



REQUEST FOR BIDS

**BID# 2015-64
ONSITE ENERGY
STANDBY GENERATOR
FOR DUSTIN M SEKULA
MEMORIAL LIBRARY**

**SUBMITTAL DEADLINE
MONDAY,
FEBRUARY 16, 2015
@ 3:00 PM**



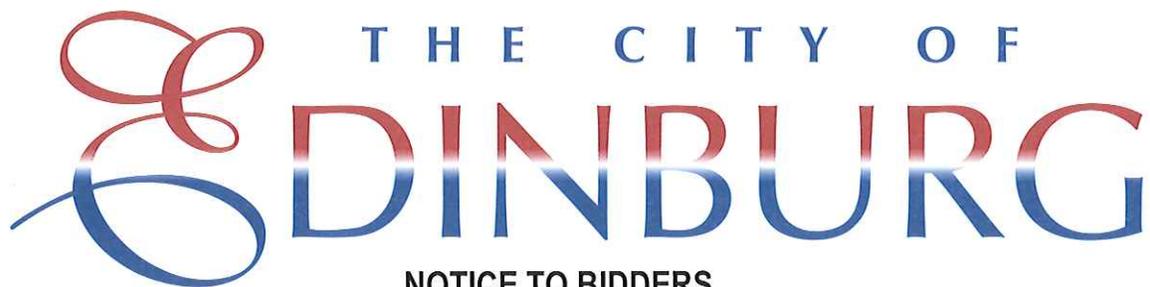
2014-2015 City Officials

Richard H. Garcia, Mayor
Elias Longoria Jr., Mayor Pro-Tem
Homer Jasso Jr., Councilmember
J.R. Betancourt, Councilmember
Richard Molina, Councilmember
Ramiro Garza Jr., City Manager



415 W. University Drive • P.O. Box 1079 • Edinburg, Texas 78540
Phone (956) 388-8204 • Fax (956) 383-7111





NOTICE TO BIDDERS

The City of Edinburg is soliciting sealed bids to be received by the City Secretary's Office located at 415 W. University Drive, Edinburg, Texas 78541. City of Edinburg normal business days are Monday through Friday between the hours of 8:00 a.m. to 5:00 p.m. and shall be closed on recognized holidays.

Bids will be received until **3:00 p.m. Central Time**, on **Monday, February 16, 2015**, shortly thereafter all submitted bids will be gathered and taken to the Edinburg City Hall Community Room, 1st Floor, to be publicly opened and read aloud. Any bid received after the closing time will not be accepted and will be returned to the bidder unopened. It is the responsibility of the bidder to see that any bid submitted shall have sufficient time to be received by the City Secretary's Office prior to the bid opening date and time. The receiving time in the City Secretary's Office will be the governing time for acceptability of the bids. Bids will not be accepted by telephone or facsimile machine. All bids must bear original signatures and figures. The Bid shall be for:

BID NO. 2015-64

ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY

A pre-bid conference will be held between 3:00 p.m., Monday, February 09, 2015, at the Dustin M. Sekula Memorial Library located at 1906 S. Closner, Edinburg, Texas. All prospective bidders are encouraged to attend. If you have any questions or require additional information regarding this bid, please contact Mr. Tomas D. Reyna, Assistant Director of Public Works at (956) 467-7439 or treyna@cityofedinburg.com, or the Project Engineer, Mr. Rene R. Olivarez, P.E. from RO Engineering at (956) 292-3336 or rene.olivarez@sbcglobal.net.

If Hand-delivering Bids: 415 West University Drive,
c/o City Secretary Department (1st Floor)

If using Land Courier (i.e., FedEx, UPS): City of Edinburg
c/o City Secretary
415 West University Drive
Edinburg, Texas 78541

If Mailing Bids: City of Edinburg
c/o City Secretary
P.O. Box 1079
Edinburg, TX 78540-1079

The City of Edinburg reserves the right to refuse and reject any or all bids and to waive any or all formalities or technicalities and to accept the bid deemed most advantageous to the City, and hold the bids for a period of **60** days without taking action.

Bids must be submitted in an envelope sealed with tape and prominently marked on the lower left hand corner of the bid envelope with corresponding bid number and title.



415 W. University Drive • P.O. Box 1079 • Edinburg, Texas 78540
Phone (956) 388-8204 • Fax (956) 383-7111



CITY OF EDINBURG INSTRUCTIONS TO BIDDERS

DEVIATION FROM SPECIFICATION

Please read your specifications/requirements thoroughly and be sure that the SERVICES offered comply with all specifications/requirements. Any variation from the specifications/requirements must be clearly indicated by letter attached to your bid referencing variations on a point-by-point basis. If no exceptions are noted, and you are the successful bidder, it will be required that the SERVICES be provided as specified.

PURPOSE

1. The purpose of these specifications/requirements and bidding documents is for **Bid 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY** for the City of Edinburg.
2. The SERVICES to be furnished under this bid shall be as specified in these bid documents. All specifications/requirements shown are minimum. There is no intention to disqualify any bidder who can meet these specifications/requirements.

SUBMITTAL OF BID

Bids will be submitted in sealed envelopes upon the blank bid form attached hereto. Submit two (2) complete sets of the bid, one (1) original marked "**ORIGINAL**," and one (1) copy marked "**COPY**". Each bid must be completely filled out and SUBMITTED IN ORIGINAL FORM, complete with all supporting documentation. Bids submitted by facsimile (fax) or electronically will **NOT** be accepted. Submittal of a bid in response to this solicitation for Bids constitutes an offer by the Bidder. Bids which do not comply with these specifications/requirements may be rejected at the option of the City. Bids must be filed with the City of Edinburg, before opening day and hour. No late Bids will be accepted. They will be returned to Bidder unopened (if properly identified).

If Hand-delivering Bids: 415 West University Drive, c/o City Secretary Department (1st Floor)
If using Land Courier (i.e., FedEx, UPS): 415 West University Drive, c/o City Secretary Department (1st Floor), Edinburg, Texas
78541
If Mailing Bids: P.O. Box 1079, Edinburg, TX 78540-1079

PREPARATION OF BID

Bids **MUST** give full firm name and address of bidder, and be manually signed. Failure to do so will disqualify your bid. Person signing bid must show title or AUTHORITY TO BIND HIS/HER FIRM IN A CONTRACT.

Firm name and authorized signature must appear on each page that calls for this information. The legal status of the Respondent/Bidder whether corporation, partnership, or individual, shall also be stated in the bid. A corporation shall execute the bid by its duly authorized officers in accordance with its corporate by-laws and shall also list the state in which it is incorporated. A partnership Respondent/Bidder shall give full names and addresses of all partners. All partners shall execute the bid. Partnership and Individual Respondent/Bidder shall state in the bid the names and addresses of all persons with a vested interest therein. The place of residence of each Respondent/Bidder, or the office address in the case of a firm or company, with county and state and telephone number, shall be given after the signature.

ALTERATIONS/AMENDMENTS TO BID

Bids **CANNOT** be altered or amended after opening time. Alterations made before opening time must be initialed by bidder guaranteeing authenticity. No bid may be withdrawn after opening time without acceptable reason in writing and only after approval by the City of Edinburg.

INSTRUCTIONS TO BIDDERS (Continued):

SALES TAX

State sales tax must not be included in the bid.

SUBSTITUTIONS

No substitutions or cancellations will be permitted without written approval of City of Edinburg.

NO BID RESPONSE

If unable to submit a bid, bidder should return inquiry giving reasons.

EXCEPTIONS

Any additions, deletions, or variations from the following specifications/requirements must be noted. The bidder shall attach to his/her bid sheet a list of any exceptions to the specifications/requirements if unable to do so, on specification sheet.

BRAND OR MANUFACTURER REFERENCE

Unless otherwise specified, any catalog or manufacturer's reference or brand name used in describing an item is merely descriptive, and not restrictive, and is used only to indicate type and style of product desired. Bids on alternate brands will be considered if they meet specification requirements. If a bidder quotes on equipment other than the one(s) specified in the bid, sufficient specifications and descriptive (pictured literature) data must accompany same to permit thorough evaluation. In the absence of these qualifications, he/she will be expected to furnish the product called for.

DELIVERY

Number of days required to deliver SERVICES after receiving order must be stated in the bid. Failure to so state will obligate bidder to complete service delivery within ONE day.

DELAY IN SERVICE DELIVERY

When delay can be foreseen, Bidder shall give prior notice to City of Edinburg. Bidder must keep City of Edinburg advised at all times of status of order. Default in promised service delivery (without acceptable reasons) or failure to meet specifications/requirements, authorizes the City of Edinburg to purchase such SERVICES elsewhere and charge increase in cost to defaulting vendor. Acceptable reasons for delayed delivery are as follows: Acts of God (floods, tornadoes, hurricanes, etc.), acts of government, fire, strikes, war; Actions beyond the control of the successful bidder.

SERVICE DELIVERED PRICING

Bids in units of quantity specified - extend and show total. In the event of discrepancies in extension, unit prices will govern. Bids subject to unlimited price increase will not be considered.

VALID BID TIME FRAME

The City may hold bids 60 days after bid opening without taking action. BIDDERS shall be required to hold their Bids firm for the same period of time.

RIGHT TO REJECT/AWARD

The City of Edinburg reserves the right to refuse and reject any or all Bids, and to waive any or all formalities or technicalities, and to make such awards of contract as may be deemed to be the best and most advantageous to the City of Edinburg.

INSTRUCTIONS TO BIDDERS (Continued):

MULTIPLE VENDOR CONTRACTS

Bidders are advised that the City of Edinburg may award Service Contracts to multiple vendors based on low bid per item basis. All items specified on the "Bid Form" **must** reflect the individual unit prices. The City of Edinburg reserves the right to award all items individually or in any combination thereof.

INDEMNIFICATION CLAUSE

The Bidder agrees to indemnify and save harmless the City, from all suits and actions of every nature and description brought against them or any of them, for or on account of the use of patented appliances, products or processes, and he shall pay all royalties and charges which are legal and equitable. Evidence of such payment or satisfaction shall be submitted upon request of the Purchasing Agent, as a necessary requirement in connection with the final estimate for payment in which such patented appliance, products or processes are used.

ADDENDA

Bidder shall carefully examine the bid forms, specifications/requirements, and instructions to Bidders. Should the bidder find discrepancies in, or omissions from bid forms, specifications/requirements, or other documents, or should he/she be in doubt as to their meaning, he/she should at once notify the Purchasing Agent (Edinburg City Hall, 956-418-1895) and obtain clarification by addendum prior to submitting any bid. Explanations, interpretations, and supplemental instructions shall be in the form of written Addenda which shall become a part of the Contract documents. Said Addenda shall be mailed, e-mailed, hand delivered and/or faxed, to all prospective Bidders. All Addenda issued in respect to this project shall be considered official changes to the original bid documents. Verbal statements in response to inquiries and/or requests for explanations shall not be authoritative nor binding. It shall be the Bidder(s) responsibility to ensure that they have received all Addenda in respect to this project. Furthermore, Bidders are advised that they must recognize, comply with, and attach a signed copy of each Addendum which shall be made part of their Bid Submittal. Bidder(s) signature on Addenda shall be interpreted as the bidder's "recognition and compliance to" official changes as outlined by the City of Edinburg and as such are made part of the original solicitation documents. Failure of any bidder to receive any such addendum or interpretation shall not relieve such Bidder from its terms and requirements. The City may issue a written addendum no later than five calendar days prior to the date bids must be received. Addendums are available online at www.cityofedinburg.com.

PAYMENT

The City of Edinburg will execute payment by mail in accordance with the State of Texas Pay Law after SERVICES have been provided and invoiced. No other method of payment will be considered.

SYNONYM

Where in this bid package ITEMS OR SERVICES is used its meaning shall refer to **Bid 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY** as specified.

ASSIGNMENT

Neither the Bidder's contract nor payment due to an awarded vendor may be assigned to a third party without the written approval of the Purchasing Department for the City of Edinburg.

INTERPRETATIONS

Any questions concerning the conditions and/or specifications/requirements with regards to this solicitation for Bids shall be directed to the designated individuals as outlined in the Request for Bids. Such interpretations, which may affect the eventual outcome of this request for Bids, shall be furnished in writing to all prospective Bidders via

Addendum. No interpretation shall be considered binding unless provided in writing by the City of Edinburg in accordance with paragraph entitled "Addenda".

INSTRUCTIONS TO BIDDERS (Continued):

STATUTORY REQUIREMENTS

It shall be the responsibility of the successful Bidder to comply with all applicable State & Federal laws, Executive Orders and Municipal Ordinances, and the Rules and Regulations of all authorities having jurisdiction over the work to be performed hereunder and such shall apply to the contract throughout, and that they will be deemed to be included in the contract as though written out in full in the contract documents. (To include issues related to health, environmental, and safety to name a few.)

BIDDER'S EMPLOYEES

Neither the Bidder nor his/her employees engaged in fulfilling the terms and conditions of this Purchase Contract shall be considered employees of the City. The method and manner of performance of such undertakings shall be under the exclusive control of the vendor on contract. The City shall have the right of inspection of said undertakings at any time.

RIGHT TO WAIVE

City of Edinburg reserves the right to waive or take exception to any part of these specifications/requirements when in the best interest of the City of Edinburg.

