TOWN OF GLASTONBURY

INVITATION TO BID

BID #	ITEM	DATE & TIME REQUIRED
GL-2015-15	Town Hall Emergency Generator Replacement	December 16, 2014 @ 11:00 a.m.

The Town of Glastonbury is seeking bids for the replacement of the Town Hall emergency generator.

Bid Forms may be obtained from the Town's website at www.glastonbury-ct.gov or at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, Connecticut 06033, (second level).

A mandatory pre-bid meeting and site walk through will be held at the 2155 Main Street, Glastonbury, CT 06033 on December 08, at 11:00 a.m. All bidders must attend in order for their bid to be considered.

Contractors shall comply with State Statutes concerning Employment, and Labor Practices, if applicable, and Section 31-53 of the Connecticut General Statutes as amended (Prevailing wages), including annual adjustments in Prevailing Wages. Certified payrolls will be required bi-weekly. Sealed bids must be accompanied with Bid Security. Bid Security shall be issued payable to the "Town of Glastonbury" in the form of a certified check or Bid Bond in an amount not less than 10% of the total amount of the base bid. The Bid Bond must be issued by a surety company licensed in the State of Connecticut. Cashier's checks will not be accepted.

The Town reserves the right to waive informalities or reject any part of, or the entire bid, when said action is deemed to be in the best interest of the Town. All Sealed Bids must be submitted to the Office of the Purchasing Agent no later than the time and date indicated. All bids will be publicly opened and read.

The Town of Glastonbury is an Affirmative Action/Equal Opportunity Employer. Minority / Women / Disadvantaged Business Enterprises are encouraged to bid.

Mary F. Visone
Purchasing Agent

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1. Sealed bids **(one original and one copy)** on the attached Bid Forms will be received at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, Connecticut, 06033 (second level). At the designated time of opening, they will be publicly opened, read, recorded and placed on file.

2. Whenever it is deemed to be in the best interest of the Town, the Town Manager, Purchasing Agent or designated representative shall waive informalities in any and all bids. The right is reserved to reject any bid, or any part of any bid, when such action is deemed to be in the best interest of the Town of Glastonbury.

3. Bidders shall submit a Bid on a lump sum basis for the Base Bid. The basis of award will be based upon the sum of the Base Bid.

4. Bids will be carefully evaluated as to conformance with stated specifications.

5. The envelope enclosing your bid should be clearly marked by bid number, time of bid opening, and date, bidder's company name and address.

6. Specifications must be submitted complete in every detail and, when requested, samples shall be provided. If a bid involves any exception from stated specifications, they must be clearly noted as exceptions, underlined, and attached to the bid.

7. The Bid Documents contain the provisions required for the requested item. Information obtained from an officer, agent, or employee of the Town or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him/her from fulfilling any of the conditions of the bid.

8. Each Bidder is held responsible for the examination and/or to have acquainted themselves with any conditions at the job site which would affect their work before submitting a bid. Failure to meet these criteria shall not relieve the Bidder of the responsibility of completing the bid without extra cost to the Town of Glastonbury.

9. Any bid may be withdrawn prior to the above-scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and the date specified shall not be considered. No Bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof. Should there be reasons why a bid cannot be awarded within the specified period, the time may be extended by mutual agreement between the Town and the Bidder.

10. Each bid must be accompanied by a bid bond payable to the Town for ten percent (10%) of the total amount of the bid. The bid bond of the successful Bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a bid bond. The Town of Glastonbury will not be liable for the accrual of any interest on any certified check submitted. Cashier's checks will not be accepted.

11. A 100% Performance and Payment bond is required of the successful bidder. This bond shall cover all aspects of the specification and shall be delivered to the Purchasing Agent prior to the issuance of a purchase order. The Performance and Payment Bond will be returned upon the delivery and acceptance of the bid items.

12. The Bidder agrees and warrants that in the submission of this sealed Bid, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability including, but not limited to blindness, unless it is shown by such Bidder that such disability prevents performance of that which must be done to successfully fulfill the terms of this sealed Bid or in any manner which is prohibited by the laws of the United States or the State of Connecticut: and further agrees to provide the Human Relations Commission with such information requested by the Commission concerning the employment practices and procedures of the Bidder. An Affirmative Action Statement will be required by the successful Bidder.

13. Bidder agrees to comply with all of the latest Federal and State Safety Standards and Regulations and certifies that all work required in this bid will conform to and comply with said standards and regulations. Bidder further agrees to indemnify and hold harmless the Town for all damages assessed against the Town as a result of Bidder's failure to comply with said standards and/or regulations.

14. All correspondence regarding any purchase made by the Town of Glastonbury shall reference the Town purchase order number. Each shipping container shall clearly indicate both purchase order number and item number.

15. Bidder is required to review the Town of Glastonbury Code of Ethics adopted July 8, 2003 and effective August 1, 2003. Bidder shall acknowledge that they have reviewed the document in the area provided on the bid/proposal response page (BP). The selected Bidder will also be required to complete and sign an Acknowledgement Form prior to award. The Code of Ethics and the Consultant Acknowledgement Form can be accessed at the Town of Glastonbury website at www.glastonbury-ct.gov. Upon entering the website click **Bids & RFPs** which will bring you to the links for the **Code of Ethics** and the **Consultant Acknowledgement Form**. If the Bidder does not have access to the internet, a copy of these documents can be obtained through the Purchasing Department at the address listed within this bid/proposal.

16. Any bidder, in order to be considered, shall be engaged primarily in the business of construction with for minimum of five (5) years, prior experience with generator replacements and have a valid contractor's license in the State of Connecticut.

17. Non-Resident Contractors:
Upon award the Town is required to report names of nonresident (out of state) Contractors to the State of Connecticut, Department of Revenue Services (DRS) to ensure that Employment Taxes and other applicable taxes are being paid by Contractors. **A single surety bond for 5% of the entire contract price is required to be filed with DRS by any unverified nonresident prime or general contractor (if awarded) where the contract price for the project is $250,000 or more.** The contractor will be required to promptly furnish to the Town a copy of the **Form AU-968 - Certificate of Compliance** issued by the State of Connecticut, DRS. See State of Connecticut **Notice SN 2012 (2).**

18. Bidder shall include on a sheet(s) attached to its proposal a complete disclosure of all past and pending mediation, arbitration and litigation cases that the bidder or its principals (regardless of their place of employment) have been involved in for the most recent five years. Please include a statement of the issues in dispute and their resolution. Acceptability of Bidder based upon this disclosure shall lie solely with the Town.

19. Bidder or its principals, regardless of their place of employment, shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable or criminally responsible for any criminal offense or civil action. Bidder shall not be in violation of any State or local ethics standards or other offenses arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

20. Municipal construction projects are exempt from Federal Excise Taxes, as well as, State of Connecticut Sales, Use and Service Taxes and should not be include in the Bidder's proposal.

21. After award of Contract, Owner will require the Contractor's Schedule of Values, which shall be submitted at the preconstruction meeting. The Schedule of Values must accurately reflect job costs and include a complete breakdown of material and labor costs.

22. Prevailing Wage Rates:
    Wage Rate Determination for this Project from the State of Connecticut is included in the bid documents. Certified payrolls for site labor shall be filled out weekly and submitted monthly to the Town on the correct State form (See Project Manual). The Town reserves the right to, without prior notice, audit payroll checks given to works on site in order to ascertain that wages and fringe benefits are being paid as required by the State of Connecticut. Contractor to comply with Connecticut General Statutes Section 31-53, as amended. Please make special note of the State requirement to adjust wage and fringe benefit rates on each July 1st following the original published rates. These revised rates are available via the internet. See State material attached.

    NOTE that bidder is to include in its bid proposal all costs required by such annual increases in the PREVAILING RATES. No Escalation Clauses are to be included in the bidder's proposal and no Escalation Clauses will be in the Contract Agreement. Bidder is to anticipate any future increases and include these costs in its quotation.

    Contractor's invoices will not be paid if certified payrolls are incomplete, incorrect or not received in a timely manner.

    All Apprentices must be registered with the State of Connecticut and their number shall not exceed the number allowed by law. Otherwise, all workers must be paid at least the Journeyman rate listed including benefits.

    OSHA SAFETY AND HEALTH CERTIFICATION:
    Effective July 1, 2009: Any Mechanic, Laborer, or Worker, who performs work in a classification listed on the prevailing wage rate schedule on any public works project covered under C.G.S. Section 31-53, both on site and on or in the public building, must have completed a federal OSHA Safety and Health course within the last 5 years.

    The execution of the Contract by the Bidder binds it to all applicable State Labor Laws and Regulations. Note that these change annually on July 1 and all provisions for such changes in Prevailing Wage Rates are to be included in the Bidder's Lump Sum Proposal.
    All other statutory laws, to the extent they are required to be incorporated into a contract by statute, are hereby deemed fully incorporated herein and in the Contract.

Violation of Prevailing Wage Law requirements may cause Contract to be terminated and the Owner reserves its rights if such termination is required.

23. Each Bidder shall submit a list of similar projects completed within the last three years. In order to be eligible for consideration, the Bidder must have successfully completed a minimum of five (5) similar projects within the last three (3) years. Please provide project name and contact information for project coordinator (name, title, address, phone number). Please also provide contract value.

24. Technical questions regarding this bid shall be made in writing and directed to David Sacchitella, Buildings Superintendent, dave.sacchitella@glastonbury-ct.gov. For administrative questions regarding this Bid, please contact Mary F. Visone, Purchasing Agent, at (860) 652-7588 or email the Purchasing Department at purchasing@glastonbury-ct.gov . All questions, answers, and/or addenda, as applicable will be posted on the Town's website at www.glastonbury-ct.gov. (Upon entering the website click on Bids & RFP's). The request must be received at least three (3) business days prior to the advertised response deadline**. It is the respondent's responsibility to check the website for addenda prior to submission of any bid/proposal.**

IMPORTANT:

Failure to comply with general rules may result in disqualification of the Bidder.

01.00 WORKMANSHIP, MATERIALS AND EMPLOYEES

01.01 Wherever in this contract the word "Engineer" is used, it shall be understood as referring to the Building Superintendent of the Town of Glastonbury acting personally or through any assistants duly authorized.

01.02 The entire work described herein shall be completed in accordance with the plans and specifications to the full intent and meaning of the same. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and material shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

01.03 The wording "furnish", "install", "construct", "furnish and install", or any similar terms, unless specifically noted to the contrary, shall include all labor, materials, water, tools, equipment, light, power, transportation, and any other services required for the completion of the work.

01.04 The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him.

02.00 SUPERINTENDENT

02.01 The Contractor shall keep on the work during its progress, in the absence of the Contractor, a competent Superintendent. The Superintendent shall be acceptable to the Engineer and shall fully represent the Contractor. All directions given to the Superintendent shall be binding as if given to the Contractor.

03.00 PRECONSTRUCTION MEETING

03.01 A Preconstruction Meeting will be held with the Engineer, Contractor, and any other interested parties prior to commencing any work. The Engineer shall arrange the meeting based on a mutually convenient time.

04.00 PERMITS

04.01 All permits, licenses, and fees required for the performance of the Contract work shall be secured and paid for by the Contractor. The local building permit fees will be waived.

05.00 PROPERTY ACCESS

05.01 The Contractor shall take all proper precautions to protect from injury or unnecessary interference, and provide proper means of access to abutting property where the existing access is cut off by the Contractor.

05.02 The Contractor shall take all proper precautions to protect persons from injury or unnecessary inconvenience and leave an unobstructed way along the public and private places for travelers, vehicles, and access to hydrants.

05.03 The Contractor shall make arrangements with the adjacent property owners for such trespass as he may reasonably anticipate in the performance of the work. All such arrangements shall be reported, in writing, to the Engineer.

06.00 PROTECTION OF THE PUBLIC AND OF WORK AND PROPERTY

06.01 The Contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Town from injury or loss arising in connection with the Contract.

06.02 The Contractor shall adequately protect adjacent private and public property as provided by law and the Contract Documents.

06.03 The Contractor shall make good any damage, injury, or loss of work and to the property of the Town resulting from lack of reasonable protective precautions.

06.04 The Town Hall building involved will be occupied during the work Monday-Friday 7 a.m. to 5:30 p.m. and for selected evenings. The Contractor may be required to adjust his work schedule should the work have an adverse impact on operations. There will be no modification of the bid price should a schedule adjustment be required.

