -7 +0 Degrees

Withstand Current - 600 Volt HTS Series

HTS RATED AMPS	100	150	200	300	400
FUSE PROTECTED					
Maximum RMS Symmetrical Faul Current – Amps	200,000	200,000	200,000	200,000	200,000
Maximum Fuse Size – Amps	200	400	400	600	600
Fuse Class	J,T	J,T	J,T	J,T	J,T
CIRCUIT BREAKER PROTECTED					
Maximum RMS Symmetrical Fault Current – Amps	14,000	25,000	25,000	35,000	35,000
Protective Device Continuous Rating (Max.) – Amps	150	300	300	600	600

- Tested in accordance with the withstand and closing requirements of UL 1008 and CSA Standards.
- Current ratings are listed @ 480 VAC.



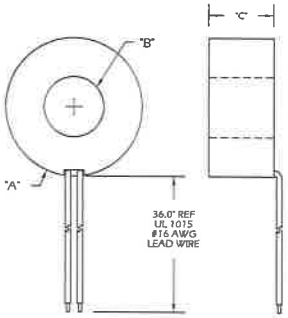
Unit Dimensions

HTS RATED AMPS	VOLTAGE	ENCLOSURE HEIGHT H	ENCLOSURE WIDTH W	WALL MOUNT BOLT PATTERN M1	WALL MOUNT BOLT PATTERN M2	ENCLOSURE DEPTH D1	ENCLOSURE DEPTH D2	WEIGHT (lbs.)
100	ALL	36	24	18	37.5	12.7	10	180
150-200	120/240	36	24	18	37.5	12.7	10	185
150-200	120/208	36	24	18	37.5	12.7	10	185
150-200	277/480	48*	30*	24	49.5	14.8	12	265
300-400	120/240	36	24	18	37.5	12.7	10	245
300-400	120/208	36	24	18	37.5	12.7	10	245
300-400	277/480	48*	30*	24	49.5	14.8	12	325

Terminal Lug Wire Ranges

HTS RATED AMPS	CONTACTOR TERMINALS (1 LUG PER POLE) LUG WIRE RANGE	NEUTRAL BAR* # LUGS	NEUTRAL BAR* LUG WIRE RANGE	GROUND LUG (1 PROVIDED) LUG WIRE RANGE
100	2/0 – 14 AWG	4	2/0 – 14 AWG	2/0 – 14 AWG
150	400MCM – 4 AWG	4	350MCM – 6 AWG	350MCM – 6 AWG
200	400MCM – 4 AWG	4	350MCM – 6 AWG	350MCM – 6 AWG
300	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG 350MCM – 6 AWG
400	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG

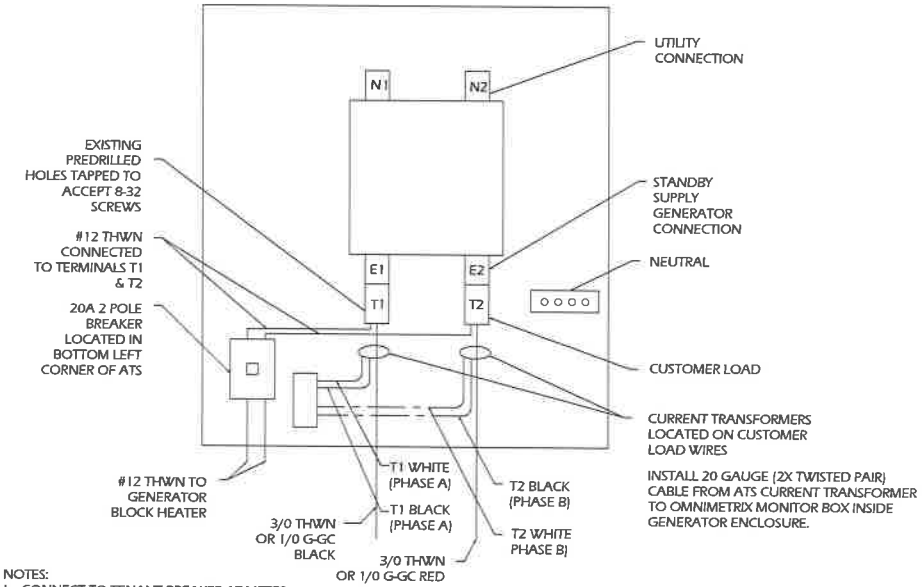
* Not included in HTS with switched neutral. ** Allowable wire range in brackets is for 2 wires per lug.



PART NO.	RATIO	MODEL NO.	±%	VA	OHMS	"A"	"B"	"C"
0F7784A	100:1A	635-100-01-L36	1	1	.31	65	28	30.5
0F7784B	200:1A	635-200-01-L36	1	5	.95	65	28	30.5
0F7784C	300:1A	A-300-01-L36	1	4.5	.06	112	57.1	27.4
0F7784D	400:1A	A-400-01-L36	1	4	.11	112	57.1	27.4
0F7784E	500:1A	A-500-01-L36	1	6.5	.13	112	57.1	27.4
0F7784F	600:1A	A-600-01-L36	1	7.5	.15	112	57.1	27.4
0F7784G	800:1A	MW-800-01-L36	1	10	.20	143.5	89	29.2
0F7784H	1000:1A	MW-1000-01-L36	1	12	.22	143.5	89	29.2
0F7784J	1500:1A	MW-1500-01-L36	1	15	.50	143.5	89	29.2
0F7784K	2000:1A	MW-2000-01-L36	1	12	.67	143.5	89	29.2
0F7784L	3000:1A	MW-3000-01-L36	1	25	1.0	143.5	89	29.2

NOTE:
1. ORIGINAL CURRENT TRANSDUCERS.

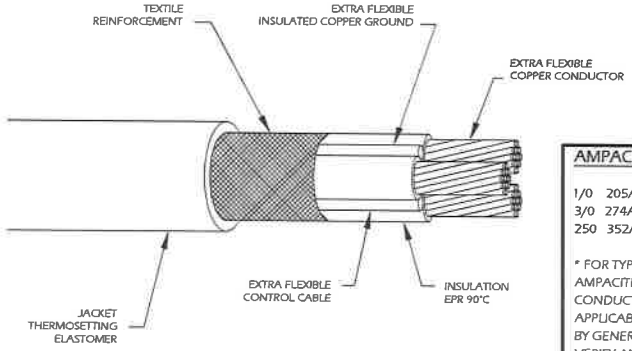
2 CURRENT FLOW METER IN ATS



INSTALL 20 GAUGE (2X TWISTED PAIR) CABLE FROM ATS CURRENT TRANSFORMER TO OMNIMETRIX MONITOR BOX INSIDE GENERATOR ENCLOSURE.

NOTES:
1. CONNECT TO TENANT BREAKER AT METER.
2. CONNECT TO DISTRIBUTION CENTER BRANCH BREAKER

1 ATS



AMPACITY TABLE: G-GC CABLES *

1/0 205A
3/0 274A
250 352A

* FOR TYPE 'G' CABLES, DERATE THE ABOVE AMPACITIES BY 20% UNLESS ONE PHASE CONDUCTOR IS LEFT UNUSED. VALUES ARE APPLICABLE FOR PRODUCT MANUFACTURED BY GENERAL CABLE. ELECTRICIAN SHALL VERIFY AMPACITIES IF CABLES ARE FROM AN ALTERNATE MANUFACTURER.

