

DATE: 24 September 2013
TO: VA Medical Center
Engineering Service, Building #3
508 Fulton St.
Durham, NC 27705
ATTENTION: **Chuck Williams**
JOB NAME: Replace Boiler Plant Generator
JOB No.: 1118
CLIENT ID No.: 558-11-102FCA and VA24613B1967
FROM: Steven T. Pulling, AIA
COPIES TO: David Bullerwell (VAMC Durham)
Dennis Hayes, PE (Edmondson Engineers)
Rick Keil, PE (Edmondson Engineers)
Charles Crowl, PE (Edmondson Engineers)
Chuck Hill, PE (Coulter Jewell Thames)
Dennis Forbis (S&ME)
RE: A/E Responses to *Bidder Questions – 9-23-2013*

I have a few more questions concerning the generator Fuel System.

Section 263213

Part 2.5 FUEL SYSTEM

4. *Return surplus oil from the injectors to the main storage tank by gravity or a pump.*
5. *Filter System:*
 - a. *Dual primary filters shall be located between the main fuel oil storage and day tank.*

B. Sub-Base Tank:

2. *Each base tank shall have capacity to supply fuel to the engine for a 2-hour period at 100% rated load without being refilled.*
5. *Incorporate a float switch on the base tank to control the fuel oil transfer pump and to actuate an alarm in the engine-generator control cubicle when the oil level in the tank drops below the level at which the transfer pump should start to refill the tank.*
 - a. *The float switch contacts controlling the fuel oil transfer pump shall be set to energize the pump when the liquid level in the tank reaches one-third of the total volume of the tank.*
 - b. *The float switch contacts that actuate the low fuel oil day tank alarm device shall be set to alarm and energize the second fuel transfer pump when the liquid level in the tank reaches one quarter of the total volume of the tank.*

Questions:

1. What is the location of the Main Fuel Tank?
2. Who is to supply the two fuel transfer pumps with dual primary filters?

3. What is the location of the two pumps?
4. Will a pump be required for the return of fuel from the engine to the tank or will gravity be sufficient?
5. Please provide clarification regarding plumbing and wiring of system.
6. Are pumps to be energized from panel board and transformer furnished with the generator enclosure?
7. How is a signal to be provided to activate the Low Fuel-Main Tank lights and alarms at the engine control panel and the remote annunciator?
8. A 2-hour, 100% load sub base tank is not practical for a generator of this size. The tank would be about 2" tall and the fuel would heat up to much. Would a 400 gal, UL, free-standing day tank inside of the gen set enclosure be acceptable?

A/E Response: See enclosed Edmondson Engineers RFI #2 Response Memorandum, 9/24/2013, response number 4.
 – Steve Pulling, RND architects

David – Please find below RFI #2 for this project.

VAMC Durham, NC, Generator Replacement.

Section 26 32 13 - ENGINE-GENERATORS contains the following excerpts,

1.2 RELATED WORK

- A. Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS: Seismic requirements for non-structural equipment.
5. Vibration isolation system performance data from no-load to full-load. This must include seismic qualification of the engine-generator mounting, base, and vibration isolation.
- c. A certificate by the manufacturer that the engine-generator, accessories, and components will withstand the design seismic event forces (Z=___) and that the engine-generator will be fully operational after the design seismic event at the project site.

However, there does not appear to be a section 13 and information necessary to properly meet seismic requirements (Site Class as Defined in the IBC, Assigned Seismic Use Group or Building Category as Defined in the IBC, Design Spectral Response Acceleration at Short Periods (0.2 Second), Design Spectral Response Acceleration at 1.0-Second Period, Seismic Design Category.) is not included in the plans or specs, as far as I have been able to determine. Are we to provide seismic rated materials or the more common standard commercial products? If seismic certification is required, we will need additional information.

A/E Response: See enclosed RND architects Addendum No. 4, dated 9/24/2013, and Edmondson Engineers RFI #2 Response Memorandum, dated 9/24/2013, response number 3. – Steve Pulling, RND architects

Mr. Bullerwell,

We would like to submit the following questions concerning the project Replace Generator for Boiler Plant, VA Medical Center, Durham, NC:

1. The Hazardous Material Drawing H101, Architectural Drawing A201, and Civil Drawing C201 are indicating a 2500kW Generator, however, the Electrical Drawings are showing a 2000kW generator. Could you please clarify[?]

A/E Response: See enclosed RND architects Addendum No. 4, dated 9/24/2013. – Steve Pulling, RND architects

2. The electrical specification 26 32 13-10 section 2.5 Fuel System, paragraph B, sup-paragraph 2, calls for a 2 hour sub-base tank. Usually we see a minimum of 24 hours. Is this section of the specification correct?

A/E Response: See enclosed Edmondson Engineers RFI #1 Response Memorandum, 9/18/2013, response number 2.
– Steve Pulling, RND architects

3. The electrical specifications 26 32 13-7 section 2.1 Engine-Generator, paragraph C, calls for a 2000kW Emergency Standby Rating. However, the specification also indicates a service load of 2000kW (Continuous). Emergency Standby ratings are not [continuous], they are based on 70 percent average load over a 24 hour period. Is this section of the specification correct?

