Knoxville

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

NOT TO BE USED FOR TITLE V APPLICATIONS

NOV 15 2012

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

PERMIT APPLICATION

DEC 10 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** # 308917 American Tower Corporation - East Sevierville		/// FOR	APC COMPANY-POINT NO. 78-0314-01
2. **MAILING ADDRESS** (ST/RD/P.O. BOX) P.O. Box 636604		/// APC	APC LOG/PERMIT NO. 966713
CITY Phoenix	STATE AZ	ZIP CODE 85082	PHONE WITH AREA CODE 602 · 284 · 0280
3. **PRINCIPAL TECHNICAL CONTACT** Scot Sandefur			PHONE WITH AREA CODE 602 · 284 · 0280
4. **SITE ADDRESS** (ST/RD/HWY) 122 - County Garage Rd			COUNTY NAME Sevier
CITY OR DISTANCE TO NEAREST TOWN Sevierville		ZIP CODE 37876	PHONE WITH AREA CODE 602 · 284 · 0280
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 / 80 kw, with 300 gallon diesel fuel belly tank.

7. **TYPE OF PERMIT REQUESTED**

CONSTRUCTION (X)	STARTING DATE 12/12/12	COMPLETION DATE 12/19/12	LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
OPERATING ( )	DATE CONSTRUCTION STARTED	DATE COMPLETED	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** 11/9/12
10. **SIGNER'S NAME** (TYPE OR PRINT) Scot Sandefur	**TITLE** Director EH&S	**PHONE WITH AREA CODE** 602 · 284 · 0280

(OVER)

DEC 1 0 2012

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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		/ / / FOR	APC COMPANY-POINT NO.
American Tower Corporation - East Sevierville #308917			
2. EMISSION SOURCE NO. (AS ON PERMIT APPLICATION)	SIC CODE	/ / / APC	APC PERMIT/LOG NO.
E1			

3. DESCRIPTION OF PROCESS OR FUEL BURNING UNIT

Emergency Backup Generator - Industrial Generator (diesel) set; 131 hp, 80kw, 300 gallon diesel belly tank.

4. NORMAL OPERATION: →	HOURS/DAY	DAYS/WEEK	WEEKS/YEAR	DAYS/YEAR
	Varies	Varies	Varies	Varies
5. PERCENT ANNUAL THROUGHPUT: →	DEC.-FEB.	MARCH-MAY	JUNE-AUG.	SEPT.-NOV.
	25 %	25 %	25 %	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	INPUT RATES (POUNDS/HOUR) ACTUAL	/ /	(FOR APC USE ONLY) SCC CODE
A.				/ /	
B.				/ /	
C.				/ /	
D.				/ /	
E.				/ /	
F.				/ /	
G.				/ /	
	TOTALS			/ /	

* A SIMPLE PROCESS FLOW DIAGRAM MUST BE ATTACHED.

(OVER)

DEC 1 0 2012

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)
N/A	N/A	N/A	N/A	N/A	N/A

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

** 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		%	%	BTU VALUE		(FOR APC ONLY)
Diesel #2		DESIGN	AVERAGE	SULFUR	ASH	OF FUEL		SCC CODE
NATURAL GAS:	10^6 CUFT	CUFT	CUFT	/ / / / / / / /	/ / / / / /	1,000		
#2 FUEL OIL: Diesel #2	10^3 GAL	GAL	GAL	.0015% 15ppm	/ / / / / /			
#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

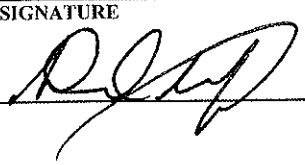
N/A

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

N/A

13. COMMENTS

14. SIGNATURE



DATE 11/8/12

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
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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				/// FOR	APC COMPANY POINT NO.
American Tower Corporation - East Sevierville # 308917					
2. EMISSION SOURCE NO. (FROM APPLICATION)		FLOW DIAGRAM POINT NUMBER		/// APC	APC SEQUENCE NO.
E1					
3. LOCATION: 122-County Garage Rd. Sevierville, TN	LATITUDE	LONGITUDE	UTM VERTICAL		UTM HORIZONTAL
	35.876553	-83.4802	2760946		397.3098
4. BRIEF EMISSION POINT DESCRIPTION (ATTACH A SKETCH IF APPROPRIATE):					DISTANCE TO NEAREST PROPERTY LINE (FT)
					3'

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) AVERAGE	EMISSIONS (LBS/HR) MAXIMUM	CONCENTRATION	AVG. EMISSIONS (TONS/YR)	EMISSIONS* EST. METHOD	CONTROL DEVICES*	CONTROL EFFICIENCY%
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) CO2e	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
	11/9/12

* 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.

GENERAC®

STATEMENT OF EXHAUST EMISSIONS
2011 IVECO DIESEL FUELED GENERATOR

Generator Model:	**SD080**	Aspiration:	**Turbocharged/Aftercooled**
kW_e Rating:	**80**	Rated RPM:	**1800 RPM**
Engine Family:	**BVEXL06.7DGB**	EPA Certificate #:	**VEX-STNRCI-11-15**
Engine Model:	**F4GE9485A*J**	CARB Certificate #:	**Not Applicable**
Rated Engine Power (BHP)*:	**131**	SCAQMD CEP#:	**511714**
Fuel Consumption (gal/hr)*:	**6.84**	Emission Std. Category:	**Tier 3**

*Engine Power and Fuel Consumption are declared by the Engine Manufacturer of Record and the U.S. EPA.

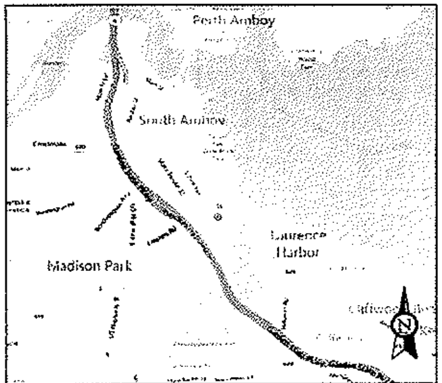
Emissions based on declared Rated BHP of specific Engine Models.
(These values are Actual Exhaust Emissions during a 5-Mode test based on declared Rated BHP.)

CO	NOx + NMHC	PM	
0.9	**3.8**	**0.16**	Grams/kW-hr
0.7	**2.8**	**0.12**	Grams/bhp-hr

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5-mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA & CARB protocols, which are typically accepted by SCAQMD and other regional authorities.
- No emission values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and must be consulted by the permit applicant/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generating set.

INDUSTRIAL SALES
P.O. BOX 8 WAUKESHA, WI 53187 262-544-4800 FAX 262-544-4854

DEC 1 0 2012



VICINITY MAP 1"=2500'

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

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

AMERICAN TOWER

BACKUP POWER PROJECT

ATC SITE IDENTIFICATION:

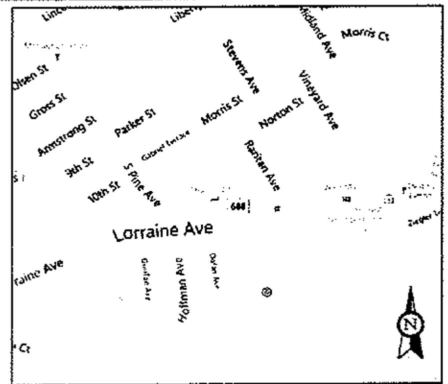
SITE NUMBER: 308917
SITE NAME: EAST SEVIERVILLE
SITE ADDRESS: 122-COUNTY GARAGE RD. SEVIERVILLE, TN 37876

CUSTOMER SITE IDENTIFICATION:

SITE NUMBER: 10082979
SITE NAME: N/A

PROJECT DESCRIPTION:

THE PROPOSED PROJECT INCLUDES PLACING A 80 KW SHARED GENERATOR IN AN EXISTING CELLULAR TOWER COMPOUND.



LOCAL MAP 1"=500'

PROJECT TEAM

ARCHITECT:
ATC TOWER SERVICES, INC.
1898 LELAND DRIVE SUITE A
MARIETTA, GA 30067
TEL: 678-265-6705
FAX: 678-265-6781
CONTACT: JAMES JUSTICE
A & E MANAGER

LANDLORD:
AMERICAN TOWERS, LLC.
10 PRESIDENTIAL WAY
WOBURN, MA 01801
TEL: 781-926-4500
FAX: 781-926-4555

GROUND OWNER:
FRANK GEORGE CATE
1924 WALNT GROVE RD
SEVIERVILLE, TN 37876

UTILITIES:
POWER COMPANY:
SEVIER COUNTY ELECTRIC SYSTEM
TEL: 865-453-2887

TELEPHONE COMPANY:
BELL SOUTH
TEL: 866-336-8278

PROJECT SUMMARY

GEOGRAPHIC COORDINATES:
LATITUDE: 35° 52' 35.59" N
LONGITUDE: 83° 28' 48.59" W
GROUND ELEVATION: 1041.5 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.COM

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, HWY 66, TO SEVIERVILLE PROCEED APPROXIMATELY 8.5 MILES, AFTER CROSSING SECOND BRIDGE (LITTLE PIGEON RIVER). TURN LEFT ON HWY 411. GO APPROX 5 1/2 MILES. THEN TURN RIGHT ONTO COUNTY GARAGE RD. JUST PAST (BECK'S HARDWARE). SITE IS IN THE PASTURE ACROSS FROM GRAVEYARD ON RIGHT SIDE OF THE ROAD BEHIND CATTLE GATE. MAKE SURE TO CLOSE GATE.

SHEET INDEX

SHT NO:	DESCRIPTION:	REV:	DATE:	BY:
T-1	TITLE SHEET, VICINITY MAP AND GENERAL INFORMATION	0	08-22-12	PP
A-1	SITE PLAN	0	08-22-12	PP
A-2	CONCRETE PAD DETAILS	0	08-22-12	PP
A-3	H-FRAME WIND LOAD CALCULATIONS	0	08-22-12	PP
E-1	WIRING DIAGRAM & H-FRAME LAYOUT	0	08-22-12	PP
E-2	ELECTRICAL DETAILS	0	08-22-12	PP
G-1	COMPOUND GROUNDING	0	08-22-12	PP
	GENERATOR ASSEMBLY AND INSTALLATION SUPPLEMENT			

at&t

AMERICAN TOWER
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

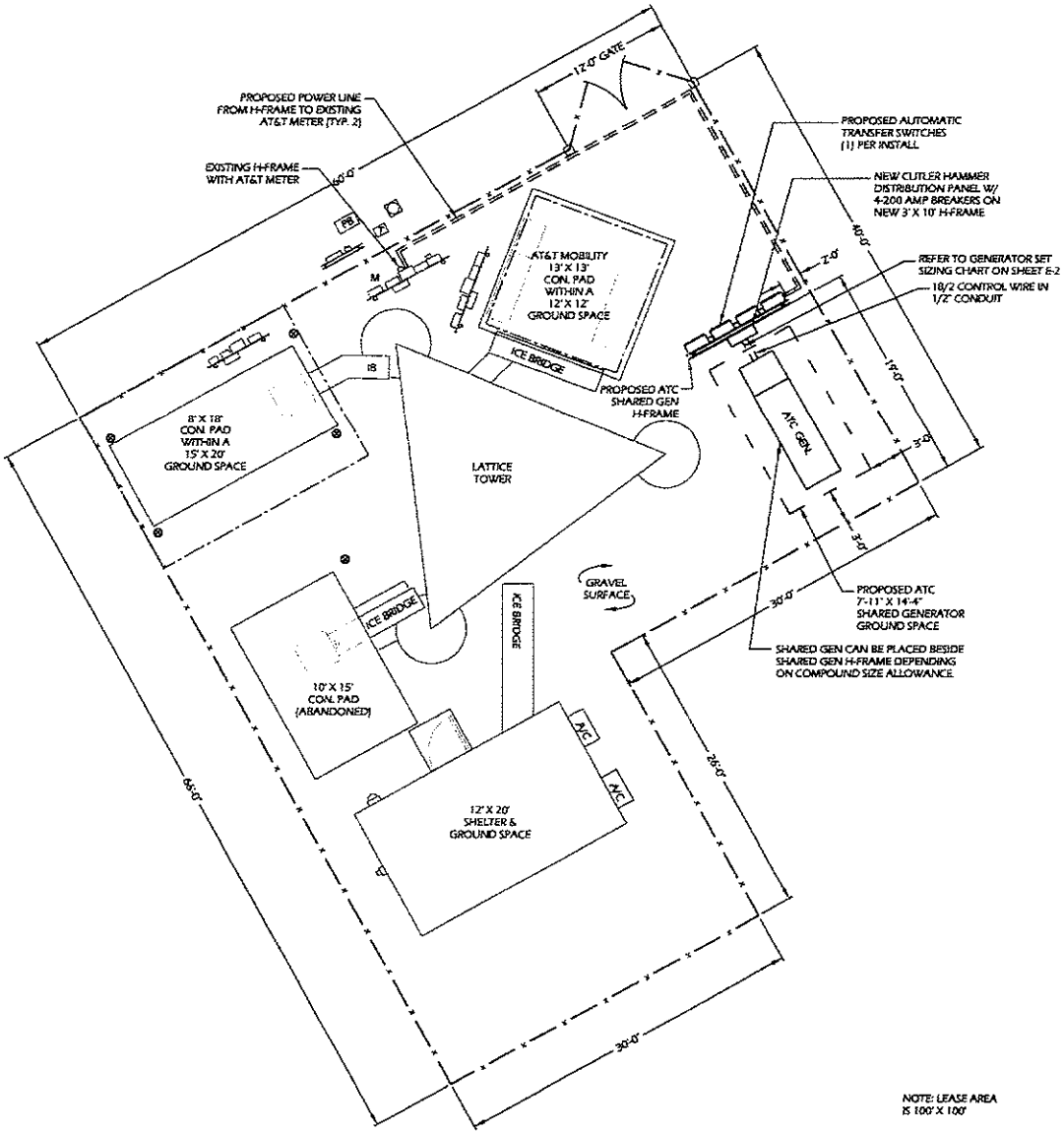
ATC SITE NUMBER: 308917
ATC SITE NAME: EAST SEVIERVILLE
SITE ADDRESS: 122-COUNTY GARAGE RD. SEVIERVILLE, TN 37876

JAIME REYES REGISTERED ENGINEER AGRICULTURE No. 22734 STATE OF TENNESSEE

DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	50264662

SHEET TITLE: TITLE SHEET VICINITY MAP AND GENERAL INFORMATION

SHEET NUMBER: T-1 REV. #: 0



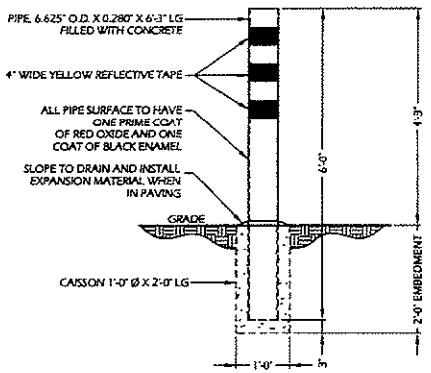
SCALE
1" = 10'-0" (11 X 17)
1" = 5'-0" (24 X 36)

1 SITE PLAN

NOTE: LEASE AREA IS 100' X 100'

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.



ELEVATION VIEW

2 TYPICAL BOLLARD INSTALLATION DETAIL (IF REQUIRED)
SCALE: NOT TO SCALE

at&t

AMERICAN TOWER
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE: AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

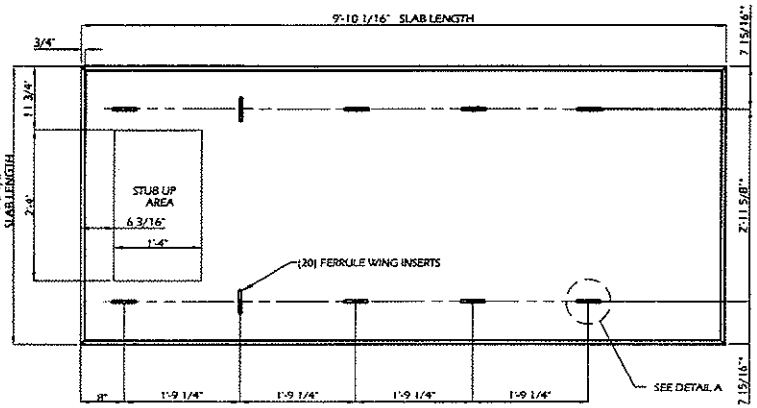
JAIME REYES
REGISTERED ENGINEER
No. 22754
STATE OF TENNESSEE
I approve this document
28 2012 11:58AM

STAMP HERE

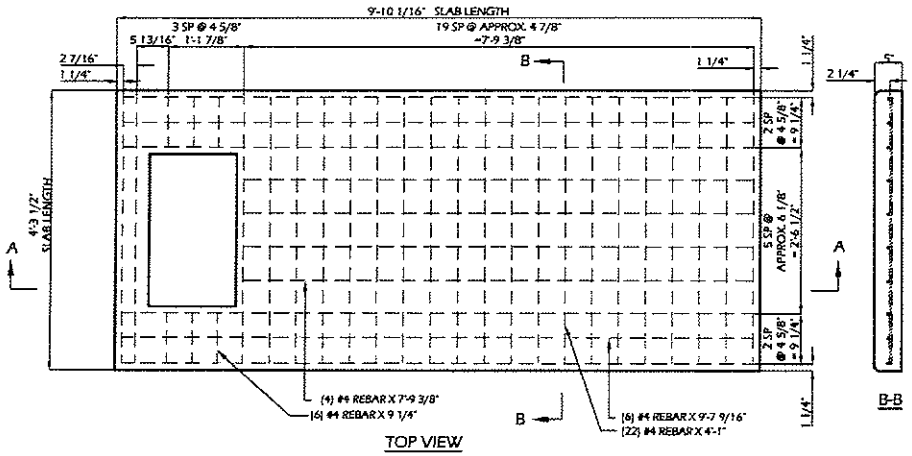
DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-23-12
JOB NO:	5026490K2

SHEET TITLE:
SITE PLAN

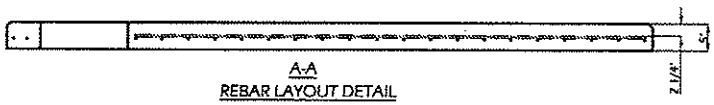
SHEET NUMBER	REV. #
A-1	0



PLAN VIEW



TOP VIEW



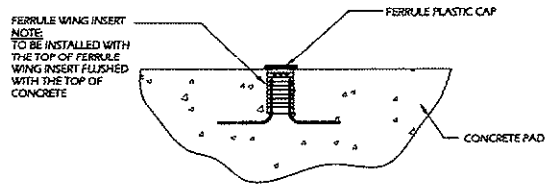
A-A

REBAR LAYOUT DETAIL

QTY REQ'D.	SIZE	TOTAL LENGTH	TOTAL WEIGHT (LBS)	TYPE	BENDING DIAGRAM DIMENSION
10	1/2"	0'-5"	-	FERRULE WING	
10	1/2"	FERRULE PLASTIC CAP	-		
6	#4	9'-7 9/16"	39	STRAIGHT	A= 9'-7 9/16"
22	#4	4'-1"	60		A= 4'-1"
4	#4	7'-9 3/8"	21		A= 7'-9 3/8"
6	#4	9 1/4"	3		A= 9 1/4"

STANDARD REBAR SIZES & WEIGHTS

BAR NO	LBS PER FT.	DIA. INCHES	GRADE
4	.6676	.500	60



DETAIL A

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 4000 PSI.
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. THE SOIL BEARING CAPACITY FOR EACH SITE MUST BE VERIFIED USING THE SITE SPECIFIC GEOTECH REPORT. IF SHALLOW GROUNDWATER (≤3 FT.) WAS REPORTED, A FURTHER REVIEW OF THE DESIGN OR SPECIAL DESIGN MAY BE REQUIRED.
2. THE SOIL UNDERNEATH THE CONCRETE PAD MUST BE FREE OF ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES, AND SHOULD BE COMPACTED AND LEVELED BEFORE PLACING THE FOUNDATION. PAD SHALL BE INSTALLED LEVEL TO WITHIN +/- 1/8".
3. CONCRETE SLUMPS: 1"–2".
4. CONCRETE VOLUME: 0.78 CUBIC YARDS.