DETAIL DESCRIPTION OR CONSTRUCTION

CONDUCTOR:
EXTRA FLEXIBLE COPPER CONDUCTOR, ACCORDING ATSM B3.
INSULATION:
100% INSULATION LEVEL OIL, OZONE AND WATER RESISTANT ETHELINE PROPYLENE RUBBER (EPR) 90°C NORMAL TEMPERATURE OPERATION, 130°C EMERGENCY OVERLOAD CONDITION, 250° SHORT CIRCUIT CONDITION.
PHASES IDENTIFICATION:
NEUTRAL OR SINGLE COLORS COMPOUNDS WITH SURFACE PRINTING COLOR DESIGNATIONS, ACCORDING ICEA S-75-381, IDENTIFICATION PHASE BY PRINTED COLORS: BLACK, WHITE AND RED.
GROUND WIRES:
TWO ROPE-LAY FLEXIBLE STRANDED, COPPER CONDUCTORS.
GROUND CHECK:
ONE YELLOW INSULATED, ROPE-LAY FLEXIBLE STRANDED, COPPER CONDUCTOR.
CORE ASSEMBLY:
THREE PHASE CONDUCTORS, TWO BARE GROUND AND ONE GROUND CHECK CONDUCTORS ARE CABLED TOGETHER WITH A LEFT HAND LAY.
REINFORCEMENT:
AN OPEN REINFORCEMENT IS APPLIED OVER THE CORE FOR MECHANICAL STRENGTH.
JACKET:
EXTRA HEAVY OR HEAVY DUTY ELASTOMER JACKET HIGHLY RESISTANT TO CUTTING, TEAR, SUNLIGHT, OZONE AND FLAME. IT HAS AN EXCELLENT RESISTANCE TO HEAT, MOISTURE, WATER, OIL AND MOST CHEMICALS COMMONLY PRESENT AT MINING FIELD OPERATIONS. THE STANDARD JACKET IS BLACK AND MEETS OR EXCEEDS ALL THE REQUIREMENTS OF ICEA S75-381. ALTERNATE JACKET COLORS ARE AVAILABLE AS REQUESTED.
PACKAGING:
NON-RETURNABLE WOODEN DRUMS.
OPTIONS:
THERMOPLASTIC POLYURETHANE (TPU)
JACKET COLORS
PUT-UP LENGTH (300 m)
APPLICATION

TYPE G-GC CABLE IS SUITABLE FOR USE WITH MOBILE MINING EQUIPMENT SUCH AS CONTINUOUS MINERS, DRILLS, CUTTERS, LOADING MACHINES, CONVEYORS, PUMPS AND AC SHUTTLE CARS; WHERE GROUNDING AND A GROUND CHECK CONTROL CABLES ARE REQUIRED.

STANDARDS/TESTING SPECIFICATIONS

G-GC CABLES MEETS OR EXCEEDS THE REQUIREMENTS OF ICEA S-75-381 AND ICEA S-68-516

MARKING

G-GC (3-CONDUCTOR CABLES)

INSTALLATION

G-GC CAN BE USED INDOORS AND OUTDOORS LOCATIONS UNDER VERY SECURE ENVIRONMENTAL CONDITIONS SUCH AS THE ONE COMMONLY PRESENT AT MINING PLACES. CONDUCTOR DESIGN AND RAW MATERIALS USED, ALLOWS THE CABLE TO BE INSTALLED DIRECTLY ON ROUGH MINING FIELDS, NOT REQUIRING AND PREVIOUS PREPARATION.

3 G-GC CABLE SPECS

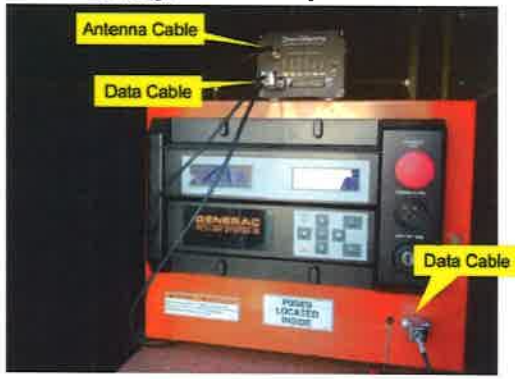
SCALE: NOT TO SCALE

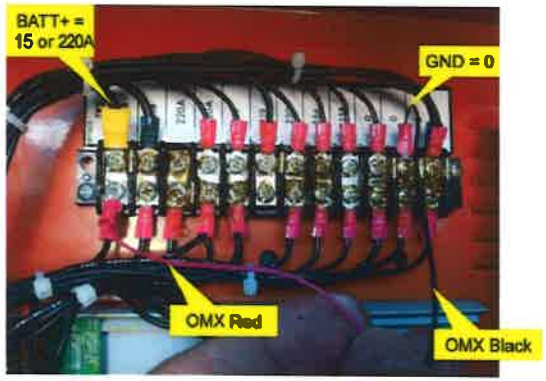
OMNIMETRIX
GLOBAL MONITORING + CONTROL

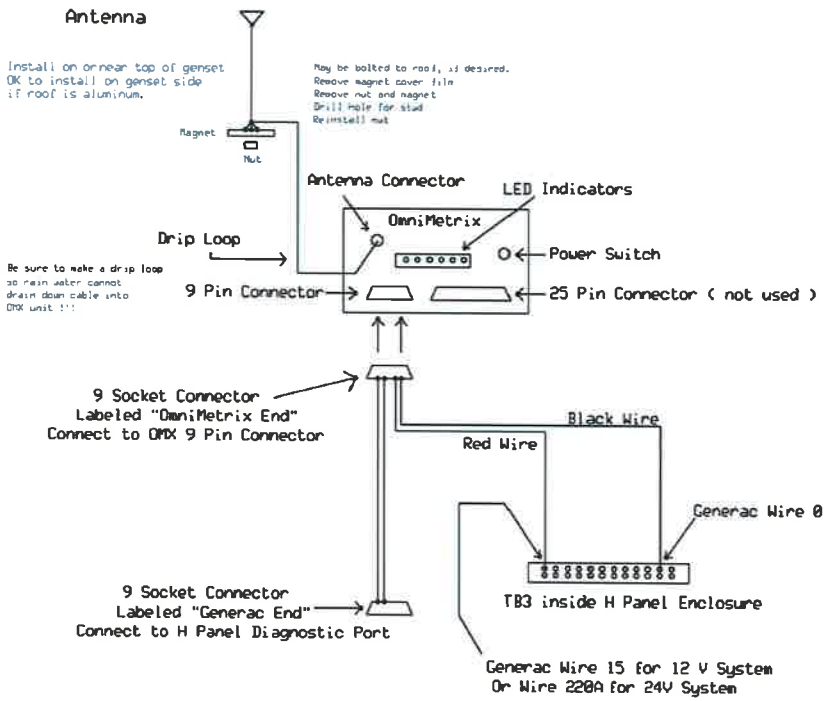
G8500 Series
American Tower Installation

This note is for Generac H Panel + HTS installations for American Tower.