07.00 EXISTING IMPROVEMENTS

07.01 The Contractor shall conduct his work so as to minimize damage to existing improvements designated to remain. Except where specifically stated otherwise in the specifications, drawings, or as directed by the Engineer, it will be the responsibility of the Contractor to restore to their original condition, as near as practical, all improvements on public or private property. This shall include:

a. Property within and adjacent to the work area such as shrubs, walks, driveways, fences, etc.

b. Utility mains, ducts, poles, and services. The Contractor is hereby notified that utilities, if/where shown on the plans, are at approximate locations. These locations are subject to possible errors in the source of information and errors in transcription. The Contractor shall make certain of the exact location of all mains, ducts, poles, and services prior to excavation.

08.00 SEPARATE CONTRACTS

08.01 The Engineer reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs. Wherever work being done by the Town of Glastonbury forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work.

09.00 INSPECTION OF WORK

09.01 The Town shall provide sufficient personnel for the inspection of the work.

09.02 The Engineer shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for inspection.

09.03 If the specifications or the Engineer's instructions require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection and, if the inspection is by another authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be made promptly. If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and properly restored at the Contractor's expense.

09.04 Re-inspection of any work may be ordered by the Engineer. If such work is found to be in accordance with the Contract Documents, the Town shall pay the cost of re-inspection and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

10.00 RIGHT TO INCREASE OR DECREASE WORK

10.01 The Town shall have the right to increase or decrease the amount of work herein specified as may be required.

11.00 RIGHT OF ENGINEER TO STOP WORK FOR WEATHER CONDITIONS

11.01 Should the work, in the opinion of the Engineer, be in danger by reason of inclemency of weather, or could not be finished in time to prevent such danger, the Contractor shall cease operations upon order of the Engineer, and shall not resume them until ordered to do so by the Engineer when the weather conditions are favorable. The Contractor shall, upon such orders, discontinue work, remove all materials or appliances for or in use upon the work, and place the premises in proper condition for use by the public during the time the work is suspended as herein provided, without cost to the Town.

12.00 CONTRACTOR TO BE RESPONSIBLE FOR IMPERFECT WORK OR MATERIALS

12.01 Any faithful work or imperfect material that may be discovered before the acceptance and the payment of the work shall be corrected upon the order of the Engineer. The acceptance and payment of the work does not in any manner relieve the Contractor of his obligation to construct work in the proper manner and the use of materials herein specified.

13.00 TOWN MAY NOTIFY CONTRACTOR IF WORK IS NOT CARRIED ON SATISFACTORILY

13.01 If, in the opinion of the Engineer, the Contractor is not proceeding with the work at a sufficient rate of progress so as to finish in the time specified, or has abandoned said work, or is not complying with the terms and stipulations or the Contract and specifications, the Engineer may serve notice on the Contractor to adopt such methods as will ensure the completion of the work in the time specified.

13.02 If, within five days after the Engineer has notified the Contractor that his work is not being carried on satisfactorily as before mentioned, the Engineer shall have the right to annul the

Contract and manage the work under the direction of the Engineer, or re-let, for the very best interest of the Town as a new contract, the work under said new Contract shall be considered the responsibility of the defaulting Contractor.

13.03 Additional costs incurred over and above the original Contract shall be borne by the Performance Bond.

14.00 DEDUCTIONS FOR UNCORRECTED WORK

14.01 If the Engineer deems it inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made there for.

14.02 The Contractor shall promptly remove from the premises all materials condemned by the Engineer as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Town, and shall bear the expense of making good all work by other contractors destroyed or damaged by such removal or replacement.

14.03 If the Contractor does not remove such condemned work and materials as promptly as possible after written notice, the Engineer may remove them and store the materials at the expense of the Contractor.

15.00 CLEANING UP

15.01 The Contractor must remove all debris of every description as the work progresses and leave the surroundings in a neat and orderly condition to the satisfaction of the Engineer.

15.02 Upon completion, and before acceptance and final payment, the Contractor shall remove from the site all equipment, forms, surplus material, rubbish and miscellaneous debris and leave the site in a neat and presentable condition.

16.00 ROYALTIES AND PATENTS

16.01 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town of Glastonbury harmless from loss on account hereof, except that the Town of Glastonbury shall be responsible for all such loss when a particular manufacturer, product, or process is specified by the Town of Glastonbury.

17.00 ERRORS OR CONFLICT IN DRAWINGS AND SPECIFICATIONS

17.01 The Contractor shall immediately notify the Owner/Engineer should he find any errors or conflicts in the contract documents. The Owner/Engineer shall render his interpretation or instruction in writing on the items as soon as possible.

17.02 Any work undertaken by the Contractor containing possible errors or conflicts will be done at his own risk unless he has received prior written approval from the Owner/Engineer.

17.03 The Contractor shall be responsible for estimating and supplying all quantities, and where clarification or additional information is required, a request in writing to the Owner/Engineer shall be made. No extra charge or compensation will be allowed the Contractor unless there is a change in scope or dimension of the project resulting in need for extra material, equipment and/or labor. Said differences are to be handled under Article 18.

18.00 EXTRA WORK AND EXTRA COST

18.01 The Owner, without invalidating the contract documents, may order extra work or make changes by altering, adding to or deducting from the work, the contract price being adjusted accordingly. All such work shall be executed under the conditions of the original contract except that any claim of extension of time caused thereby shall be adjusted at the time of ordering the change.

18.02 No extra work or change shall be performed unless in pursuance of a written order from the Owner/Engineer, with the agreed price prior to the commencement of the work, and no claim for an addition to the contract price shall be valid unless so ordered.

18.03 The value of any such work or change shall be determined, in one or more of the following ways:

a) By estimate and acceptance on a lump sum.
b) By unit prices named in the contract or subsequently agreed upon.
c) By cost and percentage or by cost and a final fee.

19.00 SUBSTITUTIONS

19.01 The Contractor shall use materials as specified unless material list is of an open nature. Material other than specified will be permitted only after written application, including four (4) copies of specifications, is made by the Contractor and written approval received from the Engineer or Owner.

The material installed in the job site shall be new and of the quality specified.

The manufacturer's recommendation shall be followed for the installation of all equipment.

20.00 PRODUCT SUBMITTALS

20.01 Prior to ordering materials, the Contractor shall submit submittals as specified in the detailed specification sections. Three (3) copies of the submittals shall be forwarded to the Engineer for review and approval.

20.02 Submittals shall indicate specification Section for each product. Submittals not containing all the required information shall be returned to the contractor for re-submittal.

21.00 OWNER'S ACCEPTANCE

21.01 Within seven (7) days of the Contractor's notification that the installation is substantially complete, the Owner's authorized representative shall inspect the installation. The Owner, with the Contractor, shall take necessary steps to inspect the installation. Upon completion of the inspection, the Owner or the Owner's authorized representative may either accept the work

outright or prepare a "Punch List" that upon completion by the Contractor and acceptance by the Owner will signify final acceptance provided that all other applicable terms and provisions of the Contract have been completed to the Owner's satisfaction.

22.00 RESPONSIBILITY FOR MAINTENANCE

22.01 It will be the Contractor's responsibility to maintain the work as specified in the detailed specifications during the warranty period.

23.00 SERVICE BY THE CONTRACTOR

23.01 The Contractor shall maintain the work as specified during the warranty period.

24.00 WARRANTY

24.01 The guarantee shall be as specified in the respective sections of the specification.

24.02 The Contractor shall be responsible for the repair and/or replacement of all defective work and materials. All repair work shall be completed in a timely fashion.

24.04 Should the Contractor not respond promptly, the Owner may take any action he deems necessary to repair the defect and prevent further damage to his property, including the hiring of another contractor, or the repairing of such a defect with material supplied by the Contractor. In this event, the Contractor shall be liable for expenses incurred and property damages suffered by the Owner.

01.00 NOTICE TO CONTRACTOR

01.01 Intent of Contract: The intent of the Contract is to prescribe a complete work or improvement which the Contractor undertakes to do, in full compliance with the specifications, plans, special provisions, proposal and Contract. The Contractor shall perform all work in close conformity with the plans or as modified by written orders, including the furnishing of all materials, supplies, transportation, labor, and all other things necessary to the satisfactory prosecution and completion of the project.

The scope of the work shall include all labor, materials and equipment needed to provide and install, and equip new emergency generator and associated equipment and materials, complete and ready for use, as described in the plans and specifications for Generator Replacement at Glastonbury Town Hall in Glastonbury, CT.

02.00 COMMUNICATIONS

02.01 All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.

02.02 Any notice to, or demand upon, the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may, from time to time, designate) in a sealed, postage-prepaid envelope or delivered with charges prepaid to any overnight mail carrier in each case addressed to such office.

02.03 All papers required to be delivered to the Town shall, unless otherwise specified in writing to the Contractor, be delivered to the Building Superintendent, 2143 Main Street, Glastonbury, CT 06033, and any notice to, or demand upon, the Town shall be delivered at the above address in a sealed, postage-prepaid envelope or delivered with charges prepaid to any overnight mail carrier, in each case addressed to such office or to such other representatives of the Town, or to such other address as the Town may subsequently specify in writing to the Contractor for such purpose.

02.04 Any such notice shall be deemed to have been given as of the time of actual delivery or, in case of mailing, when the same should have been received in due course of post or, in the case of telegrams, at the time of actual receipt, as the case may be.

03.00 WORK BY OTHERS

03.01 Private utilities, contractors, developers or other parties may be expected to be working within the Contract area during this Contract. It shall be the responsibility of the contractor to coordinate his work with the work being done by others in order that the construction shall proceed in an efficient and logical manner. The Contractor shall have no claim or claims whatever against the Town, the Engineer, or other parties due to delays or other reasons caused by the work by others or his failure to coordinate such work.

04.00 CONTRACTOR'S WORK AND STORAGE AREA

04.01 The Contractor shall contact the Town to determine if any specific locations will be designated, or gain its approval prior to using any area for storage of equipment, materials and trailers during the period of this Contract. The Contractor shall confine his work/storage area to the limits as

designated or approved and shall be responsible for the security of the work/storage area. Upon completion of the Contract, the Contractor shall remove all equipment and materials, except as otherwise specified, and restore the site to its original condition as approved by the Engineer and at no cost to the Town.

05.00 DISPOSAL AREA

05.01 The Tryon Street Bulky Waste Facility will be available to the Contractor, at no charge, for disposal of materials that are accepted at that facility. No materials containing lead-based paint of any level shall be dumped at the Tryon Street facility. The Contractor is required to obtain a disposal area for all other unsuitable or surplus materials at no cost to the Town.

06.00 DUST CONTROL

06.01 During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use water or calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed, without additional compensation.

07.00 PROTECTION OF EXISTING UTILITIES

07.01 Before starting any excavation, the Contractor shall submit to the Engineer plans or details showing the proposed method the Contractor will use to support and protect all existing utilities during construction. The furnishing of such plans and details shall not serve to relieve the Contractor of any responsibility for the proper conduct of the work.

07.02 There will be no extra payment for submitting plans or details for supporting and protecting all existing utilities during construction.

08.00 TIME FOR COMPLETION/NOTICE TO PROCEED

08.01 Within ten (10) calendar days after the date of the Notice of Award, the Contractor must provide the appropriate insurance certificates to the Town Purchasing Agent and shall be issued a Notice to Proceed and a Purchase Order prior to initiating any work on the project.

08.02 Work shall commence within thirty (30) days of the date of the Notice to Proceed/Purchase Order.

08.03 After the work has begun, it will continue in an orderly fashion and shall be fully completed within 45 consecutive calendar days from the date of commencement. The Engineer reserves the right to extend the contract an additional thirty (30) days by mutual written agreement.

08.04 Weather permitting, it is the intention of the Town to have all work required under this Contract completed no later than April 1, 2015. In no case, however, shall the work be completed any later than April 15, 2015.

08.05 Because the facilities may remain open during the installation period, the Contractor shall make every reasonable effort to complete the installation as expeditiously as possible.

09.00 MEASUREMENT AND PAYMENT

09.01 All direct, indirect, or incidental costs of work and/or services required by these specifications shall be included in the Lump Sum price.

09.02 Monthly progress payments will be made, based on the approved Schedule of Values, for work that has progressed in accordance with the contract documents, subject to a deduction of five percent (5%) of the amount of the application for payment to be retained by the Owner until completion of the entire contract in an acceptable manner and two and one half percent (2.5%) until the applicable one year warranty period has expired and all required inspections have been completed and results have been submitted and approved by the Engineer.

10.00 COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS

10.01 This award of bid is subject to the conformance of the Contractor to all Federal, State, and Local laws, statutes, regulations, ordinances or other requirements that are applicable to the type of work contained in these specifications.

