CITY OF GRAND ISLAND

Working Together for a Better Tomorrow. Today.

SPECIFICATION PACKAGE

for

BURDICK UNIT 1 AND 3 BATTERY SYSTEM REPLACEMENT

Re-Bid Opening Date/Time
TUESDAY, MARCH 26, 2013 @ 2:30 P.M. (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact
City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: March 15, 2013

ADVERTISEMENT TO BIDDERS
FOR
REBID
BURDICK UNIT 1 & 3 BATTERY SYSTEM REPLACEMENT
FOR
CITY OF GRAND ISLAND, NEBRASKA

Sealed bids will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until Tuesday, March 26, 2013 at 2:30 p.m. local time for Burdick Unit 1 & 3 Battery System Replacement, FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall Council Conference Room #1 located on 1st floor of City Hall. Submit an original and three copies. Bid proposal package is also available on-line at www.grand-island.com under Business-Bid Calendar. Bids received after the specified time will be returned unopened to sender.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fourteen (14) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered.** Surety companies authorized to do business in the State of Nebraska must issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised
Grand Island Independent

(All bids must be submitted on this form)

BURDICK UNIT 1 & 3 BATTERY SYSTEM REPLACEMENT

BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

The undersigned Bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to provide such equipment FOB the City of Grand Island, freight prepaid, at the following price:

ITEM DESCRIPTION	EXTENDED COST
Base Bid:	
Battery Bank-Burdick Steam Units 1&3	$ _____
Battery Chargers-Burdick Unit 1	$ _____
Labor	$ _____
Applicable Sales tax*	$ _____
Total Base Bid	$ _____

*** If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.**

☐ By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

☐ By checking this box, Bidder acknowledges the specified completion date of the project is **May 30, 2013.**

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05)_____ Option 2 (Section 1-017.06)_____ Option 3 (Section 1-017.07)_____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

_____
Bidder Company Name Date

_____
Company Address City State Zip

_____
Print Name of Person Completing Bid Signature

Telephone No._____ Fax No._____

☐ By checking this box, Bidder acknowledges there are Exceptions noted to the bid.
NOTE: Any exceptions to specifications must be fully explained on a separate sheet attached to bid.

CHECKLIST FOR BID SUBMISSION

FOR REBID OF

BURDICK UNIT 1 & 3 BATTERY SYSTEM REPLACEMENT

Bids must be received by the City Clerk before *2:30 p.m. on Tuesday, March 26, 2013*.

The following items must be completed for your bid to be considered.

- ❑ A signed original and three copies of the bidding documents.
- ❑ A reference list of at least three projects of similar scope and complexity.
- ❑ A summary of the experience of the service supervisor proposed for this project.
- ❑ Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- ❑ A proposed construction/test schedule.
- ❑ A description of the system proposed, including equipment, controls, alarms and operation.
- ❑ Selection of Nebraska Sales Tax Option.
- ❑ Acknowledgment of Addenda Number(s) _____.
- ❑ Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- ❑ A certified check, cashiers check or bid bond in a separate envelope attached to the **outside of the envelope containing the bid**. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened.

  Please check off each item as completed.

_____ _____

Company Signature

Telephone No. _____ Fax No. _____

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

   The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

   Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

   Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

   Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

   The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

4. SUBMISSION OF BIDS.

   All Bids must be submitted intact no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

   Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw his Bid for a period of thirty (30) days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond, each in the full amount of the Contract price, within the time specified.

   The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statue requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

   Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

   The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

   Conformance with the terms of the Bid Documents.
   Bid price.
   Cost of installation.

Suitability to project requirements. Responsibility and qualification of Bidder.
Delivery time.

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1) year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused Contract documents to be prepared and an advertisement calling for bids to be published for *BURDICK UNIT 1 AND 3 BATTERY SYSTEM REPLACEMENT;* and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a Contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/hers, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. [NAME OF SUCCESSFUL BIDDER] bid signed and dated [DATE OF BID].

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] ($00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Base Bid:		
Battery Bank-Burdick Steam Units 1 & 3	$	.00
Battery Chargers-Burdick Unit 1		.00
Sales Tax on Materials/Equipment:		.00
Total	$	.00

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the BURDICK UNIT 1 AND 3 BATTERY SYSTEM REPLACEMENT.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. C.W. Burdick Generating Station, and complete the work on or before ***May 30, 2013.***

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a Contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding

or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By_____ Date _____

Title_____

CITY OF GRAND ISLAND, NEBRASKA

By_____ Date _____
Mayor

Attest:_____
City Clerk

The contract is in due form according to law and hereby approved.

_____ Date _____
Attorney for the City

CITY OF GRAND ISLAND

Working Together for a Better Tomorrow, Today.

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Bids shall include the following on the **outside** of the mailing envelope: **"Burdick Unit 1 & 3 Battery System Replacement".** All sealed bids are due no later than **Tuesday, March 26 at 2:30 p.m. local time**. Submit **an original and three copies** of the bid to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802-1968

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall Council Conference Room #1 located on 1st floor of City Hall. Any bid received after the specified date will not be considered. No verbal bid will be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fourteen (14) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered.** Surety companies authorized to do business in the State of Nebraska must issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders.

All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. Please contact Lynn Mayhew at 308-385-5495, for questions concerning this specification.

BURDICK UNIT 1 & 3 BATTERY SYSTEM REPLACEMENT
R E B I D

SCOPE: The Contractor shall furnish all labor, material, tools, transportation, equipment rental, licensing, permits, fees, and tools necessary to replace the 125VDC battery bank on Burdick Steam Units 1 and 3, and the battery chargers on Unit 1, in accordance with the attached specifications. This work shall include removal and disposal of existing batteries and racks, installation of new racks, containment system, and batteries. The batteries shall be tested after installation.

LOCATION: Burdick Station is located at 800 E. Bischeld Street, Grand Island, Nebraska. The Unit 1 battery room is on level one and the Unit 3 battery room is on level 1.5 of the plant. There is access via elevator and overhead crane.

SCHEDULE: Battery replacement must occur before **May 30, 2013** as the units are peaking units and are currently shutdown. The Contractor shall provide a backup source of DC power while the batteries are being replaced. The Contractor shall submit a detailed schedule as part of his/her proposal.

GUARANTEE: All material must be new and of best quality. All work shall be executed by competent workmenship. The Contractor shall guarantee in writing that all work will be free from defects in material and workmanship, provided any such defect is brought to his/her attention within two (2) years after completion of the work. *Exception: The batteries shall carry a 20 year prorated warranty.*

ORDINANCES: The Contractor shall comply with local, state, and federal building and health ordinances and codes, including OSHA. The Contractor shall comply with the Owner's safety policies and equipment tag-out procedures. The Contractor shall obtain and pay for all permits.

SERVICE RATES: The Contractor shall include in the Bid a firm lump sum price, including expenses, and all other standard terms and conditions which will be in effect during the project. The Bid shall also include firm unit pricing for adjustments that may be required for work outside of the specified scope of services.

The C.W. Burdick Generating Station is NOT tax exempt and is subject to 7.0% sales tax. See the Nebraska Department of Revenue web site at www.revenue.state.ne.us for contractor's tax information.

CONTRACTOR PERSONNEL: Every public contractor and his, her or its subcontractors who are awarded a contract by the City of the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

PERFORMANCE AND PAYMENT BONDS: The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this/her Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1 year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

INSURANCE: The Contractor shall comply with the attached Insurance Requirements.

Burdick Station Battery Replacement

Batteries

176673.63.2801
RFP Issue, Revision 2
13Mar2013

City of Grand Island Utilities Dept.
Grand Island, NE
Table of Contents

01400 - Technical Supplemental Specifications

This section contains technical supplemental specifications that provide additional requirements applicable to the work covered under the technical sections which follow this Section 01400.

01400.1 Summary of Applicable Supplementals

The technical supplementals applicable to each technical section are indicated below.

	Technical Section Number	Technical Section Name	Applicable Technical Supplementals
1	16716	Batteries	D100, Q003, Q301, Q500, Q501, S100

01400.2 Technical Supplemental Specifications

The technical supplemental specifications follow.

D100 Site Meteorological and Seismic Data

(Source: 06Oct11 - Revised by Project: 18Jan13)

Work shall be designed according to the following building code and site conditions:

General Design Data:	
Building Code	IBC 2009 as amended by the City of Grand Island, NE (Adopted 03/30/12)
Occupancy Category	III
Site Elevation (Mean Sea Level), ft	1845
Wind Design Data:	
Basic Wind Speed, V, Nominal 3 second gust wind speed at 33 ft above ground for Exposure C category, mph	90
Exposure Category	C
Topographic Factor, Kzt	1
Importance Factor (Wind Loads), I	1.15
Snow Design Data:	
Ground Snow Load, P_g, lb/ft^2	25
Importance Factor (Snow Loads), I	1.1
Ice Design Data:	
Nominal Ice Thickness, t, Due to freezing rain at a height of 33 ft, inches	.75
Concurrent Wind Speed, V_c, mph	50
Importance Factor (Ice Loads – Ice Thickness), I_i	1.25
Importance Factor (Ice Loads – Concurrent Wind), I_w	1.0

Seismic Design Data:	
Short Period Mapped Spectral Acceleration, S_s	15%g
One Second Period Mapped Spectral Acceleration, S_1	4%g
Site Class	D
Importance Factor (Seismic Loads), I	1.25

Q003 Quality System Requirements (No Purchaser Surveillance)

(Source: 15Sep11 - Revised by Project: 18Jan13)

This Supplemental Specification establishes the quality management system requirements for suppliers of equipment and commodities.

Q003.1 Quality System

It is the Supplier's responsibility to define and implement a detailed and documented quality management system which ensures that all equipment and commodities supplied are in conformance with required drawings and/or specifications. The Supplier shall meet all the guidelines (requirements) set forth in this document. The quality management system shall be capable of providing assurance that design, purchasing, materials, manufacturing, examination and testing of equipment, shipping, storage, and related services comply with the purchase order requirements.

The Supplier's quality management system shall include, at a minimum, procedures and/or methods that ensure the following processes are controlled:

Design documents, drawings, specifications, procedures, inspection and test status and procurement documents are current, accurate, and controlled.

Materials, equipment, and services conform to the requirements of the purchase order.

Receipt inspection, in-process inspection, examination, testing, checkouts, and final acceptance testing are conducted.

Shipping, storage, and preservation of equipment and commodities are adequate to prevent damage during delivery and storage of the equipment.

Quality system requirements are passed on to subtier suppliers for subcontracted work, and the Supplier has adequate oversight of subtier supplier activities.