1. Unpack the monitor, the antenna, and the data / power cable. The data / power cable is black, with DB9 data connectors on two ends, and a separate pig tail with red and black wire emerging from one of the connectors, labeled OMNIMETRIX END. Make sure that all the components are in good condition, looking for shipping damage.
2. Place the antenna on the roof of the genset, and route the antenna cable through the louvers down into the area of the genset control. BE SURE to provide a drip loop lower than the monitor to keep water from running down the antenna cable into the monitor connection. If the roof is aluminum (non-magnetic), simply mount the antenna near the roof line on the steel side walls.
3. Attach the monitor to the top of the genset control enclosure, as shown.
4. Route the power pigtail with the red and black wires through the cable entry on the back of the genset control, by raising the cable entry gate and sliding the cable through. Tighten the gate screws back!
5. Attach the black wire to the ground terminal, labeled 0 on the right hand end of the terminal strip inside the genset control enclosure. Attach the red wire to the Battery+ terminal on the left hand end of the terminal strip. On 12V systems, it will be labeled "15". On 24V systems, it will be labeled "220A".
6. Attach the Antenna Cable to the front of the monitor, thumb tight.
7. Plug on the data cable, labeled "OmniMetrix End" to the front of the monitor. Tighten screws.
8. Plug the data cable end labeled "Generac End" onto the Generac data connector.
9. Turn on the monitor.
10. Confirm that the LEDs light up and blink. If not, check for power on the terminal strip. If, after 5 minutes, the only LED lit is the Power LED, check the antenna mount and cable connection.
11. Allow 15 minutes for the monitor to log into the network, and then call OmniMetrix at the number below to confirm installation.



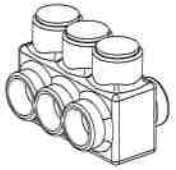




General Wiring Steps:

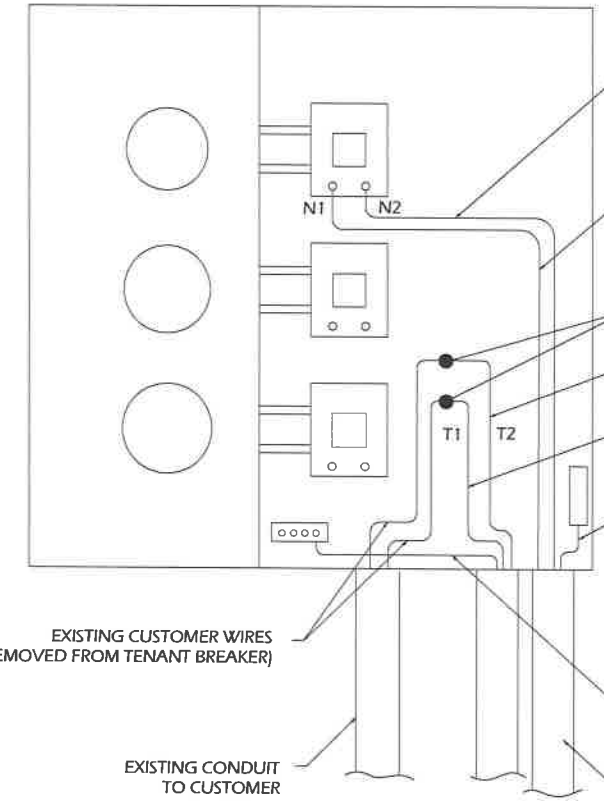
1. Install Antenna on or near roof.
2. Connect the Red and Black power wires to the Terminal Strip TB3
3. Connect DB9 connector to the OMX unit.
   Make sure it is the end marked OMNIMETRIX END !
4. Connect DB9 connector to the Generac Diagnostic Port
   Make sure it is the end marked GENERAC END !
5. Turn on Power Switch on the OMX unit.
   LEDs should begin to flash.
   If not, check power connections with volt meter.
6. Wait 15 minutes for unit to make online connection.
   Call OMX at 770-209-0012 to confirm operation.

OmniMetrix LLC		
G8500 - Generac H Panel		
George P Burdell	Rev 1.0 3/29/2011	2011040100

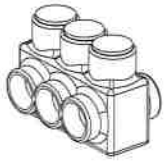


NOTE: POLARIS TAP MUST BE SECURELY WRAPPED WITH COMMERCIAL GRADE NYLON ELECTRICAL TAPE AFTER INSTALLATION IS COMPLETE

NOTE: BONDING JUMPER/ GROUNDING ELECTRODE CONDUCTOR SHALL BE #4 CU FOR 200A, PER NEC TABLE 250.66.

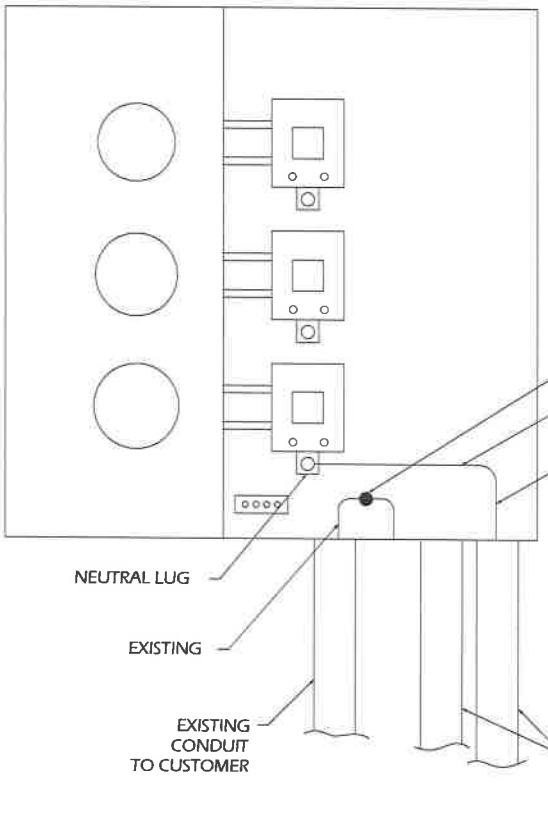


1 MULTI TENANT METER OPTION
SCALE: NOT TO SCALE

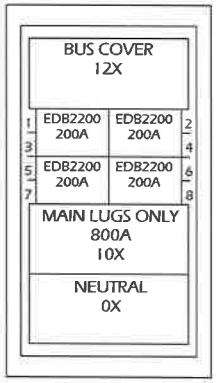


NOTE: POLARIS TAP MUST BE SECURELY WRAPPED WITH COMMERCIAL GRADE NYLON ELECTRICAL TAPE AFTER INSTALLATION IS COMPLETE

THE ALTERNATE NEUTRAL CONNECTION DETAIL IS INTENDED TO SHOW NEUTRAL CONNECTIONS ONLY. ALL OTHER (NON-NEUTRAL) CONNECTIONS SHOWN ON THE MULTI TENANT METER DETAIL TO THE LEFT ARE OMITTED FOR CLARITY.