INSURANCE

The Bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Bidder and all of its agents, employees and sub-contractors and other providers of services and shall name the **Town of Glastonbury and its employees and agents as an Additional Insured** on a primary and non-contributory basis to the Bidders Commercial General Liability and Automobile Liability policies. All policies shall contain a waiver of subrogation. **These requirements shall be clearly stated in the remarks section on the Bidder's Certificate of Insurance.** Insurance shall be written with insurance carriers approved in the State of Connecticut and with a minimum Best's Rating of A-VIII. In addition, all carriers are subject to approval by the Town. Minimum Limits and requirements are stated below:

1) Worker's Compensation Insurance:
- Statutory Coverage
- Employer's Liability
- $500,000 each accident/$500,000 disease-policy limit/$500,000 disease each employee
- A Waiver of Subrogation shall be provided

2) Commercial General Liability:
- Including Premises & Operations, Products and Completed Operations, Personal and Advertising Injury, Contractual Liability and Independent Contractors.
- Limits of Liability for Bodily Injury and Property Damage
  Each Occurrence $1,000,000
  Aggregate $2,000,000 (The Aggregate Limit shall apply separately to each job.)
- A Waiver of Subrogation shall be provided

3) Automobile Insurance:
- Including all owned, hired, borrowed and non-owned vehicles
- Limit of Liability for Bodily Injury and Property Damage:
  Per Accident $1,000,000
- A Waiver of Subrogation shall be provided

The Bidder shall direct its Insurer to provide a Certificate of Insurance to the Town before any work is performed. The Contractor shall be responsible to notify the Town 30 days in advance with written notice of cancellation or non-renewal. The Certificate shall evidence all required coverage including the Additional Insured on the General Liability and Auto Liability policies. The Bidder shall provide the Town copies of any such insurance policies upon request.

INDEMNIFICATION

To the fullest extent permitted by law, the Bidder shall indemnify and hold harmless the Town and its consultants, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) to the extent arising out of or resulting from the performance of the Bidder's work, provided that such claim, damage, loss or expense is caused in whole or in part by any negligent act or omission by the Bidder, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Bidder to perform or furnish either of the services, or anyone for whose acts the Bidder may be liable.

Proposal of _____

(hereinafter called "Bidder"), organized and existing under the laws of the State of _____

_____, doing business as _____

_____.

To the Town of Glastonbury (hereinafter called "Town").

In compliance with your Invitation to Bid, the Bidder hereby proposes to furnish and/or services as per Bid Number GL-2015-15 in strict accordance with the Bid Documents, within the time set forth therein, and at the prices stated below.

By submission of this bid, the Bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization that this bid has been arrived at independently without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

The Bidder acknowledges receipt of the following Addenda:

Addendum #1 _____ (Initial & Date)

Addendum #2 _____ (Initial & Date)

Addendum #3 _____ (Initial & Date)

It is the responsibility of the bidder to check the Town's website for any Addenda before submitting the bid.

BASE BID Furnish and install a new Emergency Generator and associated equipment at Glastonbury Town Hall as specified in the Plans and Specifications for Bid GL-2015-15.

BASE BID AMOUNT

$ _____
NUMERIC AMOUNT

$_____
WRITTEN TOTAL BASE BID AMOUNT

CODE OF ETHICS

I/We have reviewed a copy of the Town of Glastonbury's Code of Ethics and agree to submit a Consultant Acknowledgement Form if I/We are selected. Yes_____ No_____**

***Bidder is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any bid or proposal where the Bidder has not agreed to the above statement.**

Respectfully submitted:

Type or Print Name of Individual	**Doing Business as (Trade Name)**
Signature of Individual	**Street Address**
Title	**City, State, Zip Code**
Date	**Telephone Number/Fax Number**
E-Mail Address	**SS# or TIN#**

(Seal – If bid is by a Corporation)

Attest

Other Items Required with Submission of Bid Proposal

The following bid checklist describes items required for inclusion with the above-referenced bid proposal package. It is provided for the convenience of the bidders and, therefore, should not be assumed to be a complete list.

_____ Bid Bond (10% of total bid amount).

_____ List of five (5) similar projects completed within last three (3) years.

_____ Acknowledgement of Addendums in Bid Proposal (as applicable).

_____ Acknowledgement of Code of Ethics in Bid Proposal.

_____ Sealed bids, one original and one copy.

_____ Disclosure of past and pending mediation, arbitration and litigation cases that the Bidder or its principals have been involved in for the most recent five years (if applicable).

_____ Copy of Bidder's Contractor's License (State of Connecticut).

It is the responsibility of the bidder to clearly mark the outside of the bid envelope with the Bid Number, Date and Time of Bid Opening, Bidder's Company Name and Address. It is also THE RESPONSIBILITY OF THE BIDDER TO CHECK THE TOWN'S WEBSITE BEFORE SUBMITTING BID FOR ADDENDA POSTED PRIOR TO BID OPENING.

Name of Bidder: _____

Minimum Rates and Classifications for Building Construction

ID# : B 19912

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: GL-2015-15
Project Town: Glastonbury
State#:
FAP#:

Project: Town Hall Emergency Generator Replacement

CLASSIFICATION	Hourly Rate	Benefits
1a) Asbestos Worker/Insulator (Includes application of insulating materials, protective coverings, coatings, & finishes to all types of mechanical systems; application of firestopping material for wall openings & penetrations in walls, floors, ceilings	35.75	28.82
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
2) Boilermaker	35.24	25.01

As of: **Thursday, November 13, 2014**

3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	32.50	27.46 + a
3b) Tile Setter	33.05	23.28
3c) Terrazzo Mechanics and Marble Setters	31.69	22.35
3d) Tile, Marble & Terrazzo Finishers	25.95	19.82
3e) Plasterer	32.50	27.46

------LABORERS------

As of: **Thursday, November 13, 2014**

4) Group 1: Laborers (common or general), acetylene burners, carpenter tenders, concrete specialists, wrecking laborers, fire watchers.	27.05	17.80
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofer/mixer/nozzleman (Person running mixer and spraying fireproof only)..	27.30	17.80
4b) Group 3: Jackhammer Operators/Pavement Breaker, mason tender (brick) and mason tender (cement/concrete)	27.55	17.80
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections) P6 and P7 rate is $26.80	27.30	17.80
4d) Group 5: Air track operators, Sand blasters	27.80	17.80
4e) Group 6: Nuclear toxic waste removers, blasters	30.05	17.80

4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped)	28.05	17.80
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew	27.55	17.80
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew	27.05	17.80
4i) Group 10: Traffic Control Signalman	16.00	17.80
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	31.00	22.50
5a) Millwrights	31.60	22.75

As of: **Thursday, November 13, 2014**

6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	38.10	22.72 + 3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	47.15	26.785+a+b
-----LINE CONSTRUCTION----		
Groundman	24.37	6.5%+10.04
Linemen/Cable Splicer	44.30	6.5%+17.70
8) Glazier (Trade License required: FG-1,2)	34.58	18.55

As of: **Thursday, November 13, 2014**

9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	34.47	29.74 + a
----OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer 2 drums or over, front end loader (7 cubic yards or over); work boat 26 ft. and over. (Trade License Required)	36.80	22.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	36.48	22.30 + a
Group 3: Excavator; Backhoe/Excavator under 2 cubic yards; Cranes (under 100 ton rated capacity), Grader/Blade; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	35.74	22.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper).	35.35	22.30 + a

Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	34.76	22.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine.	34.76	22.30 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	34.45	22.30 + a
Group 7: Asphalt roller, concrete saws and cutters (ride on types), vermeer concrete cutter, Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrell).	34.11	22.30 + a
Group 8: Mechanic, grease truck operator, hydroblaster; barrier mover; power stone spreader; welding; work boat under 26 ft.; transfer machine.	33.71	22.30 + a
Group 9: Front end loader (under 3 cubic yards), skid steer loader regardless of attachments, (Bobcat or Similar): forklift, power chipper; landscape equipment (including Hydroseeder).	33.28	22.30 + a

As of: **Thursday, November 13, 2014**

Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	31.24	22.30 + a
Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	31.24	22.30 + a
Group 12: Wellpoint operator.	31.18	22.30 + a
Group 13: Compressor battery operator.	30.60	22.30 + a
Group 14: Elevator operator; tow motor operator (solid tire no rough terrain).	29.46	22.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	29.05	22.30 + a

Group 16: Maintenance Engineer/Oiler.	28.40	22.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	30.60	22.30 + a
Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	30.29	22.30 + a
------PAINTERS (Including Drywall Finishing)------		
10a) Brush and Roller	31.02	18.55
10b) Taping Only/Drywall Finishing	31.77	18.55

As of: **Thursday, November 13, 2014**

10c) Paperhanger and Red Label	31.52	18.55
10e) Blast and Spray	34.02	18.55
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	40.31	26.82
12) Well Digger, Pile Testing Machine	33.01	19.40 + a
13) Roofer (composition)	32.85	17.72
14) Roofer (slate & tile)	33.35	17.72

As of: **Thursday, November 13, 2014**

15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	34.87	32.40
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	40.31	26.82
------TRUCK DRIVERS------		
17a) 2 Axle	28.33	19.14 + a
17b) 3 Axle, 2 Axle Ready Mix	28.43	19.14 + a
17c) 3 Axle Ready Mix	28.48	19.14 + a

As of: **Thursday, November 13, 2014**

17d) 4 Axle, Heavy Duty Trailer up to 40 tons	28.53	19.14 + a
17e) 4 Axle Ready Mix	28.58	19.14 + a
17f) Heavy Duty Trailer (40 Tons and Over)	28.78	19.14 + a
17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	28.58	19.14 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	39.76	19.87 + a
19) Theatrical Stage Journeyman	25.76	7.34

As of: **Thursday, November 13, 2014**

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $1.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

As of: **Thursday, November 13, 2014**

Project: Town Hall Emergency Generator Replacement

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

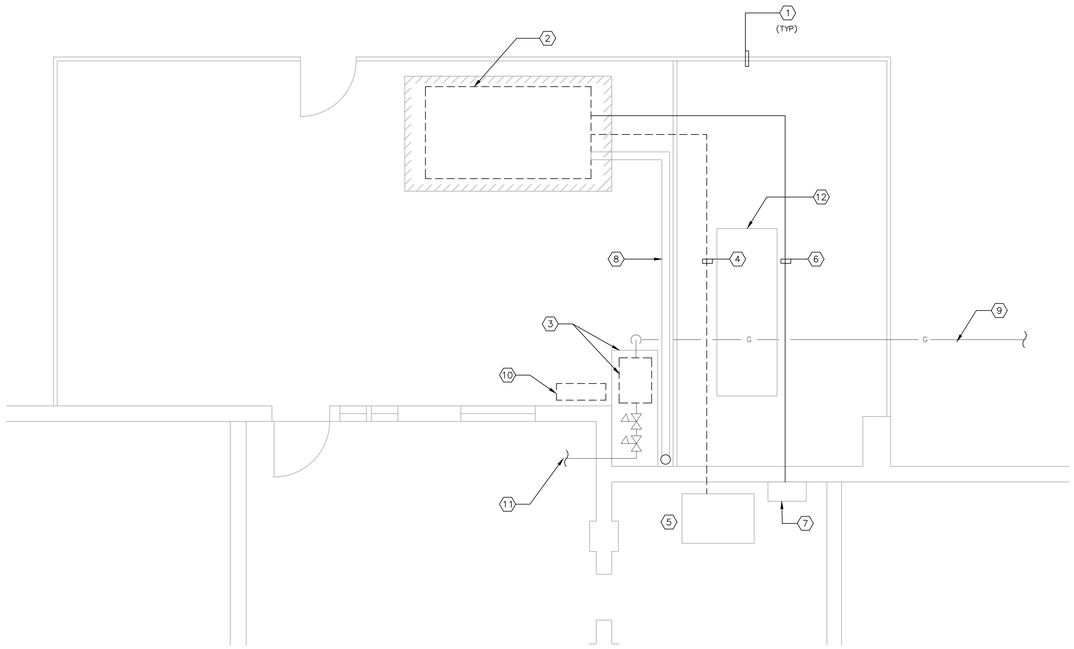
All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