Special processes, such as welding, heat treatment, hot forming, bending and nondestructive examination, are monitored.

Personnel performing special processes, such as welding, nondestructive examinations, coatings, heat treatment, etc., are qualified.

Inspection, measuring, and test equipment is appropriately maintained.

Processes exist for the verification, storage, use, and maintenance of client supplied product.

Applicable industry standards (such as ANSI, AGMA, API, ASME, IEEE, AISC, etc.) shall be incorporated into the quality management system. The quality management system shall be made available to the Purchaser's Quality Management Services (QMS) representative for review, inspection, and/or audit upon request at the Supplier's facility.

Q003.2 Verification

The Purchaser shall have access to perform assessments, quality audits, or witness test activities during the manufacturing process and to review applicable records. Purchaser may designate an authorized agent to perform these activities. The authorized agent may be an employee of the Purchaser or an outside agency. When an outside agency is designated as an authorized agent for the Purchaser, such designation shall be in writing with a copy provided to the Supplier. Hereinafter, when the term "Purchaser's representative" is used, it may also mean the Purchaser or the authorized agent.

The following requirements apply for Purchaser's inspection at the Supplier's mill, factory, yard, warehouse, or subtier supplier's facilities.

Q003.2.1 Access

The Purchaser shall have the right to access the Supplier's and subtier supplier's work and related documents at any time during the manufacturing process without delaying the schedule. The Supplier shall provide, without cost, reasonable facilities including tools, personnel, and instruments for demonstrating acceptability of the work.

Q003.2.2 Control of Special Processes

The Supplier shall ensure that personnel are qualified in accordance with industry standards to perform special processes such as welding, nondestructive examination (NDE), coating, painting, etc. If special processes were conducted by unqualified employees, the Purchaser has the option to validate and test the product at the Supplier's expense and/or reject the product.

Q003.2.3 Corrective Action

Upon identification of a noncompliance with the requirements of the purchase order, the Supplier shall document the noncompliance issue. For noncompliance issues where the nonconforming characteristic can be restored to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement, the Supplier shall submit the noncompliance to the Purchaser for approval.

During witness and hold point activities, if the Purchaser's representative identifies a noncompliance issue, the Supplier shall document the noncompliance issue and provide a copy of the report to the Purchaser's representative. If the Supplier disagrees and does not document the noncompliance, the Purchaser's representative shall issue a corrective action report to the Supplier for disposition and action. The Supplier shall correct, in a timely manner, all deficiencies identified.

Q003.2.4 Rejection

If any items or articles are identified as not meeting the requirements of the specifications, the lot, or any faulty portion thereof, may be rejected. Before offering specified material or equipment for shipment, the Supplier shall inspect the material and equipment and eliminate any items that are defective or do not meet the requirements of the purchase order. The fact that equipment or materials have been previously inspected, tested, and accepted does not relieve the Supplier of responsibility in the case of later discovery of flaws or defects.

Q003.2.5 Receipt Inspection

Materials or equipment purchased under this purchase order may be inspected at the specified receiving points and will either be accepted or rejected. Receipt inspection will include testing to determine compliance with the purchase specifications. Initial receipt inspection acceptance tests will be performed by the Purchaser at the Purchaser's expense. Items found to be defective may be returned to the Supplier for correction at the Supplier's expense, including shipping cost, or the cost to correct and inspect the item will be charged to the Supplier.

Q301 Manufacturer's Standard Coating

(Source: 15Sep11 - Revised by Project: N/A)

Unless otherwise specified, the manufacturer's standard coating systems shall be applied in the shop to ferrous metal surfaces of equipment and materials. The coating systems shall provide resistance to corrosion caused by weather and industrial environments. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment.

Coating material and application shall conform to the regulations of the air quality management agency having jurisdiction. Materials shall be formulated to contain less than 0.06 percent lead or chromium in the dried film.

Surfaces shall be cleaned, prepared, and coated in accordance with the coating manufacturer's instructions and specified codes. Surfaces to be painted shall be prepared, as necessary, to provide a smooth, uniform base for painting.

Coating films that show defects such as sags, checks, blisters, teardrops, fat edges, et cetera will not be accepted. Any coated surface that contains any of the previously mentioned defects shall be repaired or, if necessary, entirely removed from the member or unit involved and the surface recoated.

Surfaces to be finish painted after installation shall be shop painted with one coat of manufacturer's standard primer.

No coating shall be applied to surfaces within 3 inches (75 mm) of field welded connections.

Coating dry film thicknesses shall be measured using a magnetic or electronic thickness detector in accordance with SSPC-PA2. Additional coating shall be applied to all areas which show a deficiency in dry film thickness.

Q301.1 Control and Electrical Equipment

Control and electrical equipment, including panels, cabinets, switchgear, transformers, and motors, shall be finish painted. Exterior surfaces shall be the manufacturer's standard color unless specified otherwise. The interior portions of cabinets shall be painted a light reflecting color.

Q301.2 Mechanical Equipment

Mechanical equipment, including pumps, compressors, valves, valve operators, external piping surfaces, and other similar equipment, shall be cleaned, prepared, and primed. If mechanical equipment will operate at temperatures above 200° F (93° C) and will not be insulated, a high temperature coating system designed for the operating temperatures shall be applied.

Q301.3 Documentation

Shop drawings shall identify the shop applied coating systems. Data to be provided shall include the coating system manufacturer's name and product designation, the degree of surface preparation, dry film thickness, finish color, and Material Safety and Data Sheets (MSDS). Final dry film thickness test results shall be submitted to the Purchaser for verification.

Q500 Shop Drawings and Instruction Manuals
(Source: 13Jun12 - Revised by Project: 18Jan13)

This section, in conjunction with the Schedule of Submittals, stipulates the requirements for engineering data that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order.

Q500.1 Submittal Requirements
Technical data shall be submitted in electronic format. Hard copy prints of the electronic files shall also be submitted, as specified below.

Electronic technical data submittals under 10MB may be transmitted via email attachment. Transmittals larger than 10 MB shall be made using IBackup, a Web-based file transfer service. If Supplier does not already have IBackup transmittal capability, information is available at http://www.ibackup.com/. (The Uniform Resource Locator [URL] to be used for electronic file submittals will be made available upon Purchase Order award.)

Notification to Purchaser that submittals have been posted to IBackup shall be in accordance with the correspondence requirements of this Purchase Order.

The hard copy prints shall be submitted to the address indicated for Technical Documents in accordance with the correspondence requirements of this Purchase Order. The following number of prints shall be submitted unless otherwise indicated in the Schedule of Submittals:

Submittal Description	Copies Required
Performance Curves	2
Design Data	2
Drawings	2

Q500.2 Compliance Reports
Reports shall be submitted that record the tests and/or calculations required in the specification technical sections. Reports shall be submitted for each piece of equipment or each plant system. Specified drawings shall be submitted with the compliance reports.

Q500.3 Motor and Electric Actuator Information
If required by the Specifications, Motor and Electric Actuator Information shall be submitted in accordance with Supplemental Q502.

Q500.4 Drawings
Drawings shall be in sufficient detail to indicate the kind, size, arrangement, component weight, breakdown for shipment, and operation of component materials and devices; the external connections, anchorages, supports, and grouting requirement; the dimensions needed for installation and correlation with other materials and equipment; and the information specifically requested in the Schedule of Submittals.

Supplier shall fully complete, check, and certify drawings, including drawings produced by a subcontractor, for compliance with the Purchase Order requirements prior to submittal. Drawings shall have title block entries that clearly indicate the drawing is certified.

Each submitted drawing shall be project unique and shall be clearly marked with the name of the project, unit designation, Purchaser's Purchase Order title, Purchaser's Purchase Order file number, project equipment or structure nomenclature, component identification numbers, and Purchaser's name. Equipment, instrumentation, and other components requiring Purchaser-assigned identification tag

numbers shall be clearly identified on the drawings. If standard drawings are submitted, the applicable equipment and devices furnished for the project shall be clearly marked.

Transmittal letters shall identify which Schedule of Submittals item (by item number) is satisfied by each drawing or group of drawings. The transmittal letter shall include the manufacturer's drawing number, revision number, and title for each drawing attached. Each drawing title shall be unique and shall be descriptive of the specific drawing content. Transmittal letters for resubmitted drawings shall include the Purchaser's drawing numbers.

Catalog pages are not acceptable, except as drawings for standard non-engineered products and when the catalog pages provide all dimensional data, all external termination data, and mounting data. The catalog page shall be submitted with a typed cover page clearly indicating the name of the project, unit designation, specification title, specification number, component identification numbers, model number, Supplier's drawing number, and Purchaser's name.

Drawings shall be submitted with all numerical values in English and/or metric (SI) units.

Q500.4.1 Drawing Submittal
Drawings shall be submitted electronically in Adobe Portable Document Format (PDF) or AutoCAD format.

If hard copies are required for submittal, the separately submitted hard copy drawing prints shall be black line on white background. Blue line on white background or color prints are not acceptable. Purchaser will use an electronic imaging system in processing the hard copy drawings. All drawings shall be suitable for electronic imaging and shall have the maximum contrast. Print size shall not exceed 34 inches by 44 inches. Drawings shall be folded to 8-1/2 inches by 11 inches. Drawings shall be collated in sets.

Q500.4.2 Drawing Processing
Supplier's engineering schedule shall allow a minimum of three (3) weeks for mailing, processing, and review of drawings and data by Purchaser.

Unless this Purchase Order indicates that a drawing or engineering data submittal by Supplier is to be for Purchaser's information only, Purchaser, upon receipt of submittals, shall review and return same to Supplier, marked "No Exceptions Noted," "Exceptions Noted," "Received for Distribution," "Returned for Corrections," "Release for Record," "Void," or "Superseded." The timing of Supplier's submittals and Purchaser's review shall be in accordance with the Completion Dates for same as set forth in the Purchase Order. The submittal of any drawing or other submittal document by Supplier to Purchaser under this Purchase Order will be certification by Supplier that the information set forth therein is accurate in all material respects.

Q500.4.2.1 No Exceptions Noted (NE) or Received for Distribution (RD).
Upon receipt of a submittal marked "No Exceptions Noted" or "Received for Distribution," Supplier may proceed with its Work to the extent of and in accordance with the submittal. Supplier shall not resubmit unless the drawing or document is revised, in which case it shall be resubmitted as a new document revision in accordance with Q500.4.2.7.