ALTERNATE NEUTRAL CONNECTION
2 FOR MULTI-TENANT METER OPTION
SCALE: NOT TO SCALE



DEVICE MODIFICATIONS
REF # DESCRIPTION

BELL TEST _____

HI-POT _____

S/T _____

GENERAL INFORMATION (SECTION 1 OF 1)

SERVICE VOLTAGE: 120/240V 1PH 3W ENCLOSURE: TYPE 3R
BUS RATING & TYPE: 800A ALUMINUM NEUTRAL RATING: 800A
GROUND BAR: SLD. BOLTED ALUMINUM, Al OR Cu CABLE
S.C. RATING: 22K A.I.C. FULLY RATED

MAIN DEVICE TYPE: MAIN LUGS ONLY - BOTTOM CABLE ENTRY
MAIN TERMINALS: MECHANICAL - (3) #2-500 kcmil (Cu/Al)
NEUTRAL TERMINALS: MECHANICAL - (3) #2-500 kcmil (Cu/Al)
BOOK CATALOG NO: RPG2457
TRIM: COMPLETE ENCLOSURE (INCLUDES TRIM)

SURFACE MOUNTED

BOX DIMENSIONS: 57" (1447.8mm)H X 24" (609.6mm)W X 12.65" (326.4mm)D
MIN. GUTTER SIZE: TOP=10.625" (269.9mm) BOTTOM=10.625" (269.9mm)
LEFT=5" (127.0mm) RIGHT=5" (127.0mm)

FINAL ID NAMEPLATE: (1) 800A
TYPE: PLASTIC ADHESIVE-BACKED (2) 120/240V 1PH 3W
COLOR: WHITE WITH BLACK LETTERS (3)

UL
SERVICE ENTRANCE LABEL

TRIM LOOK T-HANDLE LOCK ASSEMBLY
CIRCUIT DIRECTORY PLASTIC SLEEVE WITH CARD
PAINTED BOX ANSI 61

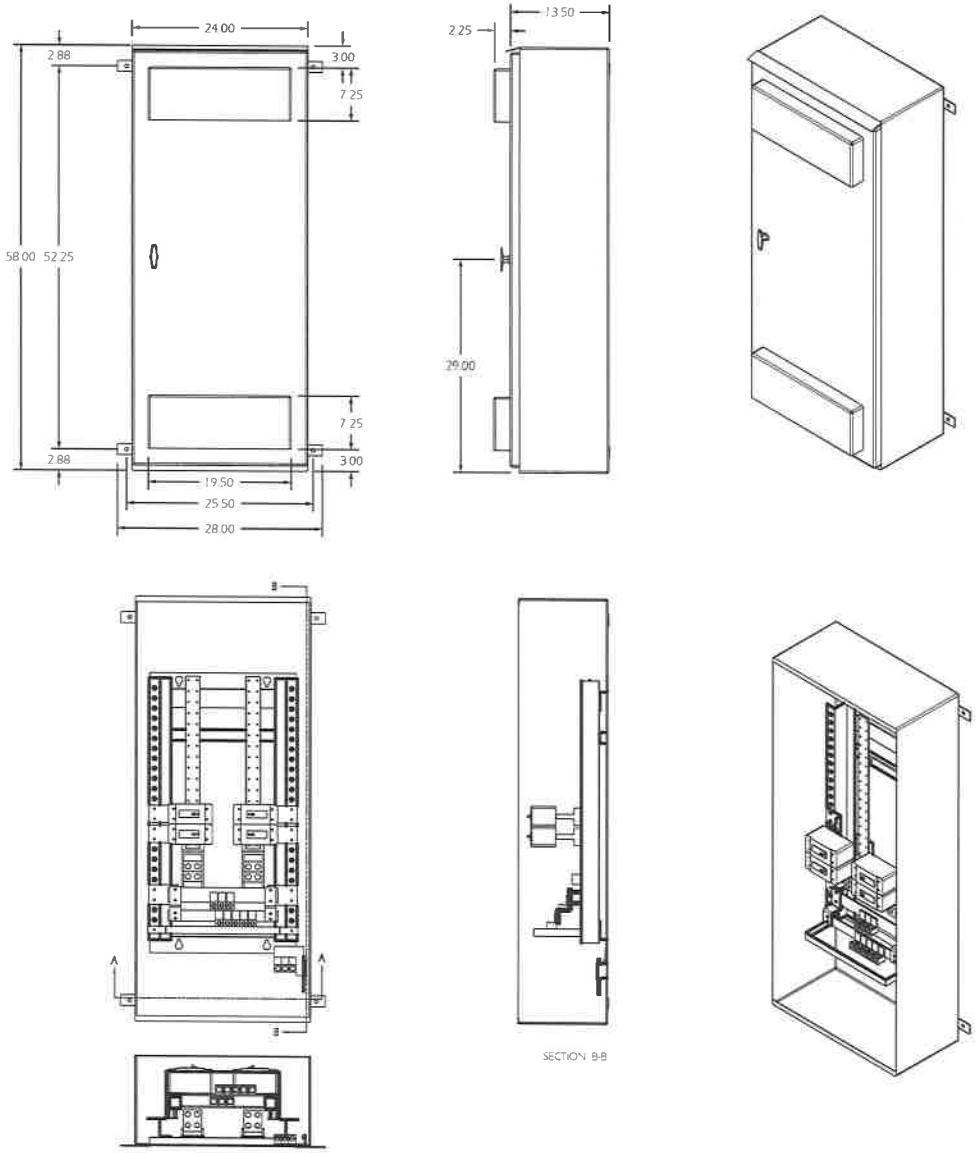
PLANT INFORMATION

	PART NUMBER	QTY	PART NUMBER	QTY
UL LABEL:	7494A06H01	1	EOB2200	4
BUS CUTTING:	6563C06H01	2		
NEUTRAL:	6672C66G03	1		
GROUND BAR, AL/CU:	6572C78G03	1		
CHASSIS ASSEMBLY:	6572C25G06	1		
LUG ASSEMBLY:	6572C52G06	1		
BREAKER ASSY:	6572C87G04	2		
DEAD FRONT COVER:	5554C11801	2		
COVER PACKAGING:	4177B06G02	1		
DEAD FRONT COVER ASSEMBLY:	6574C74G02	1		
PACKAGING:	50C5330G01	1		

Spot _____ Final Inspection _____

Notes:

1 DISTRIBUTION PANEL
SCALE: NOT TO SCALE



2 DISTRIBUTION PANEL DETAILS
SCALE: NOT TO SCALE

SD080

GENERAC | INDUSTRIAL POWER

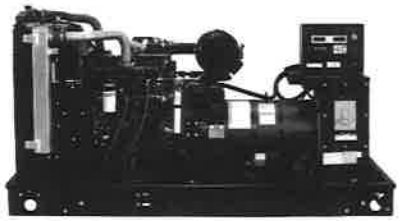
80 kW Diesel

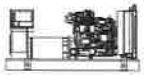
Industrial Diesel Generator Set

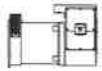
EPA Emissions Certification: Tier III

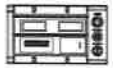
Standby Power Rating
100 kVA 80 kW 60 Hz