DESIGN

1. MAXIMUM DESIGN BASIC WIND SPEED (3-SECOND GUST):
90 MPH FOR GENERATOR MODELS SD050 AND SD080

PRE-CAST GENERATOR PAD

at&t

AMERICAN TOWER
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE:AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

JAIME REYES
REGISTERED ENGINEER
No. 22734
STATE OF TENNESSEE
I approve this document
28 2012 11:57AM

DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	5026440812

SHEET TITLE:
CONCRETE PAD DETAILS

SHEET NUMBER: A-2
REV. #: 0

H-Frame and Its Foundation Designs

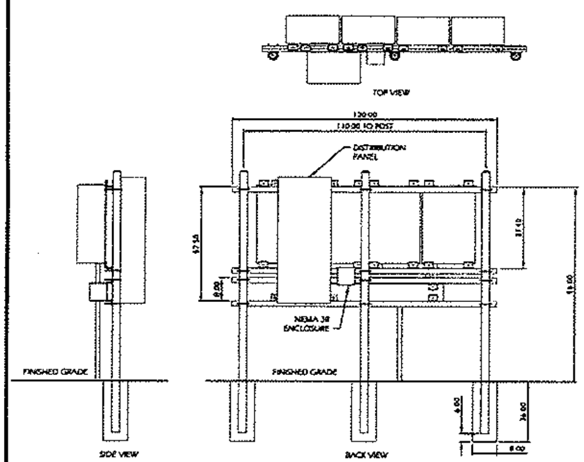
Note: This design or calculation for the H-Frame will be valid for all 80kw, 130kw and 150kw generator sites with same or less design basic wind speed as specified below.

A. Design Loads:

ASCE 3 Sec. Wind Speed for the tower site : $V := 90$ MPH

$K\_z_z := 0.85$ $K_{zt} := 1.0$ $I := 1$ $K_d := 0.95$ $C_{f\_s} := 1.2$ $G_f := 1.0$

Wind pressure per ASCE : $q := 0.00256 \cdot K\_z_z \cdot G_f \cdot C_{f\_s} \cdot V^2 \cdot I \cdot K_{zt} \cdot K_d$ $q = 20.093$ 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" ϕ SCH 40, Sx = 3.21 in³, 35 Ksi).

$M_m := M_{max} \cdot 12$ $M_m = 6.467 \times 10^4$ Lbs - In

$S_r := \frac{M_m}{0.75 \cdot 35000}$ $S_r = 2.463$ 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: $M1 := A1 \cdot q \cdot 6 + Wt_1 \cdot \frac{11}{2}$ $M1 = 1.162 \times 10^4$ 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: $M2 := A2 \cdot q \cdot 5.5 - Wt_2 \cdot \frac{15.75}{2}$ $M2 = -709.619$ Lbs - Ft

3. Wind area of the (3) Pole (4" Std Pipe, 35 Ksi 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

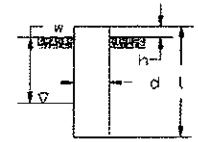
4. The maximum reactions at the base of each pole:

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	*Program Last*	*5/26/2010*
Site Number:	0	*American Tower Corporation*	
Engineer:	H. You		
Engineering Number:	0		
Date:	03/15/11		



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):	99.0 ft
Unit Weight of Concrete:	150.0 pcf
Unit Weight of Water:	62.4 pcf
Tension Skin Friction/Compression Skin Friction:	1.00
Pullout Angle:	30.0 degrees

Soil Mechanical Properties

Depth (ft) Top	Bottom	γ_{soil} (pcf)	Cohesion (psf)	ϕ (degrees)	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 Satisfacto
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 ($\phi_s T_n$):	1.1 k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	3.9 k
P_u:	1.2 k
$T_u/\phi_s T_n$:	0.00 Result: OK
$P_u/\phi_s P_n$:	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_D):	10.3 k-ft
Nominal Moment Capacity ($\phi_s M_n$):	15.8 k-ft
$M_D/\phi_s M_n$:	0.65 Result: OK
ϕ_s:	0.75

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ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER: 308917

ATC SITE NAME: EAST SEVIERVILLE

SITE ADDRESS: 122-COUNTY GARAGE RD. SEVIERVILLE, TN 37876

JAIME REYES REGISTERED ENGINEER AGRICULTURE COMMERCE No. 22734 STATE OF TENNESSEE

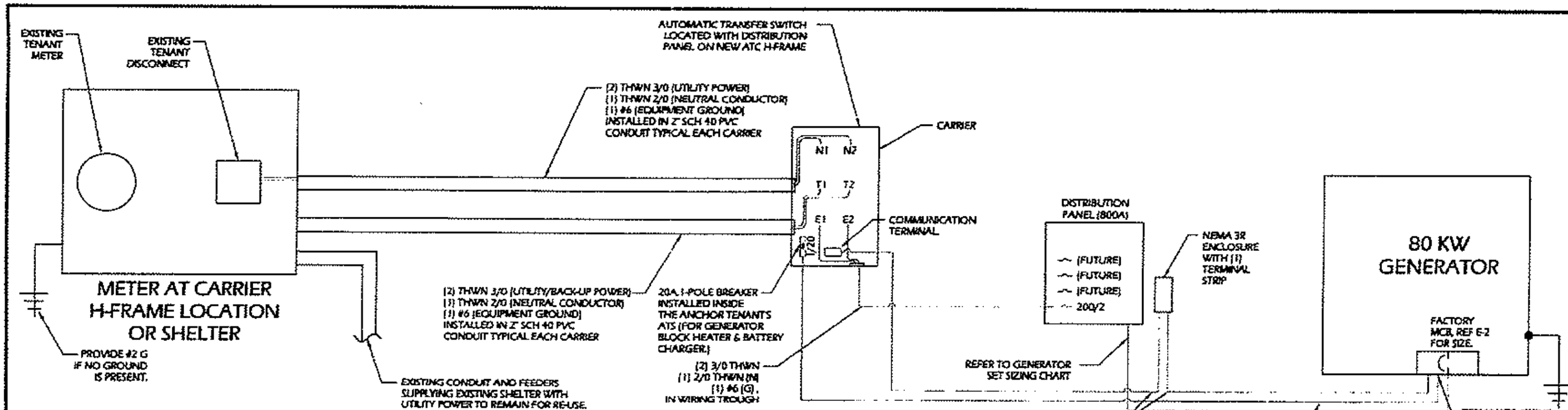
I approve this document 28 2012 11:57AM

STAMP HERE:

DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	50264062

SHEET TITLE: H-FRAME WIND LOAD CALCULATIONS

SHEET NUMBER:	REV.#
A-3	0

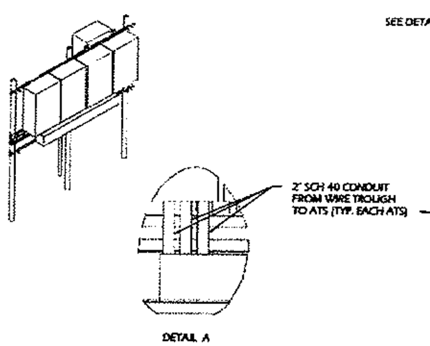

EXISTING TENANT METER
EXISTING TENANT DISCONNECT
METER AT CARRIER H-FRAME LOCATION OR SHELTER
PROVIDE #2 G IF NO GROUND IS PRESENT.
EXISTING CONDUIT AND FEEDERS SUPPLYING EXISTING SHELTER WITH UTILITY POWER TO REMAIN FOR RE-USE.
AUTOMATIC TRANSFER SWITCH LOCATED WITH DISTRIBUTION PANEL ON NEW ATC H-FRAME
(2) THWN 3/0 (UTILITY POWER)
(1) THWN 2/0 (NEUTRAL CONDUCTOR)
(1) #6 (EQUIPMENT GROUND)
INSTALLED IN 2" SCH 40 PVC CONDUIT TYPICAL EACH CARRIER
CARRIER
N1 N2
T1 T2
E1 E2
1/20
COMMUNICATION TERMINAL
(2) THWN 3/0 (UTILITY/BACK-UP POWER)
(1) THWN 2/0 (NEUTRAL CONDUCTOR)
(1) #6 (EQUIPMENT GROUND)
INSTALLED IN 2" SCH 40 PVC CONDUIT TYPICAL EACH CARRIER
20A, 1-POLE BREAKER INSTALLED INSIDE THE ANCHOR TENANTS ATS (FOR GENERATOR BLOCK HEATER & BATTERY CHARGER.)
(2) 3/0 THWN
(1) 2/0 THWN (N)
(1) #6 (G)
IN WIRING TROUGH
DISTRIBUTION PANEL (800A)
(FUTURE)
(FUTURE)
(FUTURE)
200/2
REFER TO GENERATOR SET SIZING CHART
NEMA 3R ENCLOSURE WITH (1) TERMINAL STRIP
80 KW GENERATOR
FACTORY MCB, REF E-2 FOR SIZE.
(1) 1/2" PVC CONDUIT, WITH ONE 18-2 CONTROL WIRE FROM ATS TO 8X8 JUNCTION BOX, THEN FROM 8X8 JUNCTION BOX TO GENERATOR (FOR COMMUNICATION WIRES). TERMINATE AT RS485± SHIELD IN ATS AND GENERATOR. REF SHEET S-3 FOR TERMINATION OF OMNIMETRIX WIRING.
(4) #12 THWN INSTALLED IN 1/2" SCH 40 PVC CONDUIT OR 12-3 UF (ALL GENERATOR INSTALLS) (FOR GENERATOR BLOCK HEATER & BATTERY CHARGER).
TERMINATE AT THE GFCI LOCATED ON THE GENERATOR OR GENERATOR TERMINAL STRIP IF PROVIDED
FRAME GROUND PER IEEE STD 446, SEC 7.9.4.

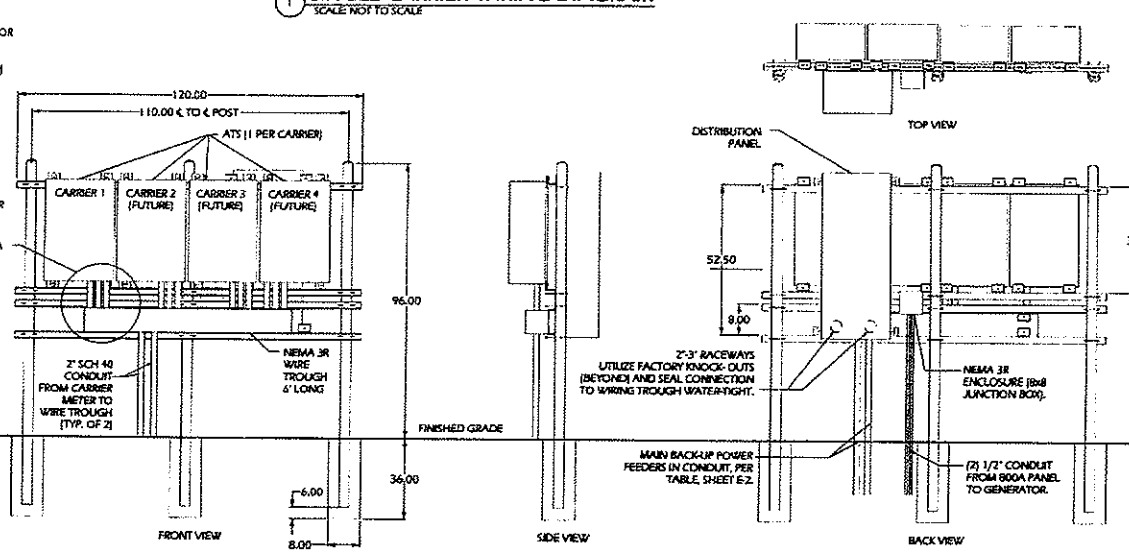
NOTES:

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, BUT ALUMINUM CONDUCTORS ARE ALLOWED FOR FEEDERS PROVIDED THEY ARE UPSIZED PER NEC TABLE 310.16.
7. ALL ELECTRICAL WORK SHALL BE PER THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL APPLICABLE LOCAL CODES.
8. MAINTAIN 36" CLEAR WORKSPACE IN FRONT OF METER, TRANSFER SWITCH, GENERATOR, PANELS, ETC.
9. 800A PANEL HAS A COMMON NEUTRAL BUS. NEUTRALS BACK TO EACH CARRIER METER ARE SIZED ACCORDING TO THE DISTRIBUTION PANEL BRANCH BREAKER RATING. NEUTRAL IS BONDED AT THE PRIMARY SERVICE MAIN BONDING JUMPER ONLY.
10. GENERATOR CONTROLS AND SENSORS SHALL HAVE GFCI SENSING CAPABILITY PER NEC 700-6(D).

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.

(1) SINGLE CARRIER WIRING DIAGRAM
SCALE: NOT TO SCALE




120.00
110.00 ℄ TO ℄ POST
ATS (1 PER CARRIER)
CARRIER 1
CARRIER 2 (FUTURE)
CARRIER 3 (FUTURE)
CARRIER 4 (FUTURE)
SEE DETAIL A
96.00
2" SCH 40 CONDUIT FROM CARRIER METER TO WIRE TROUGH (TYP. OF 2)
NEMA 3R WIRE TROUGH 6' LONG
FINISHED GRADE
36.00
6.00
8.00
FRONT VIEW
SIDE VIEW
TOP VIEW
DISTRIBUTION PANEL
52.50
8.00
37.40
2"-3" RACEWAYS UTILIZE FACTORY KNOCK-OUTS (BEYOND) AND SEAL CONNECTION TO WIRING TROUGH WATER-TIGHT.
NEMA 3R ENCLOSURE (8x8 JUNCTION BOX).
MAIN BACK-UP POWER FEEDERS IN CONDUIT, PER TABLE, SHEET E-2.
(2) 1/2" CONDUIT FROM 800A PANEL TO GENERATOR.
BACK VIEW

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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ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER:
308917

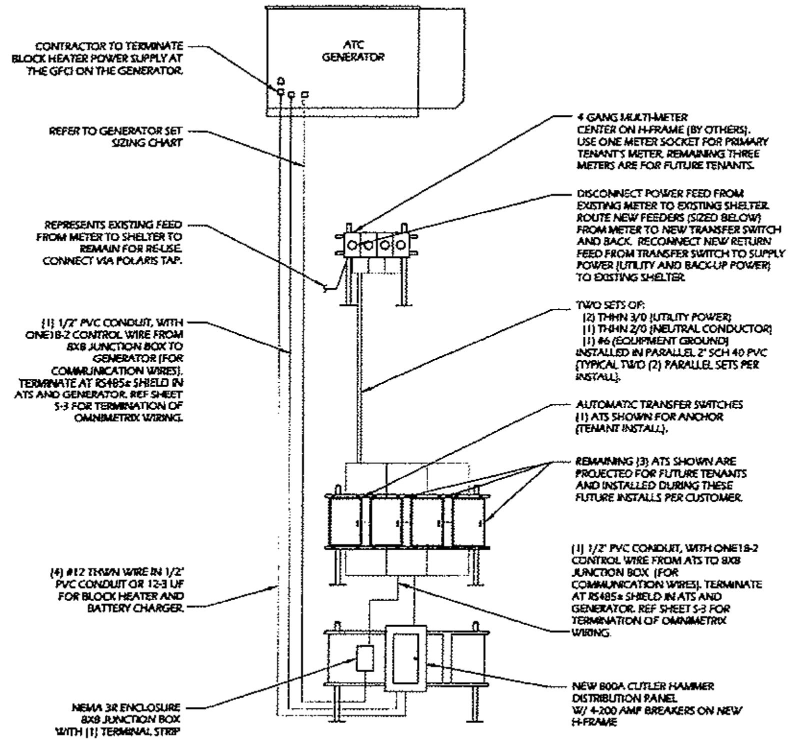
ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