COOPERATIVE PRICING

Bidders are advised that in addition to responding to our "local" solicitation for bids/Bids with Dealer pricing, vendors/contractors are encouraged to provide pricing on the below referenced items/products/services based on BuyBoard, TX-MAS, H-GAC and/or any other State of Texas recognized and approved cooperative which has complied with the bidding requirements for the State of Texas. If bidding other than or in addition to "dealer" pricing, kindly duplicate the bid forms for each bid being provided from a cooperative contract. Any and all applicable fees must be included. All cooperative pricing must be submitted on or before bid opening date and hour.

TIME ALLOWED FOR ACTION TAKEN

The City of Edinburg may hold bids 60 days after the opening of Bids without taking action. Bidders are required to hold their Bids firm for same period of time.

PREPARATION OF BID

The City of Edinburg shall not be held liable for any costs incurred by any bidder for work performed in the preparation of and production of a bid or for any work performed prior to execution of contract.

CONFIDENTIAL INFORMATION

Any information deemed to be confidential by the bidder should be clearly noted on the pages where confidential information is contained; however, the City cannot guarantee that it will not be compelled to disclose all or part of any public record under Texas Public Information Act, since information deemed to be confidential by the bidder may not be considered confidential under Texas Law, or pursuant to a Court order.

VERBAL THREATS

Any threats made to any employee of the City, be it verbal or written, to discontinue the providing of item/material/services for whatever reason and/or reasons shall be considered a breach of contract and the City will immediately sever the contract with the Vendor on contract.

MATHEMATICAL ERRORS

In the event that mathematical errors exist in any bid, unit prices/rates -v- totals, unit prices/rates will govern.

INSTRUCTIONS TO BIDDERS (Continued):

AUDIT

The City of Edinburg reserves the right to audit the vendor's books and records relating to the performance of this contract. The City of Edinburg, at its own expense, shall have the right at all reasonable times during normal business hours and upon at least twenty-four (24) hours' advance notice, to audit, to examine, and to make copies of or extracts from the books of account and records maintained by the vendor(s) with respect to the Supply/Service and/or Purchase Contract. If such audit shall disclose overpayment by City to vendor, written notice of such overpayment shall be provided to the vendor and the amount of overpayment shall be promptly reimbursed by vendor to the City. In the event any such overpayment is not paid within ten (10) business days after receipt of such notice, the unpaid amount of such overpayment shall bear interest at the rate of one percent (1%) per month from the date of such notice until paid.

PAST PERFORMANCE

Vendor's past performance shall be taken into consideration in the evaluation and award of Service Contract for the Purchase of SERVICES.

JURISDICTION

Contract(s) executed as part of this solicitation shall be subject to and governed under the laws of the State of Texas. Any and all obligations and payments are due and performable and payable in Hidalgo County, Texas.

VENUE

The parties agree that venue for purposes of any and all lawsuits, cause of action, arbitration, and/or any other dispute(s) shall be in Hidalgo County, Texas.

CONFLICT OF INTEREST

CHAPTER 176 OF THE TEXAS LOCAL GOVERNMENT CODE

Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the records administrator of the City of Edinburg not later than the 7th business day after the date the person becomes aware of facts that require the statement be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor. For more information or to obtain Questionnaire CIQ go to the Texas Ethics Commission web page at www.ethics.state.tx.us/forms/CIQ.pdf.

IF YOU HAVE ANY QUESTIONS ABOUT COMPLIANCE, PLEASE CONSULT YOUR OWN LEGAL COUNSEL. COMPLIANCE IS THE INDIVIDUAL RESPONSIBILITY OF EACH PERSON OR AGENT OF A PERSON WHO IS SUBJECT TO THE FILING REQUIREMENT. AN OFFENSE UNDER CHAPTER 176 IS A CLASS "C" MISDEMEANOR.

AWARD

For purposes of this project, award will be contingent on approval of budget.

SPECIAL CIRCUMSTANCES

In the event that the City of Edinburg has an immediate need for a particular service(s) that is/are on contract and the successful vendor on contract is not able to meet the special service delivery needs of the City of Edinburg, the City of Edinburg reserves the right to purchase such services elsewhere to fulfill its' immediate need.

INSTRUCTIONS TO BIDDERS (Continued):

TERMINATION OF CONTRACT

The City of Edinburg reserves the right to terminate the contract if, in the opinion of the City of Edinburg, the successful vendor's performance is not acceptable, if the City is being repeatedly over charged, improperly charged, no funds are available, or if the City wishes, without cause, to discontinue this contract. Termination will be in written form allowing a 30-day notice. The bidder shall be afforded the same right to terminate this contract in the same manner.

INSURANCE REQUIREMENTS Staff may waive insurance requirements for contracts \$0 - \$4,999.99, including but not limited to contracts for food, materials, supplies, and construction. Workers' Compensation in amounts which satisfy statutory coverage shall be required for construction projects.

The following insurance requirements will be included in all City contracts of \$5,000 - \$14,999.99. In contracts not involving building and construction projects, as that activity is defined in TEX. LABOR CODE §406.096, contractors may obtain alternative form of worker accident insurance with minimum limits of liability of \$100,000 per claim.

Minimum Insurance Requirements	
Type of Coverage	Limits of Liability
Worker's Compensation	Statutory Coverage
Comprehensive General Liability (City named as additional insured) Bodily Injury	\$250,000 each person/\$500,000 each occurrence
Property Damage	\$100,000 each occurrence/\$100,000 aggregate or \$500,000 combined single limits

The following insurance requirements will be included in all City contracts of \$15,000 or more.

- (1) The successful bidder will be required to carry the following insurance coverage and limits of coverage, as well as list the City as an additional insured to liability coverage as requested by the City. In addition, the successful bidder shall provide the City with evidence of coverage and furnish acceptable proof of payment of insurance premiums.

- (2) The successful bidder will be required to secure and/or have insurance coverage in force with an admitted property and casualty insurance company licensed by the State of Texas to conduct business in the State of Texas.

- (3) In contracts not involving building and construction projects, as that activity is defined in TEX. LABOR CODE §406.096, contractors may obtain alternative form of worker accident insurance with minimum limits of liability of \$100,000 per claim.

INSTRUCTIONS TO BIDDERS (Continued):

Minimum Insurance Requirements	
Type of Coverage	Limits of Liability
Worker's Compensation	Statutory Coverage
Employer's Liability	Bodily Injury by Accident: \$100,000 each accident Bodily Injury by Disease: \$100,000 each employee/\$500,000 policy limit
Comprehensive General Liability Bodily Injury	\$250,000 each person/\$500,000 each occurrence
Property Damage	\$100,000 each occurrence/\$100,000 aggregate or \$500,000 combined single limits
Comprehensive Auto Liability Bodily Injury	\$100,000 each person/\$500,000 each occurrence
Property Damage	\$100,000 each occurrence/\$100,000 aggregate or \$500,000 combined single limits
City's Protective Liability Bodily Injury	\$250,000 each person/\$500,000 each occurrence
Property Damage	\$100,000 each occurrence/\$100,000 aggregate or \$500,000 combined single limits

Policies must name the City of Edinburg as an Additional Insured.

Certificates of insurance naming the CITY as an additional insured shall be submitted to the CITY for approval prior to any services being performed by Contractor. Each policy of insurance required hereunder shall extend for a period equivalent to, or longer than the term of the Contract, and any insurer hereunder shall be required to give at least thirty (30) days written notice to the CITY prior to the cancellation of any such coverage on the termination date, or otherwise.

This Contract shall be automatically suspended upon the cancellation, or other termination, of any required policy of insurance hereunder, and such suspension shall continue until evidence that adequate replacement coverage is provided to the CITY. If replacement coverage is not provided within thirty (30) days following suspension of the Contract, the Contract shall automatically terminate.

BID BOND INFORMATION

If the contract amount is over twenty-five-thousand dollars (\$25,000) for construction of the project, the successful bidder shall provide a bid guarantee, give a good and sufficient bond in the full amount of the contract price for the faithful performance of such contract, executed by a surety company authorized to do business in the State of Texas, in accordance with Article 5160, Vernon's Texas Civil Statutes, and amendments thereto. A payment bond in the full amount of the contract price to assure payment shall be required by law of all persons supplying labor and material in the execution of the project provided for in the contract documents.

A bid guarantee equivalent to five percent (5%) of the bid price will be required from each bidder. The "bid guarantee" shall consist of a firm commitment, such as a bid bond, certified check or other negotiable instrument accompanying a

INSTRUCTIONS TO BIDDERS (Continued):

bid as assurance that the bidder will upon acceptance of his/her bid, execute such contractual documents as may be required within the time specified.

A performance bond on the part of the contractor for one-hundred percent (100%) of the contract price will be required. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

A payment bond on the part of the contractor for one-hundred percent (100%) of the contract price will be required. A "payment bond" is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in execution of the work provided for in the contract documents.

**CITY OF EDINBURG
REQUEST FOR BIDS FOR
ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY**

BID NO. 2015-64

BID OPENING DATE: February 16, 2015 at 3:00 p.m.

It is the intent of this Request for Bids to describe and ultimately make it possible for the City of Edinburg to purchase the below mentioned in **Bid 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY.**

THERE WILL BE A RECOMMENDED PRE-BID MEETING FEBRUARY 9, 2015 AT 10:00 AM AT THE DUSTIN M. SEKULA MEMORIAL LIBRARY 1906 S. CLOSNER, EDINBURG, TEXAS 78539.

GENERAL REQUIREMENTS AND AGREEMENT FOR BID 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY:

You are invited to submit a sealed bid for **Bid 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY** as requested by the City of Edinburg Streets Department.

The specifications listed below are minimum requirements and are intended to govern, in general, the size and material desired. The City of Edinburg reserves the right to evaluate variations from these specifications.

GENERAL REQUIREMENTS AND AGREEMENT FOR THE BID 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY OF ANY COMBINATION:

**CITY OF EDINBURG
 BID FORM FOR
 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY**

BID NO. 2015-64

BID OPENING DATE: February 16, 2015 at 3:00 p.m.

I/We submit the following bid in **ORIGINAL FORM** for **BID 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY** according to City of Edinburg requirements, less tax:

NOTE: In addition to responding to our "local" solicitation for bids/proposals vendors/contractors are encouraged to provide pricing on the above referenced items/products/services based on Buyboard, H-GAC, TXMAS and/or any other **State of Texas recognized and approved cooperative** which has complied with the bidding requirements for the State of Texas (**any and all applicable fees must be included**). **All cooperative pricing must be submitted on or before bid/proposal opening date and hour.**

<u>CHECK ONE</u>	
<input type="checkbox"/> BUYBOARD	<input type="checkbox"/> H-GAC
<input type="checkbox"/> TX DIR	<input type="checkbox"/> TFC
<input type="checkbox"/> TXMAS	<input type="checkbox"/> DEALER/LOCAL
<input type="checkbox"/> OTHER _____	
Specify	
CONTRACT NUMBER: _____	COMMODITY NUMBER: _____
(if applicable)	(if applicable)

ITEM	QTY	DESCRIPTION OF GOODS OR SERVICES	EXTENDED PRICE
1	1	ONSITE ENERGY STANDBY GENERATOR AND AUTOMATIC TRANSFER SWITCH , Installed at the Dustin M. Sekula Memorial Library with CMU Fencing enclosure as per plans and specs. Provided by RO Engineering, PLLC, (Equal or Greater Value).	\$ _____
ALTERNATE BIDS			
1	1	CHAIN LINK FENCE ENCLOSURE , Installed to replace CMU fence as per plans and specs.	\$ _____
2	1	ADDITIONAL 48 HOUR TANK , Installed as per plans and specs.	\$ _____

TOTAL: BASE BID FOR GENERATOR: \$ _____

TOTAL: GENERATOR AND ALTERNATE 1: \$ _____

TOTAL: GENERATOR AND ALTERNATE 2: \$ _____

Notice – The City of Edinburg reserves the right to accept or reject any bid in whole or in part based on what is

deemed to be most advantageous to the City of Edinburg.

BID FORM FOR BID 2015-64 ONSITE ENERGY STANDBY GENERATOR FOR DUSTIN M. SEKULA MEMORIAL LIBRARY CONTINUED:

The Number of Calendar days to complete contract 60.

The undersigned agrees, unless hereinafter stated otherwise to furnish all materials as shown and specified in the Plans and Specifications.

Bidder hereby agrees to commence work under this contract within 10 days after "NOTICE TO PROCEED" is issued, and to complete all the work in the Contract within 60 Calendar Days.

All Addenda issued in respect to this project shall be considered official changes to the original bidding documents. It shall be the Bidder(s) responsibility to ensure that all Addenda have been received. Furthermore, bidders are advised that they must recognize, comply with, and attach a signed copy of each Addendum which shall be made part of their Bid Submittal. Bidder(s) signature on Addenda shall be interpreted as the vendor's "recognition and compliance to" official changes as outlined by the City of Edinburg and as such are made part of the original bidding documents.

The undersigned bidder acknowledges the receipt of the following addenda:

ADDENDUM NO.	DATE	BY
ADDENDUM No. 1		
ADDENDUM No. 2		
ADDENDUM No. 3		

Does the Company have an office located in Edinburg, Texas? Yes _____ No _____

Has the Company ever conducted business with the City of Edinburg? Yes _____ No _____

Respectfully submitted this _____ day of _____, 2015.