Prime Power Rating
90 kVA 72 kW 60 Hz









features	benefits
Generator Set	
• PROTOTYPE & TORSIONALLY TESTED	▶ PROVIDES A PROVEN UNIT
• UL2200 TESTED	▶ ENSURES A QUALITY PRODUCT
• RHINOCOAT PAINT SYSTEM	▶ IMPROVES RESISTANCE TO ELEMENTS
• WIDE RANGE OF ENCLOSURES AND TANKS	▶ PROVIDES A SINGLE SOURCE SOLUTION
Engine	
• EPA TIER COMPLIANT	▶ ENVIRONMENTALLY FRIENDLY
• INDUSTRIAL TESTED, GENERAC APPROVED	▶ ENSURES INDUSTRIAL STANDARDS
• POWERMATCHED OUTPUT	▶ ENGINEERED FOR PERFORMANCE
• INDUSTRIAL GRADE	▶ IMPROVES LONGEVITY AND RELIABILITY
Alternator	
• TWO-THIRDS PITCH	▶ ELIMINATES HARMFUL 3RD HARMONIC
• LAYER WOUND ROTOR & STATOR	▶ IMPROVES COOLING
• CLASS H MATERIALS	▶ HEAT TOLERANT DESIGN
• DIGITAL 3-PHASE VOLTAGE CONTROL	▶ FAST AND ACCURATE RESPONSE
Controls	
• ENCAPSULATED BOARD W/ SEALED HARNESS	▶ EASY, AFFORDABLE REPLACEMENT
• 4-20mA VOLTAGE-TO-CURRENT SENSORS	▶ NOISE RESISTANT 24/7 MONITORING
• SURFACE-MOUNT TECHNOLOGY	▶ PROVIDES VIBRATION RESISTANCE
• ADVANCED DIAGNOSTICS & COMMUNICATIONS	▶ HARDENED RELIABILITY

primary codes and standards

NEMA ISO

GENERAC | INDUSTRIAL POWER

80 kW Diesel

SD080 application and engineering data

ENGINE SPECIFICATIONS

General	
Make	Iveco / FPT
EPA Emissions Compliance	Tier III
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	4
Type	Diesel
Displacement - L (cu. in.)	4.5 (274)
Bore - mm (in.)	105 (4.1)
Stroke - mm (in.)	132 (5.2)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head Type	2 Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel
Engine Block Type	Cast Iron / Wet Sleeve

Engine Governing	
Governor	Electronic
Frequency Regulation (Steady State)	+/-0.25%

Lubrication System	
Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (gal)(qts)	13.6 (3.6) (14.4)

Cooling System	
Cooling System Type	Closed
Water Pump	Belt Driven Centrifugal
Fan Type	Pusher
Fan Blade Number	2538 (10)
Fan Diameter (in.)	26
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120

Fuel System	
Fuel Type*	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Inject Pump Make	Standyne
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Engine Type	Direct Injection
Fuel Supply Line - mm (in.)	1/4 inch Npt
Fuel Return Line - mm (in.)	1/4 inch Npt

Engine Electrical System	
System Voltage	12VDC
Battery Charging Alternator	90 Amp
Battery Size (at 0 oC)	995 CCA
Battery Group	31
Battery Voltage	12 Volt DC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Model	390 mm Generac
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Alternator Type	Synchronous Brushless Opt PMG
Bearings	One - Pre Lubed & Sealed
Coupling	Direct, Flexible Disc
Load Capacity - Standby	80
Load Capacity - Prime	72
Prototype Short Circuit Test	Y

Voltage Regulator Type	Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	+/-0.25%

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99
NFPA 110
ISO 8528-5
ISO 1708A,S
ISO 3046
BS5514
SAEJ1349
DIN6271
IEEE C62.41 TESTING
NEMA ICS 1

Rating Definitions:
Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)
Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours

GENERAC | INDUSTRIAL POWER

80 kW Diesel

SD080 operating data (60Hz)

POWER RATINGS (kW)

	STANDBY			PRIME		
Single-Phase 120/240VAC @1.0pf	80	Amps:	333	72	Amps:	300
Three-Phase 120/208VAC @0.8pf	80	Amps:	278	72	Amps:	250
Three-Phase 120/240VAC @0.8pf	80	Amps:	241	72	Amps:	217
Three-Phase 277/480VAC @0.8pf	80	Amps:	120	72	Amps:	108
Three-Phase 346/600VAC @0.8pf	80	Amps:	96	72	Amps:	87

STARTING CAPABILITIES (sKVA)

sKVA v. Voltage Dip

		480VAC						208/240VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard*	80	59	88	117	147	176	205	44	59	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	79	118	148	177	206
Upsize 2	125	116	174	232	290	348	406	87	116	174	218	261	305

*All Generac Industrial alternators utilize Class H materials. Standard alternator provides less than or equal to Class F temperature rise. Upsize 1 provides less than or equal to Class A temperature rise.

Fuel

Fuel Pump Lift - in (m): 36(.9)

Total Fuel Pump Flow (Combustion + Return): 13.6 gph

Fuel Consumption Rates**

STANDBY Percent Load	gph	lph	PRIME Percent Load	gph	lph
25%	2.1	7.9	25%	1.9	7.2
50%	3.7	14.0	50%	3.4	12.9
75%	5.2	19.7	75%	4.7	17.8
100%	6.3	23.8	100%	5.8	22.0

**Refer to "Emissions Data Sheets" for maximum fuel flow for EPA and SCAQMD permitting purposes.

COOLING

Coolant System Capacity - Gal (L): 4.5 (17.44)

Maximum Radiator Backpressure: 1.5" H_2O Column

		STANDBY	PRIME
Coolant Flow per Minute	gpm (lpm)	32.7(123.8)	32.7(123.8)
Heat rejection to Coolant	BTU/hr	137,140	137,140
Inlet Air	cfm (m3/min)	6360(180.0)	6360(180.0)
Max. Operating Radiator Air Temp	F° (C°)	122(50)	122(50)
Max. Operating Ambient Temperature	F° (C°)	122(50)	122(50)

COMBUSTION AIR REQUIREMENTS

		STANDBY	PRIME
Intake Flow at Rated Power	cfm (m3/min)	306 (8.67)	275 (7.80)

EXHAUST

Exhaust Outlet Size (Open Set): 3.0"

Maximum Backpressure (Post-Silencer): 1.5"

		STANDBY	PRIME
Exhaust Flow (Rated Output)	cfm (m3/hr)	790(134.4)	790(134.4)
Maximum Backpressure	inHg (Kpa)	1.5(5.1)	1.5(5.1)
Exhaust Temp (Rated Output)	F° (C°)	887(475)	887(475)

ENGINE

		STANDBY	PRIME
Rated Engine Speed	rpm	1,800	1800
Horsepower at Rated kW***	hp	131	127
Piston Speed	ft/min (m/min)	1559(44.1)	1559(44.1)
BMEP	psi	210	194

