

**Viera VAMC
Viera, FL
Design Emergency Generator**

VA Project # 675-12-101
HSH Project # 13005

**DESIGN DEVELOPMENT –
Proposal Documents Submittal**

May 1, 2016



Table of Contents

Project Narrative	TAB 1
Probable Cost Estimate	TAB 2

End of Table of Contents

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PROJECT NARRATIVE



Project Intent

The existing Viera VA Medical Center Outpatient Clinic has two secondary services to the building. One service serves a 4000 A Main Breaker, 277/480V, 3-phase, 4-wire switchboard "MDP" and the other serves a 1200A Main Breaker, 277/480V, 3-phase, 4-wire switchboard "EMDP". The new 30,000 SF expansion, Area "F", and the Chiller Plant have two secondary services. One service serves a 2500 A Main Breaker, 277/480V, 3-phase, 4-wire switchboard "MDP-1" in the Chiller yard and the other serves a 2000A Main Breaker, 277/480V, 3-phase, 4-wire switchboard "NHDP" in Area "F" .

Currently the Equipment and Critical Branch panel boards in Area "F", the Chiller Plant and 36 roof top units are on Normal power.

Portions of the campus electrical distribution system are presently backed-up by an emergency power system. The existing generator is a 650KW, 277/480V, 3-phase, 4-wire diesel driven emergency generator. The generator was installed approximately 16 years ago and is mid-way, to end-of-life. None of the emergency power system is comprised of paralleled multiple generator systems. There are presently ongoing problems with the sub-base fuel tank leak detection alarms.

The intent of this project is to place both the existing building, Area "F", and the Chiller Plant equipment on emergency power. This will be achieved by installing two new diesel fuel generators in a weather-proof, sound-attenuated, walk-in enclosure, additional automatic transfer switches in existing electrical rooms, and new Paralleling Switchgear in a separate weather-proof walk-in enclosure.

The facility is considered Mission Critical based on the following:

1. The July 2007 "Physical Security Design Manual", Chapter 1, section 1.2 – VA Facilities categorizes that an Outpatient Clinic is a Mission Critical Facility.
2. The December 2010 "Electrical Design Manual", Chapter 4, section 4.10.1(a) states "The standby electrical system shall be sized for full load operation of the entire electrical system and must be capable of sustaining operation of all electrical loads for a minimum four-day period during which the electric utility source is not available."

Based on this review, a 4-day (96 hours) fuel reservoir for the new generator would be required. However, the local station has directed that 48 hours of standby fuel be provided due to the actual use of the building.

The existing building is equipped with all code-required emergency lighting, fire alarm systems, exit signs, and all associated life safety systems. The new system shall be configured to be the primary emergency power supply source for legally required Life Safety loads.

Project Narrative - Electrical

The project will include the following:

- Installation of two new 1.5MW, 277/480V, 3 phase EPA Tier 2 certified diesel fuel generators.
- Installation of Paralleling Switchgear in walk-in enclosure. Enclosure to come equipped with lights, switches, convenience receptacle, fire alarm device, room conditioning and electrical panel. All devices are pre-wired with enclosure.
- Sound attenuated enclosure with light package, GFCI receptacles, step-down transformer with a 100 amp Distribution Panel.
- UL142 listed, dual wall, sub base tank, with 48 hours of fuel capacity at full load.
- Open Transition/By-Pass Isolation Automatic Transfer Switches as indicated on One-Line diagram (emergency systems and F-Wing Normal power system). A non-bypass isolation automatic transfer switch will be provided for the main building normal power system due to space constraints adjacent to the existing main switchboard.

The design will provide Emergency Equipment Branch power for the Chiller Plant, Equipment and Critical Branch emergency power for building Area "F".

The new Emergency Generators in the walk-in enclosure will be located next to the existing chiller yard. The location of the generator paralleling gear in a Nema 4 walk-in enclosure will be located near the new generators. A 10' tall fence will surround the equipment.

New concrete-encased, underground duct banks will be installed for all new feeders located outside.

The normal power distribution system of the main building will be intercepted in the main section of switchboard "MDP" on the load side of the main circuit breaker, and connected to the normal line side of the new ATS-Normal that will be located in the Main Electrical Room adjacent to the Switchboard "MDP". The load side of the transfer switch will be connected to the main bus of Switchboard "MDP". This work will be performed by the field service department of the switchboard manufacturer.

The existing normal distribution feeders from the existing pad mounted utility transformer #2 to the existing switchboard "MDP-1" in the Chiller Yard will be intercepted and connected to the normal line of the new ATS-CH that will be located in the Chiller Yard area.

New automatic transfer switches for Normal, Equipment, and Critical Branches will be located in the Main Electrical Room adjacent to existing switchboard "NHDP" in the "F" Wing.