SIGNATURE: _____

TYPE/PRINT NAME: _____

TITLE: _____

COMPANY: _____

ADDRESS: _____

TELEPHONE & CELL NO.: _____

FAX NO.: _____

EMAIL: _____



ENGINEERING, PLLC

MEP • Energy • Planning • Facility Assessment • Project Management



ONSITE ENERGY STANDBY GENERATOR

DUSTIN M. SEKULA

MEMORIAL LIBRARY

1906 South Closner Boulevard,
Edinburg, TX 78539

BYPASS ISOLATION TRANSFER SWITCH
SPECIFICATIONS

PART 1 GENERAL

1.01 SCOPE

- A. Furnish and install the low voltage automatic transfer switches having the ratings, features/accessories and enclosures as specified herein and as shown on the contract drawings.

1.02 RELATED SECTIONS

1.03 REFERENCES

- A. The automatic transfer switches and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of UL and NEMA as follows:
 - 1. UL 1008 – Transfer Switches
 - 2. UL 991 - Tests for Safety-Related Controls Employing Solid-State Devices
 - 3. NFPA 70 – National Electrical Code
 - 4. NFPA 99 – Essential Electrical Systems of Health Care Facilities
 - 5. NFPA 110 – Emergency and Standby Power Systems
 - 6. NEMA ICS 10 – AC Transfer Switch Equipment
 - 7. IEEE 446 – Recommended Practice for Emergency and Standby Power Systems

1.04 SUBMITTALS – FOR REVIEW/APPROVAL

- A. The following information shall be submitted to the Engineer:
 - 1. Front view and plan view of the assembly
 - 2. Schematic diagram
 - 3. Conduit space locations within the assembly.
 - 4. Assembly ratings including:
 - a. Withstand and Closing rating
 - b. Voltage
 - c. Continuous current rating
 - d. Short-Time rating if applicable
 - e. Short-circuit rating if ordered with integral protection
 - 5. Cable terminal sizes
 - 6. Product Data Sheets.
- B. Where applicable, the following additional information shall be submitted to the Engineer:

1. Busway connection
2. Connection details between close-coupled assemblies
3. Composite front view and plan view of close-coupled assemblies

1.05 SUBMITTALS – FOR CONSTRUCTION

- A. The following information shall be submitted for record purposes:
 1. Final as-built drawings and information for items listed in section 1.04
 2. Wiring diagrams
 3. Certified production test reports
 4. Installation information
 5. Seismic certification as specified
- B. The final (as-built) drawings shall include the same drawings as the construction drawings and shall incorporate all changes made during the manufacturing process.

1.06 QUALIFICATIONS

- A. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.
- B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
 - A. Provide Seismic tested equipment as follows:
 1. The equipment and major components shall be suitable for and certified by actual seismic testing to meet all applicable seismic requirements of the latest International Building Code (IBC)
 2. The Project Structural Engineer will provide site specific ground motion criteria for use by the manufacturer to establish SDS values required.
 3. The IP rating of the equipment shall be 1.5
 4. The Structural Engineer for the Site will evaluate the SDS values published on the [Manufacturer's] [OSHPD] website to ascertain that they are "equal to" or "greater than" those required for the Project Site.
 5. The following minimum mounting and installation guidelines shall be met, unless specifically modified by the above referenced standards.
 - a. The Contractor shall provide equipment anchorage details, coordinated with the equipment mounting provision, prepared and stamped by a licensed civil engineer in the state. Mounting recommendations shall be provided by the manufacturer based upon the above criteria to verify the seismic design of the equipment.

- b. The equipment manufacturer shall certify that the equipment can withstand, that is, function following the seismic event, including both vertical and lateral required response spectra as specified in above codes.
- c. The equipment manufacturer shall document the requirements necessary for proper seismic mounting of the equipment. Seismic qualification shall be considered achieved when the capability of the equipment, meets or exceeds the specified response spectra.

1.07 REGULATORY REQUIREMENTS

- A. Provide a certificate of compliance with UL 1008 for the transfer switches furnished under this section.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be handled and stored in accordance with manufacturer's instructions.
One (1) copy of these instructions shall be included with the equipment at time of shipment.

1.09 FIELD MEASUREMENTS

1.10 OPERATION AND MAINTENANCE MANUALS

- A. Equipment operation and maintenance manuals shall be provided with each assembly shipped, and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.

1.11 EXTRA PRODUCTS

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Eaton
- B. GE/Zenith
- C. Generac Power Systems Inc
- D. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety. Products in compliance with the specification and manufactured by others not named will be considered only if pre-approved by the engineer ten (10) days prior to bid date.

2.02 CONSTRUCTION

- A. Switches shall be free standing construction utilizing draw out mounted power case circuit breakers, Eaton type MAGNUM DS or approved equal. Transfer switch shall be rated for 1000A, 480/277V 3 phase 4 wire connected.

- B. Ratings shall be per the drawing. All breakers shall be UL listed for application in their intended enclosures for 100% of their continuous ampere rating. Breakers shall be electrically operated.
- C. All breakers shall be provided with a true, two-step stored energy mechanism providing a maximum of three-cycle closing. All the energy required for closing the breakers shall be completely stored and held in readiness pending a release to close action. The power case switch or breaker shall have high-endurance characteristics being capable of no-load and full-load interruptions at rated current equal to or exceeding the UL endurance ratings for power circuit breakers without maintenance.
- E. Transfer switches shall be open transition and provided with an in-phase monitor feature, which will permit a transfer or re-transfer between two live sources that have a phase angle difference of +/- 8 degrees or less. In the event that the switch cannot transfer in-phase, the switch will default to a time delay in neutral transfer adjustable 0-120 seconds.
- F. Transfer switches applied in service entrance equipment applications provide power circuit breakers with trip devices necessary for service entrance rated use.

2.03 BYPASS ISOLATION

- A. The switching panel shall consist of completely enclosed breaker assemblies and a separate control or transformer panel. Control power for all transfer operations shall be derived from the line side of the source to which the load is being transferred.
- B. Each transfer switch shall be positively interlocked both mechanically and electrically to prevent simultaneous closing of both sources under either automatic or manual operation. Main contacts shall be mechanically locked in position in both normal and emergency positions. A neutral position shall not be possible under normal electrical operation unless a delayed transition accessory is required for switching highly inductive loads.
- C. Transfer switches shall be capable of being operated manually under full rated load conditions. Manual operation shall be accomplished by a permanently attached manual operator, or by integrally mounted pushbuttons. Removable manual operating handles, and handles that may move in the event of an electrical operation during the manual operation, are not acceptable. Manual operators requiring source or load disconnection prior to manual operation are not acceptable.
- D. On transfer switches requiring a fourth pole for switching the neutral, the neutral shall be fully rated with equal withstand, closing and interrupting ratings to the power poles. Switched neutral poles which are add-on or overlap, or that are not capable of breaking full rated load current are not acceptable.
- E. The transfer switch shall have a multi-tap voltage selection plug for ease of voltage adjustment in the field.
- F. Where shown on the drawings, transfer switches applied as service entrance equipment, shall be provided with over-current trip units and a service entrance label. A key-operated selector switch shall be provided to disconnect the power supplies. Indicators shall be provided to show the availability of each source as well

as breakers in a disconnected position . Provide a neutral disconnect link for three-pole solid neutral switches, and a neutral-to-ground main bonding jumper for all switches to meet UL service entrance requirements. Ground fault protection shall be provided for all switches rated 1000 amperes or more applied on 480Y/277 Vac systems in accordance with NEC Article 230-95 .

- G. Where indicated on the drawings, the transfer switches shall be provided with a draw-out mechanism to allow easy access for preventive maintenance, testing or inspection. The draw-out mechanism shall provide visual indicators as to the position of the switch/breaker during the draw-out operation.
- H. When the transfer switches shall be provided with a draw-out mechanism, shuttered cassettes should be provided for safety purposes
- I. When the transfer switches shall be provided with a draw-out mechanism and Nema 1 enclosure, a roof mounted breaker lifting device shall be included.
- J. A manual bypass isolation switch shall provide isolation of the source and load power conductors to the ATS. The bypass transfer switch shall have current, voltage, and withstand ratings equal to the interconnected automatic transfer switch. Transfer to bypass shall be a manually initiated no-load break type transfer.
- K. Positive mechanical interlocks shall be provided for bypass isolation switches to prevent cross connection of services.
- L. When provided, the automatic transfer switch and the bypass isolation switch sections shall be factory interconnected with copper bus.
- M. The bypass isolation transfer switches shall be provided with a draw-out mechanism to allow access for preventive maintenance, testing or inspection. The draw-out mechanism shall provide visual indicators as to the position of the switch/breaker during the draw-out operation.

2.04 MICROPRESSOR LOGIC

- A. The transfer switch shall be equal to an Eaton ATC-900 type microprocessor-based controller. The controller shall be hardened against potential problems from transients and surges. Operation of the transfer switch and monitoring of both sources shall be managed by the controller.
- B. The automatic transfer switch controllers shall meet or exceed the following standards in addition to the basic switch standards:
 - 1. IEC 61000-4-2 - EMC Testing and Measurement Techniques - Electrostatic Discharge Immunity Test
 - 2. IEC 61000-4-3 - EMC Testing and Measurement Techniques - Radio-frequency, Electromagnetic Field Immunity Test
 - 3. IEC 61000-4-4 - EMC Testing and Measurement Techniques - Electrical Fast Transient/Burst Immunity Test
 - 4. IEC 61000-4-5 - EMC Testing and Measurement Techniques - Surge Immunity Test

5. IEC 61000-4-6 - EMC Testing and Measurement Techniques - Immunity to Conducted Disturbances, Induced by Radio-frequency Fields
6. IEC 61000-4-11 - EMC Testing and Measurement Techniques - Voltage Dips, Short Interrupts and Voltage Variations Immunity Tests
7. CISPR11, Class B - Industrial, Scientific and Medical Radio-frequency Equipment - Electromagnetic Disturbance Characteristics - Limits and Methods of Measurement
8. FCC Part 15, Subpart B, Class B

2.05 ENCLOSURE

- A. Each transfer switch shall be provided in a NEMA 3R enclosure suitable for use in environments indicated in the drawings.
- B. NEMA 1, 12 or 3R enclosures shall be painted with the manufacturer's standard light gray ANSI 61 paint.

2.06 CONTROLLER DISPLAY AND KEYPAD

- A. The microprocessor-based controller display shall be UV resistant and include a 4.3 inch Color TFT (480x272), backlit display. The controller shall be capable of displaying transfer switch status, parameters, and diagnostic data. All set point parameters shall be password protected and programmable using the controller keypad, USB port, or remotely using serial port access. Limited abbreviations or codes shall be used for transfer switch functions.
- B. The microprocessor-based controller shall include a mimic bus display consisting of six (6) individual LED's (3mm) for indicating the following:
 1. Availability status of source 1
 2. Availability status of source 2
 3. Connection status of source 1
 4. Connection status of source 2
 5. Source 1 Preferred
 6. Source 2 Preferred

2.07 VOLTAGE AND FREQUENCY SENSING

- A. The controller shall have a voltage range of 0-790 volts (50/60 Hz) and an accuracy of +/- 1% of the reading and a frequency range of 40-70 Hz and an accuracy of +/- .3 Hz.
- B. Voltage and frequency dropout and pickup parameters are set as a percentage of the nominal voltage as indicated in the table below.

Setpoint	Sources	Dropout	Pickup
Undervoltage	Source1 and 2	70 – 97%	(DO + 2%) - 99%
Overvoltage	Source 1 and 2	105 – 110%	103% - (DO – 2%)
Underfrequency	Source 1 and 2	90 – 97%	(DO + 1Hz) – 99%

Overfrequency	Source 1 and 2	103 – 105%	101% - (DO – 1Hz)
Voltage Unbalance	Source 1 and 2	5 – 20%	(UNBAL DO% - 2) – 3%

C. The normal and emergency sources shall include phase reversal protection. The preferred rotation is programmable as ABC or CBA.

2.08 TIME DELAYS

- A. A time delay shall be provided on transfer to source 2, adjustable from 0 to 166 minutes.
- B. A time delay shall be provided to override a momentary power outage or voltage fluctuation, adjustable from 0 to 120 seconds.
- C. A time delay shall be provided on retransfer from source 2 to source 1, adjustable from 0 to 166 minutes.
- D. A time delay shall be provided after retransfer that allows the generator to run unloaded prior to shutdown, adjustable from 0 to 166 minutes.
- E. A time delay shall be provided for engine failure to start, adjustable 0- 60 seconds.
- F. All delays shall be field adjustable from the microprocessor-based controller without the use of special tools.

2.09 ADDITIONAL FEATURES

- A. One Form C contact for closure of the source 1 generator start circuit for optional use with a dual generator system. The contacts shall be rated for 5-Amp at 250-Vac and 5-Amp at 30-Vdc.
- B. One Form C contact for closure of the source 2 generator start circuit. The contacts shall be rated for 5-Amp at 250-Vac and 5-Amp at 30-Vdc.
- C. The controller shall include two independently programmable Engine Exercisers, selectable as disabled, 7, 14, or 28 day interval, or by calendar date. Run time shall be adjustable for 0-600 minutes, with or without load. Upon loss of source 2 power, the ATS shall automatically return to source 1. Transfer time delays shall also be independently programmable for test events.
- D. The controller shall include a keypad pushbutton to initiate a system test.
- E. The controller shall include 4 user configurable inputs. Each input provides 50 volts at 10ma and can be user configured to one of the following features:
 1. Input to accept a remote contact which closes to initiate a transfer to source 2. This feature shall be failsafe and an automatic retransfer shall occur in the event that source 2 power is lost.
 2. Input to accept a remote contact which closes to initiate a transfer to source 2. This feature shall be failsafe and an automatic retransfer shall occur in the event that source 2 power is lost.
 3. Input to accept a remote contact which opens to inhibit transfer to source 2.