*** Refer to "Emissions Data Sheets" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration - Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performing ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

GENERAC | INDUSTRIAL POWER

80 kW Diesel

SD080 standard features and options

GENERATOR SET

● Genset Vibration Isolation	Std
○ IBC Seismic Certified/Seismic Rated Vibration Isolators	Opt
○ Extended warranty	Opt
○ Export boxing	Opt
○ Gen-Link Communications Software	Opt
○ Steel Enclosure	Opt
○ Aluminum Enclosure	Opt

ENGINE SYSTEM

General

● Oil Drain Extension	Std
○ Oil Make-Up System	Opt
○ Oil Heater	Opt

Fuel System

● Fuel lockoff solenoid	Std
● Secondary fuel filter	Std
● Stainless steel flexible exhaust connection	Std
● Industrial Exhaust Silencer	Std
○ Critical Exhaust Silencer	Opt
○ Flexible fuel lines	Opt
○ Primary fuel filter	Opt
○ Single Wall Tank (Export Only)	-
○ UL 142 Fuel Tank	Opt

Cooling System

○ 120VAC Coolant Heater	Opt
○ 208VAC Coolant Heater	Opt
○ 240VAC Coolant Heater	Opt
○ Other Coolant Heater_____	-
● Closed Coolant Recovery System	Std
● UV/Ozone resistant hoses	Std
● Factory-installed Radiator	Std
● Radiator Drain Extension	Std

Engine Electrical System

● Battery charging alternator	Std
● Battery cables	Std
● Battery tray	Std
○ Battery box	Opt
○ Battery heater	Opt
● Solenoid activated starter motor	Std
● Air cleaner	Std
● Fan guard	Std
● Radiator duct adapter	Std
○ 2A battery charger	Opt
○ 10A UL float/equalize battery charger	Opt
● Rubber-booted engine electrical connections	Std

ALTERNATOR SYSTEM

● UL2200 GENprotect	Std
○ Main Line Circuit Breaker	Opt
○ 2nd Circuit Breaker	Opt
○ 3rd Circuit Breaker	-
○ Alternator Upsizing	Opt
○ Anti-Condensation Heater	Opt
○ Tropical coating	Opt
○ Permanent Magnet Excitation	Opt

CONTROL SYSTEM

General

● Digital H Control Panel - Dual 4x20 Display	Std
● Digital G-100 Control Panel - Touchscreen	na
○ Digital G-200 Paralleling Control Panel - Touchscreen	na
● Programmable Crank Limiter	Std
○ 21-Light Remote Annunciator	Opt
○ Remote relay Panel (8 or 16)	Opt
● 7-Day Programmable Exerciser	-
● Special Applications Programmable PLC	-
● RS-232	-
● RS-485	-
● All-Phase Sensing DVR	-
● Full System Status	-
● Utility Monitoring (Req. H-Transfer Switch)	-
● 2-Wire Start Compatible	-
● Power Output (kW)	-
● Power Factor	-
● Reactive Power	-
● All phase AC Voltage	-
● All phase Currents	-
● Oil Pressure	-
● Coolant Temperature	-
● Coolant Level	-
● Oil Temperature	-
● Fuel Pressure	-
● Engine Speed	-
● Battery Voltage	-
● Frequency	-
● Date/Time Fault History (Event Log)	-
● UL2200 GENprotect	-
● Low-Speed Exercise	-
● Isochronous Governor Control	-
● -40deg C - 70deg C Operation	-
● Waterproof Plug-In Connectors	-
● Audible Alarms and Shutdowns	-
● Not In Auto (Flashing Light)	-
● On/Off/Manual Switch	-
● E-Stop (Red Mushroom-Type)	-
○ Remote E-Stop (Break Glass-Type, Surface Mount)	-
○ Remote E-Stop (Red Mushroom-Type, Surface Mount)	-
○ Remote E-Stop (Red Mushroom-Type, Flush Mount)	-
● NFPA 110 Level I and II (Programmable)	-
● Remote Communication - RS232	-
○ Remote Communication - Modem	-
○ Remote Communication - Ethernet	-
○ 10A Run Relay	-

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

○ Low Fuel	-
● Oil Pressure (Pre-programmed Low Pressure Shutdown)	-
● Coolant Temperature (Pre-programmed High Temp Shutdown)	-
● Coolant Level (Pre-programmed Low Level Shutdown)	-
● Alternator Overload	-
● Fuel Pressure	-
● Engine Speed (Pre-programmed Overspeed Shutdown)	-
● Voltage (Pre-programmed Overvoltage Shutdown)	-
● Battery Voltage	-

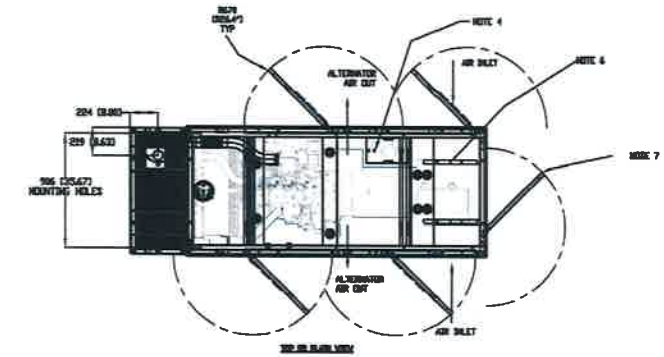
Other Options

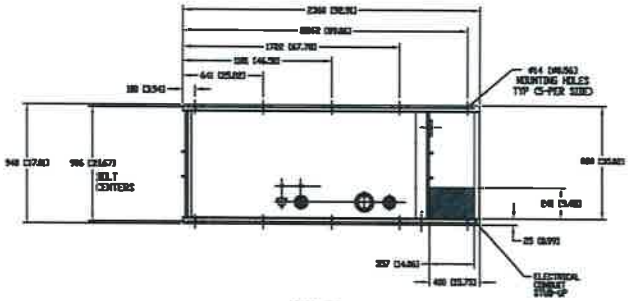
○ _____

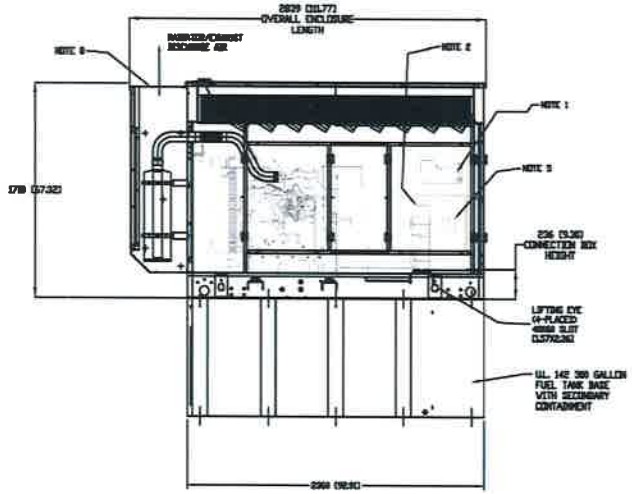
○ _____

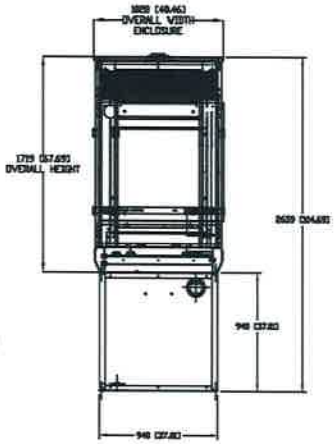
○ _____

0H5302C-ATC









RECOMMENDED ELECTRICAL STUB-UPS
(SEE DETAILED VIEW & TOP VIEW)