Peter Adam Leptuch, P.E.
Tennessee P.E. #115419

SHEET TITLE:
WIRING DIAGRAM & H-FRAME LAYOUT

SHEET NUMBER:	REV.#
E-1	0



CONTRACTOR TO TERMINATE BLOCK HEATER POWER SUPPLY AT THE GFCI ON THE GENERATOR.
ATC GENERATOR
REFER TO GENERATOR SET SIZING CHART
REPRESENTS EXISTING FEED FROM METER TO SHELTER TO REMAIN FOR RE-USE. CONNECT VIA POLARIS TAP.
(1) 1/2" PVC CONDUIT, WITH ONE18-2 CONTROL WIRE FROM 8X8 JUNCTION BOX TO GENERATOR (FOR COMMUNICATION WIRES). TERMINATE AT RS485± SHIELD IN ATS AND GENERATOR. REF SHEET S-3 FOR TERMINATION OF OMNIMETRIX WIRING.
(4) #12 THWN WIRE IN 1/2" PVC CONDUIT OR 12-3 UF FOR BLOCK HEATER AND BATTERY CHARGER.
NEMA 3R ENCLOSURE 8X8 JUNCTION BOX WITH (1) TERMINAL STRIP
4 GANG MULTI-METER CENTER ON H-FRAME (BY OTHERS). USE ONE METER SOCKET FOR PRIMARY TENANT'S METER. REMAINING THREE METERS ARE FOR FUTURE TENANTS.
DISCONNECT POWER FEED FROM EXISTING METER TO EXISTING SHELTER. ROUTE NEW FEEDERS (SIZED BELOW) 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.
TWO SETS OF: (2) THHN 3/0 (UTILITY POWER) (1) THHN 2/0 (NEUTRAL CONDUCTOR) (1) #6 (EQUIPMENT GROUND) INSTALLED IN PARALLEL 2" SCH 40 PVC (TYPICAL TWO (2) PARALLEL SETS PER INSTALL).
AUTOMATIC TRANSFER SWITCHES (1) ATS SHOWN FOR ANCHOR (TENANT INSTALL).
REMAINING (3) ATS SHOWN ARE PROJECTED FOR FUTURE TENANTS AND INSTALLED DURING THESE FUTURE INSTALLS PER CUSTOMER.
(1) 1/2" PVC CONDUIT, WITH ONE18-2 CONTROL WIRE FROM ATS TO 8X8 JUNCTION BOX (FOR COMMUNICATION WIRES). TERMINATE AT RS485± SHIELD IN ATS AND GENERATOR. REF SHEET S-3 FOR TERMINATION OF OMNIMETRIX WIRING.
NEW 800A CUTLER HAMMER DISTRIBUTION PANEL W/ 4-200 AMP BREAKERS ON NEW H-FRAME

(1) 4-GANG MULTI - METER CONFIGURATION

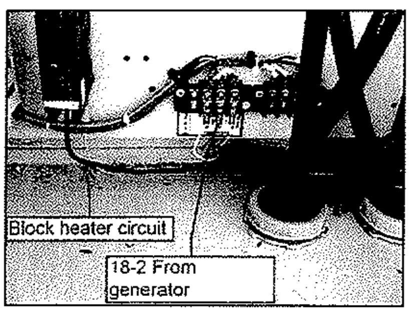
GENERATOR SET SIZING CHART & DESIGN NOTES:

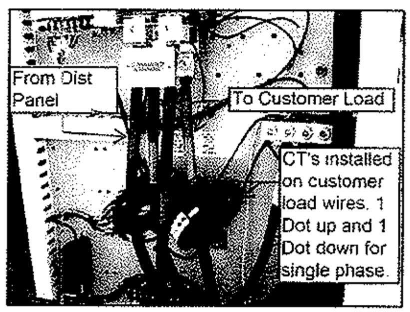
GEN SET SIZE	VOLTS - PHASE	PRIME RATING KW - AMPS	SIZE OF INLINE BREAKER (AT GENERATOR)	MAIN BREAKER SIZE SERVING ANCHOR TENANT:	FEEDER SIZES FROM GEN SET BREAKER TO DISTRIBUTION PANEL / ATS.
50KW	120/240V - 1-PH	48KW - 200A	200A	200A C/B INTEGRAL TO GEN SET.	(3#3/0, 1#4G, IN 2"C
80KW	120/240V - 1-PH	72KW - 300A	400A	200A C/B INTEGRAL TO 800A MLO DISTRIBUTION PANEL.	2 SETS OF 3#350KCMIL, 1#2/0G, IN (2) 3"C
130KW	120/240V - 1-PH	113KW - 469A	600A	200A C/B INTEGRAL TO 800A MLO DISTRIBUTION PANEL.	2 SETS OF 3#350KCMIL, 1#2/0G, IN (2) 3"C
150KW	120/240V - 1-PH	135KW - 563A	700A	200A C/B INTEGRAL TO 800A MLO DISTRIBUTION PANEL.	2 SETS OF 3#500KCMIL, 1#2/0G, IN (2) 4"C

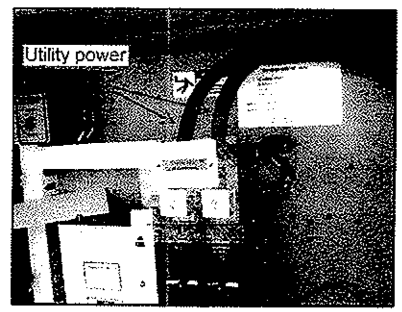
NOTES:

1. SERVICE VOLTAGE FOR EACH CARRIER IS 120/240 1-PHASE, AND SERVICE SIZES ARE TYPICALLY 200A PER CARRIER.
2. DISTRIBUTION PANEL IS 800A, 120/240, 1-PHASE, 22KAIC WITH 200A C/B FOR THE LISTED CARRIER OUTPUT. PANEL HAS (3) 200A BREAKER SPACES FOR FUTURE CARRIERS.
3. AUTOMATIC TRANSFER SWITCH (ATS) ARE 200A 2-POLES, 120/240V 1-PHASE PER CARRIER.
4. ALL ELECTRICAL EQUIPMENT IS NEMA 3R RATED.
5. THE GENERATOR ELECTRICAL LOADS ARE ADEQUATE FOR THE 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 UNLESS ALLOWED ELSEWHERE IN THIS DOCUMENT SET, WIRE SIZES ARE BASED ON COPPER.
8. A NEW SET OF PLANS WILL BE PROVIDED AND SUBMITTED FOR ADDITIONAL CARRIERS.
9. ALL WORK SHALL CONFORM WITH THE CURRENT VERSION OF THE NEC.
10. FIRST OVER-CURRENT PROTECTION DEVICE IS INTEGRAL TO GENERATOR. FEEDER SIZES INDICATED IN TABLE ABOVE ARE DOWNSTREAM OF THE FIRST OVER-CURRENT PROTECTION DEVICE.
11. INLINE BREAKER AT GENERATOR IS FACTORY INSTALLED, AND IS THE MANUFACTURER'S RECOMMENDED SIZE.

(2) GENERATOR SET SIZING CHART







(3) PHOTO REFERENCES FOR WIRE CONNECTIONS

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ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
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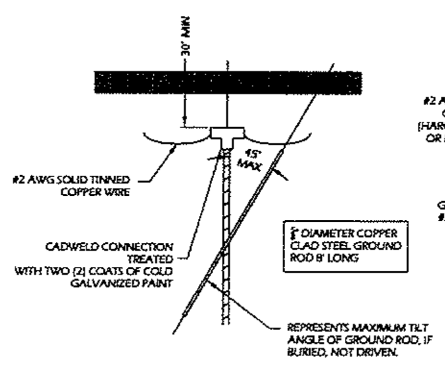
Tennessee P.E. #115419

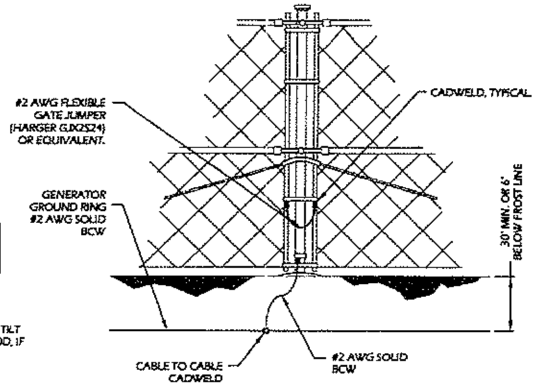
PETER ADAM LEPTUCH
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
STATE OF TENNESSEE

SHEET TITLE:
ELECTRICAL DETAILS

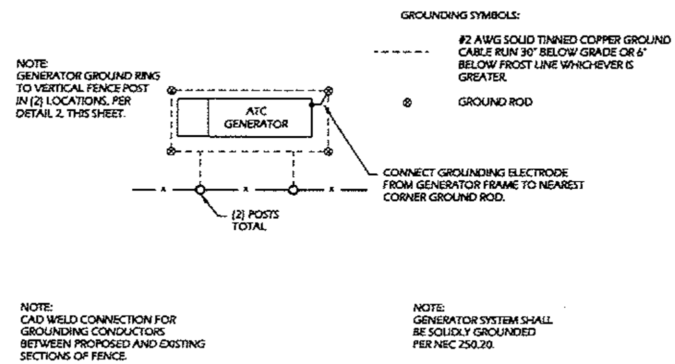
SHEET NUMBER:	REV.#
E-2	0



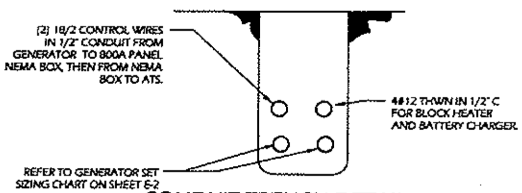
1 GROUND ROD DETAIL



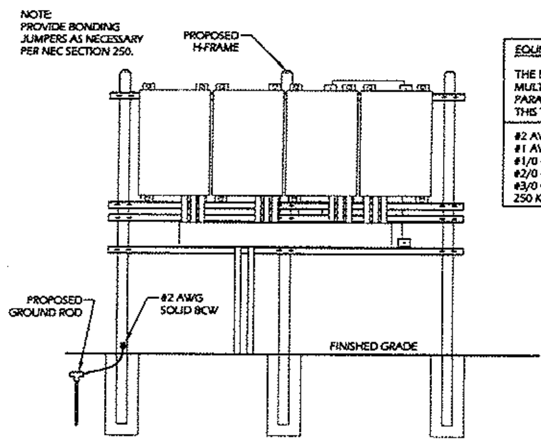
2 VERTICAL POST CONNECTED TO RING


GROUNDING SYMBOLS:
#2 AWG SOLID TINNED COPPER GROUND CABLE RUN 30" BELOW GRADE OR 6" BELOW FROST LINE WHICHEVER IS GREATER.
GROUND ROD
NOTE:
GENERATOR GROUND RING TO VERTICAL FENCE POST IN (2) LOCATIONS, PER DETAIL 2, THIS SHEET.
ATC GENERATOR
CONNECT GROUNDING ELECTRODE FROM GENERATOR FRAME TO NEAREST CORNER GROUND ROD.
(2) POSTS TOTAL
NOTE:
CAD WELD CONNECTION FOR GROUNDING CONDUCTORS BETWEEN PROPOSED AND EXISTING SECTIONS OF FENCE.
NOTE:
GENERATOR SYSTEM SHALL BE SOLIDLY GROUNDED PER NEC 250.20.

3 GENERATOR GROUND RING DETAIL



4 CONDUIT TRENCH DETAIL



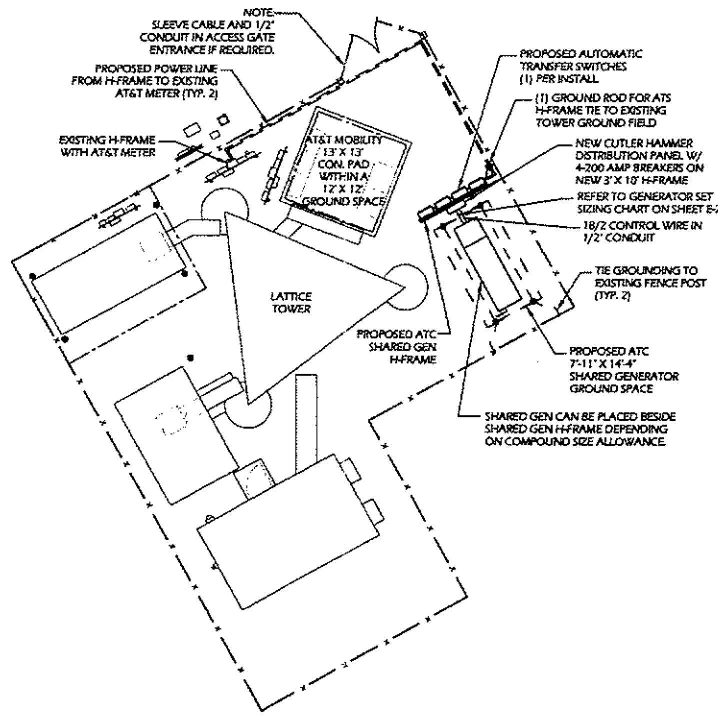
5 H-FRAME ELEVATION

EQUIVALENT WIRE GROUND CHART:

THE ELECTRICAL CONTRACTOR MAY ELECT TO USE MULTIPLE #2 TINNED COPPER GROUND WIRES IN PARALLEL, IN LIEU OF A SINGLE LARGER GROUND WIRE. THIS TABLE PROVIDES THE EQUIVALENCY:

#2 AWG = 66.36 KCMIL = 0.0521 SQ. IN. = USE (1) #2G.
#1 AWG = 83.69 KCMIL = 0.0657 SQ. IN. = USE (2) #2G.
#1/0 = 105.6 KCMIL = 0.0829 SQ. IN. = USE (2) #2G.
#2/0 = 133.1 KCMIL = 0.1045 SQ. IN. = USE (2) #2G.
#3/0 = 167.8 KCMIL = 0.1318 SQ. IN. = USE (3) #2G.
250 KCMIL = 0.1964 SQ. IN. = USE (4) #2G.

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 LIGHTNING 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


NOTE:
SLEEVE CABLE AND 1/2" CONDUIT IN ACCESS GATE ENTRANCE IF REQUIRED.
PROPOSED POWER LINE FROM H-FRAME TO EXISTING AT&T METER (TYP. 2)
EXISTING H-FRAME WITH AT&T METER
AT&T MOBILITY 13' X 13' CON. PAD WITHIN A 12' X 12' GROUND SPACE
LATTICE TOWER
PROPOSED ATC SHARED GEN H-FRAME
PROPOSED AUTOMATIC TRANSFER SWITCHES (1) PER INSTALL
(1) GROUND ROD FOR ATS H-FRAME TIE TO EXISTING TOWER GROUND FIELD
NEW CUTLER HAMMER DISTRIBUTION PANEL W/ 4-200 AMP BREAKERS ON NEW 3' X 10' H-FRAME
REFER TO GENERATOR SET SIZING CHART ON SHEET E-2
18/2 CONTROL WIRE IN 1/2" CONDUIT
TIE GROUNDING TO EXISTING FENCE POST (TYP. 2)
PROPOSED ATC 7'-11" X 14'-4" SHARED GENERATOR GROUND SPACE
SHARED GEN CAN BE PLACED BESIDE SHARED GEN H-FRAME DEPENDING ON COMPOUND SIZE ALLOWANCE.

6 COMPOUND GROUNDING

SCALE
NOT TO SCALE

at&t

AMERICAN TOWER
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

JAIME REYES
STATE OF TENNESSEE
No. 22734

STAMP HERE:

DRAWN BY:	FF
CHECKED BY:	SAC
DATE DRAWN:	08-22-12
JOB NO.:	50264062

SHEET TITLE:
COMPOUND GROUNDING

SHEET NUMBER:	REV. #
G-1	0

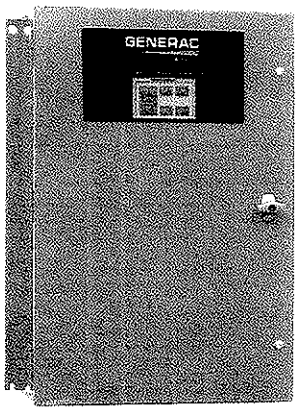
GENERAC 80KW

GENERAL ASSEMBLY AND INSTALLATION SUPPLEMENT

100 - 400 Amps, 600 VAC HTS

GENERAC | INDUSTRIAL

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

Interconnections

HTS 100-400 Amp

Switches and Indicators:

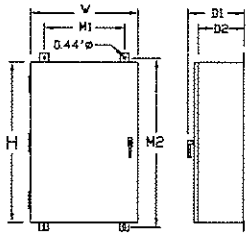
- System Ready LED
- Switch Position LED's
- Test Switch
- Return to Normal Switch
- Standby Operating LED
- Utility Available LED
- Fast Test Switch
- Safety Disconnect Switch

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 Fault 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.



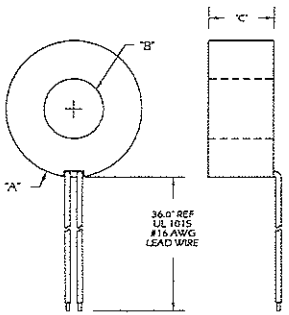
Unit Dimensions

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

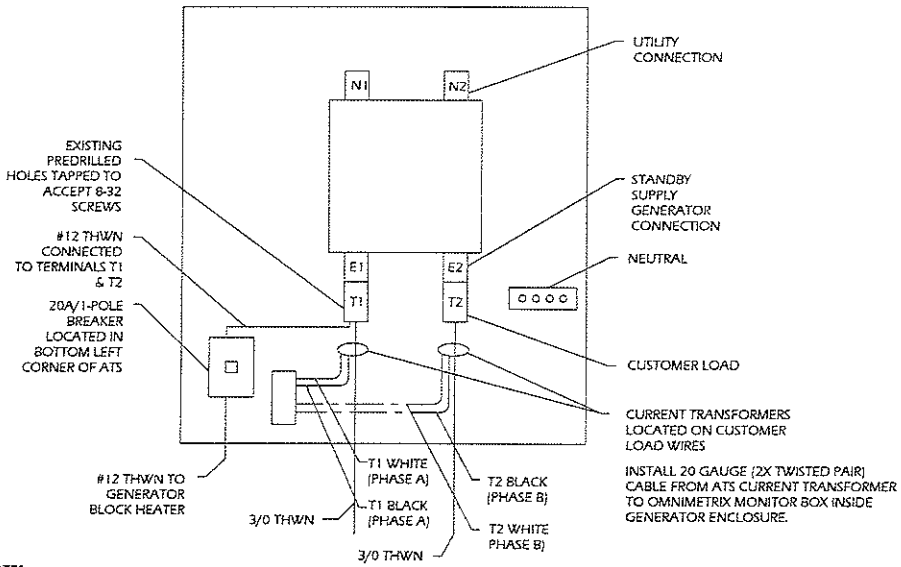
* Not included in HTS with switched neutral. ** Allowable wire range in brackets is for 2 wires per lug.