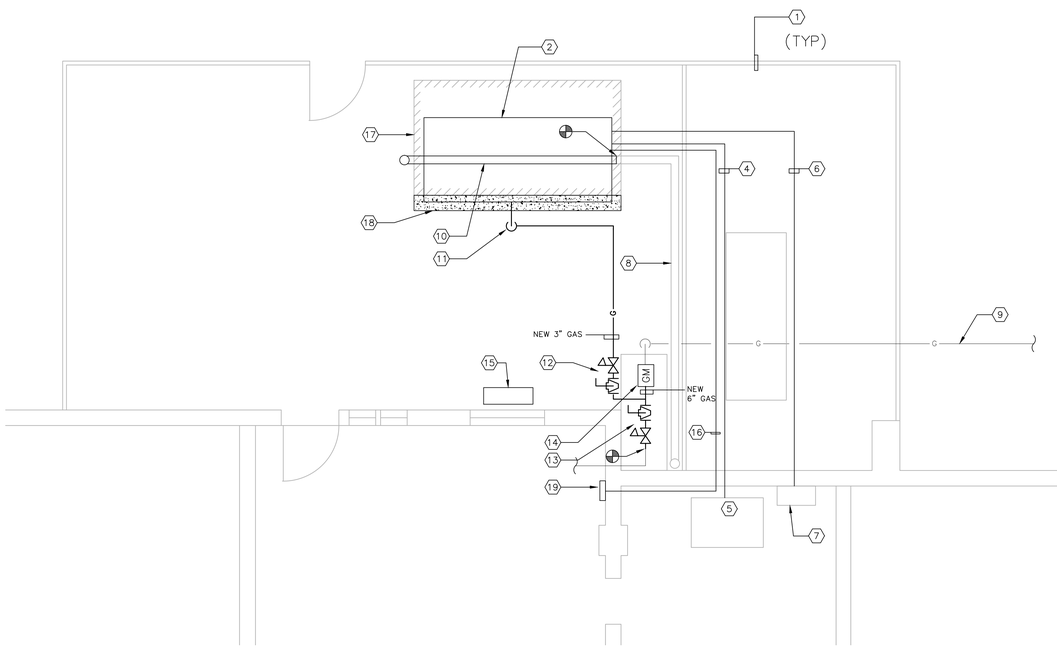
~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: **Thursday, November 13, 2014**



1 MEP DEMOLITION PLAN
1/4" = 1'



2 MEP NEW WORK PLAN
1/4" = 1'

MEP DEMOLITION GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND HANDLING OF EXISTING TO BE RELOCATED EQUIPMENT.
2. THIS PLAN IS DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF DEMOLITION. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED.
3. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
4. REFER TO DRAWING MEP-001 FOR SYMBOLS AND ABBREVIATIONS.

MEP DEMOLITION KEY NOTES

1. EXISTING FENCE TO REMAIN (TYPICAL). METHODS OF DEMOLITION FOR ENTIRE PROJECT SHALL BE SUCH THAT FENCE IS NOT REMOVED OR DISTURBED.
2. PROVIDE COMPLETE DEMOLITION OF EXISTING DIESEL GENERATOR, FUEL TANK, BLOCK HEATER, CONTROL PANEL, AND ALL OTHER ACCESSORIES. CONCRETE PAD EXISTING TO REMAIN.
3. PROVIDE COMPLETE DEMOLITION OF EXISTING GAS METER, ALONG WITH ALL ASSOCIATED ACCESSORIES. EXISTING PIPING AND CONCRETE PAD TO REMAIN.
4. (3) 2" UNDERGROUND GENERATOR CONDUITS TO BE REMOVED ALONG WITH ALL ASSOCIATED WIRING AND ACCESSORIES. SEAL ALL CONDUIT PENETRATIONS.
5. EXISTING AUTOMATIC TRANSFER SWITCH TO REMAIN: ONAN OTCU1200C 1200A/3P
6. (3) EXISTING 3/4" CONDUITS FOR BATTERY CHARGER, BLOCK HEATER, AND START CIRCUIT TO REMAIN. EXISTING FEEDERS IN CONDUITS TO BE REMOVED.
7. EXISTING PULL BOX TO REMAIN
8. EXISTING 6" GENERATOR EXHAUST VENT TO REMAIN, AND RECONNECTED TO NEW GENERATOR (REFER TO NEW WORK PLAN). STACK RUNS 8' AFG AND RISES TO ROOF OF BUILDING AS SHOWN.
9. EXISTING BURIED NATURAL GAS SERVICE. VERIFY EXACT LOCATION WITH CNG.
10. EXISTING CONDENSING UNIT TO BE RELOCATED
11. EXISTING GAS PIPING INTO BUILDING TO REMAIN
12. EXISTING PAD MOUNTED ELECTRICAL EQUIPMENT

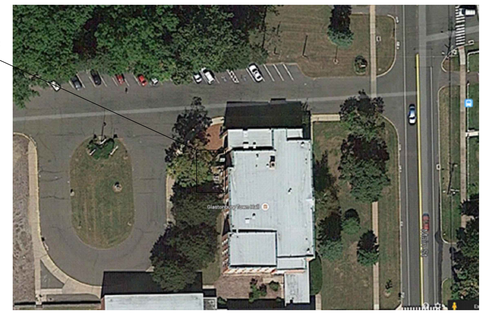
MEP NEW WORK GENERAL NOTES

1. REFER TO MEP-001 FOR SYMBOLS AND ABBREVIATIONS.
2. ALL NEW GAS PIPING SHALL BE PAINTED WITH TWO COATS OF RUST INHIBITIVE PAINT. COLOR SHALL BE "SAFETY YELLOW". PROVIDE PIPE LABELS IDENTIFYING THE PIPING AS "NATURAL GAS".
3. COORDINATE NEW GAS PIPING WORK WITH CNG.
4. PAINT NEW AND EXISTING VENT PIPING WITH RUST INHIBITIVE HIGH TEMPERATURE PAINT. COLOR TO MATCH EXTERIOR BUILDING WALL.

MEP NEW WORK KEY NOTES

1. NEW CONSTRUCTION METHODS FOR ENTIRE PROJECT SHALL BE IN SUCH A WAY THAT DOES NOT REQUIRE REMOVAL OR DISTURBANCE OF EXISTING FENCE.
2. NATURAL GAS GENERATOR – 250KW/312KVA @ 208/120V 3PH. REFER TO SPECIFICATIONS FOR MORE INFORMATION. GENERATOR SHALL BE MOUNTED ON EXISTING CONCRETE PAD, SUCH THAT THE NORTH FACE IS AT LEAST 40" AWAY FROM FENCE.
3. NOT USED
4. PROVIDE NEW CONDUITS FOR GENERATOR FEEDERS. REFER TO RISER DIAGRAM FOR MORE INFORMATION.
5. CONDUITS SHALL BE FED INTO EXISTING ATS AS SHOWN ON DETAIL MEP.001, DETAIL 5.
6. (3) EXISTING 3/4" AUXILIARY CONDUITS FOR GENERATOR BATTERY CHARGER, BLOCK HEATER, AND START CIRCUIT. REFER TO RISER DIAGRAM FOR FEEDER INFORMATION.
7. EXISTING 6" EXHAUST VENT.
8. EXISTING PULL BOX
9. EXISTING BURIED NATURAL GAS SERVICE. VERIFY EXACT LOCATION WITH CNG.
10. PROVIDE NEW 6" EXHAUST VENT FROM NEW GENERATOR TO EXISTING EXHAUST VENT. PROVIDE 4" X 6" INCREASER AND FLEXIBLE CONNECTOR AT GENERATOR CONNECTION.
11. PROVIDE NEW 3" GAS TO GENERATOR WITH UNION, 3"X2" REDUCER, FLEXIBLE PIPING CONNECTOR AND PLUG VALVE AT GENERATOR CONNECTION.
12. PROVIDE NEW GAS PRESSURE REGULATOR FOR GENERATOR, 2 PSIG INLET, 15-20"WC OUTLET, 3440 CFH, AND PLUG VALVE.
13. PROVIDE NEW GAS PRESSURE REGULATOR FOR EXISTING BUILDING GAS LOAD, 2 PSIG INLET, 7"WC OUTLET AND PLUG VALVE.
14. PROVIDE NEW GAS METER BY CNG RATED FOR THE TOTAL CONNECTED LOAD OF NEW GENERATOR PLUS EXISTING BUILDING GAS LOAD.
15. INSTALL RELOCATED CONDENSING UNIT. EXTEND REFRIGERANT PIPING AND WIRING TO NEW LOCATION. CONTRACTOR TO VERIFY EXACT SIZE OF PIPING PRIOR TO INSTALLATION. RECHARGE SYSTEN TO MANUFACTURERS REQUIREMENTS. PROVIDE NEW HOUSEKEEPING PAD 6" AROUND ENTIRE UNIT.
16. PROVIDE (1) 1" CONDUIT FOR GENERATOR ANNUNCIATOR PANEL WITH WIRING PER MANUFACTURER'S RECOMMENDATIONS. CONDUIT SHALL BE ROUTED IN SAME TRENCH AS NEW GENERATOR FEEDERS.
17. EXISTING CONCRETE PAD
18. PROVIDE 1' WIDE CONCRETE EXPANSION TO EXISTING GENERATOR PAD. SLAB LENGTH AND DEPTH SHALL MATCH DIMENSIONS OF EXISTING PAD. PROVIDE ALL NECESSARY STRUCTURAL REINFORCEMENT.
19. APPROXIMATE LOCATION OF NEW GENERATOR ANNUNCIATOR PANEL. EXACT LOCATION TO BE COORDINATED WITH OWNER PRIOR TO ROUGH-IN.

APPROXIMATE LOCATION OF EXISTING GENERATOR AND UTILITY YARD. SEE 1/MEP-100



3 MEP SITE KEY PLAN

CES
Consulting Engineering Services, Inc.
811 Middle Street
Middletown, CT 06457
Tel. (860) 632-1682
Fax. (860) 632-1768
CES #2014156.00

TOWN OF GLASTONBURY

2155 MAIN STREET
GLASTONBURY, CT 06033

REVISIONS		
NO.	DATE	DESCRIPTION

TOWN HALL GENERATOR REPLACEMENT

2155 MAIN STREET
GLASTONBURY, CT 06033

MEP PLANS

DATE:	8/8/2014
PROJECT NO:	2014156.00
DRAWN:	KSK
CHECKED:	SAS
ISSUED FOR:	BID DOCUMENTS
REVISIONS:	-

SHEET NO.

MEP-100

ELECTRICAL ABBREVIATIONS

A/AMP	AMPERE	JB	JUNCTION BOX
AC	ALTERNATING CURRENT	KCMIL	THOUSAND CIRCULAR MILS
AFG	ABOVE FINISHED GRADE	KVA	KILOVOLT AMPERE
AIC	AMPS INTERRUPTING CURRENT	KW	KILOWATT
ATS	AUTOMATIC TRANSFER SWITCH	MAX	MAXIMUM
AWG	AMERICAN WIRE GAUGE	MIN	MINIMUM
C	CONDUIT	MLO	MAIN LUGS ONLY
CATV	CABLE TELEVISION	NA	NOT APPLICABLE
C/B	CIRCUIT BREAKER	NEC	NATIONAL ELECTRIC CODE
CKT	CIRCUIT	NIC	NOT IN CONTRACT
CT	CURRENT TRANSFORMER	NTS	NOT TO SCALE
'	DEGREE	P	POLE
DIA/ø	DIAMETER	PH/ø	PHASE
DWG	DRAWING	PVC	POLYVINYL CHLORIDE CONDUIT
ELEC	ELECTRICAL	RGS	RIGID GALVANIZED STEEL CONDUIT
EMT	ELECTRIC METALLIC TUBING	SPEC	SPECIFICATION
F	FAHRENHEIT	TELE	TELECOMMUNICATIONS/TELEPHONE
FC	FOOT CANDLE	TV	TELEVISION
G	GROUND	T/TX	TRANSFORMER
GFI	GROUND FAULT INTERRUPTER	TYP	TYPICAL
HR	HOUR	V	VOLTS
HZ	HERTZ	VA	VOLT AMPERE
IN	INCHES	VAC	VOLTS ALTERNATING CURRENT
QTY	QUANTITY	W	WATT, WIRE
		WP	WEATHERPROOF