4. Input to enable monitor mode to disable automatic operation of the transfer switch while continuing to display status. Monitor mode allows set point programming at the controller display.
 5. Input to enable lockout feature to disable automatic operations of the transfer switch following an overcurrent trip of an integral circuit breaker.
 6. Input to enable or disable manual retransfer to source 1.
 7. Input to initiate manual retransfer to source 1.
 8. Input to initiate a remote engine test. The test will run using the programmed engine test set points.
 9. Input to select source 1 or source 2 as the preferred source.
 10. Input to initiate a remote load test.
 11. Input to indicate the bypass transfer switch is closed on a source.
 12. Input to bypass time delays
 13. Input to receive engine start signal from a master controller in a three source application.
- F. The controller shall include 4 user configurable outputs rated for 10-Amp at 250-Vac and 10-Amp at 30-Vdc. Each input can be user configured to one of the following features:
- a. Source 1 connected
 - b. Source 2 connected
 - c. ATS in test
 - d. ATS not in automatic mode (Monitor Mode)
 - e. General Alarm indication for failure to transfer, mechanical fault, or electrical fault.
 - f. Engine Test Aborted
 - g. Engine cool down in process
 - h. Engine start contact status
 - i. Emergency inhibit on
 - j. Load sequence – Output used to signal select loads to disconnect prior to transfer and reconnect 0-120 seconds after. Loads are reconnected sequentially.
 - k. Selective load shed – Output used to shed low priority loads when the load reaches a programmed threshold value. A load shed and load restore set point (measured in kW) are associated with this feature.
 - l. Load bank control – Output to disconnect a load bank during an engine run test if a transfer to a source 2 generator is required.
 - m. Pre and/or post transfer signal - A pre and or post transfer time delay output adjustable from 0-120 seconds.
- G. One Form C auxiliary contact to indicate Source 1 position and one Form C contact to indicate source 2 position. The contacts shall be rated for 10-Amp, 1/3-Horsepower at 250-Vac and 10-Amp at 30-Vdc.
- H. One Form C contact for Source 1 Available. The contacts shall be rated for 10-Amp, 1/3-Horsepower at 250-Vac and 10-Amp at 30-Vdc.

- I. One Form C contact for Source 2 Available. The contacts shall be rated for 10-Amp, 1/3-Horsepower at 250-Vac and 10-Amp at 30-Vdc.

J. Data Logging

1. Historical Data Storage to include:
 - a. Engine Run Time
 - b. Source 1 Available time
 - c. Source 2 Available time
 - d. Source 1 Connected time
 - e. Source 2 Connected time
 - f. Source 1 Engine Run Time
 - g. Source 2 Engine Run Time
 - h. Load Energized Time
 - i. Number of Transfers
2. Event Summary shall include up to 100 date and time stamped events. All metered values are logged for each event. Event summaries include:
 - a. Transfer events
 - b. Alarms
 - c. Changes to the set points
 - d. Changes to the time/date
 - e. Resetting a historical counter
 - f. Engine Run test
3. Event Details shall include up to 350 date and time stamped events. All metered values are logged for each event. Event details include detailed sequence of operations of a transfer event.
4. Event recording shall capture 4 seconds of metered data, stored every 20 msec for certain events. The data is captured 2 seconds before and 2 seconds after the event. Oscillographic data for 10 events is stored and may be downloaded over USB. Events include:
 - a. Source unavailability actions that initiate a transfer sequence (Undervoltage, Overvoltage, etc.)
 - b. Successful transfers (at the point of breaker/contact closure)
 - c. Unsuccessful transfers (at the point of breaker/contact failure to close or open)

3.0 FACTORY TESTING

- A. The following standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA standards.
 1. Insulation check to ensure the integrity of insulation and continuity of the entire system
 2. Visual inspection to ensure that the switch matches the specification requirements and to verify that the fit and finish meet quality standards
 3. Mechanical tests to verify that the switch's power sections are free of mechanical hindrances

- 4. Electrical tests to verify the complete electrical operation of the switch and to set up time delays and voltage sensing settings of the logic
- D. The manufacturer shall provide a certified copy of factory test reports.
- E. Transfer switch shall include a label indicating order number, catalog number and date

4.0 INSTALLATION

- A. The Contractors shall install all equipment per the manufacturer's recommendations and the contract drawings
- B. All necessary hardware to secure the assembly in place shall be provided by the contractor

Section 16231
PACKAGED ENGINE GENERATORS

1. GENERAL

1.1. Scope of Work

- 1.1.1. Provide a standby power system to supply electrical power in event of failure of normal supply, consisting of a liquid cooled engine, AC alternator and system controls with all necessary accessories for a complete operating system, including but not limited to the items as specified.
- 1.1.2. The standby power system shall consist of a single engine/alternator system. The system will only be acceptable if all components necessary to automatically control the generator is provided as a complete system.
- 1.1.3. Provide (an) automatic transfer switch(es) if described elsewhere in this specification so the system comes on-line fully automatically, and on restoration of utility power automatically retransfers load to normal power, shuts down the standby power system and returns to readiness for another operating cycle.
- 1.1.4. Provide all labor, materials, and equipment, necessary to result in a fully installed, workable standby power system as defined on the drawings and within this specification.
- 1.1.5. Provide startup and on-site testing by a manufacturer's authorized dealer or agent. The technicians that provide startup must be certified by the generator manufacturer to provide all required support and warranty service to the generator on site.
- 1.1.6. Provide on-site training by a manufacturer's authorized dealer or agent.
- 1.1.7. Any and all exceptions to this specification are subject to the engineer's approval.

1.2. Codes and Standards

- 1.2.1. The standby power system, its installation, and on-site testing shall conform to all relevant local codes.
- 1.2.2. The equipment provided shall be listed for use in standby power systems as defined below:
 - 1.2.2.1. UL 2200 -- Stationary Engine Generator Assemblies (Low Voltage)
 - 1.2.2.2. UL 1008 -- Transfer Switch Equipment
 - 1.2.2.3. UL 891 -- Dead-Front Switchboards (Low Voltage)
 - 1.2.2.4. UL 142 --Steel Aboveground Tanks for Flammable and Combustible Liquids
- 1.2.3. The standby power system, its installation, and on-site testing shall conform to the following national codes and standards as applicable.
 - 1.2.3.1. NFPA 70 / National Electrical Code, specifically:
 - 1.2.3.1.1. NEC 250 -- Grounding
 - 1.2.3.1.2. NEC 445 -- Generators
 - 1.2.3.1.3. NEC 695 -- Fire Pumps
 - 1.2.3.1.4. NEC 700 -- Emergency Systems
 - 1.2.3.1.5. NEC 701 -- Legally Required Standby Systems
 - 1.2.3.1.6. NEC 702 -- Optional Standby Systems
 - 1.2.3.1.7. NEC 705 -- Interconnected Electric Power Production Sources

- 1.2.3.2. NFPA 20 -- Standards for the Installation of Stationary Pumps for Fire Protection
- 1.2.3.3. NFPA 110 Level 1 -- Emergency and Standby Power Systems
- 1.2.3.4. IEEE 446 -- Recommended Practices for Emergency and Standby Power Systems for Industrial and Commercial Applications

- 1.2.4. The standby power system, its installation, and on-site testing shall comply with the local Dallas Texas air quality emissions standards and any other federal standards for stationary standby emergency power generator sets.

1.3. Manufacturer Qualifications

- 1.3.1. This system shall be supplied by Caterpillar, Cummins, Generac or an approved manufacturer who has been regularly engaged in the production of single or multiple paralleling engine-alternator sets, automatic transfer switches, and associated controls for a minimum of 10 years, thereby identifying one source of supply and responsibility.
- 1.3.2. It is the intent of this specification to have a single source responsible for the standby power system. A preference will be shown to generator set manufacturers that warranty and service all equipment herein specified.
- 1.3.3. The manufacturer shall have printed literature and brochures describing the standard series specified, custom, one-of-a-kind systems will not be considered unless specifically identified.

2. ENGINE-GENERATOR SET

2.1. Ratings

- 2.1.1. The generator set shall operate at 277/480 Volts, three phase, 4 wire, Wye connected, 60 Hertz.
- 2.1.2. The generator set shall be rated at a minimum of 400 kW, 500 kVA (running), at 0.8 power factor (lagging). Refer to Section 2.3, Alternator, for specific alternator starting kVA requirements (SkVA).
- 2.1.3. The generator set system rating shall be based upon site conditions of 500 feet (152 meters) altitude and 104 °F (40 °C) ambient.
- 2.1.4. The generator set shall accept a single step of 100% of rated load and recover to rated speed and voltage as required in Section 7.13.7 of NFPA 110, 2002 Edition.

2.2. Engine

- 2.2.1. The engine shall be capable of operating on a high quality, off-road, #2 grade diesel fuel.
- 2.2.2. The diesel engine shall be equipped with an applicable mechanical direct coupled injection system, or electronic fuel injection system that is integral to the engine, and designed to optimize operation at rated engine speed and output.
 - 2.2.2.1. Mechanical injection systems shall have an electronic actuator that is directly linked to the injector rack. The actuator shall be designed so that it is a fail/close type design, in that if power is lost, the rack automatically closes.
 - 2.2.2.2. Electronic injection systems shall have integral governing via proportional injection based on parameters of engine speed, and or measured load as specified by the engine manufacturer.
- 2.2.3. Flexible fuel line compatible with the diesel fuel specified shall be supplied and installed

between each generator and the internal/external fuel piping

- 2.2.4. The engine's full load fuel consumption rate shall be specified in the bid documents. For multiple engine systems, total full-load fuel consumption rate shall be specified for the system.
- 2.2.5. The generator set shall operate at an RPM consistent with desired engine durability. Engine RPM to be specified in bid documents.
- 2.2.6. The generator set shall operate at a BMEP (brake mean effective pressure) consistent with favorable engine durability. Engine BMEP to be specified in bid documents.
- 2.2.7. The engine shall be of a 4 cycle design.
- 2.2.8. The engine shall be liquid cooled.
- 2.2.9. For each engine, the cooling system shall be a unit mounted radiator, fan, water pump, and closed coolant recovery system.
- 2.2.10. Coolant drain connections shall be easily accessible and incorporate an isolation valve and pipe plug for convenient engine servicing.
- 2.2.11. The cooling system shall be sized to maintain acceptable engine temperatures at the specified rated power level and the specified site ambient and elevation conditions. Maximum engine coolant temperature to be specified in the bid documents.
- 2.2.12. Coolant used in the system shall meet or exceed generator manufacturer's specifications and shall be specified in the bid documents.
- 2.2.13. The engine shall have (a) unit mounted, thermostatically controlled jacket water heater to aid in quick starting and longer engine life. The heater shall operate at 120/240 volts, and the wattage shall be as recommended by the generator manufacturer. The heater shall be wired into an appropriate branch circuit from normal utility power source. The number, wattage, and type of block heater shall be listed in the bid documents.
 - 2.2.13.1. The jacket water heater shall be of sufficient capacity to assure conformance to NFPA 110 Level 1 in that the heater shall provide adequate heat to maintain a jacket water temperature of 90°F (32.2°C) at an ambient temperature of 32°F (0°C).
 - 2.2.13.2. For an emergency power system housed outdoors or in an outside enclosure, the enclosure shall be heated to not less than 40°F (4.4°C)
 - 2.2.13.3. Provisions shall be made to maintain the enclosure temperature at 32°F (0°C).
- 2.2.14. Intake air filter with a replaceable dry element must be mounted on the engine.
- 2.2.15. A positive displacement lube oil pump shall supply engine lubrication. The engine shall have a replaceable oil filter with internal bypass and replaceable element. Engine oil drain connection shall be easily accessible and incorporate an isolation valve and pipe plug for convenient engine servicing.
- 2.2.16. Recommended engine oil type and use of oil coolers, if applicable, are to be specified in bid documents. A preference will be shown for engines not requiring oil coolers external to the engine.
- 2.2.17. A crankcase oil heater shall be provided to maintain a minimum oil temperature at 70 °F (21.1 °C), while in an ambient of 32 °F (0 °C). The heater's surface temperature shall be designed such that no oil carbonization/coking occurs. A preference will be shown to circulating oil heaters. Include heater specifics in the bid documents.