Q500.4.2.2 Exceptions Noted (EN).
Upon receipt of a submittal marked "Exceptions Noted" and if Supplier concurs with Purchaser's comments, Supplier shall incorporate same and may proceed with its Work to the extent of and in accordance with the annotated submittal. Supplier shall submit to Purchaser within fourteen calendar days a revision to the original submittal in which Purchaser's comments have been incorporated. If Supplier determines that it cannot incorporate Purchaser's comments without prejudice to Supplier's warranty or other obligations under this Purchase Order, Supplier shall so advise Purchaser in writing within seven calendar days of its receipt of Purchaser's comments, stating the reasons therefore.

Supplier may proceed with its Work to the extent of and in accordance with the annotated submittal only upon Purchaser and Supplier resolving Purchaser's comments.

Q500.4.2.3 Returned for Corrections (RC).
Upon receipt of a submittal marked "Returned for Corrections," Supplier shall immediately take all necessary action to revise its submittal in accordance with Purchaser's comments, the Specification, and the Drawings, and shall resubmit to Purchaser for review the corrected original submittal, voiding previous information and adding new documents if required. In no event shall Supplier proceed with the affected Work until its revised submittals have been returned to Supplier marked "No Exceptions Noted" or "Exceptions Noted" by Purchaser.

Q500.4.2.4 Release for Record (RR).
Receipt of a submittal marked “Release for Record” indicates that there are no specific objections to the document. Work may proceed. Certain project information required by the Purchaser's document management system may have been added electronically to the drawing and provided to Supplier for the record. Supplier shall not resubmit the drawing or document unless revisions to the design are required. If revisions are required, Supplier shall incorporate Purchaser's information and resubmit as a new revision. Purchaser's project-specific information shall be added if future revisions and submittals are made.

Q500.4.2.5 Void (VO) or Superseded (SS).
Receipt of a submittal marked “Void” or “Superseded” does not require any action by Supplier. “Void” indicates that the submittal is no longer applicable to the project and is not being replaced by other drawings or data. “Superseded” indicates that different drawings or data have replaced the previously submitted drawings and data; this status does not pertain to revisions of the same drawings and data.

Q500.4.2.6 Hold (HO).
A submittal may be given a status of "Hold" by the Purchaser, or the Supplier may have "Holds" on the submitted drawing.

For a Hold status designated by the Purchaser, the Supplier shall not proceed with the work that is designated on "Hold" except as specifically directed by the Purchaser. Additional information required for the Supplier to release the "Hold" will be transmitted from the Purchaser later.

The Supplier shall provide information to the Purchaser about the cause for any "Holds" designated on the drawing and immediately take all action necessary to resolve the "Holds". The Supplier shall resubmit the drawing for review once the "Holds" are removed from the drawing and should make all efforts to not submit drawings to the Purchaser until drawing review comments have been received back from the Purchaser.

Q500.4.2.7 Resubmittals.
If during or subsequent to the completion of the submittal process, Supplier makes further changes to the equipment and materials shown on submittals that have been reviewed by Purchaser, the changes shall be clearly marked on the submittal by Supplier and the submittal process shall be repeated. If changes are made by Supplier after delivery to the Jobsite, as-built drawings indicating the changes shall be prepared by Supplier and submitted to Purchaser for review. Any resubmittal of information shall clearly identify the revisions by footnote or by a form of back-circle, with revision block update, as appropriate.

Q500.4.2.8 Purchaser’s Review.
Purchaser's review of drawings and other submittals will cover only general conformity of the data to the Specifications and Drawings, external connections, interfaces with equipment and materials furnished under separate specifications, and dimensions that affect plant arrangements. Purchaser's review does not include a thorough review of all dimensions, quantities, and details of the equipment, material, device, or item indicated or the accuracy of the information submitted. Review and comment by Purchaser of Supplier's Drawings or other submittals shall not relieve Supplier of its sole responsibility to meet the

Completion Dates requirement of this Purchase Order and to supply Goods that conform to the requirements of this Purchase Order.

Q500.4.2.9 File Returns to Supplier.
The IBackup web service will be used by Purchaser to return TIFF files to Supplier.

A copy of the manifest will be returned to Supplier indicating drawings statused as NE (No Exceptions Noted).

Each packet of drawings returned to Supplier will include a manifest generated by Purchaser. The manifest will include a list of drawings transmitted, manufacturer's drawing numbers, Purchaser's assigned drawing numbers, Purchaser's drawing titles, and the status of the drawings.

Files returned to Supplier will be in TIFF Group 4 format unless another format is agreed upon by Purchaser and Supplier.

Q500.5 Wiring Diagrams
If required by the Specifications, Wiring Diagrams shall be submitted in accordance with Supplemental Q502.

Q500.6 Instruction Manuals
If required by the Specifications, Instruction Manuals shall be submitted in accordance with Supplemental Q501.

Q501 Instruction Manuals
(Source: 15Sep11 - Revised by Project: 18Jan13)
This section, in conjunction with Section Q500 and the Schedule of Submittals included in the Terms and Conditions of this Purchase Order, stipulates the requirements for Instruction Manuals that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order, Section Q500, and the following.

Q501.1 Submittal Requirements
Hard copies shall be submitted to the address indicated for Technical Documents in the Terms and Conditions of this Purchase Order for the documents listed below. The following number of copies shall be submitted unless otherwise indicated in the Schedule of Submittals:

Submittal Description	Copies Required
Instruction manual final copies	(2) hard, (1) electronic in pdf format

Q501.2 Instruction Manuals
Supplier shall furnish proof and final instruction manuals for the unloading, storage, installation, operation, and maintenance of the equipment. The manuals shall be delivered as specified in the Schedule of Submittals.

Manuals shall include the following information specific to the furnished equipment. The documents or drawings submitted within the Instruction Manual shall be consistent with the documents or drawings previously submitted for Purchaser's review. Documents or drawings which were previously submitted for review and are included within the Instruction Manual shall be identical, with the same revision number. If these documents or drawings were revised due to design revisions subsequent to issuance of the Instruction Manuals, the document or drawing shall be resubmitted in accordance with Article Q500.4.2.7 in Supplemental Q500 so the Purchaser can provide updated drawings to the holders of the Instruction Manuals.

Table of contents and index tabs. (If multiple volumes are required, a table of contents listing materials included in each volume shall be supplied for each volume.)

Specifications, test data, and all performance curves specified in the technical specifications.

Description of the equipment, including illustrations showing elevations, cross section, and all details of the equipment with all parts named and numbered. When multiple model numbers are shown on the drawings, the equipment supplied for the project shall be clearly identified.

Complete and detailed operating instructions, including safety precautions, philosophy of operation and, where applicable, process optimization techniques.

Detailed minor and major maintenance instructions, including description, use of special tools furnished, and preventive maintenance schedule.

Instructions for receiving, inspection, storage, and handling of equipment prior to installation.

Installation instructions.

Inspection procedures.

Troubleshooting guide.

Supplier and Sub-supplier operating and maintenance manuals.

Illustrated parts breakdown.

Assembly drawings.

Parts lists.

Nameplate information and shop order numbers for each item of equipment and associated component parts thereof.

List of recommended spare parts.

List of maintenance tools furnished with the equipment.

The above listed requirements are the minimum requirements; however, requirements that are clearly not applicable to the equipment may be deleted with Purchaser's approval. Additional information that is necessary for proper operation and care of the equipment shall also be included.

Q501.2.1 Binding
Each copy of the manuals shall be assembled and bound in three-ring or post binders designed for rough usage. Light-duty binders will not be acceptable.

Front covers and backbones of the manuals shall be permanently marked with lettering per the Typical Instruction Book Cover attached at the end of this section.

TYPICAL INSTRUCTION BOOK COVER

NAME OF EQUIPMENT	**CLIENT'S NAME**	**36**
	NAME OF UNIT	**24**
	UNIT NUMBER	**24**
CLIENT'S NAME	**INSTRUCTION BOOK**	**36**
	FOR	**36**
	NAME OF EQUIPMENT	**36**
	VOLUME NUMBER*	**36**
NAME OF UNIT	**PURCHASE ORDER NUMBER****	**24**
	MANUFACTURER'S NAME	**24**
	MANUFACTURER'S ADDRESS	**24**
UNIT NUMBER		
PURCHASE ORDER NUMBER**		
	BLACK & VEATCH	**14**
	KANSAS CITY, MISSOURI	**14**
VOLUME NUMBER*		
(Backbone)	(Cover)	

NOTES:
1. All lettering shall be a block style font such as Arial.
2. All backbone lettering shall be 14 point.
3. Cover lettering shall be point sizes indicated in column to right of cover illustration.
4. *Volume number required only if instructions are contained in more than one volume.
5. **Purchaser assigned Purchase Order number.

S100 Seismic Design
(Source: 7Jun12 - Revised by Project: 18Jan13)

S100.1 General
This article specifies the general criteria and procedures that shall be used to ensure that structures, components, and equipment meet performance objectives during and following a seismic event. The intent of these procedures is to minimize the hazard to human life. Components and equipment are expected to remain in place without collapsing or breaking away from supports, and to remain intact to the extent that they do not create an ignition hazard or release hazardous materials.

Equipment furnished by the Supplier shall be designed so that seismic forces are positively transferred to the Purchaser's supporting structure or foundation. The transfer method shall be acceptable to the Purchaser and may include, but not be limited to, bolts, welds, guides, bumpers or shear lugs as appropriate. Frictional resistance due to gravity shall not be considered in evaluating the required resistance to seismic forces.

For seismic design of vessels, tanks, and other components, contents that are flammable, explosive, corrosive, acidic, caustic, toxic, or that otherwise present a danger to the general public if released shall be considered hazardous materials.

Seismic design shall be performed in accordance with the building code specified in Supplemental Specification D100 Site Meteorological and Seismic Data in this Section 01400, along with the applicable edition (as required by the specified building code) of the following references:

International Building Code (IBC) , Section 1613, "Earthquake Loads"

Other nationally recognized and accepted design standards and references as appropriate.

S100.2 Seismic Forces
Seismic forces shall be determined from the basic seismic parameters given in Supplemental D100. The design forces and their distribution over the height of the building or structure shall be determined using a linearly elastic analysis model and the procedures listed in the specified building code. Load combinations, including seismic, shall be in accordance with the specified building code.

Hydrodynamic effects of contents shall be considered in the seismic design of vessels and tanks as required by the specified building code. Seismic dynamic forces shall be considered in the seismic design of below ground structures in addition to the static soil pressures.

S100.3 Seismic Design

S100.3.1 Buildings
Not used.

S100.3.2 Nonbuilding Structures
Not Used.