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



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

(1) ATS

GENERAC

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

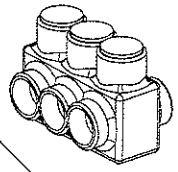
Fuel Containment Basin

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:

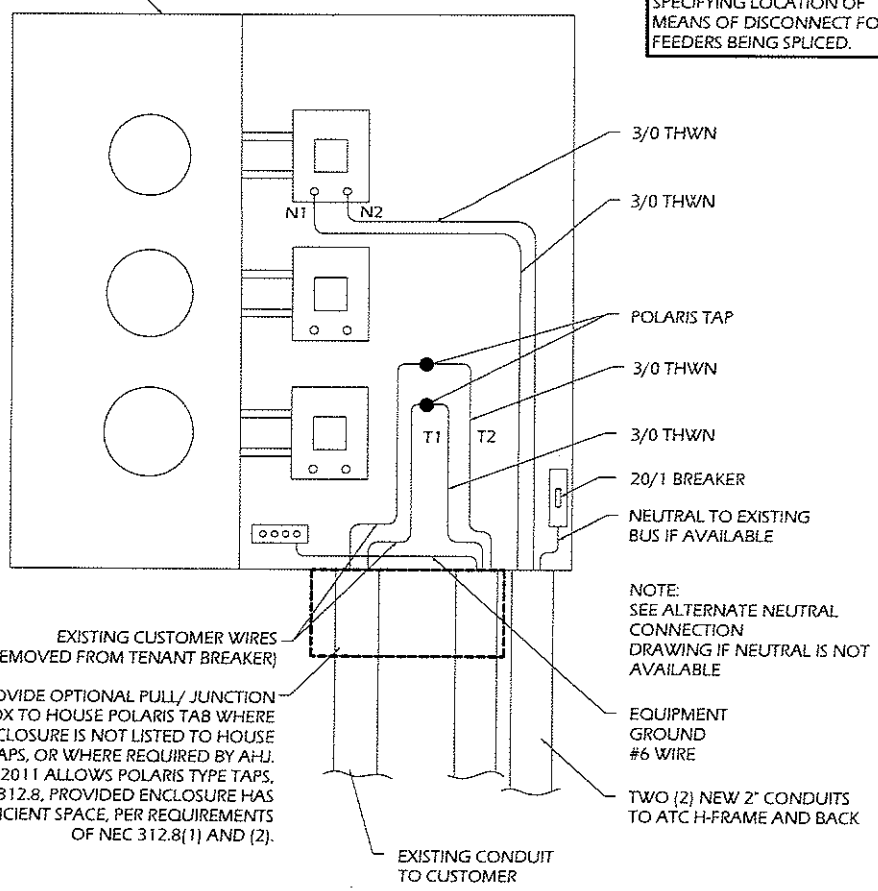
Normal and Emergency venting shall be sized per U.L. 142 specifications for wetted surface area of tank.



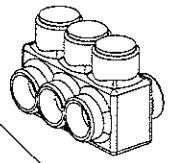
NOTE: POLARIS TAP MUST BE SECURELY WRAPPED WITH COMMERCIAL GRADE NYLON ELECTRICAL TAPE AFTER INSTALLATION IS COMPLETE

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

PER NEC 312.8(3), PROVIDE WARNING LABEL (PHENOLIC PLATE) ON ENCLOSURE CONTAINING POLARIS TAP SPECIFYING LOCATION OF MEANS OF DISCONNECT FOR FEEDERS BEING SPLICED.

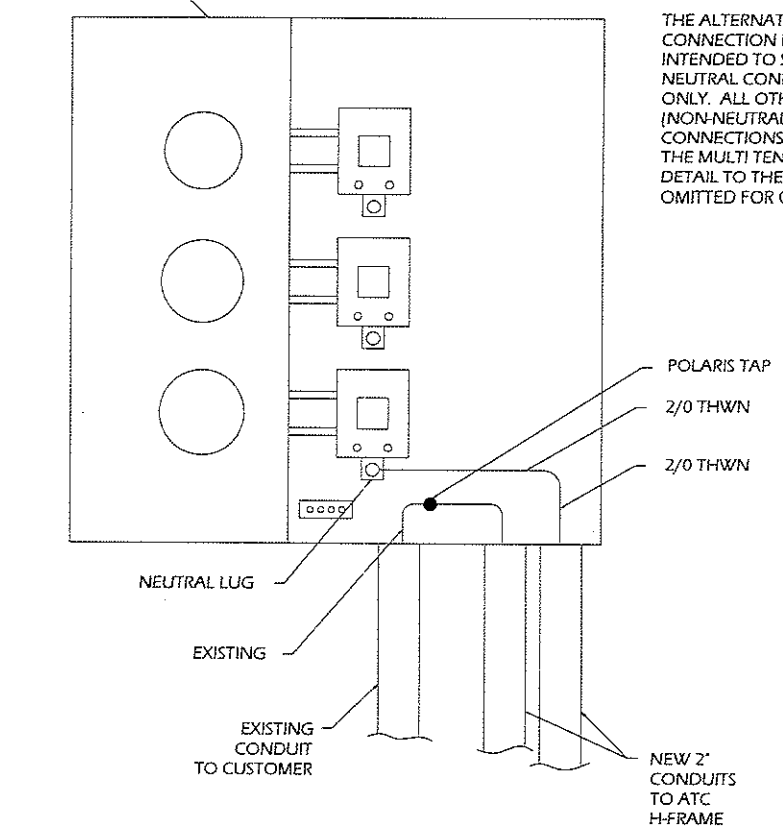


1 MULTI TENANT METER OPTION
SCALE: NOT TO SCALE

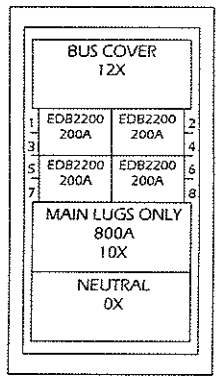


NOTE: POLARIS TAP MUST BE SECURELY WRAPPED WITH COMMERCIAL GRADE NYLON ELECTRICAL TAPE AFTER INSTALLATION IS COMPLETE

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.



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



FIELD 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, AI 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

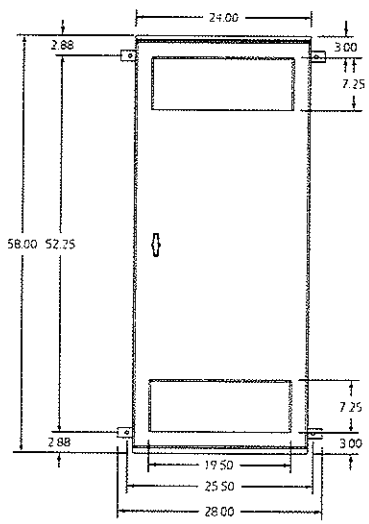
TRIM LOOK T-HANDLE LOCK ASSEMBLY
CIRCUIT DIRECTORY PLASTIC SLEEVE WITH CARD
PAINTED BOX ANSI 61

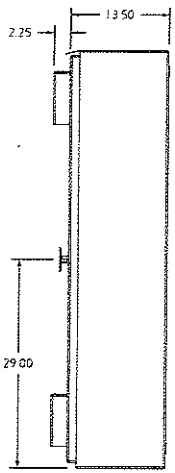
PLANT INFORMATION

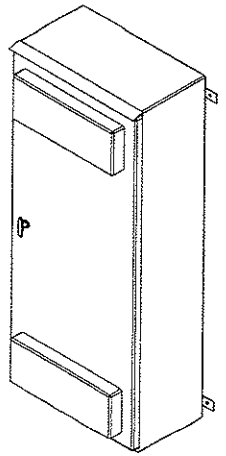
	PART NUMBER	QTY	PART NUMBER	QTY
UL LABEL:	7494A06H01	1	EDB2200	4
BUS CUTTING:	6563C06H01	2		
NEUTRAL:	6672C66G03	1		
GROUND BAR, AL/CU:	6572C78G03	1		
CHASSIS ASSEMBLY:	6572C25G06	1		
LUG ASSEMBLY:	6572C52G06	1		
BREAKER ASSY:	6572C87G04	2		
DEAD FRONT COVER:	5554C11B01	2		
COVER PACKAGING:	4177B06G02	1		
DEAD FRONT COVER ASSEMBLY:	6574C76G02	1		
PACKAGING:	50CS330G01	1		

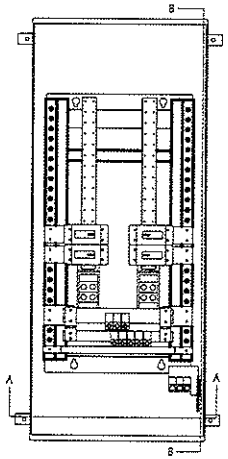
Spot _____ Final Inspection _____

Notes:

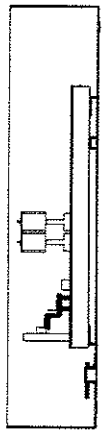




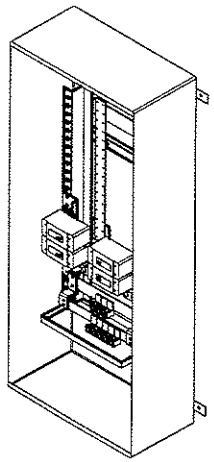




SECTION A-A



SECTION B-B



1 DISTRIBUTION PANEL
SCALE: NOT TO SCALE

3 DISTRIBUTION PANEL DETAILS
SCALE: NOT TO SCALE

SD080

GENERAC | INDUSTRIAL

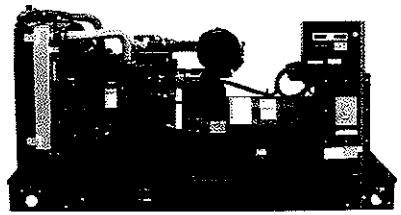
80 kW Diesel

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

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

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	66	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	89	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 Consumption Rates**

Fuel Pump Lift - in (m)	STANDBY				PRIME			
36(.9)	Percent Load	gph		lph	Percent Load	gph		lph
	25%	2.1		7.9	25%	1.9		7.2
Total Fuel Pump Flow (Combustion + Return)	50%	3.7		14.0	50%	3.4		12.9
13.6 gph	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

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	-

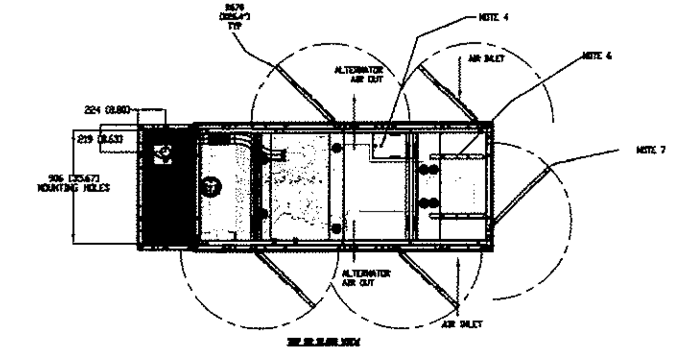
Other Options

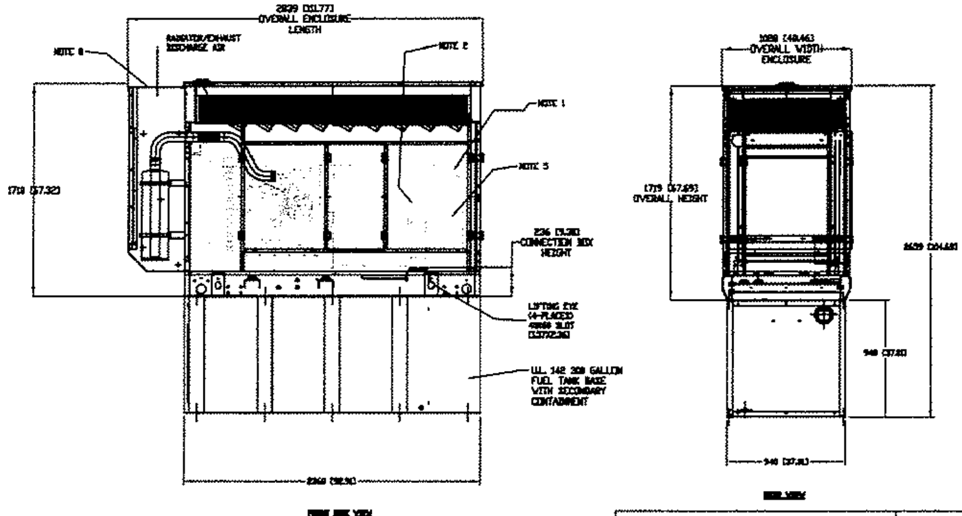
○ _____

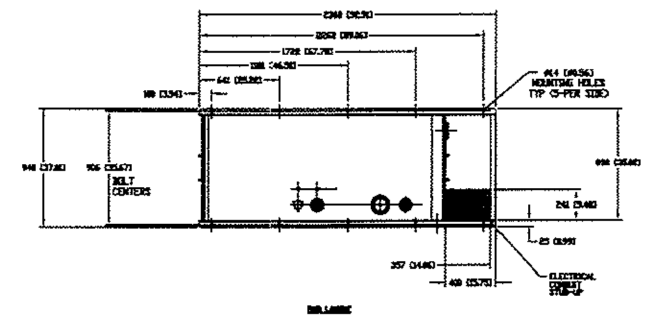
○ _____

○ _____

0H5302C-ATC







RECOMMENDED ELECTRICAL STUB-UPS (SEE DETAILED VIEW & TOP VIEW)	
AC LOAD LEAD CONDUIT SEE NOTES 5 & 6 FOR CB LOCATION NOTE-A (SEE STUB UP AREA 1 & 2)	A
(STUB-UP 1) GLAND PLATE AC LOAD LEAD CONDUIT FOR PERMANENT MAGNET EXCITATION CONNECTION BOX	
(STUB-UP 2) 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	

NOTE:

1. CONTROL PANEL MAY BE ROTATED 180DEG. IN EITHER DIRECTION
2. 1- 20A GFCI DUPLEX OUTLET (BY CUSTOMER)
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN AC CONNECTION PANEL.
4. SYSTEM 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 [illegible] 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 = 1/2" NPT COUPLING
FUEL RETURN = 1/2" NPT COUPLING
OIL DRAIN = 1/2" NPT COUPLING
EXHAUST OUTLET - 3.0" O.D. MUFFLER

WEIGHT DATA
APPROX. DRY WEIGHT WITHOUT FUEL GENSET PACKAGED [illegible] lbs.