ELECTRICAL SYMBOL LIST

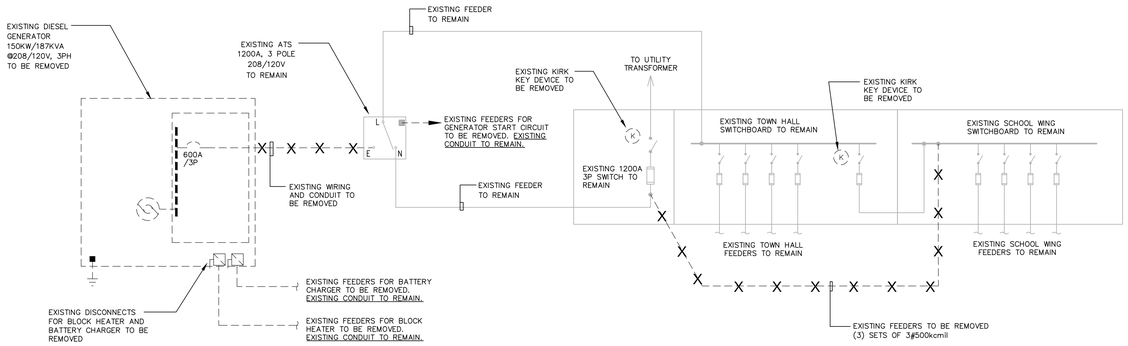
SYMBOL	DESCRIPTION
	MOTOR
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	CONDUIT RUN: UNDERGROUND WHEN OUTSIDE, ALONG WALLS/CEILING WHEN INSIDE

PLUMBING ABBREVIATIONS

AD	ACCESS DOOR	LAV	LAVATORY
AWD	AREAWAY DRAIN	LPG	LIQUIFIED PETROLEUM GAS
AFF	ABOVE FINISHED FLOOR	MBH	THOUSAND BTU PER HOUR
AHU	AIR HANDLING UNIT	OD	OVERFLOW DRAIN
BFP	BACKFLOW PREVENTER	PCD	PUMPED CONDENSATE DRAIN
BTU	BRITISH THERMAL UNIT	PRV	PRESSURE REDUCING VALVE
CD	CONDENSATE DRAIN	PST	PRIMARY STORM
CFH	CUBIC FEET PER HOUR	RD	ROOF DRAIN
CI	CAST IRON	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
CLG	CEILING	RWL	RAIN WATER LEADER
CO	CLEANOUT	RTU	ROOF TOP UNIT
CW	COLD WATER	SAN	SANITARY
DF	DRINKING FOUNTAIN	SS	SOIL STACK
DN	DOWN	ST	STORM
DSN	DOWN SPOUT NOZZLE	SST	SECONDARY STORM
ET	EXPANSION TANK	TD	TRENCH DRAIN
EWC	ELECTRIC WATER COOLER	TMV	THERMOSTATIC MIXING VALVE
FCO	FLOOR CLEANOUT	TP	TRAP PRIMER
FCU	FAN COIL UNIT	TYP	TYPICAL
FLD	FLOOR DRAIN	U	URINAL
FLS	FLOOR SINK	UH	UNIT HEATER
FFE	FINISHED FLOOR ELEVATION	UFCW	UNFILTERED COLD WATER
FGCO	FINISHED GRADE CLEANOUT	V	VENT
FM	FORCED MAIN	VS	VENT STACK
GI	GREASE INTERCEPTOR	VTR	VENT THRU ROOF
GPM	GALLONS PER MINUTE	W	WASTE
GSV	GAS SOLENOID VALVE	WC	WATER CLOSET
GW	GREASE WASTE	WCO	WALL CLEANOUT
GV	GAS VENT	WHA	WATER HAMMER ARRESTOR
HB	HOSE BIBB	WHYD	WALL HYDRANT
HW	HOT WATER	WS	WASTE STACK
HWR	HOT WATER RECIRCULATION	W&V	WASTE AND VENT
INT	INTERCEPTOR	YH	YARD HYDRANT
IE	INVERT ELEVATION		
IW	INDIRECT WASTE		

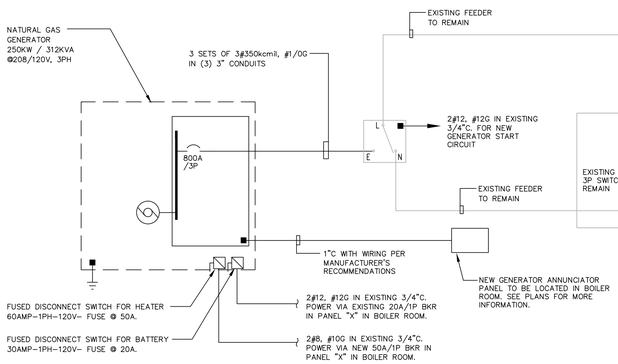
PLUMBING SYMBOL LIST

SYMBOL	DESCRIPTION
	PLUG VALVE
	GAS PRESSURE REGULATOR
—G—	GAS PIPING
	FLEXIBLE PIPING CONNECTOR
	UNION
	POINT OF CONNECTION – NEW TO EXISTING



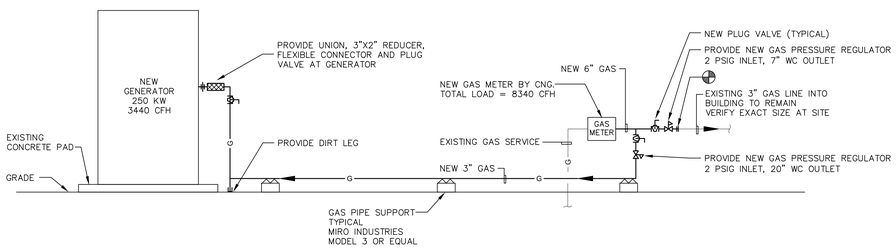
1 ONE-LINE POWER RISER DIAGRAM - DEMOLITION

SCALE: NTS



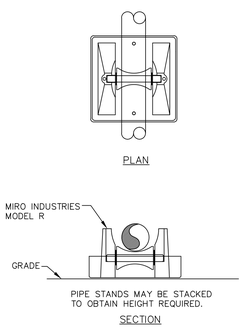
2 ONE-LINE POWER RISER DIAGRAM - NEW WORK

SCALE: NTS



3 SCHEMATIC GAS PIPING DIAGRAM - NEW WORK

SCALE: NTS

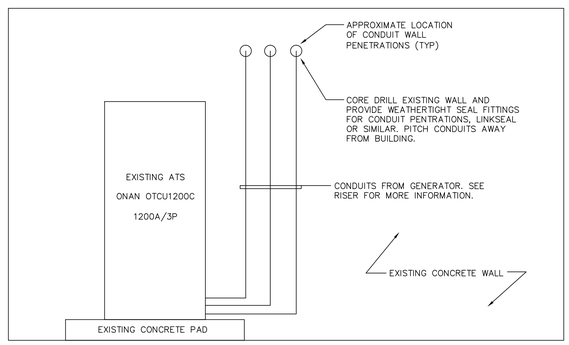


PIPE SUPPORT SCHEDULE		
PIPE SIZE	MODEL NO.	MAX SPACING
1"	3-R/3-RAH	6'
1 1/4"	3-R/3-RAH	6'
1 1/2"	3-R/3-RAH	6'
2"	3-R/3-RAH	6'
2 1/2"	3-R/3-RAH	8'
3"	3-R/3-RAH	8'
4"	4-R/4-RAH	10'
5"	5-R/5-RAH	10'
6"	6-R/6-RAH	10'

NOTES:
1. INSTALL PIPE SUPPORTS 1'-0" FROM ALL CHANGES IN DIRECTION.
2. PIPING SHALL BE SUPPORTED AT ALL ELBOWS AND TEES AND AT SPACING SPECIFIED IN TABLE.
3. PIPING SHALL BE SLOPED AND ROUTED TO PREVENT TRAPPING CONDENSATE (EXCEPT AT DIRT LEGS) AND TO FACILITATE CONDENSATE DRAINAGE.
4. ALL PIPING SUPPORTS TO BE INSTALLED FOLLOWING MANUFACTURERS RECOMMENDATIONS.
5. ALL PIPING TO REST FREELY ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.

4 GAS PIPING SUPPORT DETAIL

SCALE: NTS



5 AUTOMATIC TRANSFER SWITCH TERMINATION DETAIL

SCALE: NTS

CES
Consulting Engineering Services, Inc.
811 Middle Street
Middletown, CT 06457
Tel. (860) 632-1652
Fax. (860) 632-1768
CES #2014156.00

TOWN OF GLASTONBURY

2155 MAIN STREET GLASTONBURY, CT 06033

REVISIONS		
NO.	DATE	DESCRIPTION

TOWN HALL GENERATOR REPLACEMENT

2155 MAIN STREET GLASTONBURY, CT 06033

MEP DETAILS AND SCHEDULES

DATE:	10/16/2014
PROJECT NO:	2014156.00
DRAWN:	KSK
CHECKED:	SAS
ISSUED FOR:	BID DOCUMENTS
REVISIONS:	–

SHEET NO.

MEP-001

ELECTRICAL SPECIFICATIONS

1. THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT WILL PROCEED IN A MANNER WHICH WILL MINIMIZE ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.

2. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.

3. SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, PLANT, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AS DESCRIBED HEREIN.

4. THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT:

   A. FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

   B. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

   C. PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

   D. REMOVE: THE TERM "REMOVE" MEANS " TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."

5. PROVIDE ALL NECESSARY MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO NOTE THAT THESE DOCUMENTS ARE DIAGRAMMATIC ONLY AND THAT FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT IN WHICH IS SHOWN ON THE DRAWINGS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.

6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT ACCEPTED REVISION OF THE NATIONAL ELECTRIC CODE (NEC), NFPA 70, NFPA 110, BOCA AND THE NFPA 101 LIFE SAFETY CODE.

7. OBTAIN IN OWNER'S NAME WRITTEN EQUIPMENT AND MATERIAL WARRANTIES OFFERED IN MANUFACTURER'S PUBLISHED PRODUCT DATA WITHOUT EXCLUSION OR LIMITATION.

8. GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.

9. SUPPLY TO THE OWNER AN OFFICIAL CERTIFICATE OF INSURANCE FOR THEIR RECORDS.

10. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING AND BEING AVAILABLE FOR INSPECTIONS BY THE AUTHORITY HAVING JURISDICTION.

11. USE ADEQUATE NUMBERS OF SKILLED WORKMEN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK.

12. ARRANGE INSTALLATION TO PROVIDE ACCESS TO EQUIPMENT FOR EASY MAINTENANCE AND REPAIR.

13. DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.

14. MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.

15. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.

16. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCE AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER HANDLING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS.

17. THE CONTRACTOR SHALL BE REQUIRED TO PROPERLY STORE MATERIALS AND EQUIPMENT SO AS TO AVOID THEFT OR VANDALISM. IF THEFT OR VANDALISM OCCURS, THE CONTRACTOR SHALL REPAIR OR REPLACE SUCH ITEMS AT THE DIRECTION OF THE ENGINEER.

18. PROVIDE LAMINATED PLASTIC NAMEPLATES FOR EACH DISCONNECT SWITCH. EACH NAMEPLATE INSCRIPTION SHALL IDENTIFY THE FUNCTION AND, WHEN APPLICABLE, THE POSITION. NAMEPLATES SHALL BE MELAMINE PLASTIC, 0.125-INCH THICK, WHITE WITH BLACK CENTER CORE. SURFACE SHALL BE MATTE FINISH. CORNERS SHALL BE SQUARE. ACCURATELY ALIGN LETTERING AND ENGRAVE INTO THE CORE. MINIMUM SIZE OF NAMEPLATES SHALL BE 1 BY 2.5 INCHES. LETTERING SHALL BE A MINIMUM OF 0.25-INCH HIGH NORMAL BLOCK STYLE.

19. GROUNDING SHALL BE COMPLETED IN ACCORDANCE WITH NFPA 70. GROUND EXPOSED, NON-CURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN METALLIC AND NONMETALLIC RACEWAYS, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, AND NEUTRAL CONDUCTOR OF WIRING SYSTEMS. MAKE GROUND CONNECTION AT MAIN SERVICE EQUIPMENT, AND EXTEND GROUNDING CONDUCTOR TO POINT OF ENTRANCE OF METALLIC WATER SERVICE. MAKE CONNECTION TO WATER PIPE BY SUITABLE GROUND CLAMP WITH METER JUMPER OR LUG CONNECTION TO PLUGGED TEE. IF FLANGED PIPES ARE ENCOUNTERED, MAKE CONNECTION WITH LUG BOLTED TO STREET SIDE OF FLANGED CONNECTION. SUPPLEMENT METALLIC WATER SERVICE GROUNDING SYSTEM WITH ADDITIONAL MADE ELECTRODE IN COMPLIANCE WITH NFPA 70. WHERE GROUND FAULT PROTECTION IS EMPLOYED, ENSURE THAT CONNECTION OF GROUND AND NEUTRAL DOES NOT INTERFERE WITH CORRECT OPERATION OF FAULT PROTECTION.