S100.3.3 Equipment
Seismic design of mechanical and electrical equipment, attachments, and supports shall consider the dynamic effects of the equipment; its contents; piping attached to its nozzles; and, when appropriate, its supports. Most mechanical and electrical equipment is presumed to be inherently rugged and capable of surviving strong motions and earthquakes provided it is adequately attached to the structure.

Equipment mounted on vibration isolation systems shall have a bumper restraint or snubber in each horizontal direction. These seismic restraints shall be designed for twice the seismic force acting on the equipment. Seismic supports shall maintain positive engagement with the equipment.

If the equipment is essential and must remain functional after an earthquake or if the equipment contains hazardous materials, it may be seismically qualified by analysis, testing, or experience data in accordance with the specified building code. Adaptation of a nationally recognized standard such as ICC-ES AC 156 for qualification by testing is acceptable, provided the seismic capacity of the equipment equals or exceeds the requirements of the specified building code.

S100.3.4 Components
Components are architectural, mechanical, and electrical parts and portions that are attached to and supported by the building but are not part of the building structural system, such as nonbearing walls and partitions, ceilings, storage racks, access floors, tanks, piping, HVAC ductwork, elevators, electrical panels, cable tray, and other nonstructural items. Components shall have the same Seismic Design Category as the building to which they are attached.

S100.3.5 Equipment and Components Supported by Purchaser Furnished Structures
Seismic design of mechanical and electrical equipment or components supported by Purchaser furnished structures shall be based on the seismic design forces at the attachment elevation of the Supplier's equipment or component, as noted in the technical specifications, in accordance with the requirements of the specified building code. The following table provides the applicable information for each Purchaser furnished structure to support the Supplier in developing these forces.

Purchaser Furnished Structure Name	Seismic Design Category	Base Elevation	Roof Elevation
Unit 1 Battery Room floor	A	1845'	1855'
Unit 3 Battery Room floor	A	1859'	1867'

S100.3.6 Building Code Required Seismic Qualification of Equipment and Components
Not used

S100.4 Documentation
Complete structural support and anchorage details shall be shown on all drawings, including the size of members, details of connections, anchor bolt sizes, etc.

The following seismic design data shall be indicated on the design drawings:

Occupancy Category.

Mapped Spectral Response Accelerations, S_s and S_1.

Spectral Response Coefficients, S_{DS} and S_{D1}.

Site Class.

Seismic Design Category.

For Nonstructural Components Including Equipment:

Component Importance Factor, I_p.

Seismic Design Force, F_p.

Component Response Modification Factor, R_p.

Component Amplification Factor, a_p.

Equipment and component drawings shall indicate the total load and/or loads to be transmitted to the structure that must ultimately restrain the components, equipment, or structure. This information shall include the weight, dimensions locating the center of gravity of the component or equipment, or the seismic design forces (magnitude, direction, and location) acting on the supports.

If requested by the Purchaser, design calculations shall be submitted for all structures, equipment, or components which are designed in accordance with this Supplemental Specification. If requested by the Purchaser, these calculations shall be certified by a professional engineer registered in the appropriate jurisdiction.

16176 - Batteries

16176.1 General

16176.1.1 Scope of Supply

Scope of supply shall include furnishing all labor, material, tools, transportation, equipment rental, licensing, permits and fees necessary to replace two (2) 125VDC battery banks as defined in this specification. This work shall include demolition, removal and proper disposal of existing batteries and racks, installation of new racks, containment system and batteries, electrical hardware and connections and miscellaneous components required for a complete installation. The batteries shall be tested after installation to establish a baseline for future testing. A temporary DC power source shall be provided for operation of DC equipment during the battery replacement.

16176.1.2 Items Furnished by Others and Interfaces

Items furnished by others and not in this scope of supply include the following:

Not applicable.

16176.1.3 Performance and Design Requirements

Performance and design conditions for this equipment is defined herein and as indicated on the Batteries 16176 Specifications Sheet included at the end of this section.

16176.1.4 Codes and Standards

Work performed under these specifications shall be done in accordance with the following codes and standards. Unless otherwise specified, the applicable governing edition and addenda to be used for all references to codes or standards specified herein shall be interpreted to be the jurisdictionally approved edition and addenda. If a code or standard is not jurisdictionally mandated, then the current edition and addenda in effect at the date of this document shall apply. These references shall govern the work except where they conflict with the Purchaser's specifications. In case of conflict, the latter shall govern to the extent of such difference:

Work	In Accordance With
Batteries	ANSI, NEMA, IEEE, OSHA, and UL

16176.1.5 Materials

The following materials shall be used:

Component	Material
Cell material	Lead-calcium or lead-selenium

16176.1.6 Approved Manufacturers of Components

For the following components, only the listed manufacturers are recognized as maintaining the level of quality of workmanship required by these specifications. If the Supplier wants to propose a nonlisted manufacturer that is considered to provide an equivalent level of quality, this manufacturer must be identified and supporting testimony provided. Acceptance of the proposed manufacturer is at the sole discretion of the Purchaser:

Component	Manufacturer
Batteries	C&D Technologies GNB/Exide Alcad Liebert BAE Batteries Enersys

16176.1.7 Test Requirements

The following testing shall be conducted in accordance with the specified source. This testing is to be considered part of the defined Scope of Work, and all associated costs are the responsibility of the Supplier. The Supplier is responsible for all costs associated with correcting deficiencies and retesting in the event of a test failure. Test results are to be provided to the Purchaser in Excel spreadsheet format.

Tests	In Accordance With	Conducted By
Electronic impedance / load test including intercell connectors, visual inspections.	IEEE 450-2010 and as recommended by manufacturer.	Supplier

16176.1.8 Technical Attachments

Not used.

16176.1.9 Supplemental Specifications

Technical supplemental specifications that are applicable to the work covered under this technical specification section are identified and included in Section 01400.

16176.1.10 Temporary Power

Supplier shall provide and install a nominal 125VDC battery source to provide temporary power to the Purchaser's DC system while each main battery system is out of service during replacement. The temporary power system shall be sized to support 50% of the loading capacity indicated in the DC load profile provided in the specification data sheets. Supplier shall provide any electrical devices necessary to safely and reliably connect the temporary source to the Purchaser's systems. The temporary system is to be considered part of the defined Scope of Work, and all associated costs are the responsibility of the Supplier.

16176.2 Products

The design and construction of the batteries shall be in accordance with manufacturer and power industry standard practices, except as modified in accordance with these specifications.

16176.2.1 Battery Design and Construction

The die-cast method of grid fabrication is not acceptable. Parallel batteries are not an acceptable configuration. Batteries shall be suitable for float service.

Cell containers shall be clear, shock absorbing, heat resistant plastic. Required cell electrolyte levels shall be clearly indicated on the container.

16176.2.1.1 Rating. The capacity of each battery shall be determined by the Supplier in accordance with the 16176 Specification Sheet. The discharge capacity, with the battery initially fully charged at the floating voltage specified, and with the battery chargers disconnected, shall be capable of supplying the duty cycle specified including the margins and conditions indicated. The ambient temperature during the

duty cycle shall be the minimum ambient temperature specified, and the voltage throughout the duty cycle shall be not less than the final voltage specified.

16176.2.2 Battery Racks. Each battery shall be furnished with structural steel racks arranged as indicated in the specification data sheets.

Before application of paint, all surfaces shall be carefully cleaned of all dirt, moisture, rust, scale, lubricants, and other substances. Lubricants shall be removed by suitable solvents. Rust and scale shall be removed by sandblasting, power sanding, power grinding, or power wire brushing.

All steel shall have not less than two finish coats of acid resistant paint or electrostatically applied epoxy coating finish.

Battery terminal covers shall be provided.

Cells shall be removable on an individual or small group basis without disturbing adjacent cells or groups.

Each battery shall be furnished with the following connectors:

Lead coated interstep connectors for each battery rack.

Lead coated interrack connectors.

Connector bolts with acid resistant nuts.

One set of numerals (one numeral per cell) suitable for permanent attachment to cells.

16176.2.3 Connector Bolt Torque.
The installation and maintenance instructions shall include the manufacturer's recommended torque for connector bolts.

16176.2.4 Spill Containment.
Supplier shall provide and install a UL-listed containment system which shall contain, absorb, and neutralize the sulfuric acid electrolyte from the batteries in the event of a leak or spill. The system shall be sized to completely surround the battery racks. The walls must be a minimum of 4" high. The system shall be filled with acid neutralizing and absorbent pillows. The containment system may be one of 2 types:

1. The containment system may be fabricated on-site from PVC coated metal walls attached to the floor of the battery room and lined with a corrosion resistant liner. The containment system shall be Enviroguard Eagle or approved equivalent.
2. The containment system may be a one-piece stainless steel or chemical resistant pan.

16176.3 Execution
Not used.

Batteries Specification Data Sheet Unit 1

System Requirements		
These specification sheets are applicable to the following batteries.		
Battery Name	**ID Number**	
Burdick Station U1 125VDC Battery System		
Nominal voltage, VDC	125	
Maximum system voltage VDC	135	
Minimum system voltage VDC	105	
Configuration	Single battery, 2 wire ungrounded	
Intended use	Power station power and control	
Seismic withstand capability	Refer to Supplemental S100 and Article 1.1.2	
Shipping requirements	Ship cells precharged with electrolyte	
Warranty requirements	20 year prorated	
Cell/Rack Information		
Number of cells	58	
Nominal volts per cell	2.0	
Cell material	Lead -calcium or lead-selenium	
Positive plate construction	Manufacturer's standard	
Cell type	Flooded-ventilated	
Specific gravity at 77° F (25° C), fully charged	Manufacturer's standard	
Rack construction	Quantity two (2), two-tier	
Rack layout	Two rows, back to back	
Rack finish	Manufacturer's standard	
Sizing Requirements and Sizing Calculation Information		
Sizing method	IEEE 485	
	Minimum	**Maximum**
Design ambient temperature, ° F	55	95
Design margin, percent	110	
Design life, years	20	
Ageing factor	1.25	
Floating voltage, volts per cell	2.22	
Equalizing or high rate recharge voltage, volts per cell	2.33	

End of discharge voltage, volts per cell			1.81	
Duty Cycle Data				
Period	**Amperes**		**Minutes**	
1	197	for	1	followed by
2	77	for	14	followed by
3	54	for	104	followed by
4	72	for	1	
Total duration			120	
	Random load =	9	Amperes for three minutes to be located at end of period.	