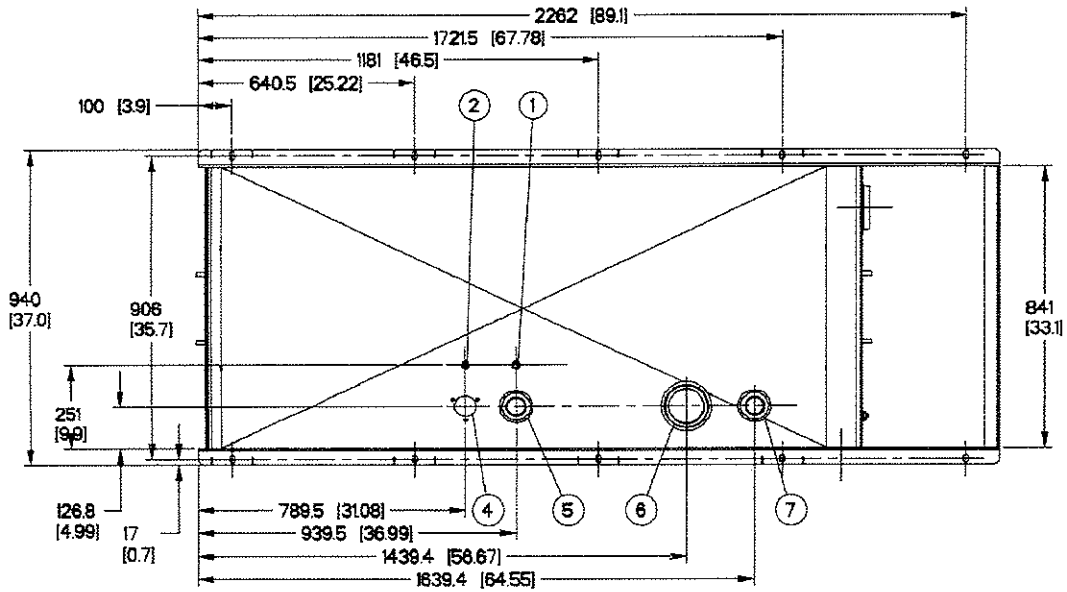
REFERENCE DRAWING 0H5302C FOR INSTALLATION
FUEL TANK DRAWING [illegible]

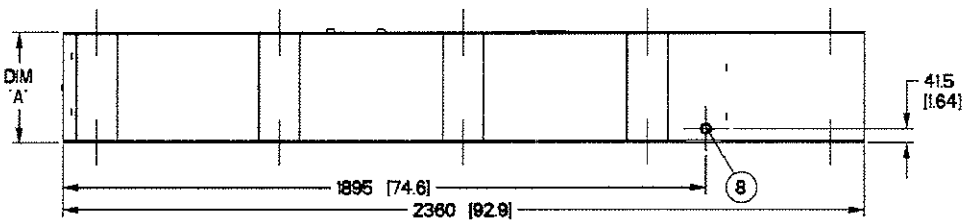
INSTALLATION DRAWING

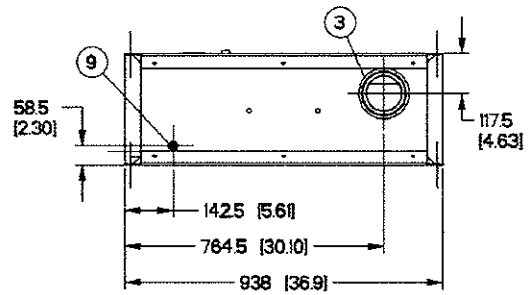
SD80
DIESEL 4.5L IVECO
TURBOCHARGED & AFTERCOOLED
SOUND ATTENUATED ENSL., LVL 2
W/ 300 GALLON FTB

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

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

GENERAC

TITLE
B-GROUP, DW TYPE 2 TANKS

INSTALLATION DRAWING

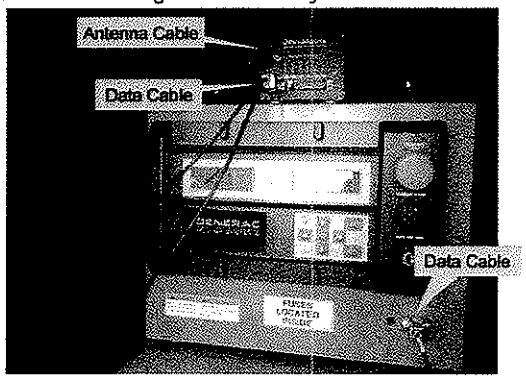
ISSUE DATE:	10/02/09		
SIZE B	CAGE NO	DWG NO 0H4610A	REV D
SCALE 0.075	WT-KG --	SHEET 1 of 1	

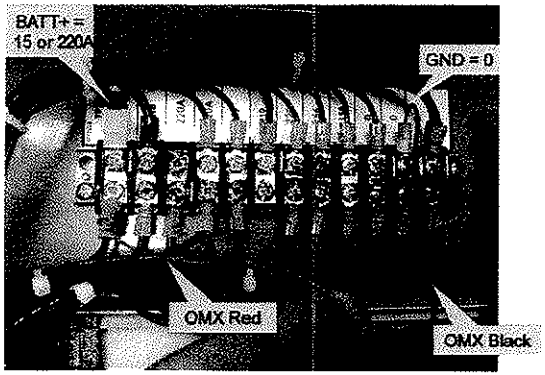
OMNIMETRIX
GLOBAL MONITORING + CONTROL

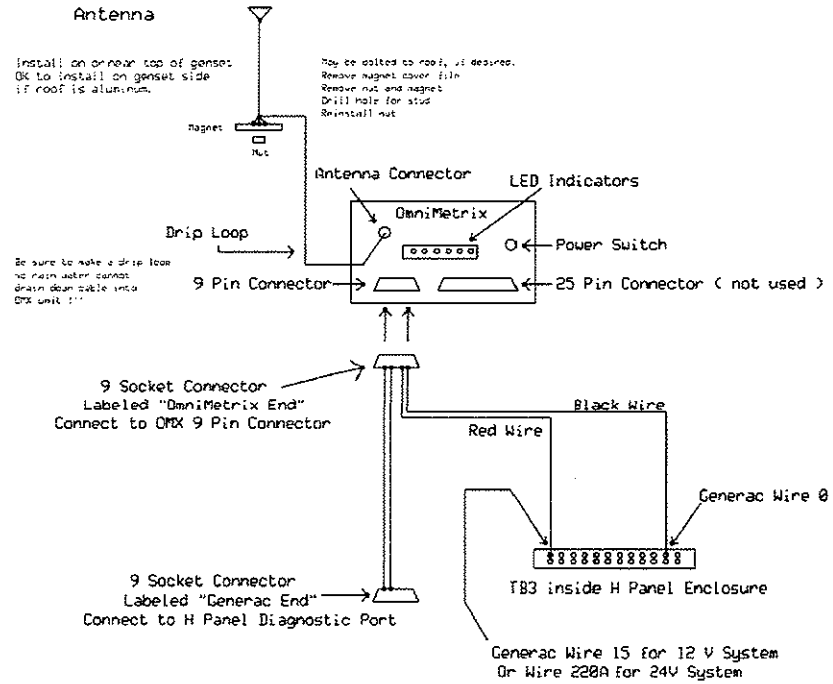
G8500 Series
American Tower Installation

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.





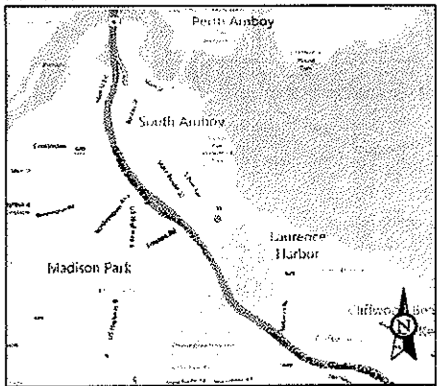


General Wiring Steps:

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

DEC 10 2012



VICINITY MAP 1"=2500'

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

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

AMERICAN TOWER

BACKUP POWER PROJECT

ATC SITE IDENTIFICATION:

SITE NUMBER: 308917
SITE NAME: EAST SEVIERVILLE

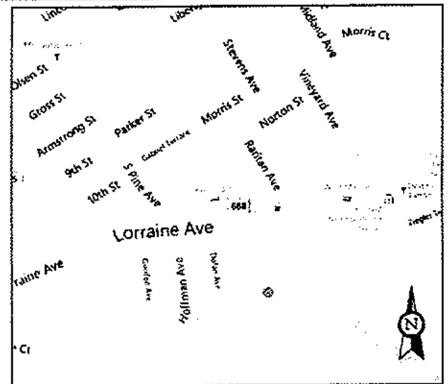
SITE ADDRESS: 122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

CUSTOMER SITE IDENTIFICATION:

SITE NUMBER: 10082979
SITE NAME: N/A

PROJECT DESCRIPTION:

THE PROPOSED PROJECT INCLUDES PLACING A 80 KW SHARED GENERATOR IN AN EXISTING CELLULAR TOWER COMPOUND.



LOCAL MAP 1"=500'

PROJECT TEAM

ARCHITECT:
ATC TOWER SERVICES, INC.
1898 LELAND DRIVE SUITE A
MARIETTA, GA 30067
TEL: 678-265-6705
FAX: 678-265-6781
CONTACT: JAMES JUSTICE
A & E MANAGER

LANDLORD:
AMERICAN TOWERS, LLC.
10 PRESIDENTIAL WAY
WOBURN, MA 01801
TEL: 781-926-4500
FAX: 781-926-4555

GROUND OWNER:
FRANK GEORGE CATE
1924 WALNT GROVE RD
SEVIERVILLE, TN 37876

UTILITIES:
POWER COMPANY:
SEVIER COUNTY ELECTRIC SYSTEM
TEL: 865-453-2887

TELEPHONE COMPANY:
BELL SOUTH
TEL: 866-336-8278

PROJECT SUMMARY

GEOGRAPHIC COORDINATES:
LATITUDE: 35° 52' 35.59" N
LONGITUDE: 83° 28' 48.59" W
GROUND ELEVATION: 1041.5 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.COM

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, HWY 66, TO SEVIERVILLE PROCEED APPROXIMATELY 8.5 MILES, AFTER CROSSING SECOND BRIDGE (LITTLE PIGEON RIVER). TURN LEFT ON HWY 411. GO APPROX 5 1/2 MILES. THEN TURN RIGHT ONTO COUNTY GARAGE RD. JUST PAST (BECK'S HARDWARE). SITE IS IN THE PASTURE ACROSS FROM GRAVEYARD ON RIGHT SIDE OF THE ROAD BEHIND CATTLE GATE. MAKE SURE TO CLOSE GATE.

SHEET INDEX

SHT NO:	DESCRIPTION:	REV:	DATE:	BY:
T-1	TITLE SHEET, VICINITY MAP AND GENERAL INFORMATION	0	08-22-12	PP
A-1	SITE PLAN	0	08-22-12	PP
A-2	CONCRETE PAD DETAILS	0	08-22-12	PP
A-3	H-FRAME WIND LOAD CALCULATIONS	0	08-22-12	PP
E-1	WIRING DIAGRAM & H-FRAME LAYOUT	0	08-22-12	PP
E-2	ELECTRICAL DETAILS	0	08-22-12	PP
G-1	COMPOUND GROUNDING	0	08-22-12	PP
	GENERATOR ASSEMBLY AND INSTALLATION SUPPLEMENT			

at&t

AMERICAN TOWER
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

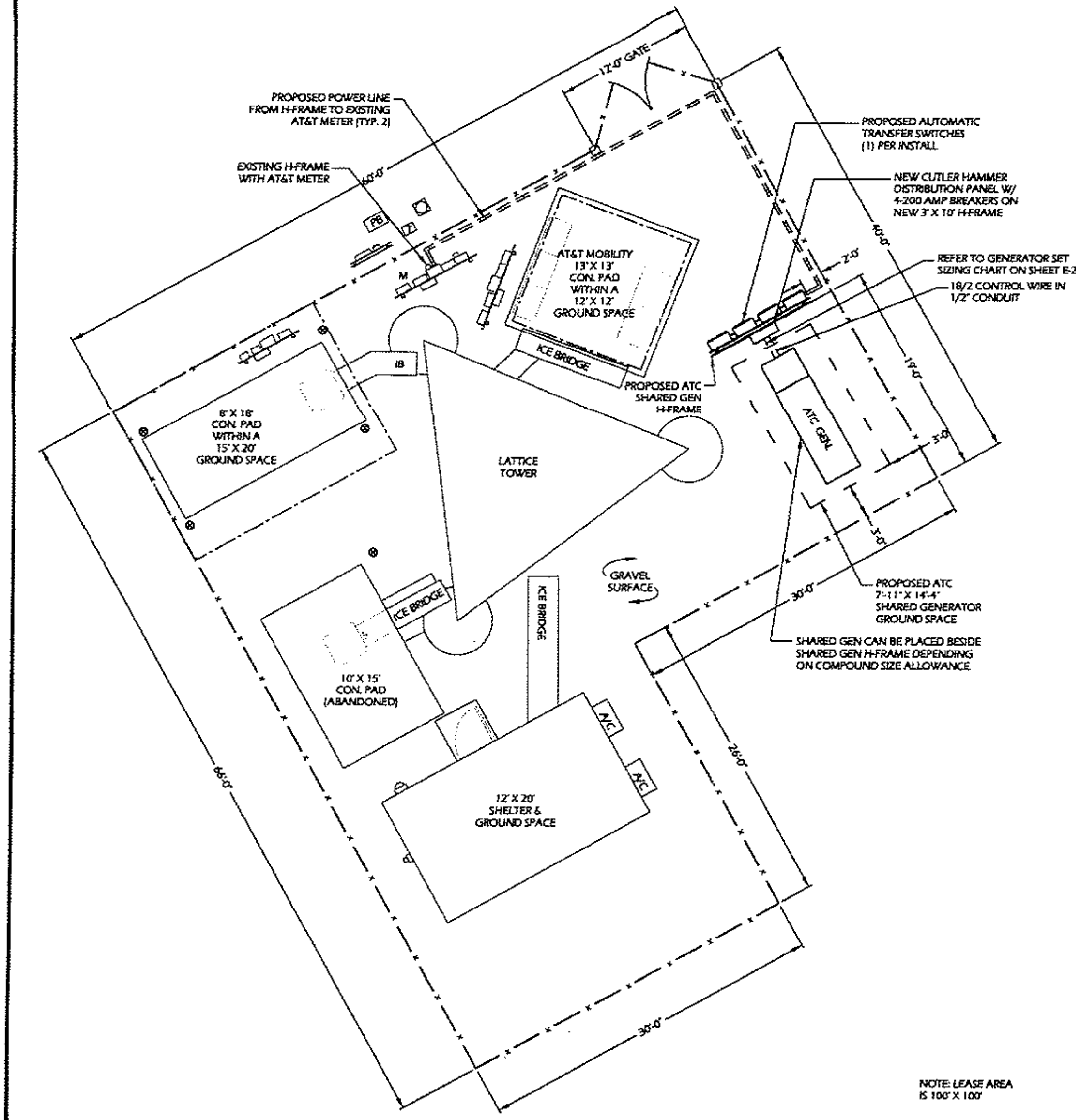
JAIME REYES
REGISTERED ENGINEER
AGRICULTURE
No. 22734
STATE OF TENNESSEE

STAMP HERE:

DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	50264082

SHEET TITLE:
TITLE SHEET
VICINITY MAP
AND GENERAL
INFORMATION

SHEET NUMBER:	REV.#
T-1	0


PROPOSED POWER LINE FROM H-FRAME TO EXISTING AT&T METER (TYP. 2)
EXISTING H-FRAME WITH AT&T METER
12'-0" GATE
60'-0"
40'-0"
PROPOSED AUTOMATIC TRANSFER SWITCHES (1) PER INSTALL
NEW CUTLER HAMMER DISTRIBUTION PANEL W/ 4-200 AMP BREAKERS ON NEW 3' X 10' H-FRAME
REFER TO GENERATOR SET SIZING CHART ON SHEET E-2
18/2 CONTROL WIRE IN 1/2" CONDUIT
AT&T MOBILITY 13' X 13' CON. PAD WITHIN A 12' X 12' GROUND SPACE
ICE BRIDGE
PROPOSED ATC SHARED GEN H-FRAME
8' X 18' CON. PAD WITHIN A 15' X 20' GROUND SPACE
LATTICE TOWER
ATC GEN
2'-0"
19'-0"
3'-0"
GRAVEL SURFACE
30'-0"
PROPOSED ATC 7'-11" X 14'-4" SHARED GENERATOR GROUND SPACE
SHARED GEN CAN BE PLACED BESIDE SHARED GEN H-FRAME DEPENDING ON COMPOUND SIZE ALLOWANCE
10' X 15' CON. PAD (ABANDONED)
A/C
12' X 20' SHELTER & GROUND SPACE
26'-0"
65'-0"
30'-0"

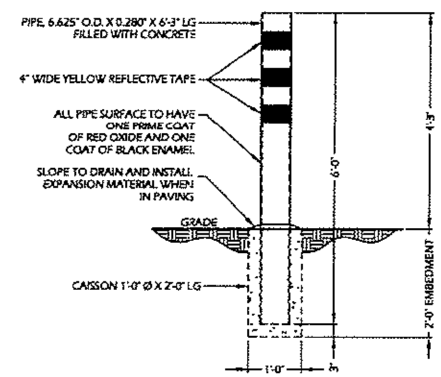
NOTE: LEASE AREA IS 100' X 100'

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

① SITE PLAN

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.


PIPE, 6.625" O.D. X 0.280" X 6'-3" LG FILLED WITH CONCRETE
4" WIDE YELLOW REFLECTIVE TAPE
ALL PIPE SURFACE TO HAVE ONE PRIME COAT OF RED OXIDE AND ONE COAT OF BLACK ENAMEL
SLOPE TO DRAIN AND INSTALL EXPANSION MATERIAL WHEN IN PAVING
GRADE
CAISSON 1'-0" Ø X 2'-0" LG
6'-0"
4'-3"
2'-0" EMBEDMENT
1'-0"
3"

ELEVATION VIEW

② TYPICAL BOLLARD INSTALLATION DETAIL (IF REQUIRED)

SCALE: NOT TO SCALE

at&t

AMERICAN TOWER®
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

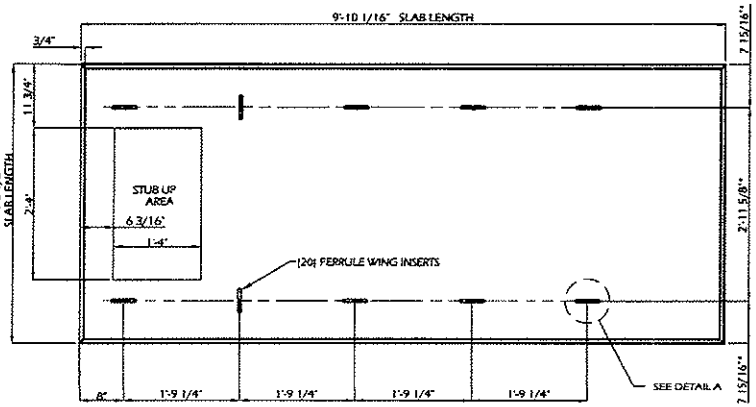
JAIME REYES
REGISTERED ENGINEER
No. 22734
STATE OF TENNESSEE
I approve this document
28 2012 11:56

STAMP HERE

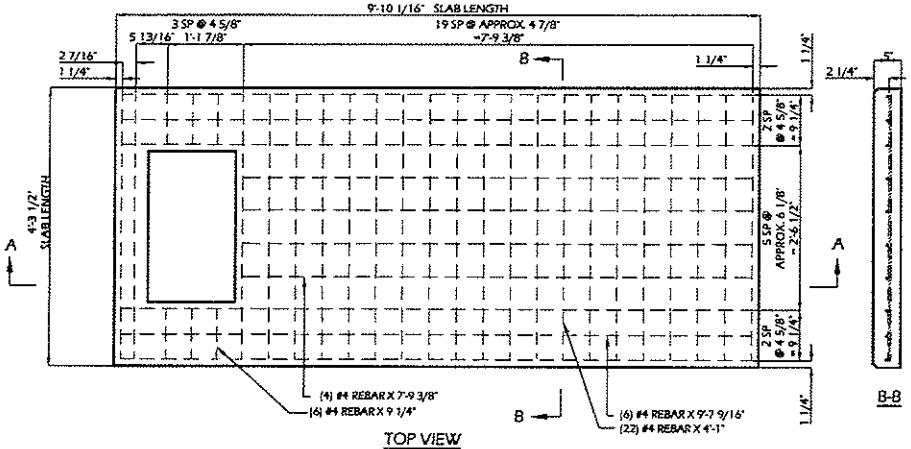
DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	50284082

SHEET TITLE:
SITE PLAN

SHEET NUMBER:	REV. #
A-1	0



PLAN VIEW



TOP VIEW

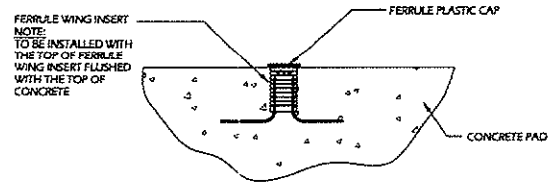
A-A

REBAR LAYOUT DETAIL

QTY REQ'D	SIZE	TOTAL LENGTH	TOTAL WEIGHT (LBS)	TYPE	BENDING DIAGRAM DIMENSION
10	1/2"	0'-5"	~	FERRULE WING	
10	1/2"	FERRULE PLASTIC CAP	~		
6	#4	9'-7 9/16"	39	STRAIGHT	A= 9'-7 9/16"
22	#4	4'-1"	60		A= 4'-1"
4	#4	7'-9 3/8"	21		A= 7'-9 3/8"
6	#4	9 1/4"	3		A= 9 1/4"

STANDARD REBAR SIZES & WEIGHTS

BAR NO	LBS PER FT.	DIA. INCHES	GRADE
4	.6676	.500	60



DETAIL A

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 4000 PSI.
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. THE SOIL BEARING CAPACITY FOR EACH SITE MUST BE VERIFIED USING THE SITE SPECIFIC GEOTECH REPORT. IF SHALLOW GROUNDWATER (≤3 FT.) WAS REPORTED, A FURTHER REVIEW OF THE DESIGN OR SPECIAL DESIGN MAY BE REQUIRED.
2. THE SOIL UNDERNEATH THE CONCRETE PAD MUST BE FREE OF ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES, AND SHOULD BE COMPACTED AND LEVELED BEFORE PLACING THE FOUNDATION. PAD SHALL BE INSTALLED LEVEL TO WITHIN +/- 1/8".
3. CONCRETE SLUMPS: 1"~2".
4. CONCRETE VOLUME: 0.78 CUBIC YARDS.