20. CONDUCTORS NO. 8 AWG AND LARGER DIAMETER SHALL BE STRANDED ANNEALED COPPER. CONDUCTORS NO. 10 AWG AND SMALLER DIAMETER SHALL BE SOLID ANNEALED COPPER, EXCEPT THAT CONDUCTORS FOR REMOTE CONTROL, ALARM, AND SIGNAL CIRCUITS, CLASSES 1, 2, AND 3, SHALL BE STRANDED UNLESS SPECIFICALLY INDICATED OTHERWISE. CONDUCTOR SIZES AND AMPACITIES SHOWN ARE BASED ON COPPER, UNLESS INDICATED OTHERWISE. UNLESS SPECIFIED OR INDICATED OTHERWISE OR REQUIRED BY NFPA 70, POWER AND LIGHTING WIRES SHALL BE 600-VOLT, TYPE THWN/THHN ANNEALED COPPER. REMOTE-CONTROL AND SIGNAL CIRCUITS SHALL BE TYPE TW, THW, OR TF ANNEALED COPPER. WHERE LIGHTING FIXTURES REQUIRE 90 DEGREES C CONDUCTORS, PROVIDE ONLY CONDUCTORS WITH 90 DEGREE C INSULATION OR BETTER.

21. MAKE ALL SPLICES IN ACCESSIBLE LOCATIONS. MAKE SPLICES IN CONDUCTORS NO. 10 AWG AND SMALLER DIAMETER WITH INSULATED, PRESSURE-TYPE CONNECTOR. MAKE SPLICES IN CONDUCTORS NO. 8 AWG AND LARGER DIAMETER WITH SOLDERLESS CONNECTOR, AND COVER WITH INSULATION MATERIAL EQUIVALENT TO CONDUCTOR INSULATION.

22. PHASE CONDUCTORS SHALL BE IDENTIFIED BY COLOR CODING. THE COLOR OF THE INSULATION ON PHASES A, B, AND C RESPECTIVELY (FOR THREE PHASE) OR PHASES A AND B RESPECTIVELY (FOR SINGLE PHASE) OF DIFFERENT VOLTAGE SYSTEMS SHALL BE AS FOLLOWS: 120/208 VOLT, 3-PHASE: BLACK, RED, AND BLUE. 277/480 VOLT, 3-PHASE: BROWN, ORANGE, AND YELLOW. 120/240 VOLT, SINGLE/PHASE: BLACK AND RED. ON 3-PHASE, 4-WIRE DELTA SYSTEM, HIGH LEG SHALL BE ORANGE, AS REQUIRED BY NFPA 70.

23. UNLESS OTHERWISE INDICATED, THE WIRING METHOD SHALL CONSIST OF THE INSTALLATION OF INSULATED CONDUCTORS INSTALLED IN ELECTRICAL METALLIC CONDUIT. PROVIDE INSULATED, GREEN EQUIPMENT GROUNDING CONDUCTOR IN FEEDER AND BRANCH CIRCUITS, INSTALLED IN CONDUIT OR RACEWAYS. GROUNDING CONDUCTOR SHALL BE SEPARATE FROM ELECTRICAL SYSTEM NEUTRAL CONDUCTOR. METAL CONDUIT SHALL EXTEND THROUGH SHAFTS FOR MINIMUM DISTANCE OF 6 INCHES. CONDUIT SIZES SHOWN ARE BASED ON USE OF COPPER CONDUCTORS WITH INSULATION TYPES AS INDICATED HEREIN. IF THE USE OF ALUMINUM CONDUCTORS IS ALLOWED, THE CONTRACTOR SHALL UPSIZE ALL CONDUITS ACCORDING TO NFPA 70. MINIMUM SIZE OF RACEWAYS SHALL BE 15 MM (1/2 INCH). ONLY METAL CONDUITS WILL BE PERMITTED WHEN CONDUITS ARE REQUIRED FOR SHIELDING OR OTHER SPECIAL PURPOSES INDICATED, OR WHEN REQUIRED BY CONFORMANCE TO NFPA 70.

24. ELECTRICAL METALLIC TUBING MAY BE INSTALLED ONLY WITHIN BUILDINGS. ELECTRICAL METALLIC TUBING MAY NOT BE INSTALLED IN CONCRETE OR EXTERIOR TO BUILDINGS. EMT SHALL NOT BE INSTALLED IN DAMP OR WET LOCATIONS. DO NOT USE IN AREAS SUBJECT TO SEVERE PHYSICAL DAMAGE INCLUDING BUT NOT LIMITED TO EQUIPMENT ROOMS WHERE MOVING OR REPLACING EQUIPMENT COULD PHYSICALLY DAMAGE THE EMT. BUSHINGS, MANUFACTURED FITTINGS OR BOXES PROVIDING EQUIVALENT MEANS OF PROTECTION SHALL BE INSTALLED ON THE ENDS OF ALL CONDUITS AND SHALL BE OF THE INSULATING TYPE, WHERE REQUIRED BY NFPA 70. ONLY UL LISTED ADAPTERS SHALL BE USED TO CONNECT EMT TO RIGID METAL CONDUIT, CAST BOXES, AND CONDUIT BODIES. METALLIC CONDUITS AND TUBING SHALL BE SECURELY AND RIGIDLY FASTENED IN PLACE AS REQUIRED BY NFPA 70.

25. SCHEDULE 40 PVC CONDUIT SHALL BE PROVIDED UNDERGROUND.

26. PROVIDE ALL NECESSARY JUNCTION BOXES, PULL BOXES, PULL WIRES, COVER PLATES AND OTHER MISCELLANEOUS EQUIPMENT WHICH IS NOT SHOWN ON THE CONTRACT DOCUMENTS BUT NECESSARY TO COMPLETE THE WORK.

27. CORE DRILL EXISTING WALL AND PROVIDE WEATHERTIGHT SLEEVES FOR CONDUIT PENETRATIONS. PROVIDE WEATHERPROOF SEALS FOR CONDUIT PENETRATIONS THROUGH CONCRETE FOUNDATION WALLS. PROVIDE CONDUIT SLEEVES AT WALL, LINKSEAL OR SIMILAR.

28. PROVIDE PRE-LABELED, SNAP AROUND PIPE MARKERS ON ALL CONDUITS. MARKERS SHALL COMPLY WITH ANSI A 13.1-1988 STANDARDS AND INDICATED VOLTAGE.

29. COORDINATE ALL WORK WITH OTHER TRADES AND ARRANGE INSTALLATION TO AVOID CLASHES BETWEEN EQUIPMENT, WORK OF OTHER TRADES AND BUILDING STRUCTURE.

30. PROVIDE SHOP DRAWINGS FOR GENERATOR, DISCONNECTS, ANNUNCIATOR PANEL, CONDUITS, FEEDERS, AND ALL CONNECTION EQUIPMENT.

31. AS-BUILT DRAWINGS

   A. PREPARE AS-BUILT DRAWINGS TO A SCALE OF 1/4"=1'-0" OR LARGER; DETAILING THE ACTUAL INSTALLATION OF MAJOR ELEMENTS, COMPONENTS, AND SYSTEMS OF ELECTRICAL EQUIPMENT AND MATERIALS. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE AS-BUILT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE.

   B. MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.

   C. NOTE RELATED CHANGE ORDER NUMBERS WHERE APPLICABLE.

   D. ORGANIZE AS-BUILT DRAWINGS INTO MANAGEABLE SETS, BIND WITH DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND OTHER IDENTIFICATION ON THE COVER OF EACH SET.

GENERATOR SPECIFICATIONS

Section 1.0: General Requirements

1.1 Scope

Provide, install, and acceptance test a complete and operable Emergency/Standby electric generating system, including all devices and equipment specified herein, as shown on the drawings, or required for the service. Equipment shall be new, factory tested, and delivered ready for installation.

1.2 Approved Manufacturers:
Equipment, documentation, and services described in this specification and shown on the plans are as provided by Cummins Power Generation, Minneapolis, Minnesota.

Proposed substitutions shall include complete submittal data, as specified herein, clearly denoting any and all deviations and/or exceptions to the equipment specified. The complete proposal must be submitted to the engineer or architect for approval/disapproval not less than 10 days prior to the scheduled bid date. If approved, the Contractor is responsible for the charges for all necessary revisions.

Submit the following information with the proposal package for review and evaluation 10 days prior to scheduled bid date:
- A paragraph by paragraph specification compliance statement, describing the differences between the specified and the proposed equipment.
- Dimensions of the generator sets, transfer switches and accessory hardware, including plan and elevation drawings.
- Sequence of the operations if required to enhance the description included in this specifications.
- Indication of the nearest field service office staffed with factory trained technicians. Provide service organization data and manpower. Indicate typical response time for emergency calls. Provide typical scenario for an emergency service call.

1.3 Submittals:
Within 10 days after award of contract, provide six sets of the following information for review:
- Manufacturer's product literature and performance data, sufficient to verify compliance to specification requirements.
- A paragraph by paragraph specification compliance statement, describing the differences between the specified and the proposed equipment.
- Manufacturer's certification of prototype testing.
- Manufacturer's published warranty documents.
- Shop drawings showing plan and elevation views with certified overall dimensions, as well as wiring interconnection details.
- Interconnection wiring diagrams showing all external connections required; with field wiring terminals marked in a consistent point-to-point manner.
- Manufacturer's installation instructions.

1.4 Warranty:
Warranty shall be provided for all products against defects in materials and workmanship for two year period from the start-up date.

1.5 Single Supplier:
The supplier shall be the manufacturer's authorized distributor, who shall provide initial start-up services, conduct field acceptance testing, and warranty service. The supplier shall have 24-hour service availability and factory-trained service technicians authorized to perform warranty service on all products provided.

1.6 Manuals:
Three (3) Sets Operators and spare parts manuals shall be provided for all system equipment. The manuals shall include outline, interconnection, wiring, and control drawings accurately describing the equipment provided. Provide ladder logic for all programmable logic controllers in the system.

Section 2.0: Products

2.1 Natural Gas Engine-Generator Set:
4-cycle, 1800 rpm, Natural Gas engine generator set. Generator set ratings: 250 kW/312 kVA at 0.8 PF, standby rating, based on site conditions noted below. System voltage of 120/208 Volts AC, Three phase, Four-wire, 60 hertz. Site Conditions: Altitude 200 ft., ambient temperatures up to 131 degrees F.

1. Cummins Power Generation model 250GFBC (BASIS OF DESIGN)
2. Acceptable equivalent by Caterpillar
3. Acceptable equivalent by Kohler

The engine must be EPA Certified and manufactured in the USA.

2.1.1 Prototype Tests and Evaluation:
Prototype tests shall have been performed on a complete and functional unit, component level type tests will not substitute for this requirement. Prototype testing shall comply with the requirements of NFPA 110 for level 1 systems.

2.1.2 Performance:
Voltage regulation shall be +/- 1.0 percent for any constant load between no load and rated load.

Frequency regulation shall be isochronous from steady state no load to steady state rated load. Random frequency variation with any steady load from no load to full load shall not exceed plus or minus 0.25%.

The natural gas engine-generator set shall be capable of single step load pick up of 100% nameplate kW and power factor, less applicable derating factors, with the engine-generator set at operating temperature.

Motor starting capability shall be a minimum of 1028 kVA. The generator set shall be capable of sustaining a minimum of 90% of rated no load voltage with the specified kVA load at near zero power factor applied to the generator set.

2.1.3 Engine:
The engine shall be fueled by natural gas fuel, 4 cycle, radiator and fan cooled. Minimum displacement shall be 855 cubic inches, with 12 cylinders. The horsepower rating of the engine at it's minimum tolerance level shall be sufficient to drive the alternator and all connected accessories. Engine accessories and features shall

Skid-mounted radiator and cooling system rated for full load operation in 50 degrees C ambient as measured at the generator air inlet. Radiator shall be provided with a duct adapter flange. The cooling system shall be filled with 50/50 ethylene glycol/water mixture by the equipment supplier. Rotating parts shall be guarded against accidental contact per OSHA requirements.

An electric starter(s) capable of three complete cranking cycles without overheating.

Positive displacement, mechanical, full pressure, lubrication oil pump.

Full flow lubrication oil filters with replaceable spin-on canister elements and dipstick oil level indicator.

Replaceable dry element air cleaner with restriction indicator.

Flexible supply fuel line.

Engine mounted battery charging alternator, 37 ampere minimum, and solid-state voltage regulator.