Batteries Specification Data Sheet Unit 3

System Requirements		
These specification sheets are applicable to the following batteries.		
Battery Name	**ID Number**	
Burdick Station U3 125VDC Battery System		
Nominal voltage, VDC	125	
Maximum system voltage VDC	135	
Minimum system voltage VDC	105	
Configuration	Single battery, 2 wire ungrounded	
Intended use	Power station power and control	
Seismic withstand capability	Refer to Supplemental S100 and Article 1.1.2	
Shipping requirements	Ship cells precharged with electrolyte	
Warranty requirements	20 year prorated	
Cell/Rack Information		
Number of cells	58	
Nominal volts per cell	2.0	
Cell material	Lead -calcium or lead-selenium	
Positive plate construction	Manufacturer's standard	
Cell type	Flooded-ventilated	
Specific gravity at 77° F (25° C), fully charged	Manufacturer's standard	
Rack construction	Quantity two (2), two-tier	
Rack layout	Two rows, back to back	
Rack finish	Manufacturer's standard	
Sizing Requirements and Sizing Calculation Information		
Sizing method	IEEE 485	
	Minimum	**Maximum**
Design ambient temperature, ° F	55	95
Design margin, percent	110	
Design life, years	20	
Ageing factor	1.25	
Floating voltage, volts per cell	2.22	
Equalizing or high rate recharge voltage, volts per cell	2.33	

End of discharge voltage, volts per cell			1.81	
Duty Cycle Data				
Period	**Amperes**		**Minutes**	
1	302	for	1	followed by
2	87	for	118	followed by
3	103	for	1	
Total duration			120	
	Random load =		Amperes for one minute to be located at end of period.	

Attachments

Item No.	Reference Document	Submittal Item	Submittal Dates			LD's Apply?
			Calendar Days		Event	
Schedule of Submittals						
	16176	**Batteries**			.	
0601	16176	Outline indicating dimensions, weights, mounting requirements, etc.	15	After	Effective Date	No
	Q301	**Manufacturer's Standard Coating**			.	
0602	Q301	Shop drawings that identify shop-applied coating systems	15	Before	Start of Fabrication	No
0603	Q301	Manufacturer's product data sheets	15	After	Release to Proceed	No
	Q501	**Instruction Manuals**			.	
0604	Q501	Instruction Manuals (except for test data)			Delivered upon installation	No
0605	Q501	Instruction manual test data	15	After	Testing complete	No

Reference Document	Submittal Item	Submitted with bid? Yes/No
Bid Submittals		

16176	**Batteries**	
16176	Outline suggested showing dimensions, weights, mounting requirements, etc.	
16176	IEEE calculation sheets for capacity	
16176	Manufacturer's battery selection calculations (such as output from a computer program).	
16176	Temporary power cell type and Ah rating	
16176	Battery curves and data sheets.	
16176	Battery cell data sheets (dimensions, weight, float, and charging voltages, etc.).	
16176	Battery rack data sheets (dimensions, weight, material)	
16176	Containment system data sheets (dimensions, weight, material).	

Reference Document	Submittal Item	Tech Fill-In Data
Technical Fill-In Data		
16176	**Batteries**	
16176	Unit 1	
16176	Cell manufacturer	
16176	Cell catalog number	
16176	Number of plates per cell	
16176	Nominal ampere-hour capacity at 8 hour discharge rate	.
16176	Bolted short-circuit current, amperes	
16176	Weight per cell with electrolyte	
16176	Weight per cell without electrolyte	
16176	Volume of electrolyte per cell	
16176	Dimensions of each cell (L W H)	
16176	Battery rack catalog number	
16176	Overall dimensions of each battery rack (L W H)	
16176	Overall footprint of containment system (L W H)	
16176	Unit 3	
16176	Cell manufacturer	
16176	Cell catalog number	
16176	Number of plates per cell	
16176	Nominal ampere-hour capacity at 8 hour discharge rate	.
16176	Bolted short-circuit current, amperes	
16176	Weight per cell with electrolyte	
16176	Weight per cell without electrolyte	
16176	Volume of electrolyte per cell	
16176	Dimensions of each cell (L W H)	

16176	Battery rack catalog number	
16176	Overall dimensions of each battery rack (L W H)	
16176	Overall footprint of containment system (L W H)	

Burdick Station Battery Replacement
Battery Chargers
176673.63.2802
RFP Issue, Revision 2
13Mar2013

City of Grand Island Utilities Dept.
Grand Island, NE
Table of Contents

01400 - Technical Supplemental Specifications

This section contains technical supplemental specifications that provide additional requirements applicable to the work covered under the technical sections which follow this Section 01400.

01400.1 Summary of Applicable Supplementals

The technical supplementals applicable to each technical section are indicated below.

	Technical Section Number	Technical Section Name	Applicable Technical Supplementals
1	16177	Battery Chargers	D100, E000, E510, Q003, Q301, Q500, Q501, S100

01400.2 Technical Supplemental Specifications

The technical supplemental specifications follow.

D100 Site Meteorological and Seismic Data

(Source: 06Oct11 - Revised by Project: 18Jan13)

Work shall be designed according to the following building code and site conditions:

General Design Data:	
Building Code	IBC 2009 as amended by the City of Grand Island, NE (Adopted 03/30/12)
Occupancy Category	III
Site Elevation (Mean Sea Level), ft	1845
Wind Design Data:	
Basic Wind Speed, V, Nominal 3 second gust wind speed at 33 ft above ground for Exposure C category, mph	90
Exposure Category	C
Topographic Factor, Kzt	1
Importance Factor (Wind Loads), I	1.15
Snow Design Data:	
Ground Snow Load, P_g, lb/ft^2	25
Importance Factor (Snow Loads), I	1.1
Ice Design Data:	
Nominal Ice Thickness, t, Due to freezing rain at a height of 33 ft, inches	.75
Concurrent Wind Speed, V_c, mph	50
Importance Factor (Ice Loads – Ice Thickness), I_i	1.25
Importance Factor (Ice Loads – Concurrent Wind), I_w	1.0

Seismic Design Data:	
Short Period Mapped Spectral Acceleration, S_s	15%g
One Second Period Mapped Spectral Acceleration, S_1	4%g
Site Class	D
Importance Factor (Seismic Loads), I	1.25

E000 Electrical Equipment and System Voltages

(Source: 15Sep11 - Revised by Project: 18Jan13)

Power Supply Code	Continuous Voltage (Volts)	Momentary Voltage Dip to X% of Nominal	Frequency (Hz)	Configuration	System Grounding	Transfer to Alternate Source	Max Sym Short-Circuit Amps
DC-1 DC Power	125 Nom 140 Max 100 Min	70	N/A	Two-Pole	Ungrounded	N/A	10,000 (P-P)
LV-1 Low Voltage (Power)	480 Nom 508 Max 432 Min	80	60 Nom 61.5 Max 58.5 Min	3-Phase, 3 Wire, Wye (3/PE)	High Resistance (IT)	Manual	65,000 (3-Ph) 10 (L-G)

E510 Molded Case Circuit Breakers

(Source: 15Sep11 - Revised by Project: N/A)

Unless otherwise specified, molded case circuit breakers used in equipment furnished under these specifications shall have a symmetrical RMS ampere interrupting capacity equal to or greater than the maximum short-circuit current values specified on the E000 Electrical Equipment and System Voltages Supplemental Specification for the appropriate Power Supply Code.

The breakers shall have a thermal magnetic type trip and shall be in accordance with UL 489 or IEC 60947-2. In addition to the AC interrupting ratings, all single-pole breakers, 2-pole breakers, and 3-pole breakers shall have the following minimum DC interrupting ratings:

Single-pole breakers	10,000 amperes at 125 volts DC
2-pole breakers	10,000 amperes at 250 volts DC
3-pole breakers	10,000 amperes at 250 volts DC

Q003 Quality System Requirements (No Purchaser Surveillance)

(Source: 15Sep11 - Revised by Project: N/A)

This Supplemental Specification establishes the quality management system requirements for suppliers of equipment and commodities.

Q003.1 Quality System

It is the Supplier's responsibility to define and implement a detailed and documented quality management system which ensures that all equipment and commodities supplied are in conformance with required drawings and/or specifications. The Supplier shall meet all the guidelines (requirements) set forth in this

document. The quality management system shall be capable of providing assurance that design, purchasing, materials, manufacturing, examination and testing of equipment, shipping, storage, and related services comply with the purchase order requirements.

The Supplier's quality management system shall include, at a minimum, procedures and/or methods that ensure the following processes are controlled:

Design documents, drawings, specifications, procedures, inspection and test status and procurement documents are current, accurate, and controlled.

Materials, equipment, and services conform to the requirements of the purchase order.

Receipt inspection, in-process inspection, examination, testing, checkouts, and final acceptance testing are conducted.

Shipping, storage, and preservation of equipment and commodities are adequate to prevent damage during delivery and storage of the equipment.

Quality system requirements are passed on to subtier suppliers for subcontracted work, and the Supplier has adequate oversight of subtier supplier activities.

Special processes, such as welding, heat treatment, hot forming, bending and nondestructive examination, are monitored.

Personnel performing special processes, such as welding, nondestructive examinations, coatings, heat treatment, etc., are qualified.

Inspection, measuring, and test equipment is appropriately maintained.

Processes exist for the verification, storage, use, and maintenance of client supplied product.

Applicable industry standards (such as ANSI, AGMA, API, ASME, IEEE, AISC, etc.) shall be incorporated into the quality management system. The quality management system shall be made available to the Purchaser's Quality Management Services (QMS) Department for review, inspection, and/or audit upon request at the Supplier's facility.

Q003.2 Verification

The Purchaser shall have access to perform assessments, quality audits, or witness test activities during the manufacturing process and to review applicable records. Purchaser may designate an authorized agent to perform these activities. The authorized agent may be an employee of the Purchaser or an outside agency. When an outside agency is designated as an authorized agent for the Purchaser, such designation shall be in writing with a copy provided to the Supplier. Hereinafter, when the term "Purchaser's representative" is used, it may also mean the Purchaser or the authorized agent.

The following requirements apply for Purchaser's inspection at the Supplier's mill, factory, yard, warehouse, or subtier supplier's facilities.

Q003.2.1 Access

The Purchaser shall have the right to access the Supplier's and subtier supplier's work and related documents at any time during the manufacturing process without delaying the schedule. The Supplier shall provide, without cost, reasonable facilities including tools, personnel, and instruments for demonstrating acceptability of the work.

Q003.2.2 Control of Special Processes
The Supplier shall ensure that personnel are qualified in accordance with industry standards to perform special processes such as welding, nondestructive examination (NDE), coating, painting, etc. If special processes were conducted by unqualified employees, the Purchaser has the option to validate and test the product at the Supplier's expense and/or reject the product.