- 2.2.18. Fan and belt guards that comply with UL2200 must be installed for personnel safety.
- 2.2.19. The engine shall have a battery charging DC alternator with an electronic voltage regulator. Charging alternator amperage shall be provided in the bid documents, and shall be sufficient to support engine charging system and parasitic loads.
- 2.2.20. The engine shall have lead acid cranking batteries that are capable of providing 3 to 10 cranking cycles of approximately 8 to 15 seconds per cycle in accordance with Section 5.6.4 of NFPA 110, 2002 Edition, in a minimum ambient of 50 °F (10 °C).
- 2.2.21. The genset shall have a unit mounted, dual rate, 10 amp battery charger to maintain the charge in the engine cranking batteries when the engine is not running. Due to line voltage drop concerns, a battery charger mounted remotely from the generator is not preferred. The charger shall be wired into a dedicated branch circuit from normal utility power.
- 2.2.22. The engine shall use a solenoid actuated, electric starter with engine speed for disengagement adjustable via genset control system.
- 2.2.23. The generator set shall include a sub-base fuel storage tank. The tank capacity shall be sufficient to provide 24 hours of generator operation at full rated load. **(Alternate No.1 to provide 48 hours of generator at full load rate.)** The sub-base tank shall be structurally adequate to fully support the generator set and shall be UL142 Listed. The tank shall be of double-wall construction with a switched sensor to detect the presence of fuel in the secondary containment, indicating a primary fuel tank leak. Venting provisions shall be provided in accordance with UL142.
- 2.2.24. Engine speed shall be controlled by an isochronous governor to maintain alternator frequency within $\pm 0.5\%$ from no load to full load. Steady state regulation is to be $\pm 0.25\%$. To minimize possible interaction of load induced harmonics with the speed governor system, the governor shall be powered from the DC cranking batteries and measure engine speed from a dedicated magnetic pickup mounted on the engine flywheel housing.
- 2.2.25. Sensing elements are to be located on the engine as necessary for the control system to comply with the requirements of NFPA 110. A preference will be shown to wiring utilizing a molded rubber boot to cover the electrical connection on each sensor to prevent corrosion. A preference will also be shown to units with dual wire sensing elements for improved grounding. Specify on bid documents.
- 2.2.26. Engine wiring shall incorporate wire number labeling on each end of the wire run for easy identification. A preference will be shown to manufacturers who demonstrate a wire number system that is keyed to generator functions. Specify on bid documents.
- 2.2.27. The manufacturer shall supply its recommended stainless steel, flexible connector to couple the engine exhaust manifold to the exhaust system. Specify on bid documents. All components of the exhaust system, including the muffler and attaching components, shall be stainless steel in construction. Include specific muffler construction in the submittal documents.
- 2.2.28. Submittal drawings will show silencer that are mounted within the weather protective enclosure for reduced exhaust noise and clean, smooth exterior design. Exhaust silencer shall be provided of the size as recommended by the manufacturer. A rain cap shall terminate the exhaust pipe. All components must be properly sized to assure operation without excessive backpressure when installed.

2.3. ALTERNATOR

- 2.3.1. The alternator shall be a 4-pole revolving field type, wired for 277/480 Volts AC, three phase, 60 Hertz.

- 2.3.2. The alternator shall be constructed with materials that meet NEMA MG-1 requirements for a Class "H" insulation system. Preference will be given to alternators that use Class "H" materials but operate within Class "F" temperature rises for greater thermal tolerance to load imbalances and harmonic conditions.
- 2.3.3. The alternator shall be able to provide a minimum of 775 starting kVA with a maximum 20% instantaneous voltage dip. Sustained kVA values will not be acceptable.
- 2.3.4. Alternator main rotor shall be varnished and secured with coil supports for good mechanical strength. The rotor shall be able to withstand an overspeed of at least 125% of rated RPM. The rotor shall include appropriate insulating materials for good electrical life. Three-phase rotor shall include amortisseur windings. A preference will be shown for rotors that by design and construction operate at less than rated temperatures. Rotor operating temperature at rated load to be provided in the bid documents.
- 2.3.5. Alternator main stator shall be two-thirds pitch and skewed one slot. The stator shall be varnished using standard industry practices. The stator shall be directly connected or close-coupled to the engine flywheel housing or gear reduction unit, resulting in consistent engine / alternator alignment. The main stator shall incorporate anti-condensation heater.
- 2.3.6. The voltage regulator shall maintain 0.25% steady state regulation, and include under voltage protection (Volts per Hertz). The regulator shall have an external means to adjust voltage.
- 2.3.7. Powering the voltage regulator from the main stator power leads is acceptable. However, a preference will be shown for designs which use a permanent magnet generator (PMG) or auxiliary stator winding to power the regulator.
- 2.3.8. The alternator excitation system shall incorporate a permanent magnet generator (PMG) as the power source for the voltage regulator. This system shall be capable of providing 300% steady state, three phase fault current for ten seconds to enable circuit breaker coordination.
- 2.3.9. The alternator shall incorporate a field circuit breaker or an over-excitation circuit in the voltage regulator to help protect the main rotor from over-excitation.
- 2.3.10. A NEMA 1 junction box that is an integral part of the generator set must be provided to allow the installer a convenient location in which to make electrical power output connections. A fully rated, isolated neutral must be included. The junction box layout shall support wiring the main line circuit breaker, if included, without any connection box modifications.
- 2.3.11. For each alternator in the system, a main line circuit breaker carrying the UL mark shall be factory installed. The breaker shall be rated from 100 to 125% of the genset nameplate rating per UL2200. The breaker shall be mounted in the generators junction box or in a freestanding enclosure provided by the manufacturer. For generator-mounted breakers, the line side connections are to be made at the factory. Output lugs or bus bars shall be provided for load side connections. A system utilizing manual reset field circuit breakers and current transformers is unacceptable.

2.4. CONTROLS

- 2.4.1. All engine / alternator controls and instrumentation shall be designed, built, wired, tested and shock mounted in a NEMA 1 enclosure to the engine-generator set by the manufacturer. It shall contain a fused DC circuit to protect the controls and provide a secure means of powering down the controls.
- 2.4.2. The control panel shall comply with all the requirements of NFPA 110, Level 1.
- 2.4.3. The control panel shall allow remote digital communication directly or through a modem. Software from the manufacture shall be available for this purpose.

- 2.4.4. A remote annunciator panel is required which conforms to NFPA 110.
- 2.4.5. A preference will be shown for control panels that utilize digital communications to the remote annunciator panel. Details shall be provided in bid documents.
- 2.4.6. A preference will be shown for control panels that have user definable analog and digital inputs. Details shall be provided in bid documents.

3. ADDITIONAL UNIT REQUIREMENTS

3.1. GENERATOR WEATHER ENCLOSURE

- 3.1.1. The engine-generator set shall be supplied with a factory assembled enclosure constructed to withstand 90 mph windload. Where practical, the enclosure shall be factory assembled on the generator set to simplify shipping and site installation. The roof shall aid in the runoff of water and include a drip edge. The generator, operating under 100% loading, will not exceed 86dB(a) measured at 23 feet (7 meters) from the generator enclosure. The manufacturer shall include data sheets showing the measured sound level for the equipment, and shall include any calculations required to determine the sound level at the distance shown above. All generator components, including the exhaust system and muffler, shall be installed within the enclosure of the generator. Only the exhaust rain cap may be visible from outside the enclosure.
- 3.1.2. The enclosure shall be protected against outdoor exposure in accordance with Section 65 of UL2200.
- 3.1.3. The enclosure is to have large, hinged, removable doors to allow access to the engine, alternator and control panel. Hinges and all exposed fasteners shall be corrosion resistant. Each door shall have lockable hardware with identical keys.

4. ADDITIONAL PROJECT REQUIREMENTS

4.1. APPLIED STANDARDS

- 4.1.1. The generator set must be manufactured to the applicable specifications on file with Underwriters Laboratories and the UL 2200 mark must be affixed.

4.2. FACTORY TESTING

- 4.2.1. An electric generating system, consisting of a prime mover, generator, governor, coupling and all controls, must have been tested, as a complete unit, on a representative engineering prototype model of the equipment to be sold. Prototype test reports shall be made available to the engineer upon request.
- 4.2.2. Before shipment of the equipment, the engine-generator set shall be tested under rated load for performance and proper functioning of control and interfacing circuits. Tests shall include
 - 4.2.2.1. Verifying all safety shutdowns are functioning properly
 - 4.2.2.2. Verify single step load pick-up per NFPA 110.
 - 4.2.2.3. Verify transient and voltage dip responses and steady state voltage and speed (frequency) checks.

4.3. OWNER'S MANUALS

- 4.3.1. Three (3) sets of owner's manuals specific to the product supplied must accompany delivery

of the equipment. General operating instruction, preventive maintenance, wiring diagrams, schematics and parts exploded views specific to this model must be included.

4.4. INSTALLATION

- 4.4.1. Contractor shall install the complete electrical generating system including all fuel connections in accordance with the manufacturer's recommendations as reviewed by the Engineer.

4.5. SERVICE

- 4.5.1. Supplier of the electric plant and associated items shall have permanent service facilities in this trade area. These facilities shall comprise a permanent force of factory trained service personnel on 24 hour call, experienced in servicing this type of equipment, providing warranty and routine maintenance service to afford the owner maximum protection. Service contracts shall also be available.
- 4.5.2. At the discretion of the customer, the system may also include a 1 year maintenance contract, that can be included with the initial cost of the system. If selected, the supplier shall provide a copy of the maintenance schedule, including all monitored, tested and recorded items that will take place during the maintenance period. The contract shall include two visits, once every 6 months, to take place. The second maintenance interval shall include the standard above mentioned inspection, along with the manufacturer's specified fluid and product changes. Provide the maintenance program with submittal documents for approval.

4.6. ON-SITE TRAINING

- 4.6.1. On-site training of the generator set shall be provided as required for the customer by a manufacturer's authorized dealer or agent. Training shall include but not limited to general maintenance, general system operation, and general troubleshooting of the generator system. On-site training shall be of four hour duration or as mutually agreed upon.

4.7. WARRANTY

- 4.7.1. The standby electric generating system components, complete engine-generator and instrumentation panel shall be warranted by the manufacturer against defective materials and factory workmanship for a period of two (2) years. Such defective parts shall be repaired or replaced at the manufacturer's option, free of charge for parts, labor and travel. The warranty period shall commence when the standby power system is first placed into service. Multiple warranties for individual components (engine, alternator, controls, etc.) will not be acceptable. Satisfactory warranty documents must be provided. Also, in the judgment of the specifying authority, the manufacturer supplying the warranty for the complete system must have the necessary financial strength and technical expertise with all components supplied to provide adequate warranty support.

4.8. STARTUP AND CHECKOUT

- 4.8.1. The supplier of the electric generating plant and associated items covered herein shall provide factory trained technicians to checkout the completed installation and to perform an initial startup inspection to include:
 - 4.8.1.1. Ensuring the engine starts (both hot and cold) within the specified time.
 - 4.8.1.2. Verification of engine parameters within specification.
 - 4.8.1.3. Verify no load frequency and voltage, adjusting if required.
 - 4.8.1.4. Test all automatic shutdowns of the engine-generator.

4.8.1.5. Perform a load test of the electric plant, ensuring frequency and voltage are within specification by using building load.

4.9. SUBMITTALS

4.9.1. Provide three complete sets of Engineering Submittal for approval, prior to production release, showing all components, in addition to the engine and generator. Submittals shall include compliance with these specifications.

SD400

12.5L

Industrial Diesel Generator Set

EPA Certified Stationary Emergency

SD400 400 kW

1 of 6

Standby Power Rating
400 kW 500 kVA 60 Hz

Prime Power Rating*
360 kW 450 kVA 60 Hz



*Built in the USA using domestic and foreign parts

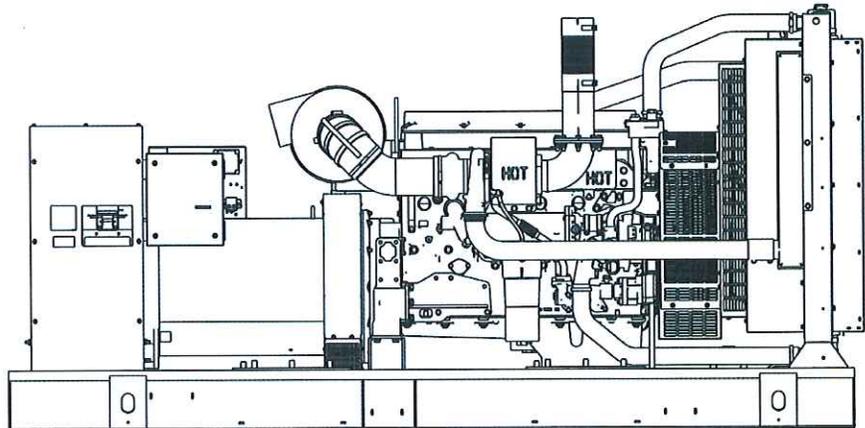


Image used for illustration purposes only

*EPA Certified Prime ratings are not available in the U.S. or its Territories.