DESIGN

1. MAXIMUM DESIGN BASIC WIND SPEED (3-SECOND GUST):
90 MPH FOR GENERATOR MODELS SD050 AND SD080

PRE-CAST GENERATOR PAD

at&t

AMERICAN TOWER®
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE:AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

JAIME REYES
REGISTERED ENGINEER
No. 22734
STATE OF TENNESSEE
STAMP HERE

DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	502840KD

SHEET TITLE:
CONCRETE PAD DETAILS

SHEET NUMBER: A-2
REV. #: 0

H-Frame and Its Foundation Designs

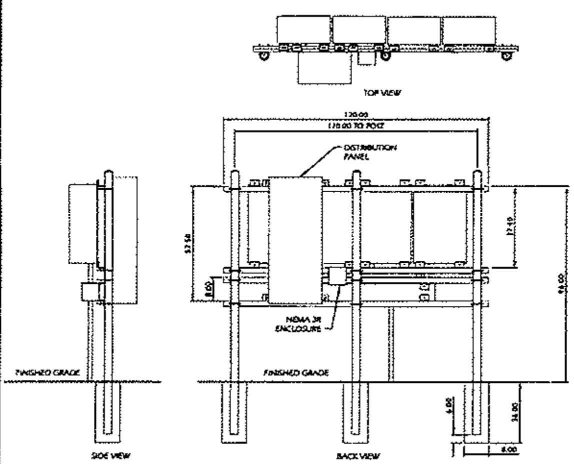
Note: This design or calculation for the H-Frame will be valid for all 80kw, 130kw and 150kw generator sites with same or less design basic wind speed as specified below.

A. Deign Loads:

ASCE 3 Sec. Wind Speed for the tower site : $V := 90$ MPH

$K\_a_z := 0.85$ $K_{zt} := 1.0$ $I := 1$ $K_d := 0.95$ $C_{f\_s} := 1.2$ $G_f := 1.0$

Wind pressure per ASCE : $q := 0.00256 \cdot K\_a_z \cdot G_f \cdot C_{f\_s} \cdot V^2 \cdot I \cdot K_{zt} \cdot K_d$ $q = 20.093$ 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" ‡ SCH 40, Sx = 3.21 in³, 35 Ksi).

$M_{m} := M_{max} \cdot 12$ $M_m = 6.467 \times 10^4$ Lbs - in

$S_{x1} := \frac{M_m}{0.75 \cdot 35000}$ $S_{x1} = 2.463$ 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: $M1 := A1 \cdot q \cdot 6 + Wt_1 \cdot \frac{11}{2}$ $M1 = 1.162 \times 10^4$ 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: $M2 := A2 \cdot q \cdot 5.5 - Wt_2 \cdot \frac{15.75}{2}$ $M2 = -709.619$ Lbs - Ft

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

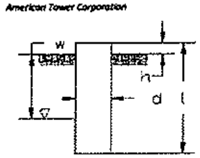
Moment: $M_{max} := M1 \cdot \frac{2}{4} + M2 + \frac{M3}{3}$ $M_{max} = 5.389 \times 10^3$ Lbs - Ft.

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

Program Last 5/26/2010
American Tower Corporation

Site Name:	0
Site Number:	0
Engineer:	H. You
Engineering Number:	0
Date:	02/15/11



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):	99.0 ft
Unit Weight of Concrete:	150.0 pcf
Unit Weight of Water:	62.4 pcf
Tension Skin Friction/Compression Skin Friction:	1.00
Pullout Angle:	30.0 degrees

Soil Mechanical Properties

Depth (ft) Top	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 Satisfactor
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_D):	10.3 k-ft
Nominal Moment Capacity ($\phi_s M_n$):	15.8 k-ft
$M_D/\phi_s M_n$:	0.65 Result: OK
ϕ_s:	0.75

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AMERICAN TOWER®
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER:
308917

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122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

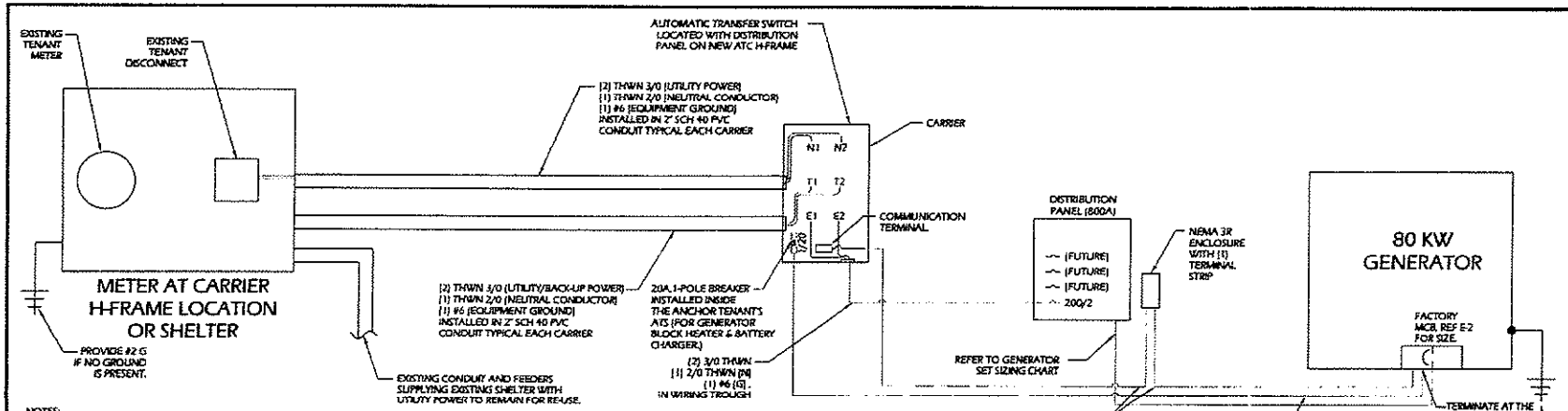
JAIME REYES
REGISTERED ENGINEER
No. 22734
STATE OF TENNESSEE

STAMP HERE:

DRAWN BY:	PF
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	50264062

SHEET TITLE:
H-FRAME
WIND LOAD
CALCULATIONS

SHEET NUMBER:	REV. #
A-3	0



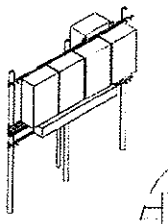
NOTES:

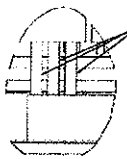
1. ALL UNDERGROUND CABLE TO BE BURIED AT 36" MIN. SHIELD TAPED AT 12" AND STUBBED OUT OF GROUND IN SCH 40 PVC CONDUIT.
2. 18-2 CONTROL WIRE IN SEPARATE 1/2" CONDUIT FROM ATS TO GENERATOR.
3. BTS SITES: THE TENANT CONTRACTOR TO COMPLETE CUSTOMER ELECTRICAL CONDUIT TO CUSTOMER METER PER STANDARD COLLOCATION 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, BUT ALUMINUM CONDUCTORS ARE ALLOWED FOR FEEDERS PROVIDED THEY ARE UPSIZED PER NEC TABLE 310.16.
7. ALL ELECTRICAL WORK SHALL BE PER THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL APPLICABLE LOCAL CODES.
8. MAINTAIN 36" CLEAR WORKSPACE IN FRONT OF METER, TRANSFER SWITCH, GENERATOR, PANELS, ETC.
9. 800A PANEL HAS A COMMON NEUTRAL BUS. NEUTRALS BACK TO EACH CARRIER METER ARE SIZED ACCORDING TO THE DISTRIBUTION PANEL BRANCH BREAKER RATING. NEUTRAL IS BONDED AT THE PRIMARY SERVICE MAIN BONDING JUMPER ONLY.
10. GENERATOR CONTROLS AND SENSORS SHALL HAVE GFCI SENSING CAPABILITY PER NEC 700-6(D).

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.

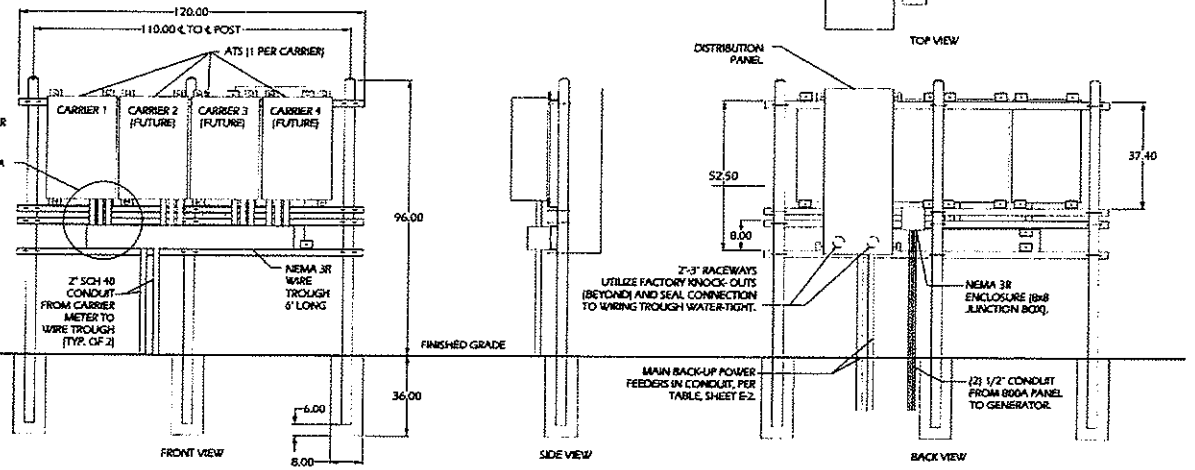
1 SINGLE CARRIER WIRING DIAGRAM

SCALE: NOT TO SCALE





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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AMERICAN TOWER
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE: AMT

ATC SITE NUMBER:
308917

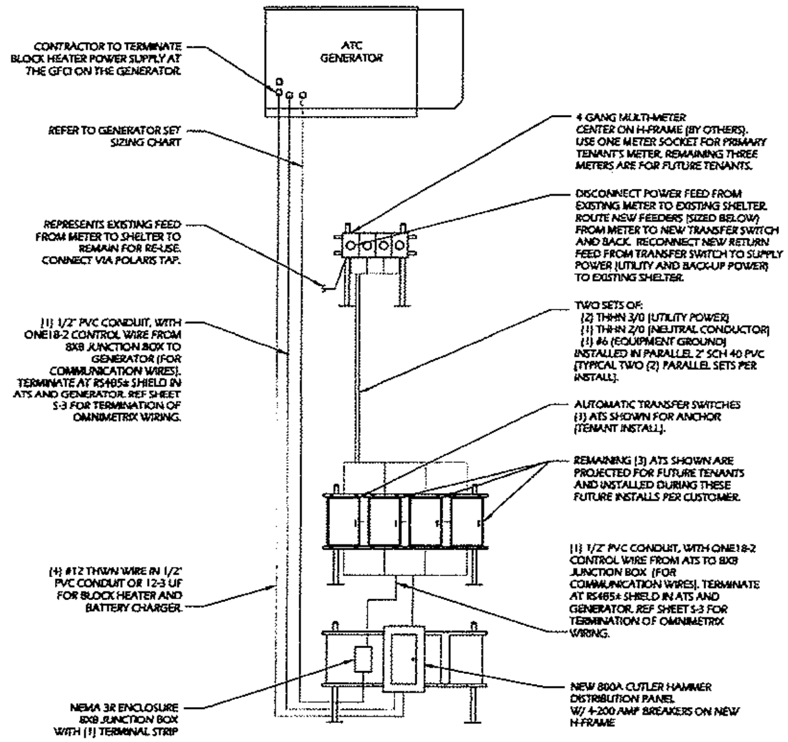
ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122 COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

Peter Adam Leptuch, P.E.
Tennessee P.E. #115419
[illegible]

SHEET TITLE:
WIRING DIAGRAM & H-FRAME LAYOUT

SHEET NUMBER:	REV. #
E-1	0


CONTRACTOR TO TERMINATE BLOCK HEATER POWER SUPPLY AT THE GFCI ON THE GENERATOR.
ATC GENERATOR
REFER TO GENERATOR SET SIZING CHART
REPRESENTS EXISTING FEED FROM METER TO SHELTER TO REMAIN FOR RE-USE. CONNECT VIA POLARIS TAP.
(1) 1/2" PVC CONDUIT, WITH ONE18-2 CONTROL WIRE FROM 8X8 JUNCTION BOX TO GENERATOR (FOR COMMUNICATION WIRES). TERMINATE AT RS485± SHIELD IN ATS AND GENERATOR. REF SHEET S-3 FOR TERMINATION OF OMNIMETRIX WIRING.
(4) #12 THWN WIRE IN 1/2" PVC CONDUIT OR 12-3 UF FOR BLOCK HEATER AND BATTERY CHARGER.
NEMA 3R ENCLOSURE 8X8 JUNCTION BOX WITH (1) TERMINAL STRIP
4 GANG MULTI-METER CENTER ON H-FRAME (BY OTHERS). USE ONE METER SOCKET FOR PRIMARY TENANT'S METER. REMAINING THREE METERS ARE FOR FUTURE TENANTS.
DISCONNECT POWER FEED FROM EXISTING METER TO EXISTING SHELTER. ROUTE NEW FEEDERS (SIZED BELOW) 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.
TWO SETS OF:
(2) THHN 3/0 (UTILITY POWER)
(1) THHN 2/0 (NEUTRAL CONDUCTOR)
(1) #6 (EQUIPMENT GROUND)
INSTALLED IN PARALLEL 2" SCH 40 PVC (TYPICAL TWO (2) PARALLEL SETS PER INSTALL).
AUTOMATIC TRANSFER SWITCHES (1) ATS SHOWN FOR ANCHOR (TENANT INSTALL).
REMAINING (3) ATS SHOWN ARE PROJECTED FOR FUTURE TENANTS AND INSTALLED DURING THESE FUTURE INSTALLS PER CUSTOMER.
(1) 1/2" PVC CONDUIT, WITH ONE18-2 CONTROL WIRE FROM ATS TO 8X8 JUNCTION BOX (FOR COMMUNICATION WIRES). TERMINATE AT RS485± SHIELD IN ATS AND GENERATOR. REF SHEET S-3 FOR TERMINATION OF OMNIMETRIX WIRING.
NEW 800A CUTLER HAMMER DISTRIBUTION PANEL W/ 4-200 AMP BREAKERS ON NEW H-FRAME

(1) 4-GANG MULTI - METER CONFIGURATION

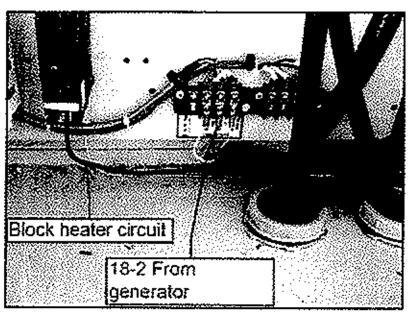
GENERATOR SET SIZING CHART & DESIGN NOTES:

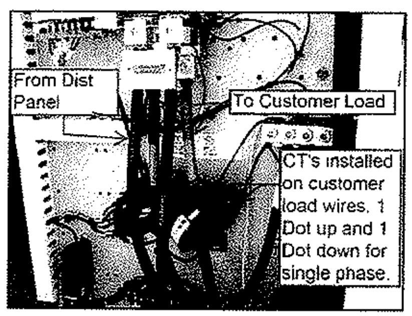
GEN SET SIZE	VOLTS - PHASE	PRIME RATING KW - AMPS	SIZE OF INLINE BREAKER (AT GENERATOR)	MAIN BREAKER SIZE SERVING ANCHOR TENANT:	FEEDER SIZES FROM GEN SET BREAKER TO DISTRIBUTION PANEL / ATS.
50KW	120/240V - 1-PH	48KW - 200A	200A	200A C/B INTEGRAL TO GEN SET.	(3)#3/0, 1#4G, IN 2"C
80KW	120/240V - 1-PH	72KW - 300A	400A	200A C/B INTEGRAL TO 800A MLO DISTRIBUTION PANEL.	2 SETS OF 3#350KCMIL, 1#2/0G, IN (2) 3"C
130KW	120/240V - 1-PH	113KW - 469A	600A	200A C/B INTEGRAL TO 800A MLO DISTRIBUTION PANEL.	2 SETS OF 3#350KCMIL, 1#2/0G, IN (2) 3"C
150KW	120/240V - 1-PH	135KW - 563A	700A	200A C/B INTEGRAL TO 800A MLO DISTRIBUTION PANEL.	2 SETS OF 3#500KCMIL, 1#2/0G, IN (2) 4"C

NOTES:

1. SERVICE VOLTAGE FOR EACH CARRIER IS 120/240 1-PHASE, AND SERVICE SIZES ARE TYPICALLY 200A PER CARRIER.
2. DISTRIBUTION PANEL IS 800A, 120/240, 1-PHASE, 22KAIC WITH 200A C/B FOR THE LISTED CARRIER OUTPUT. PANEL HAS (3) 200A BREAKER SPACES FOR FUTURE CARRIERS.
3. AUTOMATIC TRANSFER SWITCH (ATS) ARE 200A 2-POLES, 120/240V 1-PHASE PER CARRIER.
4. ALL ELECTRICAL EQUIPMENT IS NEMA 3R RATED.
5. THE GENERATOR ELECTRICAL LOADS ARE ADEQUATE FOR THE 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 UNLESS ALLOWED ELSEWHERE IN THIS DOCUMENT SET, WIRE SIZES ARE BASED ON COPPER.
8. A NEW SET OF PLANS WILL BE PROVIDED AND SUBMITTED FOR ADDITIONAL CARRIERS.
9. ALL WORK SHALL CONFORM WITH THE CURRENT VERSION OF THE NEC.
10. FIRST OVER-CURRENT PROTECTION DEVICE IS INTEGRAL TO GENERATOR. FEEDER SIZES INDICATED IN TABLE ABOVE ARE DOWNSTREAM OF THE FIRST OVER-CURRENT PROTECTION DEVICE.
11. INLINE BREAKER AT GENERATOR IS FACTORY INSTALLED, AND IS THE MANUFACTURER'S RECOMMENDED SIZE.