Q003.2.3 Corrective Action
Upon identification of a noncompliance with the requirements of the purchase order, the Supplier shall document the noncompliance issue. For noncompliance issues where the nonconforming characteristic can be restored to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement, the Supplier shall submit the noncompliance to the Purchaser for approval.

During witness and hold point activities, if the Purchaser's representative identifies a noncompliance issue, the Supplier shall document the noncompliance issue and provide a copy of the report to the Purchaser's representative. If the Supplier disagrees and does not document the noncompliance, the Purchaser's representative shall issue a corrective action report to the Supplier for disposition and action. The Supplier shall correct, in a timely manner, all deficiencies identified.

Q003.2.4 Rejection
If any items or articles are identified as not meeting the requirements of the specifications, the lot, or any faulty portion thereof, may be rejected. Before offering specified material or equipment for shipment, the Supplier shall inspect the material and equipment and eliminate any items that are defective or do not meet the requirements of the purchase order. The fact that equipment or materials have been previously inspected, tested, and accepted does not relieve the Supplier of responsibility in the case of later discovery of flaws or defects.

Q003.2.5 Receipt Inspection
Materials or equipment purchased under this purchase order may be inspected at the specified receiving points and will either be accepted or rejected. Receipt inspection will include testing to determine compliance with the purchase specifications. Initial receipt inspection acceptance tests will be performed by the Purchaser at the Purchaser's expense. Items found to be defective may be returned to the Supplier for correction at the Supplier's expense, including shipping cost, or the cost to correct and inspect the item will be charged to the Supplier.

Q301 Manufacturer's Standard Coating
(Source: 15Sep11 - Revised by Project: N/A)

Unless otherwise specified, the manufacturer's standard coating systems shall be applied in the shop to ferrous metal surfaces of equipment and materials. The coating systems shall provide resistance to corrosion caused by weather and industrial environments. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment.

Coating material and application shall conform to the regulations of the air quality management agency having jurisdiction. Materials shall be formulated to contain less than 0.06 percent lead or chromium in the dried film.

Surfaces shall be cleaned, prepared, and coated in accordance with the coating manufacturer's instructions and specified codes. Surfaces to be painted shall be prepared, as necessary, to provide a smooth, uniform base for painting.

Coating films that show defects such as sags, checks, blisters, teardrops, fat edges, et cetera will not be accepted. Any coated surface that contains any of the previously mentioned defects shall be repaired or, if necessary, entirely removed from the member or unit involved and the surface recoated.

All internal surfaces that will be exposed to steam or treated feedwater shall be blasted with aluminum oxide (pink or white grade), cut steel wire (SAE J441), steel grit or steel shot. The blasting media used shall contain no more than 1.2 percent complexed silica and 0 percent free silica.

Surfaces to be finish painted after installation shall be shop painted with one coat of manufacturer's standard primer.

Touchup paint shall be provided for repair painting of at least 10 percent of the finish painted equipment surface. The touchup paint shall be the same type and color as the shop applied material. Application instructions shall be provided.

No coating shall be applied to surfaces within 3 inches (75 mm) of field welded connections.

Coating dry film thicknesses shall be measured using a magnetic or electronic thickness detector in accordance with SSPC-PA2. Additional coating shall be applied to all areas which show a deficiency in dry film thickness.

Q301.1 Control and Electrical Equipment

Control and electrical equipment, including panels, cabinets, switchgear, transformers, and motors, shall be finish painted. Exterior surfaces shall be the manufacturer's standard color unless specified otherwise. The interior portions of cabinets shall be painted a light reflecting color.

Q301.2 Mechanical Equipment

Mechanical equipment, including pumps, compressors, valves, valve operators, external piping surfaces, and other similar equipment, shall be cleaned, prepared, and primed. If mechanical equipment will operate at temperatures above 200° F (93° C) and will not be insulated, a high temperature coating system designed for the operating temperatures shall be applied.

Q301.3 Documentation

Shop drawings shall identify the shop applied coating systems. Data to be provided shall include the coating system manufacturer's name and product designation, the degree of surface preparation, dry film thickness, finish color, and Material Safety and Data Sheets (MSDS). Final dry film thickness test results shall be submitted to the Purchaser for verification.

Q500 Shop Drawings and Instruction Manuals

(Source: 13Jun12 - Revised by Project: 18Jan13)

This section, in conjunction with the Schedule of Submittals, stipulates the requirements for engineering data that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order.

Q500.1 Submittal Requirements

Technical data shall be submitted in electronic format. Hard copy prints of the electronic files shall also be submitted, as specified below.
Electronic technical data submittals under 10MB may be transmitted via email attachment. Transmittals larger than 10 MB shall be made using IBackup, a Web-based file transfer service. If Supplier does not already have IBackup transmittal capability, information is available at http://www.ibackup.com/. (The Uniform Resource Locator [URL] to be used for electronic file submittals will be made available upon Purchase Order award.)

Notification to Purchaser that submittals have been posted to IBackup shall be in accordance with the correspondence requirements of this Purchase Order.

The hard copy prints shall be submitted to the address indicated for Technical Documents in the Terms and Conditions section of this Purchase Order. The following number of prints shall be submitted unless otherwise indicated in the Schedule of Submittals:

Submittal Description	Copies Required
Performance Curves	2
Design Data	2
Test and Inspection Data	2
Drawings	2

Q500.2 Compliance Reports
Reports shall be submitted that record the tests and/or calculations required in the specification technical sections. Reports shall be submitted for each piece of equipment or each plant system. Specified drawings shall be submitted with the compliance reports.

Q500.3 Motor and Electric Actuator Information
If required by the Specifications, Motor and Electric Actuator Information shall be submitted in accordance with Supplemental Q502.

Q500.4 Drawings
Drawings shall be in sufficient detail to indicate the kind, size, arrangement, component weight, breakdown for shipment, and operation of component materials and devices; the external connections, anchorages, supports, and grouting requirement; the dimensions needed for installation and correlation with other materials and equipment; and the information specifically requested in the Schedule of Submittals.

Supplier shall fully complete, check, and certify drawings, including drawings produced by a subcontractor, for compliance with the Purchase Order requirements prior to submittal. Drawings shall have title block entries that clearly indicate the drawing is certified.

Each submitted drawing shall be project unique and shall be clearly marked with the name of the project, unit designation, Purchaser's Purchase Order title, Purchaser's Purchase Order file number, project equipment or structure nomenclature, component identification numbers, and Purchaser's name. Equipment, instrumentation, and other components requiring Purchaser-assigned identification tag numbers shall be clearly identified on the drawings. If standard drawings are submitted, the applicable equipment and devices furnished for the project shall be clearly marked.

Transmittal letters shall identify which Schedule of Submittals item (by item number) is satisfied by each drawing or group of drawings. The transmittal letter shall include the manufacturer's drawing number, revision number, and title for each drawing attached. Each drawing title shall be unique and shall be descriptive of the specific drawing content. Transmittal letters for resubmitted drawings shall include the Purchaser's drawing numbers.

Catalog pages are not acceptable, except as drawings for standard nonengineered products and when the catalog pages provide all dimensional data, all external termination data, and mounting data. The catalog page shall be submitted with a typed cover page clearly indicating the name of the project, unit designation, specification title, specification number, component identification numbers, model number, Supplier's drawing number, and Purchaser's name.

Drawings shall be submitted with all numerical values in English and/or metric (SI) units.

Q500.4.1 Drawing Submittal
Drawings shall be submitted electronically in Tagged Image File Format (TIFF) - Group 4. AutoCAD or MicroStation format files are not acceptable. If Supplier does not have the capability to provide TIFF -

Group 4 drawings, an alternative submittal format shall be used as mutually agreed between Purchaser and Supplier.

If hard copies are required for submittal, the separately submitted hard copy drawing prints shall be black line on white background. Blue line on white background or color prints are not acceptable. Purchaser will use an electronic imaging system in processing the hard copy drawings. All drawings shall be suitable for electronic imaging and shall have the maximum contrast. Print size shall not exceed 34 inches by 44 inches. Drawings shall be folded to 8-1/2 inches by 11 inches. Drawings shall be collated in sets.

Q500.4.2 Drawing Processing
Supplier's engineering schedule shall allow a minimum of three (3) weeks for mailing, processing, and review of drawings and data by Purchaser.

Unless this Purchase Order indicates that a drawing or engineering data submittal by Supplier is to be for Purchaser's information only, Purchaser, upon receipt of submittals, shall review and return same to Supplier, marked "No Exceptions Noted," "Exceptions Noted," "Received for Distribution," "Returned for Corrections," "Release for Record," "Void," or "Superseded." The timing of Supplier's submittals and Purchaser's review shall be in accordance with the Completion Dates for same as set forth in the Purchase Order. The submittal of any drawing or other submittal document by Supplier to Purchaser under this Purchase Order will be certification by Supplier that the information set forth therein is accurate in all material respects.

Q500.4.2.1 No Exceptions Noted (NE) or Received for Distribution (RD).
Upon receipt of a submittal marked "No Exceptions Noted" or "Received for Distribution," Supplier may proceed with its Work to the extent of and in accordance with the submittal. Supplier shall not resubmit unless the drawing or document is revised, in which case it shall be resubmitted as a new document revision in accordance with Q500.4.2.7.

Q500.4.2.2 Exceptions Noted (EN).
Upon receipt of a submittal marked "Exceptions Noted" and if Supplier concurs with Purchaser's comments, Supplier shall incorporate same and may proceed with its Work to the extent of and in accordance with the annotated submittal. Supplier shall submit to Purchaser within fourteen calendar days, a revision to the original submittal in which Purchaser's comments have been incorporated. If Supplier determines that it cannot incorporate Purchaser's comments without prejudice to Supplier's warranty or other obligations under this Purchase Order, Supplier shall so advise Purchaser in writing within seven calendar days of its receipt of Purchaser's comments, stating the reasons therefore. Supplier may proceed with its Work to the extent of and in accordance with the annotated submittal only upon Purchaser and Supplier resolving Purchaser's comments.

Q500.4.2.3 Returned for Corrections (RC).
Upon receipt of a submittal marked "Returned for Corrections," Supplier shall immediately take all necessary action to revise its submittal in accordance with Purchaser's comments, the Specification, and the Drawings, and shall resubmit to Purchaser for review the corrected original submittal, voiding previous information and adding new documents if required. In no event shall Supplier proceed with the affected Work until its revised submittals have been returned to Supplier marked "No Exceptions Noted" or "Exceptions Noted" by Purchaser.