Codes and Standards

Generac products are designed to the following standards:



UL2200, UL508, UL142, UL498



NFPA70, 99, 110, 37



NEC700, 701, 702, 708



ISO9001, 8528, 3046, 7637, Pluses #2b, 4



NEMA ICS10, MG1, 250, ICS6, AB1



ANSI C62.41



IBC 2009, CBC 2010, IBC 2012, ASCE 7-05,
ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD400

Standard Features

ENGINE SYSTEM

General

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Critical Exhaust Silencer (enclosed only)
- Factory Filled Oil
- Radiator Duct Adapter (open set only)

Fuel System

- Flexible fuel lines
- Primary and secondary fuel filters

Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory-Installed Radiator
- 50/50 Ethylene glycol antifreeze
- 120 VAC Coolant Heater

Engine Electrical System

- Battery charging alternator
- Battery cables
- Battery tray
- Solenoid activated starter motor
- Rubber-booted engine electrical connections

ALTERNATOR SYSTEM

- Class H insulation material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearings
- Amortisseur winding
- Full load capacity alternator

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of circuits - high/low voltage
- Separation of circuits - multiple breakers
- Wrapped Exhaust Piping (enclosed only)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby rated Units)
- 1 Year Limited Warranty (Prime rated units)
- Silencer mounted in the discharge hood (enclosed only)

ENCLOSURE (if selected)

- Rust-proof fasteners with nylon washers to protect finish
- High performance sound-absorbing material (L1 & L2)
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

TANKS (if selected)

- UL 142
- Double wall
- Vents
- Sloped top
- Sloped bottom
- Factory pressure tested (2 psi)
- Rupture basin alarm
- Fuel level
- Check valve in supply and return lines
- Rhino Coat™ - Textured polyester powder coat
- Stainless hardware

CONTROL SYSTEM



Control Panel

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run

- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection
- Single point ground

- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

SD400

Configurable Options

ENGINE SYSTEM

- General
- Oil Heater
- Industrial Exhaust Silencer (open set)

Engine Electrical System

- 10A UL battery charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical coating (480/600V non-upsized only)

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

GENERATOR SET

- Gen-Link Communications Software (English Only)
- IBC Seismic Certification
- 8 Load Position Load Center
- 2 Year Extended Warranty
- 5 Year Warranty
- 5 Year Extended Warranty

ENCLOSURE

- Standard Enclosure
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- 180 MPH Wind Kit
- 12 VDC Enclosure Lighting Kit
- 120 VAC Enclosure Lighting Kit
- AC/DC Enclosure Lighting Kit

TANKS (Size on last page)

- Electrical Fuel Level
- Mechanical Fuel Level
- 183 Gal (693 L) Usable Capacity
- 438 Gal (1659 L) Usable Capacity
- 693 Gal (2624 L) Usable Capacity
- 946 Gal (3518 L) Usable Capacity
- 1325 Gal (5015 L) Usable Capacity
- 8" Fuel Fill Extension
- 13" Fuel Fill Extension
- 19" Fuel Fill Extension

CONTROL SYSTEM

- 21-Light Remote Annunciator
- Remote Relay Panel (8 or 16)
- Oil Temperature Sender with Indication Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- Remote Communication - Ethernet
- 10A Run Relay
- Ground fault indication and protection functions

Engineered Options

ENGINE SYSTEM

- Fluid containment pans

CONTROL SYSTEM

- Spare inputs (x4) / outputs (x4) - H Panel Only
- Battery Disconnect Switch

ENCLOSURE

- Motorized Dampers
- Door switched for intrusion alert
- Enclosure ambient heaters

ALTERNATOR SYSTEM

- 3rd Breaker Systems

GENERATOR SET

- Special Testing
- Battery Box

TANKS

- Overfill protection valve
- UL2085 Tank
- ULC S-601 Tank
- Stainless Steel Tank
- Special Fuel Tanks (MIDEQ and FL DEP/DERM, etc.)
- Vent Extensions

Rating Definitions

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.
Prime – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications.

SD400

application and engineering data

ENGINE SPECIFICATIONS

General

Make	Perkins
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	6
Type	In-Line
Displacement - L (cu In)	12.5 (762.80)
Bore - mm (in)	130 (5.12)
Stroke - mm (in)	157 (6.18)
Compression Ratio	16.3:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head Type	4 - Valve
Piston Type	Aluminium
Crankshaft Type	Drop Forged Steel

Engine Governing

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

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow
Crankcase Capacity - L (qts)	38 (40.15)

Cooling System

Cooling System Type	Closed Recovery
Water Pump	Pre-Lubed, Self Sealing
Fan Type	Pusher
Fan Speed (rpm)	1656
Fan Diameter mm (in)	927 (36.5)
Coolant Heater Standard Wattage	1800
Coolant Heater Standard Voltage	120 V

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	Primary 10 - Secondary 2
Fuel Injection	Electronic
Fuel Pump Type	Engine Driven Gear
Injector Type	MEUI
Engine Type	Pre-Combustion
Fuel Supply Line mm (in)	12.7 (1/2" NPT)
Fuel Return Line mm (in)	12.7 (1/2" NPT)

Engine Electrical System

System Voltage	24 VDC
Battery Charging Alternator	Std
Battery Size	See Battery Index 0161970SBY
Battery Group	8D
Battery Voltage	(2) - 12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	520 mm Generac
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	< 5%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	Permanent Magnent
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes

Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	± 0.25%

SD400

operating data

POWER RATINGS

	Standby
Three-Phase 120/208 VAC @0.8pf	400 kW Amps: 1389
Three-Phase 120/240 VAC @0.8pf	400 kW Amps: 1204
Three-Phase 277/480 VAC @0.8pf	400 kW Amps: 602
Three-Phase 346/600 VAC @0.8pf	400 kW Amps: 481

STARTING CAPABILITIES (sKVA)

		sKVA vs. Voltage Dip											
		480 VAC						208/240 VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	400	387	581	775	968	1162	1356	345	570	835	1100	1450	1710
Upsize 1	555	457	686	914	1143	1371	1600	-	-	-	-	-	-
Upsize 2	642	471	707	943	1179	1414	1650	543	814	1086	1357	1629	1900

FUEL CONSUMPTION RATES*

Fuel Pump Lift - ft (m)		Diesel - gph (lph)	
12 (3.7)		Percent Load	gph (lph)
Total Fuel Pump Flow (Combustion + Return) - gph (lph)		25%	9.8 (37.1)
159 (600)		50%	16.7 (63.2)
		75%	23.1 (87.4)
		100%	27.8 (105.4)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

STANDBY		
Coolant Flow per Minute	gpm (lpm)	106.2 (402)
Coolant System Capacity	gal (L)	13 (49.2)
Heat Rejection to Coolant	BTU/hr	1,067,520
Inlet Air	cfm (m3/min)	18,685 (529.1)
Max. Operating Radiator Air Temp	°F (°C)	122 (50)
Maximum Additional Radiator Backpressure	in H ₂ O	0.5

COMBUSTION AIR REQUIREMENTS

STANDBY	
Flow at Rated Power	cfm (m3/min) 1180 (33.41)

ENGINE

STANDBY		
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	578
Piston Speed	ft/min	1854
BMEP	psi	334

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

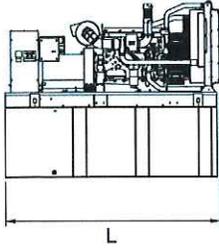
EXHAUST

STANDBY		
Exhaust Flow (Rated Output)	cfm (m³/min)	3044 (86.2)
Max. Backpressure (Post Turbo)	inHg (Kpa)	2.95 (10.0)
Exhaust Temp (Rated Output - post silencer)	°F (°C)	1256 (680)
Exhaust Outlet Size (Open Set)	mm (in)	127 (5.0)

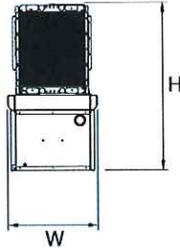
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

SD400

dimensions and weights*



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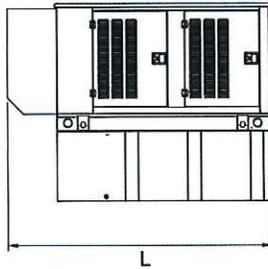


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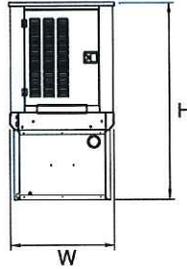
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OPEN SET

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Tank & Open Set
NO TANK	-	137.5 (3493) x 57.6 (1463) x 68 (1721)	6649 (3016)
6	183 (693)	137.5 (3493) x 57.6 (1463) x 81 (2051)	7597 (3446)
15	438 (1659)	137.5 (3493) x 57.6 (1463) x 93 (2356)	7909 (3587)
23	693 (2624)	137.5 (3493) x 57.6 (1463) x 105 (2661)	8212 (3725)
32	946 (3518)	208 (5283) x 57.6 (1463) x 109 (2769)	9674 (4388)
45	1325 (5015)	278 (7061) x 57.6 (1463) x 109 (2769)	10689 (4848)



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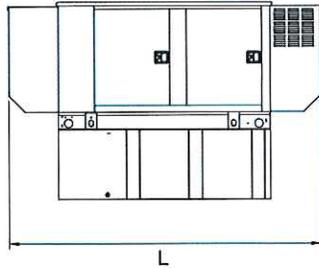


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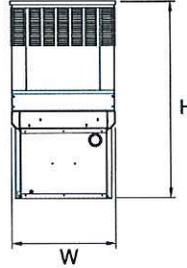
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STANDARD ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	174.7 (4437) x 57.6 (1463) x 77.8 (1976)	1174 (533)	401 (182)
6	183 (693)	174.7 (4437) x 57.6 (1463) x 91 (2311)		
15	438 (1659)	174.7 (4437) x 57.6 (1463) x 103 (2616)		
23	693 (2624)	174.7 (4437) x 57.6 (1463) x 115 (2921)		
32	946 (3518)	208 (5283) x 57.6 (1463) x 118 (2997)		
45	1325 (5015)	278 (7061) x 57.6 (1463) x 118 (2997)		



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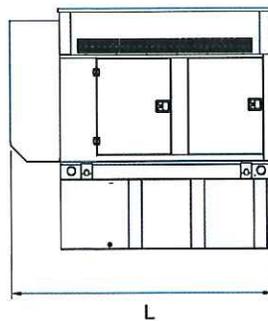


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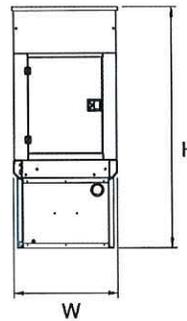
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LEVEL 1 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	200 (5085) x 57.5 (1460) x 77.8 (1976)	2529 (1147)	864 (392)
6	183 (693)	200 (5085) x 57.6 (1463) x 91 (2311)		
15	438 (1659)	200 (5085) x 57.6 (1463) x 103 (2616)		
23	693 (2624)	200 (5085) x 57.6 (1463) x 115 (2921)		
32	946 (3518)	234 (5944) x 57.6 (1463) x 118 (2997)		
45	1325 (5015)	304 (7722) x 57.6 (1463) x 118 (2997)		



L



W

H

LEVEL 2 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	180.6 (4588) x 57.6 (1463) x 107.2 (2724)	3132 (1420)	1070 (485)
6	183 (693)	180.6 (4588) x 57.6 (1463) x 120 (3048)		
15	438 (1659)	180.6 (4588) x 57.6 (1463) x 132 (3353)		
23	693 (2624)	180.6 (4588) x 57.6 (1463) x 144 (3658)		
32	946 (3518)	208 (5283) x 57.6 (1463) x 147 (3734)		
45	1325 (5015)	278 (7061) x 57.6 (1463) x 147 (3734)		

*All measurements are approximate and for estimation purposes only. Sound dBA can be found on the sound data sheet. Enclosure Only weight is added to Tank & Open Set weight to determine total weight.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

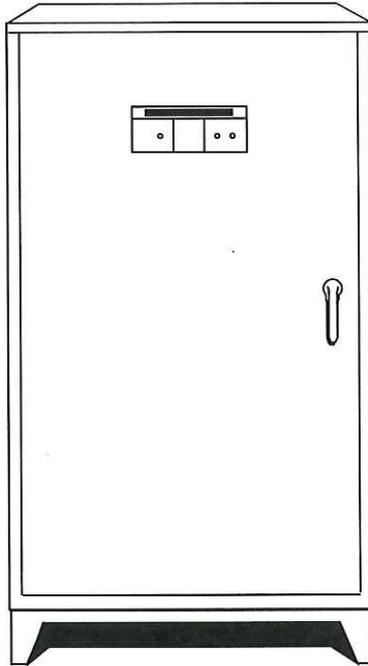
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**600 - 1000 Amps,
600 VAC**

Automatic Transfer Switches

Type WN Load Shed Capable



- Standard time delay neutral will reduce switchover problems.
- Logic control with inphase monitor regulates switch functions and allows adjustable switch settings with LED indicators.
- Control switches located on the front of the door for ease of operation.
- All switches are UL 1008 listed and CSA certified.
- Electrically-operated, mechanically-held and interlocked main contacts with break before make design for fast, positive connections.
- Rated for all classes of load, 100% equipment rated, both inductive and resistive with no derations.
- 3 and 4 Pole 600 VAC contactors.
- 160 millisecond transfer time.