(2) GENERATOR SET SIZING CHART





(3) PHOTO REFERENCES FOR WIRE CONNECTIONS

at&t

AMERICAN TOWER®
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
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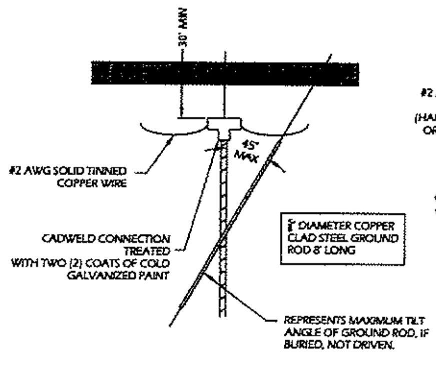
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

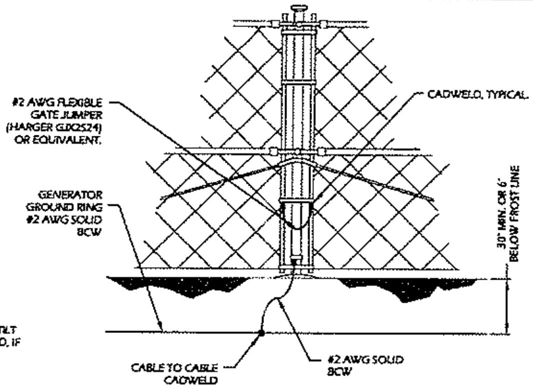
Peter Adam Leptuch, P.E.
Tennessee P.E. #115419

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:	REV.#:
E-2	0



1 GROUND ROD DETAIL

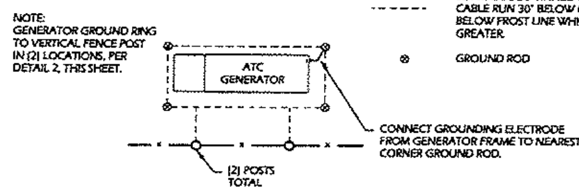


2 VERTICAL POST CONNECTED TO RING

GROUNDING SYMBOLS:

#2 AWG SOLID TINNED COPPER GROUND CABLE RUN 30" BELOW GRADE OR 6" BELOW FROST LINE WHICHEVER IS GREATER.

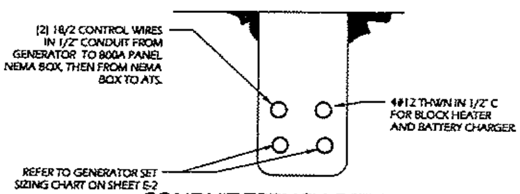
GROUND ROD



NOTE:
CAD WELD CONNECTION FOR GROUNDING CONDUCTORS BETWEEN PROPOSED AND EXISTING SECTIONS OF FENCE.

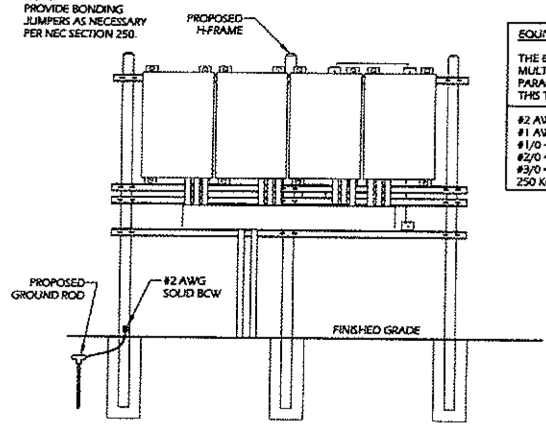
NOTE:
GENERATOR SYSTEM SHALL BE SOLIDLY GROUNDED PER NEC 250.20.

3 GENERATOR GROUND RING DETAIL



4 CONDUIT TRENCH DETAIL

NOTE:
PROVIDE BONDING JUMPERS AS NECESSARY PER NEC SECTION 250.



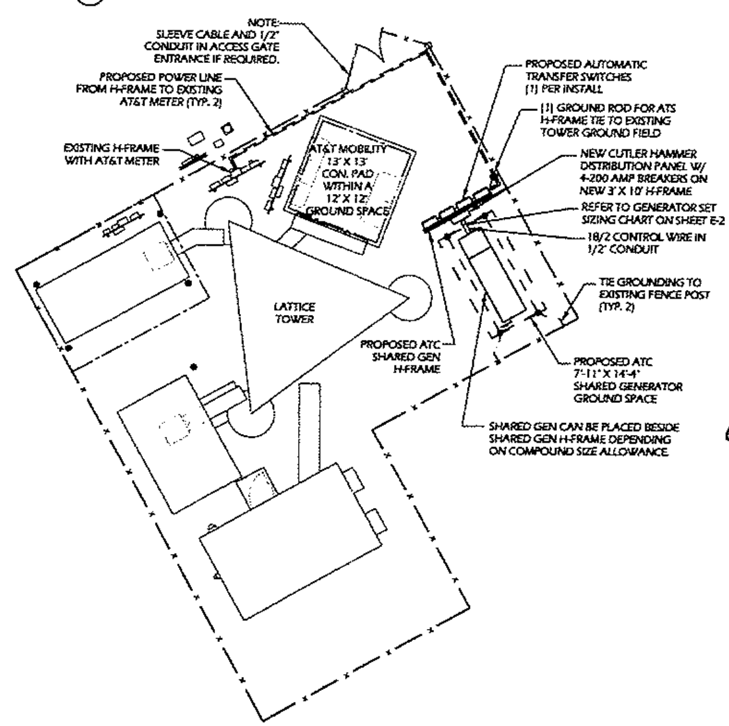
5 H-FRAME ELEVATION

EQUIVALENT WIRE GROUND CHART:

THE ELECTRICAL CONTRACTOR MAY ELECT TO USE MULTIPLE #2 TINNED COPPER GROUND WIRES IN PARALLEL IN LIEU OF A SINGLE LARGER GROUND WIRE. THIS TABLE PROVIDES THE EQUIVALENCY:

#2 AWG = 66.36 KCMIL = 0.0521 SQ. IN. = USE (1) #2G.
#1 AWG = 83.69 KCMIL = 0.0657 SQ. IN. = USE (2) #2G.
#1/0 = 105.6 KCMIL = 0.0829 SQ. IN. = USE (2) #2G.
#2/0 = 133.1 KCMIL = 0.1045 SQ. IN. = USE (2) #2G.
#3/0 = 167.8 KCMIL = 0.1318 SQ. IN. = USE (3) #2G.
250 KCMIL = 0.1964 SQ. IN. = USE (4) #2G.

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 LIGHTNING 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


NOTE:
SLEEVE CABLE AND 1/2" CONDUIT IN ACCESS GATE ENTRANCE IF REQUIRED.
PROPOSED POWER LINE FROM H-FRAME TO EXISTING AT&T METER (TYP. 2)
EXISTING H-FRAME WITH AT&T METER
AT&T MOBILITY 13' X 13' CON. PAD WITHIN A 12' X 12' GROUND SPACE
LATTICE TOWER
PROPOSED ATC SHARED GEN H-FRAME
PROPOSED AUTOMATIC TRANSFER SWITCHES (1) PER INSTALL
(1) GROUND ROD FOR ATS H-FRAME TIE TO EXISTING TOWER GROUND FIELD
NEW CUTLER HAMMER DISTRIBUTION PANEL W/ 4-200 AMP BREAKERS ON NEW 3' X 10' H-FRAME
REFER TO GENERATOR SET SIZING CHART ON SHEET E-2
18/2 CONTROL WIRE IN 1/2" CONDUIT
TIE GROUNDING TO EXISTING FENCE POST (TYP. 2)
PROPOSED ATC 7'-11" X 14'-4" SHARED GENERATOR GROUND SPACE
SHARED GEN CAN BE PLACED BESIDE SHARED GEN H-FRAME DEPENDING ON COMPOUND SIZE ALLOWANCE.

6 COMPOUND GROUNDING

SCALE
NOT TO SCALE

at&t

AMERICAN TOWER®
ATC TOWER SERVICES, INC.
8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900
FAX: (972) 999-8940
NYSE AMT

ATC SITE NUMBER:
308917

ATC SITE NAME:
EAST SEVIERVILLE

SITE ADDRESS:
122-COUNTY GARAGE RD.
SEVIERVILLE, TN 37876

JAIME REYES
REGISTERED ENGINEER
No. 22734
STATE OF TENNESSEE
I approve this document
28 2012 11:57AM

STAMP HERE

DRAWN BY:	PP
CHECKED BY:	SAE
DATE DRAWN:	08-22-12
JOB NO:	56264082

SHEET TITLE:
COMPOUND GROUNDING

SHEET NUMBER:	REV. #
G-1	0

GENERAC 80KW

GENERAL ASSEMBLY AND INSTALLATION SUPPLEMENT

[redacted]

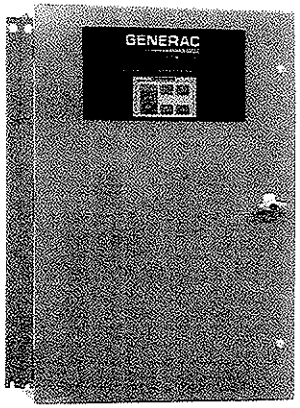
100 - 400 Amps, 600 VAC HTS

[redacted]

GENERAC | INDUSTRIAL

Automatic Transfer Switches

100 - 400 Amps, 600 VAC



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

100 - 400 Amps, 600 VAC

GENERAC | INDUSTRIAL

Interconnections

HTS 100-400 Amp

Switches and Indicators:

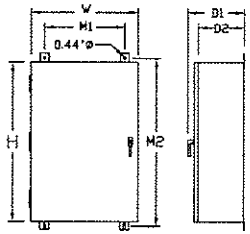
- System Ready LED
- Switch Position LED's
- Test Switch
- Return to Normal Switch
- Standby Operating LED
- Utility Available LED
- Fast Test Switch
- Safety Disconnect Switch

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 Fault 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.



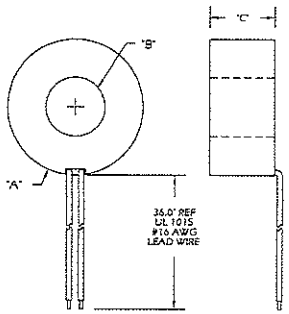
Unit Dimensions

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
400	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG

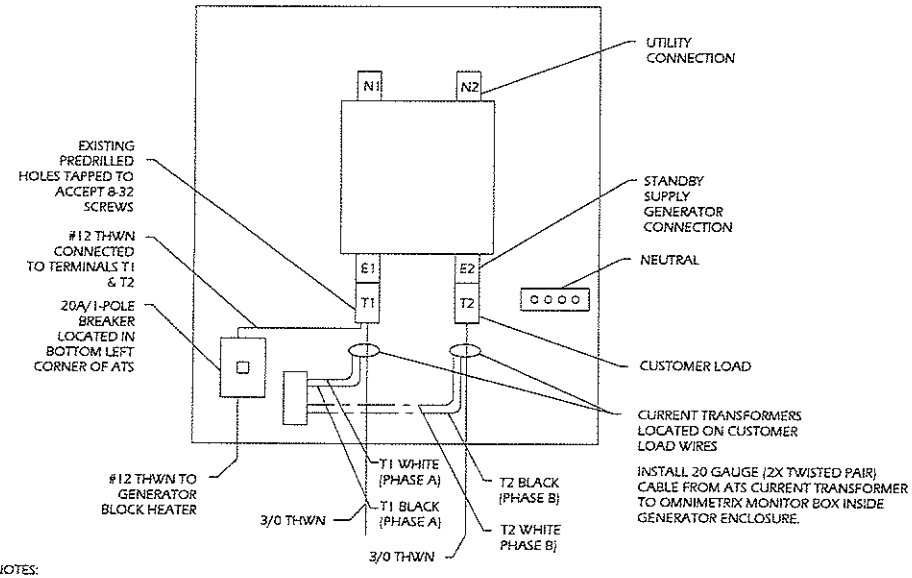
* Not included in HTS with switched neutral. ** Allowable wire range in brackets is for 2 wires per lug.



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



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

(1) ATS

GENERAC

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

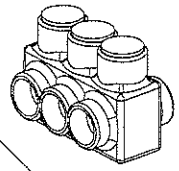
Fuel Containment Basin

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:

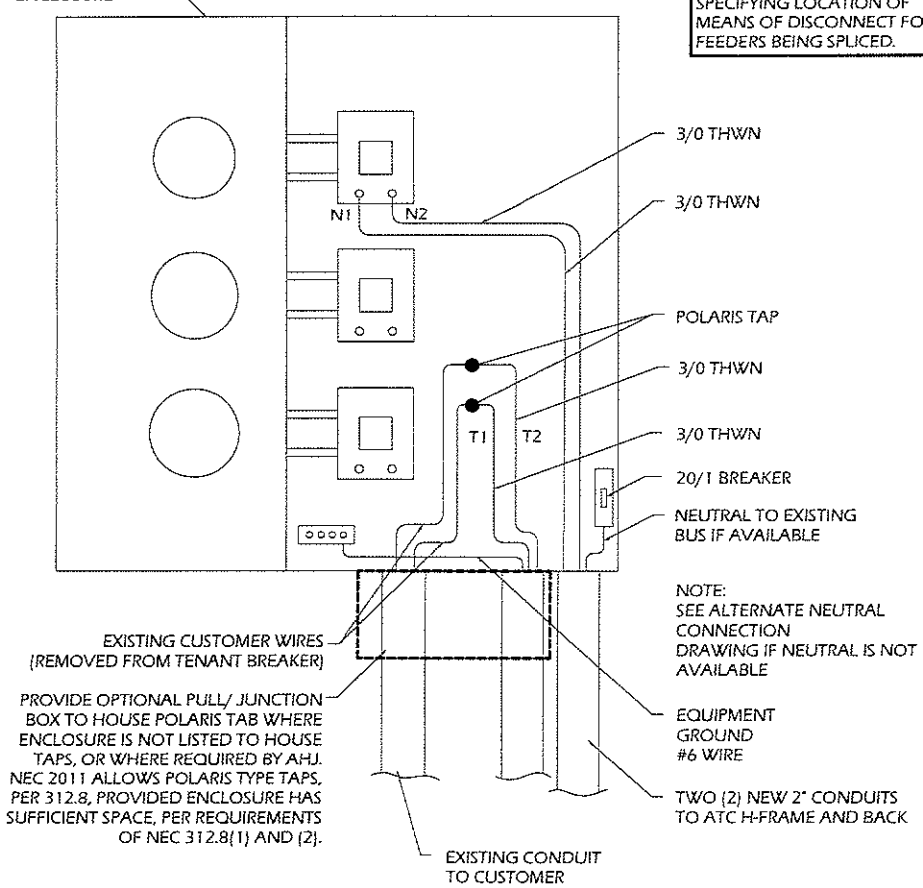
Normal and Emergency venting shall be sized per U.L. 142 specifications for wetted surface area of tank.



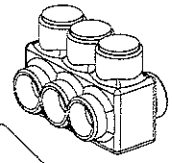
NOTE: POLARIS TAP MUST BE SECURELY WRAPPED WITH COMMERCIAL GRADE NYLON ELECTRICAL TAPE AFTER INSTALLATION IS COMPLETE

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

PER NEC 312.8(3), PROVIDE WARNING LABEL (PHENOLIC PLATE) ON ENCLOSURE CONTAINING POLARIS TAP SPECIFYING LOCATION OF MEANS OF DISCONNECT FOR FEEDERS BEING SPLICED.