Q500.4.2.4 Release for Record (RR).
Receipt of a submittal marked "Release for Record" indicates that there are no specific objections to the document. Work may proceed. Certain project information required by the Purchaser's document management system may have been added electronically to the drawing and provided to Supplier for the record. Supplier shall not resubmit the drawing or document unless revisions to the design are required. If revisions are required, Supplier shall incorporate Purchaser's information and resubmit as a new revision. Purchaser's project-specific information shall be added if future revisions and submittals are made.

Q500.4.2.5 Void (VO) or Superseded (SS).
Receipt of a submittal marked “Void” or “Superseded” does not require any action by Supplier. “Void” indicates that the submittal is no longer applicable to the project and is not being replaced by other drawings or data. “Superseded” indicates that different drawings or data have replaced the previously submitted drawings and data; this status does not pertain to revisions of the same drawings and data.

Q500.4.2.6 Hold (HO).
A submittal may be given a status of "Hold" by the Purchaser, or the Supplier may have "Holds" on the submitted drawing.

For a Hold status designated by the Purchaser, the Supplier shall not proceed with the work that is designated on "Hold" except as specifically directed by the Purchaser. Additional information required for the Supplier to release the "Hold" will be transmitted from the Purchaser later.

The Supplier shall provide information to the Purchaser about the cause for any "Holds" designated on the drawing and immediately take all action necessary to resolve the "Holds". The Supplier shall resubmit the drawing for review once the "Holds" are removed from the drawing and should make all efforts to not submit drawings to the Purchaser until drawing review comments have been received back from the Purchaser.

Q500.4.2.7 Resubmittals.
If during or subsequent to the completion of the submittal process, Supplier makes further changes to the equipment and materials shown on submittals that have been reviewed by Purchaser, the changes shall be clearly marked on the submittal by Supplier and the submittal process shall be repeated. If changes are made by Supplier after delivery to the Jobsite, as-built drawings indicating the changes shall be prepared by Supplier and submitted to Purchaser for review. Any resubmittal of information shall clearly identify the revisions by footnote or by a form of back-circle, with revision block update, as appropriate.

Q500.4.2.8 Purchaser’s Review.
Purchaser's review of drawings and other submittals will cover only general conformity of the data to the Specifications and Drawings, external connections, interfaces with equipment and materials furnished under separate specifications, and dimensions that affect plant arrangements. Purchaser's review does not include a thorough review of all dimensions, quantities, and details of the equipment, material, device, or item indicated or the accuracy of the information submitted. Review and comment by Purchaser of Supplier's Drawings or other submittals shall not relieve Supplier of its sole responsibility to meet the Completion Dates requirement of this Purchase Order and to supply Goods that conform to the requirements of this Purchase Order.

Q500.4.2.9 File Returns to Supplier.
The IBackup web service will be used by Purchaser to return TIFF files to Supplier.

A copy of the manifest will be returned to Supplier indicating drawings statused as NE (No Exceptions Noted).

Each packet of drawings returned to Supplier will include a manifest generated by Purchaser. The manifest will include a list of drawings transmitted, manufacturer's drawing numbers, Purchaser's assigned drawing numbers, Purchaser's drawing titles, and the status of the drawings.

Files returned to Supplier will be in TIFF Group 4 format unless another format is agreed upon by Purchaser and Supplier.

Q500.5 Wiring Diagrams
If required by the Specifications, Wiring Diagrams shall be submitted in accordance with Supplemental Q502.

Q500.6 Instruction Manuals

If required by the Specifications, Instruction Manuals shall be submitted in accordance with Supplemental Q501.

Q501 Instruction Manuals

(Source: 15Sep11 - Revised by Project: 18Jan13)

This section, in conjunction with Section Q500 and the Schedule of Submittals included in the Terms and Conditions of this Purchase Order, stipulates the requirements for Instruction Manuals that Supplier shall submit for design information and review. Document submittal procedures shall be in accordance with the requirements of this Purchase Order, Section Q500, and the following.

Q501.1 Submittal Requirements

Hard copies shall be submitted to the address indicated for Technical Documents in the Terms and Conditions of this Purchase Order for the documents listed below. The following number of copies shall be submitted unless otherwise indicated in the Schedule of Submittals:

Submittal Description	Copies Required
Proof Copies	(1) electronic in pdf format
Final Copies	(2) hard, (1) electronic in pdf format

Q501.2 Instruction Manuals

Supplier shall furnish proof and final instruction manuals for the unloading, storage, installation, operation, and maintenance of the equipment. The manuals shall be delivered as specified in the Schedule of Submittals.

Manuals shall include the following information specific to the furnished equipment. The documents or drawings submitted within the Instruction Manual shall be consistent with the documents or drawings previously submitted for Purchaser's review. Documents or drawings which were previously submitted for review and are included within the Instruction Manual shall be identical, with the same revision number. If these documents or drawings were revised due to design revisions subsequent to issuance of the Instruction Manuals, the document or drawing shall be resubmitted in accordance with Article Q500.4.2.7 in Supplemental Q500 so the Purchaser can provide updated drawings to the holders of the Instruction Manuals.

Table of contents and index tabs. (If multiple volumes are required, a table of contents listing materials included in each volume shall be supplied for each volume.)

Specifications, test data, and all performance curves specified in the technical specifications.

Description of the equipment, including illustrations showing elevations, cross section, and all details of the equipment with all parts named and numbered. When multiple model numbers are shown on the drawings, the equipment supplied for the project shall be clearly identified.

Complete and detailed operating instructions, including safety precautions, philosophy of operation and, where applicable, process optimization techniques.

Detailed minor and major maintenance instructions, including description, use of special tools furnished, and preventive maintenance schedule.

Instructions for receiving, inspection, storage, and handling of equipment prior to installation.

Installation instructions.

Inspection procedures.

Troubleshooting guide.

Supplier and Sub-supplier operating and maintenance manuals.

Illustrated parts breakdown.

Assembly drawings.

Parts lists.

List of acceptable lubricants.

Nameplate information and shop order numbers for each item of equipment and associated component parts thereof.

List of recommended spare parts.

List of maintenance tools furnished with the equipment.

The above listed requirements are the minimum requirements; however, requirements that are clearly not applicable to the equipment may be deleted with Purchaser's approval. Additional information that is necessary for proper operation and care of the equipment shall also be included.

Q501.2.1 Binding
Each copy of the manuals shall be assembled and bound in three-ring or post binders designed for rough usage. Light-duty binders will not be acceptable.

Front covers and backbones of the manuals shall be permanently marked with lettering per the Typical Instruction Book Cover attached at the end of this section.

TYPICAL INSTRUCTION BOOK COVER

(Backbone)	(Cover)	
NAME OF EQUIPMENT	**CLIENT'S NAME**	**36**
	NAME OF UNIT	**24**
	UNIT NUMBER	**24**
CLIENT'S NAME	**INSTRUCTION BOOK**	**36**
	FOR	**36**
	NAME OF EQUIPMENT	**36**
	VOLUME NUMBER*	**36**
NAME OF UNIT	**PURCHASE ORDER NUMBER****	**24**
	MANUFACTURER'S NAME	**24**
	MANUFACTURER'S ADDRESS	**24**
UNIT NUMBER		
PURCHASE ORDER NUMBER**		
	BLACK & VEATCH	**14**
	KANSAS CITY, MISSOURI	**14**
VOLUME NUMBER*		

NOTES:
1. All lettering shall be a block style font such as Arial.
2. All backbone lettering shall be 14 point.
3. Cover lettering shall be point sizes indicated in column to right of cover illustration.
4. *Volume number required only if instructions are contained in more than one volume.
5. **Purchaser assigned Purchase Order number.

S100 Seismic Design
(Source: 7Jun12 - Revised by Project: 18Jan13)

S100.1 General
This article specifies the general criteria and procedures that shall be used to ensure that structures, components, and equipment meet performance objectives during and following a seismic event. The intent of these procedures is to minimize the hazard to human life. Components and equipment are expected to remain in place without collapsing or breaking away from supports, and to remain intact to the extent that they do not create an ignition hazard or release hazardous materials.

Equipment furnished by the Supplier shall be designed so that seismic forces are positively transferred to the Purchaser's supporting structure or foundation. The transfer method shall be acceptable to the Purchaser and may include, but not be limited to, bolts, welds, guides, bumpers or shear lugs as appropriate. Frictional resistance due to gravity shall not be considered in evaluating the required resistance to seismic forces.

For seismic design of vessels, tanks, and other components, contents that are flammable, explosive, corrosive, acidic, caustic, toxic, or that otherwise present a danger to the general public if released shall be considered hazardous materials.

Seismic design shall be performed in accordance with the building code specified in Supplemental Specification D100 Site Meteorological and Seismic Data in this Section 01400, along with the applicable edition (as required by the specified building code) of the following references:

International Building Code (IBC) , Section 1613, "Earthquake Loads"

Other nationally recognized and accepted design standards and references as appropriate.

S100.2 Seismic Forces
Seismic forces shall be determined from the basic seismic parameters given in Supplemental D100. The design forces and their distribution over the height of the building or structure shall be determined using a linearly elastic analysis model and the procedures listed in the specified building code. Load combinations, including seismic, shall be in accordance with the specified building code.

Hydrodynamic effects of contents shall be considered in the seismic design of vessels and tanks as required by the specified building code. Seismic dynamic forces shall be considered in the seismic design of below ground structures in addition to the static soil pressures.

S100.3 Seismic Design

S100.3.1 Buildings
Not used.

S100.3.2 Nonbuilding Structures
Not Used.

S100.3.3 Equipment
Seismic design of mechanical and electrical equipment, attachments, and supports shall consider the dynamic effects of the equipment; its contents; piping attached to its nozzles; and, when appropriate, its supports. Most mechanical and electrical equipment is presumed to be inherently rugged and capable of surviving strong motions and earthquakes provided it is adequately attached to the structure.

Equipment mounted on vibration isolation systems shall have a bumper restraint or snubber in each horizontal direction. These seismic restraints shall be designed for twice the seismic force acting on the equipment. Seismic supports shall maintain positive engagement with the equipment.

If the equipment is essential and must remain functional after an earthquake or if the equipment contains hazardous materials, it may be seismically qualified by analysis, testing, or experience data in accordance with the specified building code. Adaptation of a nationally recognized standard such as ICC-ES AC 156 for qualification by testing is acceptable, provided the seismic capacity of the equipment equals or exceeds the requirements of the specified building code.