It is assumed that all existing buildings are equipped with all code-required emergency lighting, fire alarm systems, exit signs, and all associated life safety systems.

Existing Load Demand Profile (From FP&L - Provided by VA)

<u>DATE</u>	<u>KW</u>
3/2014	1344
4/2014	1357
5/2014	1390
6/2014	1417
7/2014	1353
8/2014	1432
9/2014	1405
10/2014	1401
11/2014	1318
12/2014	1478
1/2015	1484
2/2015	1346
3/2015	1478

Peak Demand: 1484kW

Project Narrative - Architectural

Intent

The original scope of the project was to enclose the self-contained generators with a 10' high chain-link fence system. The chain-link fence system was shown on the earlier submittal and it was during this review that the VA requested that we look at expanding the scope to include a screen wall system to match existing adjacent architecture. Upon reviewing the costing for such a screen wall, it was determined that the screen wall would not be able to be supported in the existing project budget.

Project Narrative - Plumbing

No plumbing work is anticipated.

Project Narrative – Fire Protection

No fire protection work is required.

Project Narrative - Mechanical

No mechanical work is anticipated.

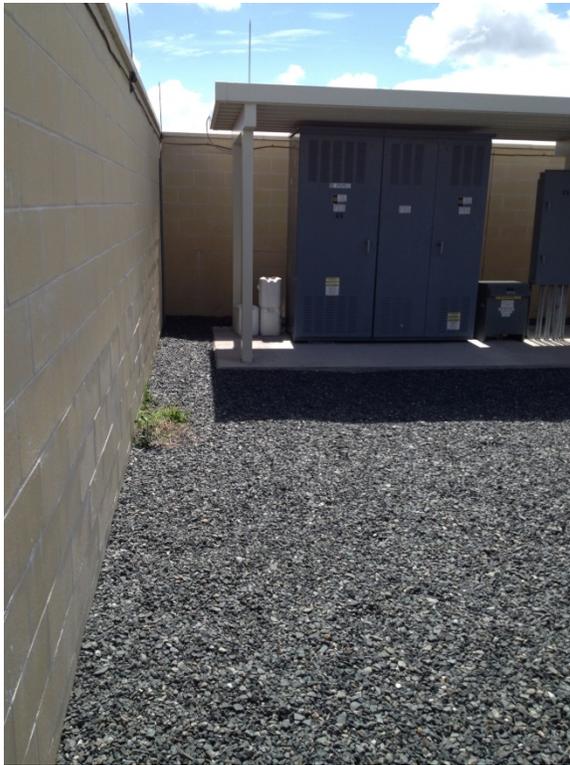
Existing Condition Pictures



Proposed location on new Generator Set



Existing utility company pad mount transformer and enclosure



Existing MDP-1 in Chiller Plant



Existing MDP-1 nameplate in Chiller Plant



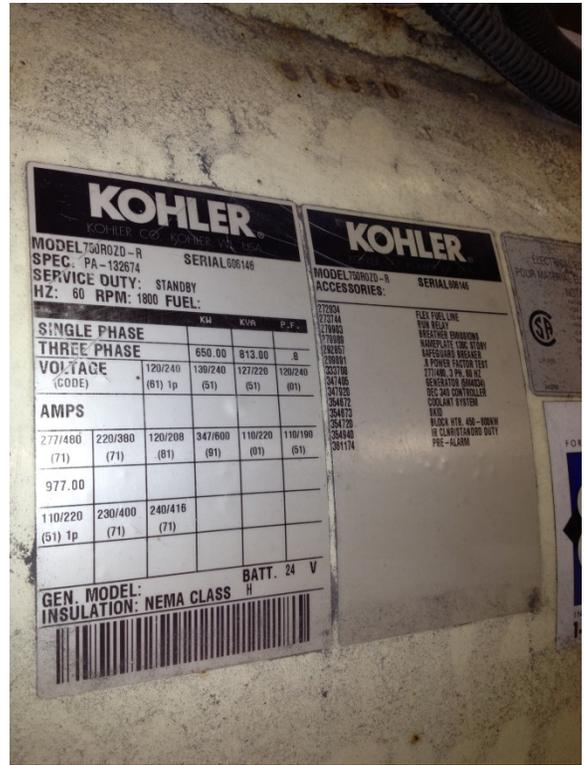
Existing MDP and EMDP in Main Electrical Room



Existing ATS Critical in Main Electrical Room



Existing ATS Equipment in Main Elect. Rm.



Existing 650kW Emergency Generator Data



Proposed location of new ATS for Critical and Equipment in F Wing



Existing ATS Life Safety in F Wing



Existing ATS Life Safety name plate data