2.1.4 AC Generator:
The AC generator shall be; synchronous, four pole, 2/3 pitch, revolving field, dripproof construction, single prelubricated sealed bearing, air cooled by a direct drive centrifugal blower fan, and directly connected to the engine with flexible drive disc. All insulation system components shall meet NEMA MG1 temperature limits for Class H insulation system. Actual temperature rise measured by resistance method at full load shall not exceed 105 degrees Centigrade.

A permanent magnet generator (PMG) shall be included to provide a reliable source of excitation power for optimum motor starting and short circuit performance. The PMG and controls shall be capable of sustaining and regulating current supplied to a single phase or three phase fault at approximately 300% of rated current for not more than 10 seconds.

The generator shall be capable of delivering rated output (kVA) at rated frequency and power factor, at any voltage not more than 5 percent above or below rated voltage.

AC Generator shall be a 12 lead reconnectable at three phase voltages while still providing the full output rating of the generator.

2.1.5 Generator set Control.
The generator set shall be provided with a microprocessor-based control system that is designed to provide automatic starting, monitoring, and control functions for the generator set. The control system shall also be designed to allow local monitoring and control of the generator set, and remote monitoring and control as described in this specification. The control shall be mounted on the generator set. The control shall be vibration tested and prototype tested to verify the durability of all components in the system under the vibration conditions encountered.

The generator set mounted control shall include the following features and functions:

A. Control Switches
1. Mode Select Switch. The mode select switch shall initiate the following control modes. When in the RUN or Manual position the generator set shall start, and accelerate to rated speed and voltage as directed by the operator. In the OFF position the generator set shall immediately stop, bypassing all time delays. In the AUTO position the generator set shall be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage.
2. EMERGENCY STOP switch. Switch shall be Red "mushroom-head" push-button. Depressing the emergency stop switch shall cause the generator set to immediately shut down, and be locked out from automatic restarting.
3. RESET switch. The RESET switch shall be used to clear a fault and allow restarting the generator set after it has shut down for any fault condition.
4. PANEL LAMP switch. Depressing the panel lamp switch shall cause the entire panel to be lighted with DC control power. The panel lamps shall automatically be switched off 10 minutes after the switch is depressed, or after the switch is depressed a second time.

B. Generator Set AC Output Metering. The generator set shall be provided with a metering set including the following features and functions:
1. Digital metering set, 0.5% accuracy, to indicate generator RMS voltage and current, frequency, output current, output KW, KW-hours, and power factor. Generator output voltage shall be available in line-to-line and line-to-neutral voltages, and shall display all three-phase voltages (line to neutral or line to line) simultaneously.
2. The control system shall monitor the total load on the generator set, and maintain data logs of total operating hours at specific load levels ranging from 0 to 110% of rated load, in 10% increments. The control shall display hours of operation at less than 30% load and total hours of operation at more than 90% of rated load.
3. The control system shall log total number of operating hours, total kWH, and total control on hours, as well as total values since reset.

C. Generator Set Alarm and Status Display.
1. The generator set control shall include LED alarm and status indication lamps. The lamps shall be high-intensity LED type. The lamp condition shall be clearly apparent under bright room lighting conditions. Functions indicated by the lamps shall include:
   - The control shall include five configurable alarm-indicating lamps. The lamps shall be field adjustable for function, color, and control action (status, warning, or shutdown).
   - The control shall include green lamps to indicate that the generator set is running at rated frequency and voltage, and that a remote start signal has been received at the generator set. The running signal shall be based on actual sensed voltage and frequency on the output terminals of the generator set.
   - The control shall include a flashing red lamp to indicate that the control is not in automatic state, and red common shutdown lamp.
   - The control shall include an amber common warning indication lamp.
2. The generator set control shall indicate the existence of the following alarm and shutdown conditions on an alphanumeric digital display panel:
   - low oil pressure (alarm)
   - low oil pressure (shutdown)
   - oil pressure sender failure (alarm)
   - low coolant temperature (alarm)
   - high coolant temperature (alarm)
   - high coolant temperature (shutdown)
   - high oil temperature (warning)
   - engine temperature sender failure (alarm)
   - low coolant level (alarm or shutdown--selectable)
   - fail to crank (shutdown)
   - fail to start/overcrank (shutdown)
   - overspeed (shutdown)
   - low DC voltage (alarm)
   - high DC voltage (alarm)
   - weak battery (alarm)
   - high AC voltage (shutdown)
   - low AC voltage (shutdown)
   - under frequency (shutdown)
   - over current (warning)
   - over current (shutdown)
   - short circuit (shutdown)
   - over load (alarm)
   - emergency stop (shutdown)
3. Provisions shall be made for indication of four customer-specified alarm or shutdown conditions. Labeling of the customer-specified alarm or shutdown conditions shall be of the same type and quality as the above-specified conditions. The non-automatic indicating lamp shall be red, and shall flash to indicate that the generator set is not able to automatically respond to a command to start from a remote location.
4. The control shutdown fault conditions shall be configurable for fault bypass.

D. Engine Status Monitoring.
1. The following information shall be available from a digital status panel on the generator set control :
   - engine oil pressure (psi or kPA)
   - engine coolant temperature (degrees F or C)
   - engine oil temperature (degrees F or C)
   - engine speed (rpm)
   - number of hours of operation (hours)
   - number of start attempts
   - battery voltage (DC volts)
2. The control system shall also incorporate a data logging and display provision to allow logging of the last 10 warning or shutdown indications on the generator set, as well as total time of operation at various loads, as a percent of the standby rating of the generator set.

E. Engine Control Functions.
1. The control system provided shall include a cycle cranking system, which allows for user selected crank time, rest time, and # of cycles. Initial settings shall be for 3 cranking periods of 15 seconds each, with 15-second rest period between cranking periods.
2. The control system shall include an idle mode control, which allows the engine to run in idle mode in the RUN position only. In this mode, the alternator excitation system shall be disabled.
3. The control system shall include an engine governor control, which functions to provide steady state frequency regulation as noted elsewhere in this specification. The governor control shall include adjustments for gain, damping, and a ramping function to control engine speed and limit exhaust smoke while the unit is starting.
4. The control system shall include time delay start (adjustable 0-300 seconds) and time delay stop (adjustable 0-600 seconds) functions.
5. The control system shall include sender failure monitoring logic for speed sensing, oil pressure, and engine temperature which is capable of discriminating between failed sender or wiring components, and an actual failure conditions.

F. Alternator Control Functions:
1. The generator set shall include a full wave rectified automatic digital voltage regulation system that is matched and prototype tested by the engine manufacturer with the governing system provided. It shall be immune from mis-operation due to load-induced voltage waveform distortion and provide a pulse width modulated output to the alternator exciter. The voltage regulation system shall be equipped with three-phase RMS sensing and shall control buildup of AC generator voltage to provide a linear rise and limit overshoot. The system shall include a torque-matching characteristic, which shall reduce output voltage in proportion to frequency below an adjustable frequency threshold. Torque matching characteristic shall be adjustable for roll-off frequency and rate, and be capable of being curve-matched to the engine torque curve with adjustments in the field. The voltage regulator shall include adjustments for gain, damping, and frequency roll-off. Adjustments shall be broad range, and made via digital raise-lower switches, with an alphanumeric LED readout to indicate setting level. Rotary potentiometers for system adjustments are not acceptable.
2. Controls shall be provided to monitor the output current of the generator set and initiate an alarm (over current warning) when load current exceeds 110% of the rated current of the generator set on any phase for more than 60 seconds. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (over current shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445.
3. Controls shall be provided to individually monitor all three phases of the output current for short circuit conditions. The control/protection system shall monitor the current level and voltage. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (short circuit shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445.
4. Controls shall be provided to monitor the KW load on the generator set, and initiate an alarm condition (over load) when total load on the generator set exceeds the generator set rating for in excess of 5 seconds. Controls shall include a load shed control, to operate a set of dry contacts (for use in shedding customer load devices) when the generator set is overloaded.
5. An AC over/under voltage monitoring system that responds only to true RMS voltage conditions shall be provided. The system shall initiate shutdown of the generator set when alternator output voltage exceeds 110% of the operator-set voltage level for more than 10 seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown shall occur when the output voltage of the alternator is less than 85% for more than 10 seconds.

G. Other Control Functions
1. The control shall communicate all engine and alternator data, and allow starting and stopping of the generator set via the network in both test and emergency modes.
2. A battery monitoring system shall be provided which initiates alarms when the DC control and starting voltage is less than 22 VDC or more than 26 VDC. During engine cranking (starter engaged), the low voltage limit shall be disabled, and DC voltage shall be monitored as load is applied to the battery, to detect impending battery failure or deteriorated battery condition.

H. Control Interfaces for Remote Monitoring:
1. The control system shall provide four programmable output relays. These relay outputs shall be configurable for any alarm, shutdown, or status condition monitored by the control. The relays shall be configured to indicate: (1) generator set operating at rated voltage and frequency, (2) common warning, (3) common shutdown, (4) load shed command.
2. A fused 10 amp switched 12VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit whenever the generator set is running.
3. A fused 10 amp 12VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit at all times from the engine starting/control batteries.

2.1.6 Base:
The engine-generator set shall be mounted on a heavy duty steel base to maintain alignment between components. The base shall incorporate a battery tray with hold-down clamps within the rails.

2.1.7 Generator Set Auxiliary Equipment and Accessories:

2.1.7.1 Water Jacket Heater
Engine mounted, thermostatically controlled, water jacket heater for each engine. The heater shall be sized as recommended by the generator set manufacturer. Heater voltage shall be 4000W, 120 VAC. Provide proper power supply circuits for the heater as required for the voltage and load of the heater, connected to a normally served distribution circuit.

2.1.7.3 Exhaust Silencer
Exhaust muffler shall be provided for each engine, size and type as recommended by the generator set manufacturer. The mufflers shall be critical grade. Exhaust system shall be installed prior to shipment by the manufacturer. Silencer shall be inside the housing. Silencers on the enclosure roof are NOT Acceptable.

2.1.7.4 Starting and Control Batteries, Battery Charger
Starting battery bank, lead acid type, 24 volt DC, sized as recommended by the generator set manufacturer, shall be supplied for each generator set with battery cables and connectors. Provide 10A, 24VDC battery charger mounted and wired within the generator enclosure, equal to SENS model NRG 22-10-RC.

2.1.7.5 Generator Set Main Circuit Breaker
Generator main circuit breaker: set-mounted and wired, UL listed, molded case type, rated at 800 amps, 3 pole, 600 volts. Submittals shall demonstrate that the circuit breaker provides proper protection for the alternator by a comparison of the trip characteristic of the breaker with the thermal damage characteristic of the alternator. Field circuit breakers shall not be acceptable for generator overcurrent protection.

2.1.7.6 Steel Weather Housing
The generator set housing shall be provided factory_assembled to generator set base and radiator cowling. Housing shall provide ample airflow for generator set operation. The housing shall have hinged side_access doors and rear control door. All doors shall be lockable. All sheetmetal shall be primed for corrosion protection and finish painted using a Powder Coat Paint process with the manufacturers standard color, standard painting systems are NOT acceptable. Provide oil and coolant drain extension with shut off valve to the exterior of the enclosure. Sound level shall not exceed 84 dbA at full load measured at 23' from the enclosure.

2.1.8 Remote Annunciator Panel: - Provide and install a 20-light LED type remote alarm annunciator with horn, located as shown on the drawings or in a location that can be conveniently monitored by facility personnel. The remote annunciator shall provide all the audible and visual alarms called for by NFPA Standard 110 for level 1 systems; and in addition shall provide indications for high battery voltage, low battery voltage, loss of normal power to the charger. Spare lamps shall be provided to allow future addition of other alarm and status functions to the annunciator. Provisions for labeling of the annunciator in a fashion consistent with the specified functions shall be provided. Alarm silence and lamp test switch(es) shall be provided. LED lamps shall be replaceable, and indicating lamp color shall be capable of changes needed for specific application requirements. Alarm horn shall be switchable for all annunciation points. Alarm horn (when switched on) shall sound for first fault, and all subsequent faults, regardless of whether first fault has been cleared, in compliance with NFPA110 3-5.6.2.

2.1.9 Remote Emergency Stop Switch - Provide a remote emergency stop switch inside the building and locate as directed by the owner.

Section 3.0: OTHER REQUIREMENTS

3.1 Installation:
Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment supplier.

Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer's instructions and seismic requirements of the site.

Equipment shall be initially started and operated by representatives of the manufacturer.

All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to final testing of the system.

3.2 Factory Tests:
Equipment supplied shall be fully tested at the factory for function and performance.

Generator set factory tests on the equipment shall be performed at rated load and rated PF. Generator sets that have not been factory tested at rated PF will not be acceptable.