S100.3.4 Components
Components are architectural, mechanical, and electrical parts and portions that are attached to and supported by the building but are not part of the building structural system, such as nonbearing walls and partitions, ceilings, storage racks, access floors, tanks, piping, HVAC ductwork, elevators, electrical panels, cable tray, and other nonstructural items. Components shall have the same Seismic Design Category as the building to which they are attached.

S100.3.5 Equipment and Components Supported by Purchaser Furnished Structures
Seismic design of mechanical and electrical equipment or components supported by Purchaser furnished structures shall be based on the seismic design forces at the attachment elevation of the Supplier's equipment or component, as noted in the technical specifications, in accordance with the requirements of the specified building code. The following table provides the applicable information for each Purchaser furnished structure to support the Supplier in developing these forces.

Purchaser Furnished Structure Name	Seismic Design Category	Base Elevation	Roof Elevation
Unit 1 Battery Room floor	A	1845'	1855'

S100.3.6 Building Code Required Seismic Qualification of Equipment and Components
Not used

S100.4 Documentation
Complete structural support and anchorage details shall be shown on all drawings, including the size of members, details of connections, anchor bolt sizes, etc.

The following seismic design data shall be indicated on the design drawings:

Occupancy Category.

Mapped Spectral Response Accelerations, S_s and S_1.

Spectral Response Coefficients, S_{DS} and S_{D1}.

Site Class.

Seismic Design Category.

For Nonstructural Components Including Equipment:

Component Importance Factor, I_p.

Seismic Design Force, F_p.

Component Response Modification Factor, R_p.

Component Amplification Factor, a_p.

Equipment and component drawings shall indicate the total load and/or loads to be transmitted to the structure that must ultimately restrain the components, equipment, or structure. This information shall include the weight, dimensions locating the center of gravity of the component or equipment, or the seismic design forces (magnitude, direction, and location) acting on the supports.

If requested by the Purchaser, design calculations shall be submitted for all structures, equipment, or components which are designed in accordance with this Supplemental Specification. If requested by the Purchaser, these calculations shall be certified by a professional engineer registered in the appropriate jurisdiction.

16177 - Battery Chargers

16177.1 General

16177.1.1 Scope of Supply
Scope of supply shall include furnishing the battery chargers as defined in these specifications.

16177.1.2 Items Furnished by Others and Interfaces
Items furnished by others and not in this scope of supply include the following:

Not applicable.

16177.1.3 Performance and Design Requirements
Performance and design requirements for the battery chargers are defined herein and are as indicated on the 16177 Specification Sheets included at the end of this section.

16177.1.4 Codes and Standards
Work performed under these specifications shall be done in accordance with the following codes and standards. Unless otherwise specified, the applicable governing edition and addenda to be used for all references to codes or standards specified herein shall be interpreted to be the jurisdictionally approved edition and addenda. If a code or standard is not jurisdictionally mandated, then the current edition and addenda in effect at the date of this document shall apply. These references shall govern the work except where they conflict with the Purchaser's specifications. In case of conflict, the latter shall govern to the extent of such difference:

Work	In Accordance With
Battery chargers	ANSI, NEMA, IEEE, OSHA, and UL

16177.1.5 Materials
The following materials shall be used:

Component	Material

16177.1.6 Approved Manufacturers of Components
For the following components, only the listed manufacturers are recognized as maintaining the level of quality of workmanship required by these specifications. If the Supplier wants to propose a nonlisted manufacturer that is considered to provide an equivalent level of quality, this manufacturer must be identified and supporting testimony provided. Acceptance of the manufacturer as a substitute is at the discretion of the Purchaser:

Component	Manufacturer	
Battery chargers	Alcad C&D Powercom Cyberex GNB-Exide Gutor	Hindle Power Liebert Powernetics Saft-Nife SCI

16177.1.7 Test Requirements

The following testing shall be conducted in accordance with the specified source. This testing is to be considered part of the defined Scope of Work, and all associated costs are the responsibility of the Supplier unless specifically identified as a Bid Option or Purchaser-conducted. Tests identified as an option are to be priced separately. If identified as Purchaser-conducted, costs for the initial test will be the responsibility of the Purchaser. However, the Supplier is responsible for all costs associated with correcting deficiencies and retesting in the event of a test failure:

Tests	In Accordance With	Conducted By
Routine shop tests as required	ANSI, NEMA or IEC	Supplier

16177.1.8 Technical Attachments

Not used.

16177.1.9 Supplemental Specifications

Technical supplemental specifications that are applicable to the work covered under this technical specification section are identified and included in Section 01400.

16177.2 Products

The design and construction of the battery chargers shall be in accordance with manufacturer and power industry standard practices, except as modified in accordance with these specifications.

16177.2.1 Battery Charger Requirements

Each battery charger furnished shall be self-regulating, solid-state, silicon controlled, full wave rectifier type suitable for parallel operation. If automatic load sharing operation is specified, the features of the battery chargers shall include cross compensation providing for equal sharing of the charger loads. When specified, each battery charger shall be provided with battery eliminator features.

The battery charger(s) shall maintain output voltage within plus or minus 0.5 percent from no load to full load with an input power supply deviation in voltage level as specified and an input power supply deviation in frequency of plus or minus 5 percent. Where battery eliminator capability is specified, the charger shall be designed to power the loads without a battery being connected.

Solid-state electronic circuits shall have AC and DC transient voltage protection and shall be designed to recharge a totally discharged battery without overloading and without causing interrupting operation of AC or DC circuit breakers.

16177.2.2 Battery Charger Accessories

Each battery charger shall include the following features in addition to the accessories specified on the 16177 Specification Sheet:

> Charger failure alarm assembly - Two sets of SPDT contacts (wired out to terminal blocks) for the following alarms (at a minimum): input voltage low, output voltage low, output voltage high, and charger trouble.

16177.2.3 Enclosures

Each battery charger cabinet shall consist of a steel framework with top, front, back, and sides of sheet steel. Louvers, with removable/replaceable air filters, shall be provided for ventilation as required for operation in the specified ambient, but the cabinet top shall either be solid or must have a drip shield provided.

16177.2.4 Battery Charger Capacity

The continuous output capacity shall be at the nominal voltage and an ambient temperature of 104° F (40° C) (unless a higher temperature is specified).

16177.2.5 Factory Tests

After the charger(s) has been completely fabricated, it shall be subjected to and pass all of the requirements of the production tests listed in applicable codes and standards as well as routine factory production tests.

16177.3 Execution

Not Used.

Battery Chargers Specification Data Sheet

Scope of Supply and Application				
These specification sheets are applicable to the following battery chargers:				
Battery Charger Name		**ID Number**		
U1 125VDC Battery Charger		1A & 1B		
Quantity		2		
Intended use		Battery charging and eliminator		
Battery type		Lead-calcium / lead-selenium flooded cell		
Ratings				
Nominal Input voltage, volts AC		480		
Frequency, hertz		60		
Phase		3		
Power supply codes		LV-1 / DC-1		
Input circuit breaker		65k AIC AC		
Output circuit breaker		10k AIC DC		
Input voltage variation, % of nominal		+ 10		- 12
Output voltage				
Float from	128.1	Volts DC to	129.4	Volts DC
Equalize from	134.5	Volts DC to	135.8	Volts DC
Current	40	amperes at	40	° C ambient
Ripple		100		mV RMS
Cooling method		Natural convection		
Enclosure and Cable Entry				
Enclosure rating		NEMA 1, indoor gasketed		
Enclosure mounting		Free-standing, floor		
Exterior color		Manufacturer's standard		
Interior color		White		
Cable entry				
Input		Top or side		
Output		Top or side		
Accessories				
The following accessories shall be provided by the Supplier:				
Output voltmeter, 2 percent accuracy (may be analog, digital or multifunction digital display)				
Input voltmeter, 2 percent accuracy (may be analog, digital or multifunction digital display)				
Output ammeter, 2 percent accuracy (may be analog, digital or multifunction digital display)				

Input ammeter, 2 percent accuracy (may be analog, digital or multifunction digital display)
Adjustable equalizing charge timer
Equalizing voltage adjustment
Float voltage adjustment
Input circuit breaker
Output circuit breaker
Indicating lights, Input power available
Indicating lights, Charge failure
Indicating lights, Charger okay
Indicating lights, DC bus ground detected
DC bus ground detection system and alarm and Form C output contacts
Automatic load sharing circuitry
Battery eliminator feature

Attachments

Item No.	Reference Document	Submittal Item	Submittal Dates			LD's Apply?
			Calendar Days		Event	
Schedule of Submittals						
	16177	**Battery Chargers**			.	
0501	16177	Schematic diagrams	30	After	Effective Date	No
0502	16177	Connection and wiring diagrams	30	After	Effective Date	No
	Q301	**Manufacturer's Standard Coating**			.	
0601	Q301	Shop drawings that identify shop-applied coating systems	30	Before	Start of Fabrication	No
0602	Q301	Manufacturer's product data sheets	30	After	Release to Proceed	No
	Q500	**Shop Drawings and Instruction Manuals**			.	
0701	Q500	Instruction manuals Q501 supplemental			Upon Delivery	No

Reference Document	Submittal Item	Yes/No
Bid Submittals		
16177	**Battery Chargers**	
16177	Outline drawings showing dimensions, weight, mounting requirements, and conduit entry data.	

Reference Document	Submittal Item	Tech Fill-In Data
Technical Fill-In Data		
16177	**Battery Chargers**	
16177	General Data	
16177	Tag number	
16177	Manufacturer	
16177	Type or catalog number	
16177	Circuit breaker manufacturer	
16177	Input	
16177	Output	
16177	Circuit breaker type or catalog number and AIC rating	
16177	Input	
16177	Output	
16177	Charger dimensions, in. (mm)	
16177	Height	

16177	Width	
16177	Depth	
16177	Charger weight, lb (kg)	
16177	Charger Electrical Data	
16177	Input	
16177	Frequency/phase, hertz/phase	
16177	Voltage nominal, volts	
16177	Voltage minimum, volts	
16177	Voltage maximum, volts	
16177	Current, amperes	
16177	Power factor, percent	
16177	Full load	
16177	1/2 load	
16177	1/4 load	
16177	Output	
16177	Voltage nominal, volts dc	
16177	Voltage minimum, volts dc	
16177	Voltage maximum, volts dc	
16177	Continuous current, amperes	
16177	Fault current, amperes	
16177	Heat loss, watts	
16177	Full load	
16177	1/2 load	
16177	No load	
16177	Control & alarm options	

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	$100,000 each accident
	$100,000 each employee
	$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 Combined Single Limit

3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 each occurrence
	$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$1,000,000 each occurrence
	$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract**. The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**