AC LOAD LEAD CONDUIT (SEE NOTES 5 & 6 FOR CB LOCATION NOTE-4- (SEE STUB UP AREA 1 & 2)	A
STUB-UP 2" D GLAND PLATE AC LOAD LEAD CONDUIT FOR PERMANENT MAGNET EXCITATION CONNECTION BOX	
STUB-UP 2" D GLAND PLATE AC LOAD LEAD CONDUIT FOR DIRECT AND BRUSHLESS EXCITATION CONNECTION BOX	
(OVERALL STUB-UP AREA) 120/240V AC TO OUTLET (SEE NOTE 2) FOR OPTIONS	

NOTES

1. CONTROL PANEL MAY BE ROTATED 180DEG. IN EITHER DIRECTION
2. 1- 20A GFCI DUPLEX OUTLET 120V (IF CUSTOMER)
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN AC CONNECTION PANEL
4. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM)
5. MAIN LINE CIRCUIT BREAKER (MLCB), (AC LOAD LEADS CONNECT DIRECTLY TO MLCB)
6. REMOVABLE BLANK PANEL FOR OPTIONAL 2nd MAIN LINE CIRCUIT BREAKER.
7. DOORS MUST BE ABLE TO OPEN TO AT LEAST 90DEG. TO BE REMOVED
8. SEE DRAWING SCHEMA FOR DUCT REMOVAL. REMOVAL OF FRONT DUCT WILL PROVIDE ACCESS TO MUFFLER FOR SERVICING.
9. STANDARD BLOCK HEATER
10. FUEL LINES ARE PLUMBED TO FRAME FOR UNITS WITH NO BASE TANK. FUEL LINES ARE PLUMBED DIRECTLY TO BASE TANK WHEN SO EQUIPPED
11. CENTER OF GRAVITY & WEIGHT MAY SHIFT SLIGHTLY DUE TO UNIT OPTIONS
12. IF GENSET IS TO BE INSTALLED ON A BASETANK REFER TO BASETANK INSTALL DRAWING.

ENGINE SERVICE CONNECTIONS

FUEL INLET - 1/4" NPT COUPLING
FUEL RETURN - 1/4" NPT COUPLING
OIL DRAIN - 1/4" NPT COUPLING
EXHAUST OUTLET - 3.0" O.D. MUFFLER

WEIGHT DATA
APPROX. 3171 WEIGHT WITHOUT FUEL (GENSET PACKAGE) 4132 lbs.

REFERENCE DRAWING 0H5300C FOR INSTALLATION
FUEL TANK DRAWING 0H4300A

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INSTALLATION DRAWING

SD80

DIESEL 4.5L IVECO

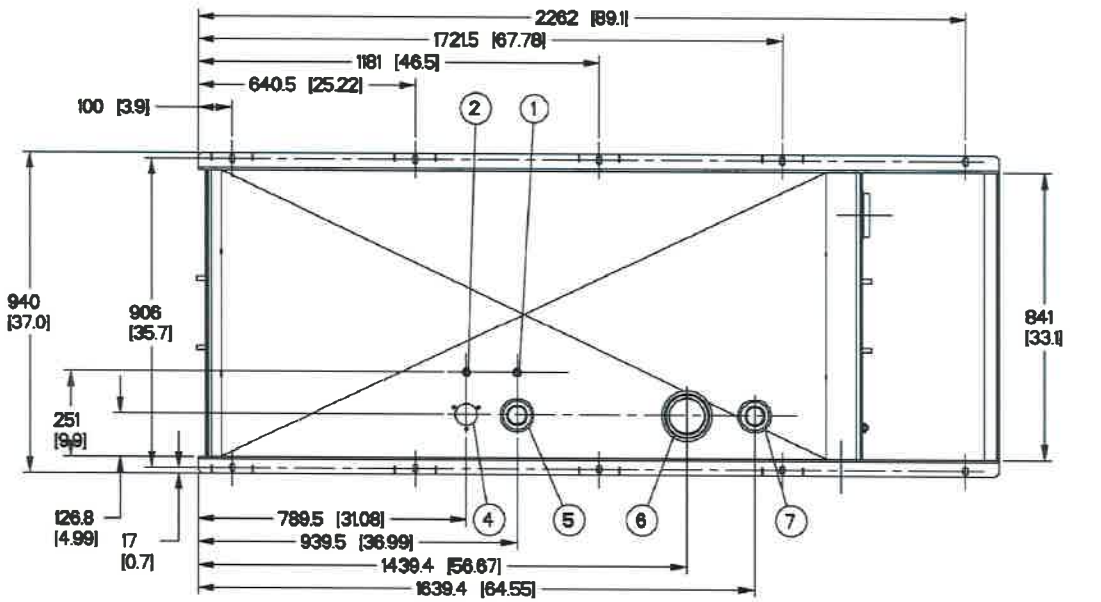
TURBOCHARGED & AFTERCOOLED

SOUND ATTENUATED ENSL., LVL 2

W/ 300 GALLON FTB

GENERAC POWER SYSTEMS
Waukesha
P.O. BOX 8
WAUKESHA, WIS. 53187

FILE NAME	0H5302C-B ATC.DWG
SIZE	B
SCALE	N/A
FIRST USE	D4.5L IVECO
DWG NO.	0H5302C-ATC
REV	B

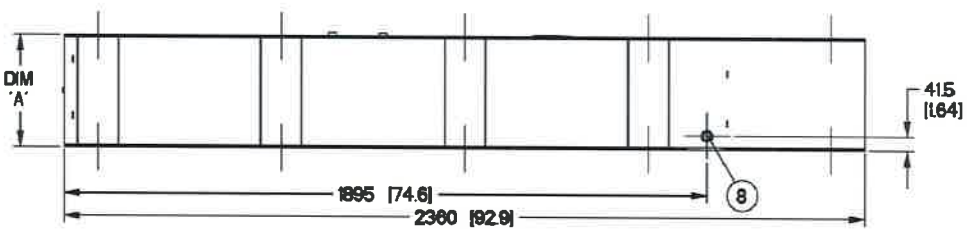


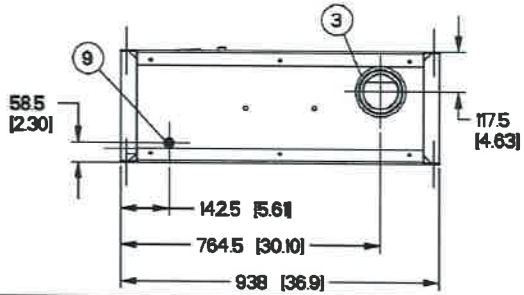
ITEM #	TANK FITTING	FUNCTION
1	3/8" NPT COUPLING	FUEL SUPPLY
2	3/8" NPT COUPLING	FUEL RETURN
3	4" NPT WELD FLANGE	EMERGENCY VENT (OUTER)
4		FUEL LEVEL
5	2" NPT WELD FLANGE	FUEL FILL
6	4" NPT WELD FLANGE	EMERGENCY VENT (INNER)
7	2" NPT WELD FLANGE	VENT
8	3/4" NPT COUPLING	DRAIN
9	Ø22 HOLE	LEAK DETECTOR