A/E Response: See enclosed Edmondson Engineers RFI #1 Response Memorandum, 9/18/2013, response number 1.
– Steve Pulling, RND architects

We also [were] unable to attend the site visit on the 19th of September, is there any way we could do an unofficial site visit next week some time? If so could you please let me know who to contact.

A/E Response: VA to provide response. – Steve Pulling, RND architects

Mr. Bullerwell,

Is it the intent of the contract documents to tap the existing conductors in new junction boxes and extend to new panels, in lieu of replacing the entire circuit?

A/E Response: See enclosed RND architects Addendum No. 4, dated 9/24/2013, and Edmondson Engineers RFI #2 Response Memorandum, dated 9/24/2013, response number 1. – Steve Pulling, RND architects

David –

Per sheet M101 the existing HVAC control panel is to be relocated to the adjacent boiler room control room. Is this a Brady Trane panel or a Siemens panel? The controls contractor will need to terminate all low-voltage wires and verify all points are being picked up.

A/E Response: See enclosed RND architects Addendum No. 4, dated 9/24/2013, and Edmondson Engineers RFI #2 Response Memorandum, dated 9/24/2013, response number 2. – Steve Pulling, RND architects

Mr. Bullerwell,

I have a few questions concerning the Replace Boiler Plant Generator:

1. Drawing C-101 indicates that we are to relocate Building 8. At the site visit I noticed that this building was mark "Poison". Question: Will the contents within the building be removed prior to relocation? Will this be the responsibility of the contractor or will the owner provide this service?
2. The area [where] work is to be performed is highly congested. Will the contractor be provided a space for Lay-down and office trailer?
3. What kind of parking arrangements will there be for the employees of the contractor and subcontractors?
4. There is a gas line presently running through the footprint of the new generator pad which is required to be relocated. What is the intent for the required temporary facilities? What buildings are supplied downstream and will be [affected] by the relocation?

A/E Response: VA to provide responses. – Steve Pulling, RND architects

David,

Section 26 32 13 of the specifications, Part 2.1.C includes the following:

C. Engine-Generator Parameter Schedule:
Power Rating: Emergency Standby
Voltage: 277/480V
Service Load: _2,000kW/2,500 kVA (continuous)

If, in fact, the generator is rated for "Emergency Standby" operation, it would not be rated for "(continuous)" load. Furthermore, section 1.4.C.1 calls for factory load testing that includes 2 hours at 110% of the specified KW. Section 3.2.E.2.b specifies field testing that is to include "...two hours while the engine-generator is delivering 110% of its specified kw rating." A commercial standby generator rated at 2000 kw would not be expected to deliver 2200 kw for two hours, or 2000 kw continuously. Are we to propose a standby generator set rated at 2000kw, or a larger standby generator set capable of delivering 2200 kw during testing, or a significantly larger generator rated to produce an actual 2000kw continuously?

A/E Response: See enclosed Edmondson Engineers RFI #1 Response Memorandum, 9/18/2013, response number 1.
– Steve Pulling, RND architects

1. Specification Section 26 32 13, Part 2.1.C (page 7) talks about the GenSet requirement of: Maximum Frequency Deviation with 100% Step Load Increase: 2.5% of rated frequency. Notes about this: The job calls for a 2000kW GenSet (277/480V). Running a typical sizing program, even if we sized a 3250kW GenSet for this application, it would still see a 2.9% frequency dip with 100% misc. linear load applied in one step. Likewise, a 2000kW GenSet would see a 21.3% and a 2250kW GenSet would see a 15.8%. Please confirm that 2.5% is correct or that it should be 25% or clarify your intent and/or what may be acceptable in this regard.

A/E Response: See enclosed Edmondson Engineers RFI #1 Response Memorandum, 9/18/2013, response number 1.
– Steve Pulling, RND architects

2. Specification Section 26 32 13, Part 2.5.B, calls for the base tank to hold 2 hrs of fuel at 100% load and the incorporation of a float and controls for a transfer pump (we assume from a main fuel tank). There is no indication of a remote/main fuel tank or transfer pump of any kind on the drawings. Please clarify your intent with regard to this or provide additional information relative to this remote tank/transfer pump system.

A/E Response: See enclosed Edmondson Engineers RFI #1 Response Memorandum, 9/18/2013, response number 2.
– Steve Pulling, RND architects

3. For testing, Specification Section 26 32 13, Part 3.2.E.2 is calling for a field test of 6 hours at 100% load and another 2 hours at 110% load. A Standby Generator is generally only rated at 100% load. Is the 110% loading (2200kW) the engineer's intent, and if so, the generator quoted will likely be required to [be] upsized to meet this condition.

A/E Response: See enclosed Edmondson Engineers RFI #1 Response Memorandum, 9/18/2013, response number 3.
– Steve Pulling, RND architects

The proposed power riser diagram on sheet E301 shows an area identified as "Alternate Deduct 1". This item does not appear on the bid form. Which is correct?