Standard Features

- Electrically operated and mechanically held
- Weekly exerciser
- Main contacts are silver alloy to resist welding and sticking
- Conformal coating protects all printed circuit boards
- Indicating LED's for switch position—Normal, Emergency, and Standby Operating
- NEMA 12 enclosure with hinged door and key-locking handle
- Three-position switch—Fast Test, Auto, Normal Test
- Arc chutes on main contacts

Optional Accessories

- NEMA 3R, 4 & 4X enclosure
- Exterior AC meter package
- 4-pole design for neutral isolation
- Remote automatic start-stop control circuit
- Signal before transfer contacts
- Return to normal timer bypass
- "Trip to Neutral" with mechanical latch for load shedding or sequencing applications
- "Permissive" switch for MPS applications to prevent transfer until adequate power capacity is obtained
- Single or double sets of auxiliary contacts
- Preferred source selector switch

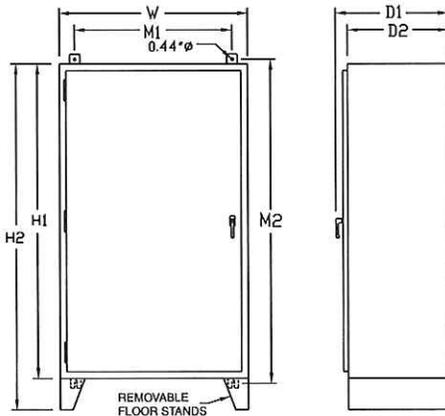
GTS Control Systems

LOGIC CONTROL w / Inphase Monitor	
Utility Voltage	
Dropout	75-95% (Adj.)
Pickup	85-95% (Adj.)
Line Interrupt	0.1-10 Sec. (Adj.)
Engine Minimum Run	5-30 Min. (Adj.)
Engine Warmup.....	5 Sec.-3 Min. (Adj.)
Return to Utility	1-30 Min. (Adj.)
Engine Cooldown	1-30 Min. (Adj.)
Standby Voltage	85-95% (Adj.)
Standby Frequency.....	80-90% (Adj.)
Time Delay Neutral	0.1-10 Sec. (Adj.)
Transfer on Exercise.....	On/Off Switch
Warmup Timer Bypass.....	On/Off Switch
Time Delay Neutral Bypass.....	On/Off Switch
Inphase Monitor	On/Off Switch

Withstand Current - 600 Volt GTS Series

GTS Rated Amps	600	800	1000
FUSE PROTECTED			
Maximum RMS Symmetrical Fault Current – Amps	200,000	200,000	200,000
Maximum Fuse Size – Amps	800	1200	1600
Fuse Class	L,T	L	L
CIRCUIT BREAKER PROTECTED (See separate sheet for specific circuit breakers)			
Maximum RMS Symmetrical Fault Current – Amps	42,000	65,000	65,000
Protective Device Continuous Rating (Max) – Amps	750	1250	1250

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



Unit Dimensions

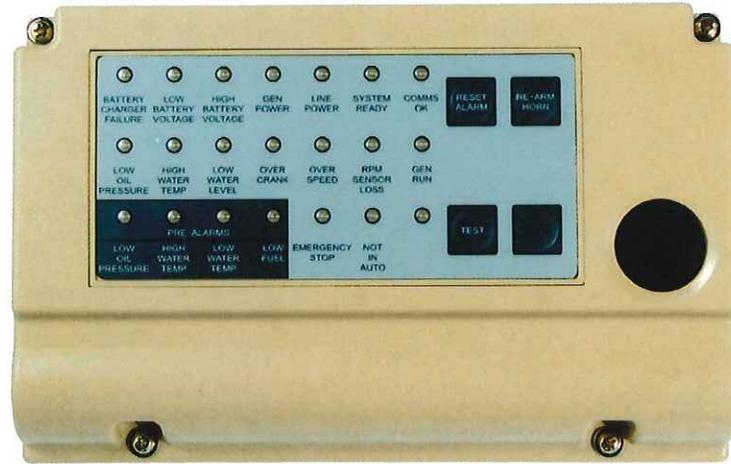
GTS Rated Amps	Enclosure Height		Enclosure Width	Wall Mount Bolt Pattern		Enclosure Depth		Weight (lbs.)
	H1	H2	W	M1	M2	D1	D2	
600	60	66	36	30	62	23.5	20	650
800	60	66	36	30	62	23.5	20	700
1000	60	66	36	30	62	23.5	20	700

All dimensions in inches.

Terminal Lug Wire Ranges

GTS Rated Amps	Contactor Terminals		Neutral Bar		Ground Lug (1 Provided)
	# Lugs per Pole	Lug Wire Range	# Lugs	Lug Wire Range	Lug Wire Range
600	2	500MCM – 1 AWG	8	750MCM – 1/0 AWG	350MCM – 6 AWG
800	4	500MCM – 4/0 AWG	12	750MCM – 1/0 AWG	350MCM – 6 AWG
1000	4	500MCM – 4/0 AWG	12	750MCM – 1/0 AWG	350MCM – 6 AWG

21 Light Remote Annunciator



- Model 0054650 Remote Annunciator Panel without Relays**
- Model 0054660 Remote Relay Panel without LED's and Keypad (Relays Only)**
- Model 0054640 Remote Annunciator Panel with 8 Relays**
- Model 0056370 Flush Mount Enclosure w/o Annunciator**

Description:

The remote Annunciator Panel provides remote monitoring and annunciation of up to 18 generator parameters using LED's located on the annunciator keypad. It also provides two system level warnings which are System Ready and Communications OK.

The Relay panel has up to 8 selectable functions on form A relays, and multiple relay panels can be connected for all 18 generator parameters.

The specific faults can be selected using either the DIP switches located on the annunciator circuit board or through a computer via the RS232 connection on the circuit board. All relays are energized on power up and open during a fault condition.

Communication is via a RS485 serial data link and power is supplied by the generator battery (+12VDC or +24 VDC) The remote Annunciator Panel complies with NFPA 99 and NFPA 110.

Environmental Specifications:

Operating Temperature.....	-25 ° C to 60 ° C
Humidity.....	0 to 95% Non Condensing
Power Supply.....	Generator Battery, +12 or +24 Volts DC
Power Usage.....	6 watts typical
Communication Line.....	RS485 fully isolated twisted pair cable with shield
Maximum Cable Length.....	4000 feet
Relay Output.....	One NO contact (Energized when annunciator is powered and no faults are present)
Relay Contact Rating.....	30 VDC, 1 amp
Enclosure Rating.....	NEMA 1
Alarm Horn (Remote Annunciator Panels Only).....	90 dB @ 10 cm

GENERAC®

Specifications

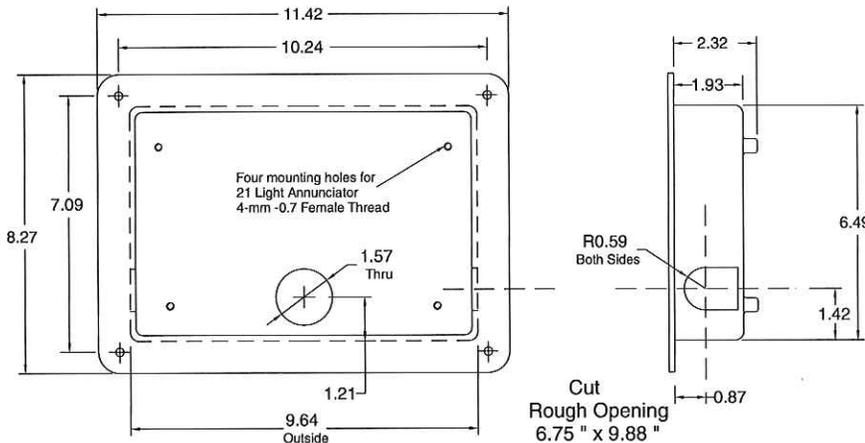
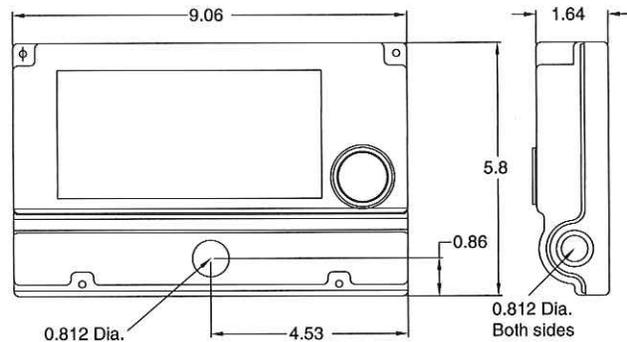
21 Light Remote Annunciator

Function	Color	Alarm	Latched
Pre-low Oil Pressure	Yellow	Yes	Yes
Pre- High Water Temp	Yellow	Yes	Yes
Pre Low Water Temp	Yellow	Yes	Yes
Pre- Low Fuel	Yellow	Yes	Yes
Battery Chrg AC Fail	Yellow	Yes	No
Low Battery Voltage	Yellow	Yes	No
High Battery Voltage	Yellow	No	No
Not in Auto	Red	Yes	No
RPM Sensor Loss	Red	Yes	Yes
Overcrank	Red	Yes	Yes
Over speed	Red	Yes	Yes
Low Oil Pressure	Red	Yes	Yes
Hi Water Temp	Red	Yes	Yes
Lo Water Level	Red	Yes	Yes
Emergency Stop	Red	Yes	No
Gen Running	Yellow	No	No
Gen Power (ATS)	Yellow	No	No
Line Power (ATS)	Green	No	No
Systems Ready	Green	Yes	No
Communications OK	Green	Yes	No
Spare	Green	No	No

Spare Keypad Switch - Can be used to implement a remote start function. (Model 005464 only)

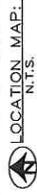
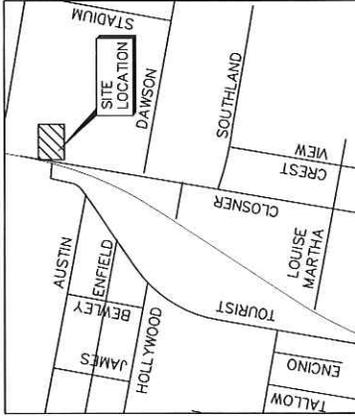
Surface Mount Annunciator

The 21 Light Annunciator can mount to a flat surface with connections through the 0.812 Dia knockout on the back surface or through 0.812 knockouts on sides as shown.



Flush Mount Annunciator

This Flush Mount Box is recessed into the wall opening and the surface mount annunciator mounts to the (4) 4 mm screw holes on the back surface. After wire connections are made the front annunciator cover is attached.



PROJECT CONTACTS:

ENGINEERING, PLLC
 CONSULTING ENGINEERS
 132 PALM OIL ROAD #20
 EDINBURG, TEXAS 78848
 Texas Firm Registration Number 13179

CONTACTS:

CITY OF EDINBURG
 956-388-8204
 CENTRAL POWER & LIGHT
 800-245-4545
 S.W. BELL TELEPHONE CO.
 800-228-3127
 TEXAS POWER & LIGHT
 HERITAGE CABLEVISION
 956-797-9494
 DIG TESS
 800-DIG-TESS (811)
 TEXAS ONE CALL
 800-445-6005
 877-373-4655
 AEP

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL CALL 1-800-DIGTESS PRIOR TO ANY EXCAVATION OR DIGGING.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND IDENTIFYING ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
3. ALL ELECTRICAL WIRING AND CONDUIT SHALL BE CONCEALED AS TO PREVENT VANDALISM.
4. THE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE ENGINEER ANY CONFLICT AT THE SITE PRIOR TO INSTALLATION.
5. THE CONCRETE USED TO SECURELY SUPPORT AND SUSTAIN EACH LIGHTING POST SHALL BE FIELD VERIFIED BY THE STRUCTURAL ENGINEER.

NOTE:

CONTRACTORS SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES FOUND IN THESE SET OF DRAWINGS, PRIOR TO ANY CONSTRUCTION.

INDEX TO SHEETS:

CONSTRUCTION PLANS:

- C-1 COVER & INDEX SHEET
- A1.0 SITE PLAN AND FOUNDATION PLAN
- A2.0 PERIMETER FENCE
- MEP2.0 EMERGENCY GENERATOR SITE PLAN

GENERAL NOTES:

1. LOCATIONS AND DEMANDS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS TO DAMAGED UTILITY AT HIS OWNERS COST TO THE CONTRACTOR.
2. CHURCH GAS REPAIR CONTRACT, TELEPHONE, ELECTRIC, AND CITY OF AUSTIN UTILITY DEPARTMENT CONTRACTS SHALL BE OBTAINED AND PROVIDED TO THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS TO DAMAGED UTILITY AT HIS OWNERS COST TO THE CONTRACTOR.
3. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS MANUAL ON TRAFFIC CONTROL. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING ALL NECESSARY TRAFFIC CONTROL PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING ALL NECESSARY TRAFFIC CONTROL PRIOR TO CONSTRUCTION.
4. THERE SHALL BE MINIMAL INTERRUPTION OF TRAFFIC AND ACCESS TO ADJACENT PROPERTIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING ALL NECESSARY TRAFFIC CONTROL PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO FIELD VERIFY ALL SITE DIMENSIONS PRIOR TO COMMENCING CONSTRUCTION.