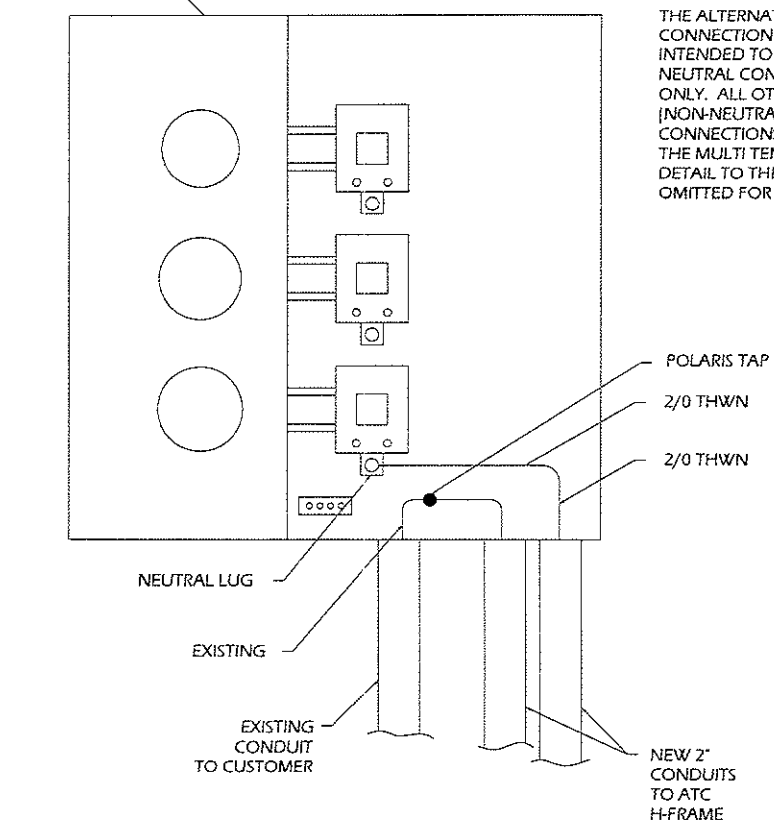


1 MULTI TENANT METER OPTION
SCALE: NOT TO SCALE

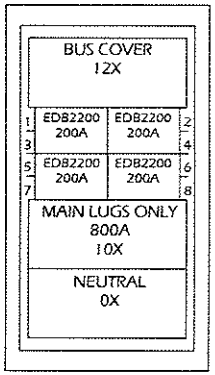


NOTE: POLARIS TAP MUST BE SECURELY WRAPPED WITH COMMERCIAL GRADE NYLON ELECTRICAL TAPE AFTER INSTALLATION IS COMPLETE

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 FOR MULTI-TENANT METER OPTION
2 SCALE: NOT TO SCALE



ECL / ECI 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 12.85" [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

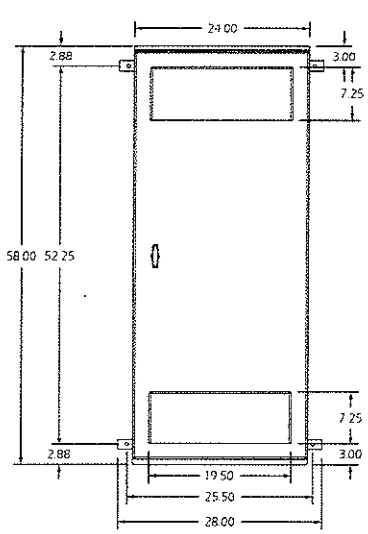
TRIM LOOK T-HANDLE LOCK ASSEMBLY
CIRCUIT DIRECTORY PLASTIC SLEEVE WITH CARD
PAINTED BOX ANSI 61

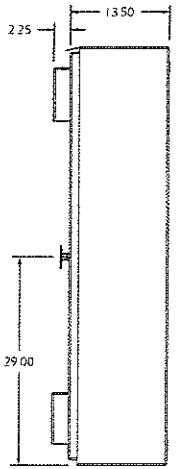
PLANT INFORMATION

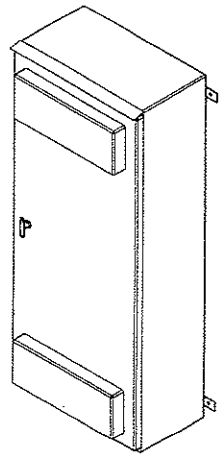
	PART NUMBER	QTY	PART NUMBER	QTY
UL LABEL:	7494A06H01	1	EDB2200	4
BUS CUTTING:	6563C06H01	2		
NEUTRAL:	6672C66G03	1		
GROUND BAR, AL/CU:	6572C78G03	1		
CHASSIS ASSEMBLY:	6572C25G06	1		
LUG ASSEMBLY:	6572C52G06	1		
BREAKER ASSY:	6572C87G04	2		
DEAD FRONT COVER:	5594C11B01	2		
COVER PACKAGING:	4177B06G02	1		
DEAD FRONT COVER ASSEMBLY:	6574C74G02	1		
PACKAGING:	50C5330G01	1		

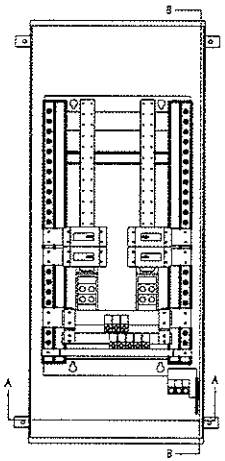
Spot _____ Final Inspection _____

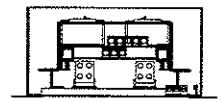
Notes:



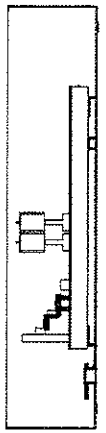




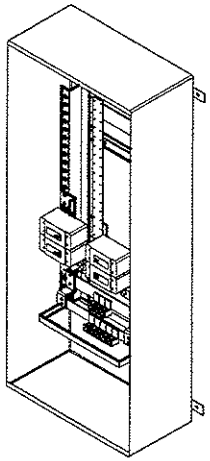




SECTION A-A



SECTION B-B



1 DISTRIBUTION PANEL
SCALE: NOT TO SCALE

2 DISTRIBUTION PANEL DETAILS
SCALE: NOT TO SCALE

SD080

GENERAC | INDUSTRIAL

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

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	Stanadyne
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

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			PRIME			
Percent Load	gph		lph	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	in Hg (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

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 takeoff 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 1 and II (Programmable)	-
Remote Communication - RS232	-
Remote Communication - Modem	-
Remote Communication - Ethernet	-
10A Run Relay	-

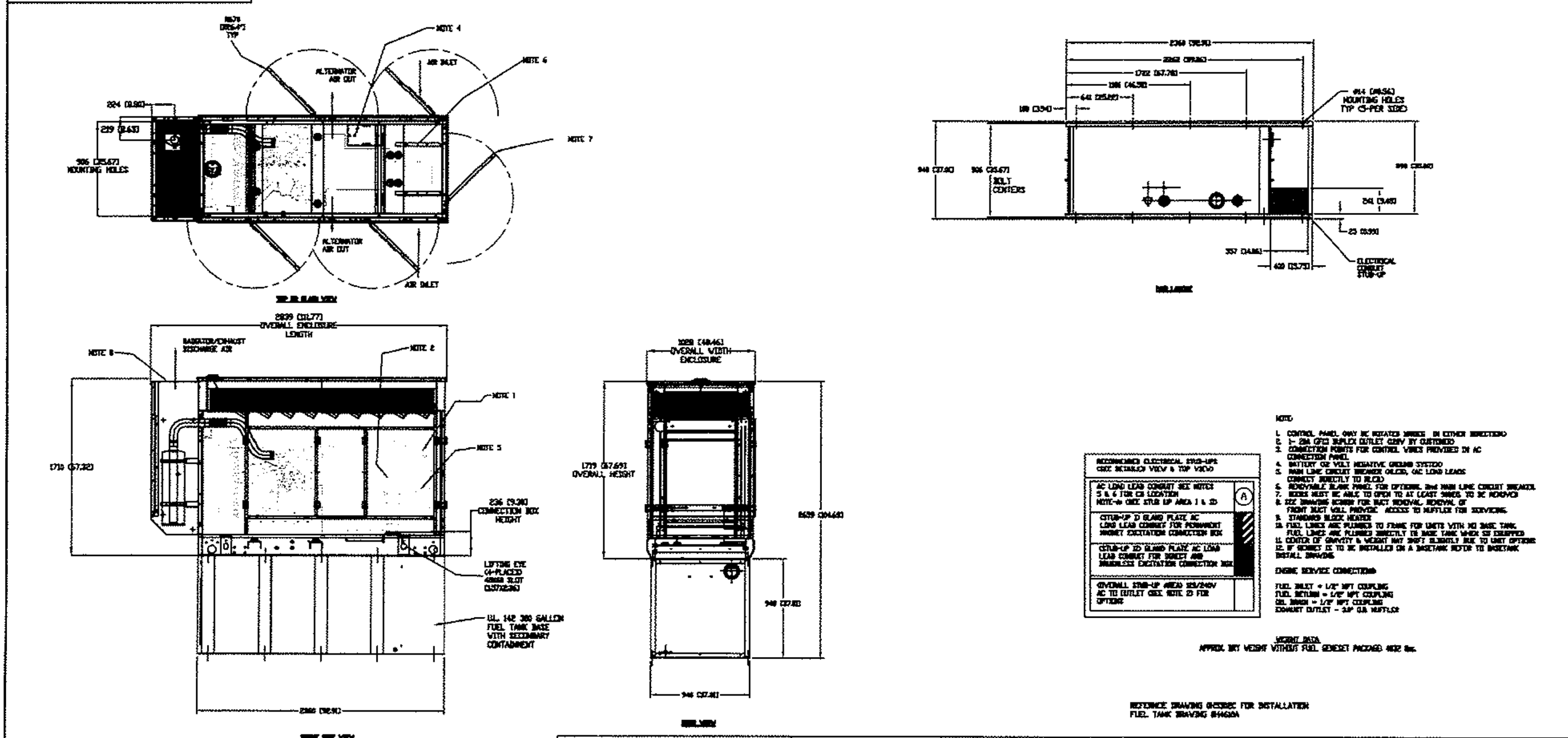
Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

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



GENERAC POWER SYSTEMS ANY PURPOSE OTHER THAN FOR WHICH IT IS SUPPLIED WITHOUT THE EXPRESS WRITTEN CONSENT OF GENERAC POWER SYSTEMS.

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INSTALLATION DRAWING

SD80

DIESEL 4.5L IVECO

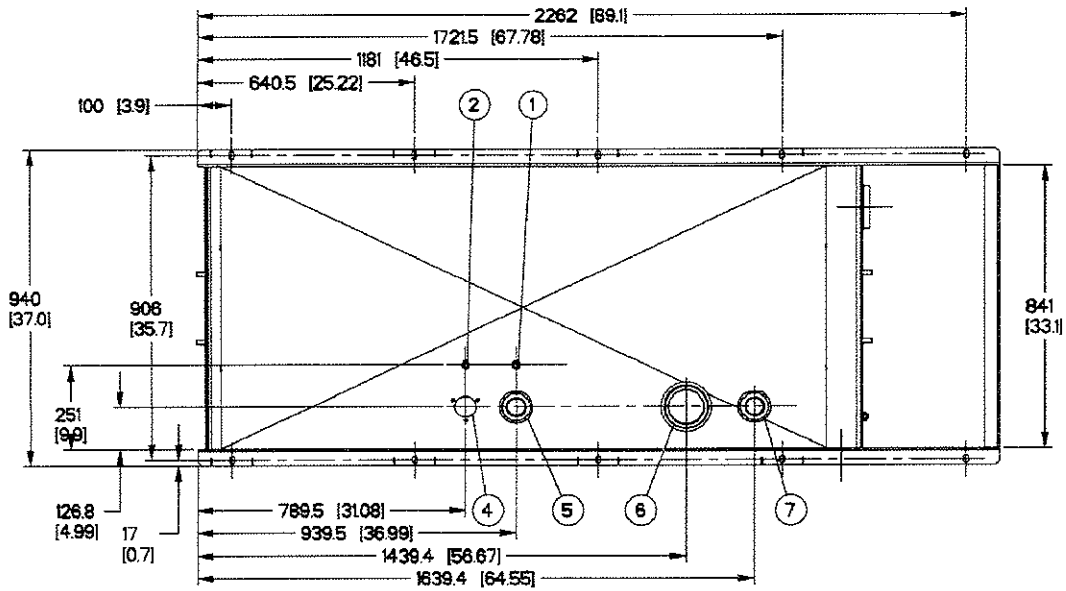
TURBOCHARGED & AFTERCOOLED

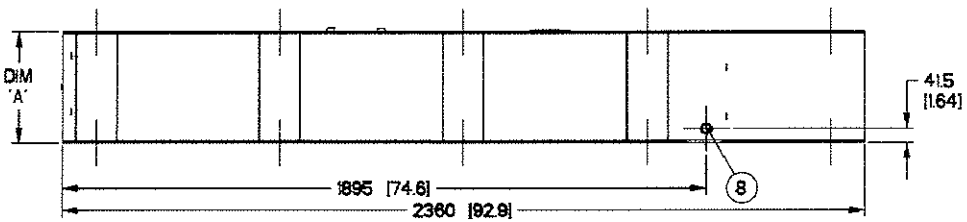
SOUND ATTENUATED ENSL., LVL 2

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



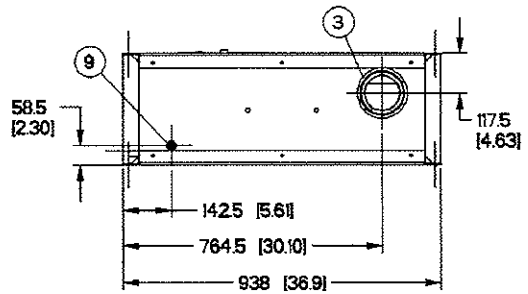


ITEM #	TANK FITTING	FUNCTION
1	3/8" NPT COUPLING	FUEL SUPPLY
2	3/8" NPT COUPLING	FUEL RETURN
3	4" NPT WELD FLANGE	EMERGENCY VENT (OUTER)
4		FUEL LEVEL
5	2" NPT WELD FLANGE	FUEL FILL
6	4" NPT WELD FLANGE	EMERGENCY VENT (INNER)
7	2" NPT WELD FLANGE	VENT
8	3/4" NPT COUPLING	DRAIN
9	Ø22 HOLE	LEAK DETECTOR

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



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

GENERAC

TITLE
B-GROUP, DW TYPE 2 TANKS

INSTALLATION DRAWING

ISSUE DATE: 10/02/09

SIZE	CAGE NO	DWG NO	REV
B		0H4610A	D

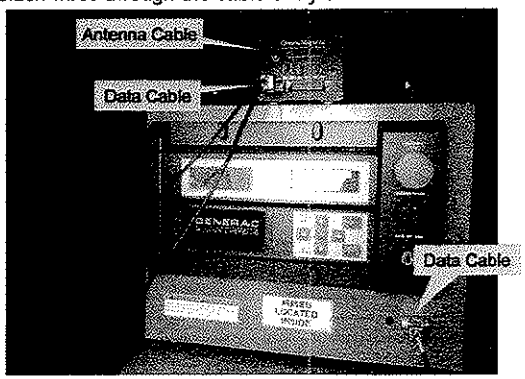
SCALE 0.075 | WT-KG -- | SHEET 1 of 1

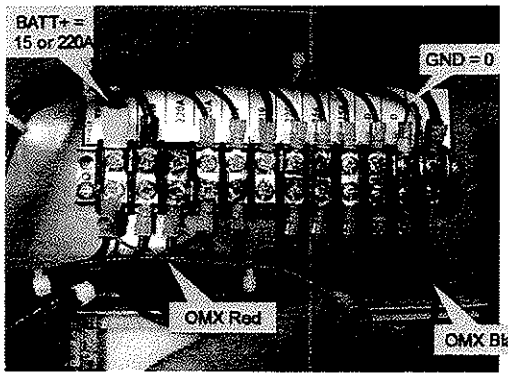
OMNIMETRIX
GLOBAL MONITORING + CONTROL

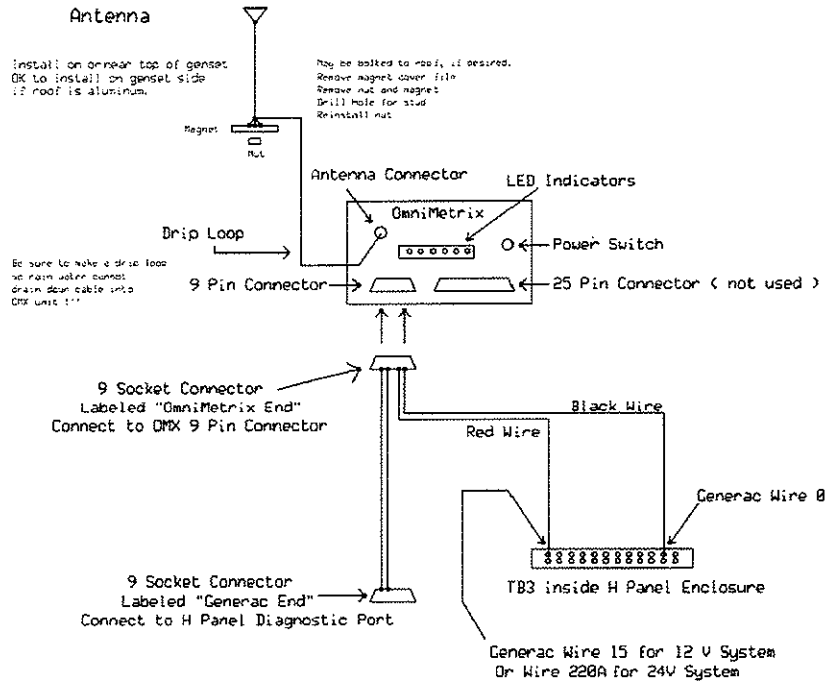
G8500 Series
American Tower Installation

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