A/E Response: See RND architects Addendum No. 3, dated 9/19/2013. – Steve Pulling, RND architects

- Sheet M101 shows an existing HVAC control panel being relocated. What is the make and model of this control panel?

A/E Response: See enclosed RND architects Addendum No. 4, dated 9/24/2013, and Edmondson Engineers RFI #2 Response Memorandum, dated 9/24/2013, response number 2. – Steve Pulling, RND architects



MEMORANDUM

September 18, 2013

Subject: RFI - VA24613B1967 Replace Generator for Boiler Plant
VA Medical Center, Durham, NC

Questions:

1. Specification Section 26 32 13, Part 2.1.C (page 7) talks about the GenSet requirement of: Maximum Frequency Deviation with 100% Step Load Increase: 2.5% of rated frequency. Notes about this: The job calls for a 2000kW GenSet (277/480V). Running a typical sizing program, even if we sized a 3250kW GenSet for this application, it would still see a 2.9% frequency dip with 100% misc. linear load applied in one step. Likewise, a 2000kw GenSet would see a 21.3% and a 2250kw GenSet would see a 15.8%. Please confirm that 2.5% is correct or that it should be 25% or clarify your intent and/or what may be acceptable in this regard.

Response: The frequency dip was calculated at less than 5% with 2-step loads, the chiller being the second step. There is no requirement for frequency dip with a 100% load applied in one step. The 2.5% requirement in the specification may increased to 5% for the stepped sequence noted.

2. Specification Section 26 32 13, Part 2.5.B, calls for the base tank to hold 2 hrs of fuel at 100% load and the incorporation of a float and controls for a transfer pump (we assume from a main fuel tank). There is no indication of a remote/main fuel tank or transfer pump of any kind on the drawings. Please clarify your intent with regard to this or provide additional information relative to this remote tank/transfer pump system.

Response: The specs had a typo. The base tank should hold 24 hours of fuel at 100% load. There is no remote tank. Please make correction and price accordingly.

3. For testing, Specification Section 26 32 13, Part 3.2.E.2 is calling for a field test of 6 hrs at 100% load and another 2 hrs at 110% load. A Standby Generator is generally only rated at 100% load. Is the 110% loading (2200kW) the engineer's intent and if so, the generator quoted will likely be required to upsized to meet this condition.

Response: The generator should be standby rated, not continuous. There is no requirement for the 2-hour 110% load testing.



MEMORANDUM

September 24, 2013

Subject: RFI #2 - VA24613B1967 Replace Generator for Boiler Plant
VA Medical Center, Durham, NC

Question:

1. Is it the intent of the contract documents to tap the existing conductors in new junction boxes and extend to new panels, in lieu of replacing the entire circuit?

Response: Yes, the intent is to reuse existing conductors as much as possible in order to minimize cost and downtime for cutover. The contractor shall provide appropriately sized junction boxes and rework conductors and conduit as required to extend the existing circuits to the new main distribution panel as shown on view 2/E301.

For the feeder rework associated with adding Chiller #3 and the MCC to generator power, the contractor may reuse existing circuits where possible. New conduit and wiring will be required from the new ATS's to the equipment so that the equipment can be powered from the new generator while the normal feed is reworked through the ATS. This is required to minimize downtime. See attached bulletin drawings E201.A1-1 and E301.A1-1 clarifying this work.

2. Sheet M101 shows an existing HVAC control panel being relocated. What is the make and model of this control panel?

Response: The existing HVAC control panel is a Siemens Apogee panel. See the attached addendum drawings M101.A2-1, -2, E101.A2-1 and E201.A2-1 for additional details regarding the scope of work regarding this item.

3. The Generator Specifications in Section 263213 makes reference to Specification Section 130541 - Seismic Restraint Requirements for Non-Structural Components. Section 130541 is not included in the plans or specs. Are we to provide seismic rated materials or the more common standard commercial products? If seismic certification is required, we will need additional information.

Response: All references to Section 130541, seismic events or seismic certifications should have been deleted from the generator specification and should be disregarded. Seismic restraint is not required for this installation.

4. Questions regarding the generator fuel tank.
- What is the location of the Generator Main Fuel Tank?
 - Who is to supply the two fuel transfer pumps with dual primary filters?
 - What is the location of the two pumps?
 - Will a pump be required for the return of fuel from the engine to the tank or will gravity be sufficient?
 - Please provide clarification regarding plumbing and wiring of system.
 - Are pumps to be energized from panel board and transformer furnished with the generator enclosure?
 - How is a signal to be provided to activate the Low Fuel-Main Tank lights and alarms at the engine control panel and the remote annunciator?
 - A 2-hour, 100% load sub base tank is not practical for a generator of this size. The tank would be about 2" tall and the fuel would heat up to much. Would a 400 gal, UL, free-standing day tank inside of the gen set enclosure be acceptable?

Response: These questions were answered in RFI #1. Please refer to those responses for more information. In general, there will be no remote fuel tank and the sub base tank shall provide 24-hours of run-time at 100% load. The low fuel sensors and alarms are required for the sub base tank only.