TANK P/N	0H48080ST03	0H48090ST03	0H48100ST03
DIM "A"	330 [13]	635 [25]	940 [37]
TOTAL TANK CAPACITY	318 [84]	734 [194]	1154 [305]
USABLE TANK CAPACITY	299 [79]	716 [189]	1134 [300]
DRY WEIGHT (EST)	237 [522]	344 [758]	445 [982]

NOTES:
1) ALL DIMENSIONS ARE:
LENGTH: mm [inch]
WEIGHT: kg [lbs]
CAPACITY: L [gal]

2) UL #142 LISTED





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GENERAC

TITLE
B-GROUP, DW TYPE 2 TANKS

INSTALLATION DRAWING

ISSUE DATE: 10/02/09				
SIZE B	CAGE NO	DWG NO 0H4610A		REV D
SCALE 0.075	WT-KG --	SHEET 1 of 1		

GENERAC POWER SYSTEMS INC

Highway 59 & Hillside Rd.
Waukesha, WI 53188
Phone#262-544-4811

Ref: All Generac Power Systems fuel tank bases supplied from the factory are manufactured and labeled per U.L.142 and are warranted through Generac Power Systems.

UL registration number: MH18459

U.L. 142 DOUBLE WALL FUEL TANK BASE SPECIFICATION

Fuel tank base construction:

- Be constructed in accordance with Underwriters Laboratories Standard UL-142. Be constructed in accordance with Flammable and Combustible Liquids Code, NFPA 30; The Standard for Installation and use of Stationary Combustible Engine and Gas Turbines, NFPA 37; and The Standard for Emergency and Standby Power Systems, NFPA 110. Include reinforced steel box channel for generator support, with load rating of 5,000 lbs. per gen-set mounting hole location. Full height gussets shall be provided at gen-set mounting holes. Be shipped with a certificate of Structural/Mechanical Integrity, certifying that it has met standards through rigorous testing and has demonstrated specified capabilities.

Sub Base Tank Testing:

Primary tank and secondary containment basin sections shall be pressurized at 3-5 psi and leak-checked to ensure integrity of sub base weld seams per UL-142 standards

Sub Base Tank Fittings:

The sub base tank shall include the following fittings:

- Appropriately sized NPT
- Fuel supply Fuel return fitting
- NPT for normal vent, sized as appropriate NPT for emergency vent, sized as appropriate
- 2" NPT for manual fill
- NPT for level gauge, sized as appropriate.
- 2" NPT for electronic fuel level; includes Low fuel alarm. High fuel level alarm
- NPT fitting for leak detection alarm

Fuel Level Gauge

The sub base tank shall include a direct-reading fuel level gauge.

Low Fuel Level

Factory Pre-set at 40% remaining for Alarm
Factory Pre-set at 20% remaining for Shut-down

High Fuel Level

Factory Pre-set at 90% full for Alarm

Fuel Containment Basin

Sub base tank shall include a welded steel containment basin, sized at a minimum of 110% of the tank capacity to prevent escape of fuel into the environment in the event of a tank rupture. A fuel containment basin leak detector switch shall be provided.

Sub Base Tank Venting

Normal and Emergency Venting:

Normal and Emergency venting shall be sized per U.L. 142 specifications for wetted surface area of tank.

Soil Classification Chart

Ground anchors are designed for different soil classifications: longer models for loose soils, shorter models for harder soils. Prior to installing any ground anchor model, the soil must be tested (with a Soil Test Probe) in order to match approved ground anchor model with site soil class.

WARNING: Before ground anchor installation, determine that the anchor locations around home will not be close to any underground electrical cables, water lines or sewer piping. Failure to determine the location of electrical cables may result in serious personal injury.

Soil Test Probe

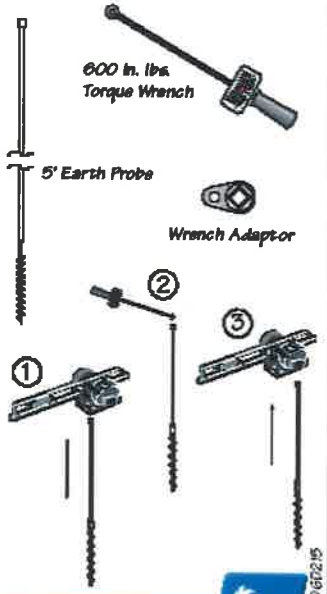
The Soil Test Probe is used to determine the soil conditions below the surface near the anchor's helix. Using the Soil Test Probe will ensure maximum anchor holding strength by indicating the proper anchor model for each soil condition.
Using the chart provided, a probe reading can be converted to the recommended anchor for every soil condition.

Instructions

1. Place probe tip into ground where you intead to place the anchor. Using a 15/16" hex socket with a ratchet or breaker bar, rotate the probe in a clockwise direction. (An electric drive machine with an adaptor head may also be used)
2. Drive (rotate) the torque probe into the soil until reaching a depth equal to the length of the anchor being installed.
3. To determine the soil classification:
   - Place wreach adaptor onto torque wrench.
   - Insert hex portion of wrench adaptor onto the earth probe.
   - Support probe shaft with one hand, while rotating probe steadily with the wrench. (Do not exceed 600 in. lbs.)
   - Read the torque wrench while rotating probe clockwise.
   - Use the soil classification chart to cross reference probe readings. Color codes match those printed on Tie Down's torque probe.
4. If probe reading does not match the anchor for that depth, rotate probe to next anchor depth and check reading. Continue until reading on probe matches anchor length for depth of reading.
5. To remove probe, use wrench or electric drive machine in reverse (counter clockwise).

Soil Class	Test Value (in. lbs.)	Soil Description
1	N/A	Sound hard rock.
2	550 +	Very dense and/or cemented sands, coarse gravel, cobbles, preloaded silts, clays and coral.
3	350 to 550	Medium dense coarse sands sandy gravels very stiff silts and clays.
4a	275 to 350	Loose to medium dense sands, firm to stiff clays and silts, alluvial fill.
4b	175* to 275	Loose sands, firm clays and silts, alluvial fill.

* Below 175 in. lbs., a professional engineer should be consulted



NOTE: Each State, County or Municipality may require a specific anchor from the groups shown for each soil classification. Check local and State regulations first.

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TIE DOWN ENGINEERING

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(IF APPLICABLE)

NOTE:
THE INFORMATION AS SHOWN IN THIS DETAIL WAS PROVIDED BY TIE DOWN ENGINEERING.