3.3 On-Site Acceptance Test:
The complete installation shall be tested for compliance with the specification following completion of all site work. Testing shall be conducted by representatives of the manufacturer, with required fuel supplied by Contractor.

Installation acceptance tests to be conducted on-site shall include a "cold start" test. A two hour load bank test at 100% load using a resistive load bank shall be performed. Training of maintenance personnel is required.

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TOWN OF GLASTONBURY

2155 MAIN STREET
GLASTONBURY, CT 06033

REVISIONS

NO.	DATE	DESCRIPTION

TOWN HALL GENERATOR REPLACEMENT

2155 MAIN STREET
GLASTONBURY, CT 06033

MEP SPECIFICATIONS

DATE:	8/8/2014
PROJECT NO:	2014156.00
DRAWN:	KSK
CHECKED:	SAS
ISSUED FOR:	BID DOCUMENTS
REVISIONS:	-

SHEET NO.

MEP-002

PLUMBING SPECIFICATIONS

GENERAL PROCEDURES

1. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING DRAWINGS UNLESS NOTED OTHERWISE.
2. DESCRIPTION
   A. THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT WILL PROCEED IN A MANNER WHICH WILL MINIMIZE ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.
   B. SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, PLANT, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN.
3. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT
   A. FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."
   B. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
   C. PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
   D. REMOVE: THE TERM REMOVE MEANS TO DISCONNECTFROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
   E. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT.
4. DRAWINGS
   A. PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO NOTE THAT THESE DOCUMENTS ARE DIAGRAMMATIC ONLY AND THAT FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
5. SURVEY AND MEASUREMENTS:
   A. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
   B. DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.
   C. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
   D. ARRANGE INSTALLATION TO PROVIDE ACCESS TO EQUIPMENT FOR EASY MAINTENANCE AND REPAIR.
6. CODES AND STANDARDS: ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT ACCEPTED VERSION OF THE FOLLOWING
   A. INTERNATIONAL BUILDING CODE
   B. INTERNATIONAL PLUMBING CODE
   C. INTERNATIONAL MECHANICAL CODE
   D. NATIONAL ELECTRIC CODE (NFPA 70)
   E. THE LIFE SAFETY CODE (NFPA 101)
7. PERMITS AND FEES: THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS; AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK, FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
8. SHOP DRAWINGS:
   A. SUBMIT NEWLY PREPARED INFORMATION, DRAWN TO ACCURATE SCALE OF 1/4"=1'0". HIGHLIGHT, ENCIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.
   B. SHOP DRAWINGS INCLUDE EQUIPMENT SUBMITTALS, FABRICATION AND INSTALLATION DRAWINGS, SETTING DIAGRAMS, SCHEDULES, PATTERNS, TEMPLATES AND SIMILAR DRAWINGS. INCLUDE THE FOLLOWING INFORMATION:
      a. DIMENSIONS.
      b. IDENTIFICATION OF PRODUCTS AND MATERIALS INCLUDED.
      c. COMPLIANCE WITH SPECIFIED STANDARDS AND PERFORMANCE DATA AS INDICATED.
      d. NOTATION OF COORDINATION REQUIREMENTS.
      e. NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT.
      f. SUBMIT 3 BLACK-LINE PRINTS AND 2 ADDITIONAL PRINTS WHERE REQUIRED FOR MAINTENANCE MANUALS, PLUS THE NUMBER OF PRINTS NEEDED BY THE ENGINEER FOR DISTRIBUTION. ONE PRINT WILL BE RETAINED; THE REMAINDER RETURNED. ONE OF THE PRINTS RETURNED SHALL BE MARKED-UP AND MAINTAINED AS A "RECORD DOCUMENT".
      g. DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
      h. DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SHOP DRAWINGS.
      i. PROVIDE SUBMITTALS AS INDICATED IN SPECIFIC SPECIFICATION SECTIONS.
9. USE ADEQUATE NUMBERS OF SKILLED WORKMEN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK.
10. THE CONTRACTOR SHALL COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 5 DAYS PRIOR TO THE INTERRUPTION.
11. OPERATION AND MAINTENANCE
   A. UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
   B. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
   C. OPERATION AND MAINTENANCE MANUAL SHALL INCLUDE THE FOLLOWING:
      a. MANUFACTURER'S PRINTED OPERATING AND MAINTENANCE PROCEDURES.
      b. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING.
      c. COPIES OF WARRANTIES.
      d. APPROVED SHOP DRAWINGS AND PRODUCT DATA.
      e. BALANCE REPORTS.
      f. INCLUDE IN THE MANUAL, A TABULATED EQUIPMENT SCHEDULE FOR ALL EQUIPMENT. SCHEDULE SHALL INCLUDE PERTINENT DATA SUCH AS: MAKE, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, NORMAL OPERATING CURRENT, BELT SIZE, FILTER QUANTITIES AND SIZES, BEARING NUMBER, ETC. SCHEDULE SHALL INCLUDE MAINTENANCE TO BE DONE AND FREQUENCY.
      g. MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.
12. AS-BUILT DRAWINGS
   A. PREPARE AS-BUILT DRAWINGS TO A SCALE OF 1/4"=1'-0" OR LARGER; DETAILING THE ACTUAL INSTALLATION OF MAJOR ELEMENTS, COMPONENTS, AND SYSTEMS OF MECHANICAL EQUIPMENT AND MATERIALS. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE AS-BUILT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE.
   B. MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.
   C. NOTE RELATED CHANGE ORDER NUMBERS WHERE APPLICABLE.
   D. ORGANIZE AS-BUILT DRAWINGS INTO MANAGEABLE SETS, BIND WITH DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND OTHER IDENTIFICATION ON THE COVER OF EACH SET.
13. OBTAIN IN OWNER'S NAME WRITTEN EQUIPMENT AND MATERIAL WARRANTIES OFFERED IN MANUFACTURER'S PUBLISHED PRODUCT DATA WITHOUT EXCLUSION OR LIMITATION.
14. GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.
15. SUBMIT TO THE OWNER AN OFFICIAL CERTIFICATE OF INSURANCE FOR THEIR RECORDS.

MEANS AND METHODS ALL TRADES

1. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
3. MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.
4. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
5. SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
6. EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SIZES, DEPTHS, FILL AND BEDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS
7. WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
8. PROVIDE FIRESTOPPING AROUND ALL FIRE PROTECTION, PLUMBING, MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
9. ACCESS DOORS SHALL BE PROVIDED IN CEILINGS, WALLS AND FLOORS AT ALL DAMPERS, VALVES, CONTROL DEVICES, AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.
10. SEISMIC RESTRAINTS SHALL BE INSTALLED AS REQUIRED PER BUILDING CODE AND FIRE SAFETY CODE. RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 AND SMACNA STANDARDS. SUBMIT SHOP DRAWINGS INCLUDING SEISMIC CALCULATIONS WITH PROFESSIONAL ENGINEER'S SEAL FOR REVIEW BY ENGINEER.

PLUMBING

1. PIPING:
   A. NATURAL GAS PIPING SHALL BE SCHEDULE 40, CARBON STEEL PIPE. PIPING 2" AND SMALLER SHALL HAVE THREADED JOINTS AND FITTINGS. PIPING LARGER THAN 2" SHALL HAVE WELDED OR FLANGED JOINTS.
   B. GENERATOR EXHAUST PIPING SHALL BE SCHEDULE 40, CARBON STEEL PIPE WITH WELDED JOINTS.
2. PIPING INSTALLATION:
   A. INSTALL PIPING IN ACCORDANCE WITH ALL APPLICABLE CODES AND GOOD PRACTICES.
   B. INSTALL UNIONS OR FLANGES IN PIPES ADJACENT TO EACH VALVE, CONTROL DEVICE AND AT FINAL CONNECTIONS EACH PIECE OF EQUIPMENT.
   C. INSTALL DIELECTRIC UNIONS TO JOIN DISSIMILAR METALS.
   D. INSTALL AND ANCHOR PIPING TO ENSURE PROPER EXPANSION AND CONTRACTION.
   E. ANCHOR PIPING TO ENSURE PROPER DIRECTION OF EXPANSION AND CONTRACTION.
   F. SUPPORT PIPING TO PREVENT VIBRATION OR SAGGING. PROVIDE HANGER SPACING ACCORDING TO DISTANCES LISTED IN APPLICABLE CODES AND REGULATIONS.
3. PLUMBING IDENTIFICATION
   A. PLUMBING IDENTIFICATION WORK SHALL COMPLY WITH ANSI A13.1. NAMES, ABBREVIATIONS AND OTHER DESIGNATIONS USED IN MECHANICAL IDENTIFICATION WORK, SHALL CORRESPOND WITH DESIGNATIONS SHOWN. SPECIFIED OR SCHEDULED.
   B. VALVE TAGS SHALL BE 1-1/2" DIAMETER, 19-GAGE POLISHED BRASS WITH STAMP-ENGRAVED LETTERING. ATTACH VALVES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
   C. PROVIDE VALVE TAG ON EVERY VALVE, EXCLUDING DRAIN VALVES.
   D. PIPE IDENTIFICATION, PLASTIC PIPE MARKERS, FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PERFORMED TO FIT AROUND PIPE OR PIPE COVERING, MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
4. TESTING AND. ADJUSTING
   A. ALL GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH THE NFPA 54. PURGE GAS PIPING SYSTEMS IN COMPLIANCE WITH CODE.
   B. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT FOR ALL TESTING.

HVAC SPECIFICATIONS

1. PIPING AND FITTINGS
   A. REFRIGERANT PIPING: REFRIGERANT PIPING SHALL BE TYPE ACR COPPER TUBING.
2. INSULATION:
   A. INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH LATEST EDITION OF ASHRAE 90.1 EXCEPT THAT PIPE INSULATION SHALL NOT BE LESS THAN 1" THICK. ALL INSULATION MATERIALS, ADHESIVES, COATINGS, AND OTHER ACCESSORIES SHALL HAVE FLAME SPREAD RATINGS OF 25 OR LESS, AND SMOKE DEVELOPED RATINGS OF 50OR LESS AS TESTED BY ASTM E-84 (NFPA 255) METHOD. ALL INSULATION MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH THELATEST EDITION OF SMACNA AND ASHRAE STANDARDS.
   B. PIPE INSULATION SHALL BE CLOSED CELL ELECTROMETRIC. EXPOSED PIPING OUTDOORS SHALL BE PROTECTED. PROVIDE INSULATION FOR THE FOLLOWING PIPING SYSTEMS:
      a. REFRIGERANT PIPING.
3. PIPING INSTALLATIONS
   A. INSTALL PIPING IN ACCORDANCE WITH ALL APPLICABLE CODES AND GOOD PRACTICES.
   B. INSTALL UNIONS OR FLANGES IN PIPES ADJACENT TO EACH VALVE, CONTROL DEVICE AND AT FINAL CONNECTIONS EACH PIECE OF EQUIPMENT.
   C. INSTALL DIELECTRIC UNIONS TO JOIN DISSIMILAR METALS.
   D. INSTALL AND ANCHOR PIPING TO ENSURE PROPER EXPANSION AND CONTRACTION.
   E. ANCHOR PIPING TO ENSURE PROPER DIRECTION OF EXPANSION AND CONTRACTION.
   F. SUPPORT PIPING TO PREVENT VIBRATION OR SAGGING. PROVIDE HANGER SPACING ACCORDING TO DISTANCES LISTED IN APPLICABLE CODES AND REGULATIONS.
4. TESTING
   A. CONTRACTOR SHALL PRESSURE TEST ALL REFRIGERANT PIPING SYSTEMS. PRIOR TO TESTING, THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED. THE OWNER SHALL BE NOTIFIED IN WRITING OF ALL EQUIPMENT OR COMPONENTS THAT ARE DAMAGED, INCORRECTLY INSTALLED, OR MISSING, AS WELL AS ANY DESIGN DEFICIENCIES THAT WILL PREVENT PROPER TESTING.
   B. PERFORM TESTING FOR EACH SYSTEM IDENTIFIED. TEST THE FOLLOWING MECHANICAL SYSTEMS:
      a. REFRIGERANT PIPING

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REVISIONS		
NO.	DATE	DESCRIPTION

TOWN HALL GENERATOR REPLACEMENT

2155 MAIN STREET GLASTONBURY, CT 06033

MEP SPECIFICATIONS

DATE:	8/8/2014
PROJECT NO:	2014156.00
DRAWN:	KSK
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ISSUED FOR:	BID DOCUMENTS
REVISIONS:	-

SHEET NO.

MEP-003