DUSTIN M. SEKULA
 MEMORIAL LIBRARY



01-02-15

ENGINEERING, PLLC
 CONSULTING ENGINEERS
 132 PALM OIL ROAD #20
 EDINBURG, TEXAS 78848
 Texas Firm Registration Number 13179



0122-157

ENGINEERING, PLLC
 1000 ROUTE 90
 SUITE 200
 EDENBURG, NY 14051
 TEL: 607-336-7777
 FAX: 607-336-7778
 WWW.DMS-ENGINEERING.COM

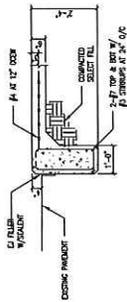


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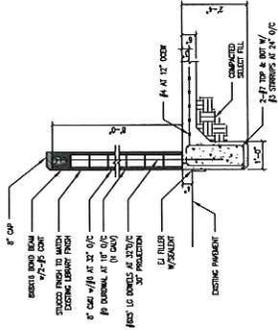
PROJECT NUMBER
 1407
 DATE
 29 DECEMBER 2014

SHEET NUMBER
 8
 FOUNDATION PLAN
 S H E E T
 A1.0
 OF

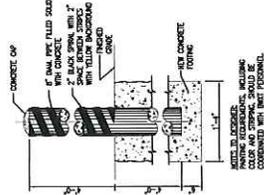
1407-04-08 Page 16 of 17



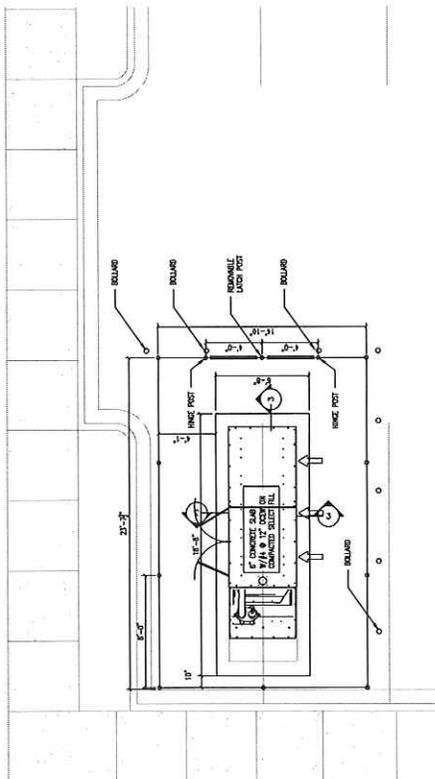
3 FOUNDATION DETAIL
 1/2\"/>



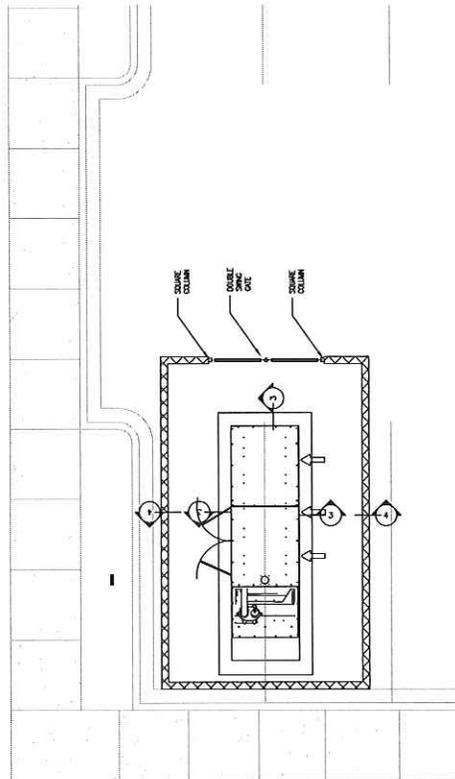
4 TOP SCREEN WALL SECTION
 1/2\"/>



5 CONCRETE FILLED BOLLARD
 1/2\"/>



1 STANDBY GENERATOR FOUNDATION PLAN
 1/2\"/>



1 STANDBY GENERATOR SCREEN WALL
 1/2\"/>



01-e2-15

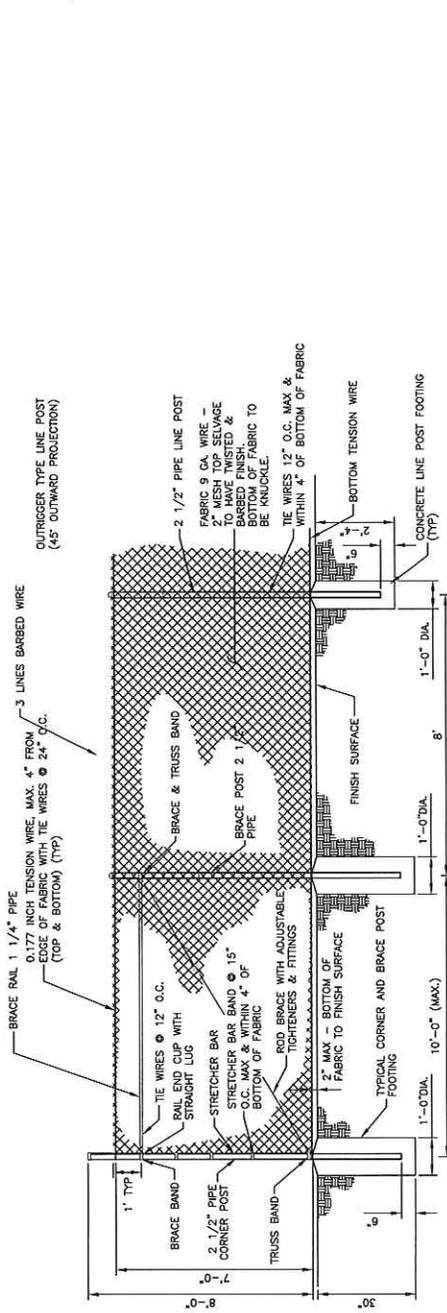
ENGINEERING, PLLC
1111 West Loop West, Suite 1000
Houston, Texas 77028
Tel: 713.865.1111
Fax: 713.865.1112
www.the-engineers.com



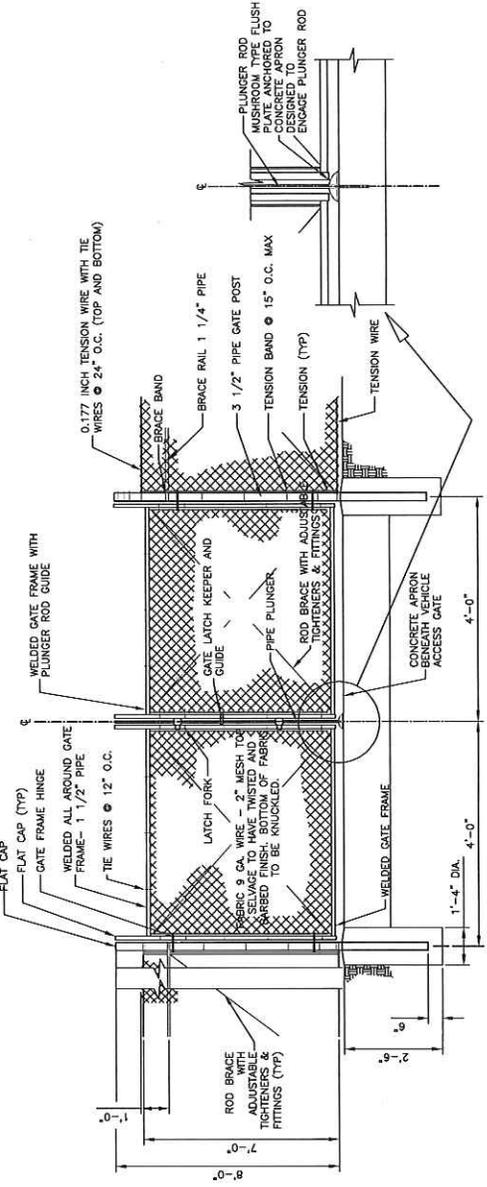
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EDINBURG, TX

PROJECT NUMBER	14072
DATE	25 DECEMBER 2014
PERIMETER FENCE	
S H E E T	
A2.0	
OF	

Dwg: 2014-04-Perim-Fence.dwg



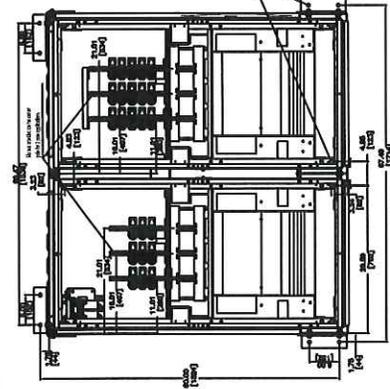
PERIMETER CHAINLINK FENCE (ALTERNATE)
SCALE: 1/2\"/>



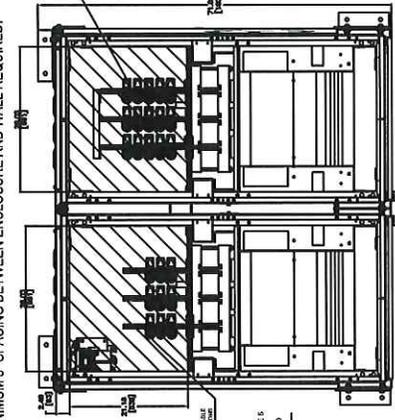
DOUBLE SWING GATE
SCALE: 1/2\"/>

CE23483

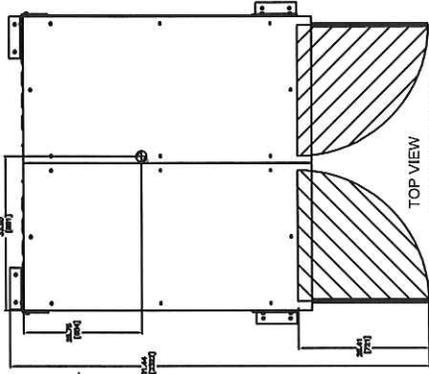
NOTE: MINIMUM 3" SPACING BETWEEN ENCLOSURE AND WALL REQUIRED.



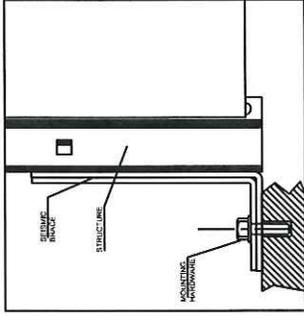
PLAN VIEW
SEISMIC MOUNTING DIMENSIONS
FOR 0.5-13 BOLTS (12 REQUIRED)



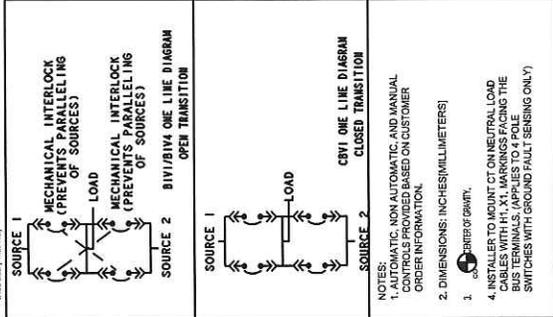
TOP VIEW
CABLE ENTRY AREA
(CROSS-HATCHED)



TOP VIEW
DOOR OPENING AREA
(CROSS-HATCHED)

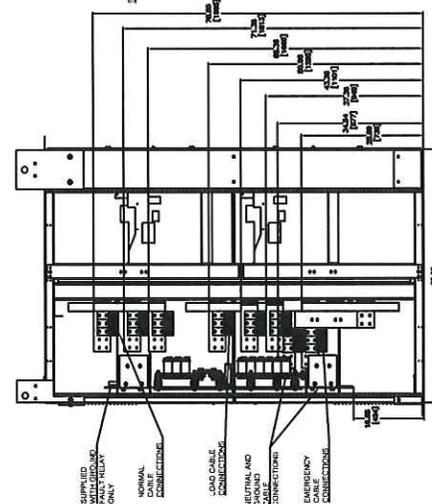


SEISMIC MECHANICAL MOUNTING REQUIREMENTS:
MOUNTING HOLES TO BE DRILLED TO SPECIFICATIONS.
APPROXIMATE WEIGHT WITH BREAKERS INSTALLED:
3100 LBS (1400 KG)

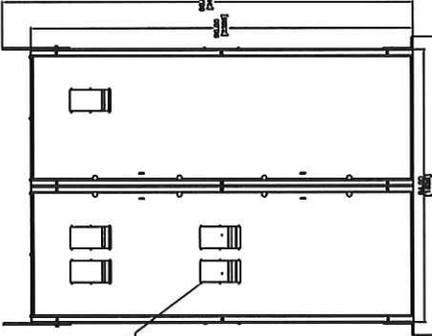


NOTES:

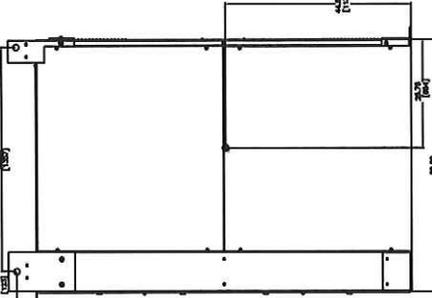
1. AUTOMATIC, NON-AUTOMATIC, AND MANUAL TRANSITION TYPES ARE AVAILABLE. ORDER INFORMATION.
2. DIMENSIONS: INCHES (MILLIMETERS)
3. ORDER OF GRAVITY.
4. INSTALLER TO MOUNT CT ON NEUTRAL LOAD WITH 10% OVERLOAD CAPABILITY. USING THE BUS TERMINALS, APPLICABLE TO A POLE SWITCHES WITH GROUND FAULT SENSING ONLY.



LEFT SIDE VIEW (WITH PANELS REMOVED)



FRONT VIEW



RIGHT SIDE VIEW

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AUTOMATIC TRANSFER SWITCH

2000A 2P & 3P

NEMA 1

MAGNUM

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

FILE NAME: CE23483.DWG
SCALE: NTS
DWG NO.: FIRST USE

SIZE: B

REV: CE23483-147

INSTALLATION DRAWING