

New Call-Center Office Building

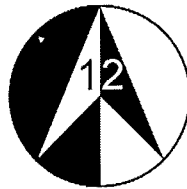
Oneida County Industrial Park

5992 Judd Road

Oriskany, New York

By

Twelve North Engineering



Engineering Report: Utilities

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Purpose

This report is for the Utilities system for the New Call-Center Office Building in the Oneida County Industrial Park. This New Call-Center Office Building is located at 5992 Judd Road, Oriskany, New York. During the design process of this building the septic system, water feeds, and other site utilities were designed. There is no Public Sanitary Sewer available, a septic tank and a sand filter were required to be provided as part of the site design. Public Water mains are available along Judd Road as well as access to gas and electrical lines. The design for the waste disposal system is based upon the 2014 New York State Design Standards for Intermediate Sized Wastewater Treatment Systems put out by The New York State Department of Environmental Conservation. The water supply main sizes were set by the town and the fire code.

Background

The overall project goal is to provide engineering plans and specifications for a commercial tenant at the site, which takes advantage of the proximity to major transportation routes, excellent location relative to the urban center of Utica, and the presence of government agencies to provide entitlement funding, also situated in Utica, New York.

The design team overall goal is to create a site that is not only functional, but also aesthetically pleasing. This should be a site that is easy for maintenance and ground crews to maintain, and one that will also be able to retain its value for several years without redesign or needless additions. Along with being functional, it is a goal to be self-sustaining and reuse as many natural resources as possible.

Our design is required to allow for ample parking for all employees, as well as easy access from the major transportation routes near the site, including Airport Road and Judd Road. The site must meet all ADA accessibility requirements, along with providing drop off zones for trucks, and allowing for vehicular traffic to flow freely without any requirement for operating in reverse except to depart parking spaces. Along with transportation standards we are to conform to New York State, Town of Whitesboro, and Oneida County building codes and regulations.

Basis of Design

Water

This building will have two water mains. One will fulfill the need for domestic water and the second for emergency fire sprinklers. As required by the local water authority there will be a 2" diameter schedule 40 domestic water main and a 4" diameter schedule 40 fire main. Water lines are to be buried 4'6" deep to prevent pipe freezing and cracking, as per code.

Fire details

The fire main connection to the new facility will be designed by sprinkler design engineer.

Domestic details

Back Flow prevention for the domestic water main will be a FEBCO LF860U reduced pressure zone. Refer to figure B for the RPZ detail. The brass fitting will be situated in an AquaSHIELD protective enclosure near the property line, as recommended by Mohawk Valley Water Authority. The enclosure is 123"x41"x58" to allow for necessary spacing from walls, floors, and ceilings. Enclosure shall be situated on a concrete pad sized per manufacturer recommendation, 135"X53"x6". Refer to figure D for AquaSHIELD enclosure and slab details.

HVAC

The selected rooftop HVAC system is the American Standard model WSC120A. It is a 10 ton, 120 amp unit with roof curbing. Design details include Economizer, powered exhaust, motorized damper, coil guards, hinged doors, powered convenience outlet, and electric heat. 6 units will be used on this building to meet air flow and heat requirements. Unit clearance, dimensions, and installation details are noted in HVAC unit detail packet. Refer to Figure A for HVAC detail.

Electric

Standard electrical lines will run from overhead electric lines to an on-site transformer. Transformer will be set on a 10'x10'x1' concrete slab, surrounded by 2' of gravel drainage way and curbing. 3 phase electrical and telephone electrical will run from the transformers to building. Electrical system design and transformer selection will be made by the electrical engineer. Electric lines are to be buried 2' below surface and in a protective PVC conduit tube.

Gas

Gas lines are not required for this building.

Wastewater Disposal

Basement Sewer Connections

Basement sewer connections are designed based on the estimated use of basement showers, sinks, and restroom facilities in the basement locker rooms. The E-One Extreme fiberglass sump pit will be inserted into the basement floor. This pit has a 91 gallon capacity with an estimated potential input of 150 gallons per day which will require the tank be pumped twice daily. The pump chosen is a grinder pump to prevent unexpected foreign materials from clogging the system. Refer to figure C for pit and pump detail. A generator must be present so that in the event of a power outage restroom facilities can still be used.

Septic Tank

Septic tank was sized based upon NYSDEC regulations based upon the number of daily occupant of the building. The volume of potential waste for the septic system 6,000 gallons per day, based upon the NYSDEC regulations the minimum sized septic tank that should be used would be 8,500 gallons. A 9,000 gallon septic tank was selected for the site. Refer to figure E for septic tank detail.

Sand Filter

The sand filter was designed based upon the regulations set by the NYSDEC. The standard design can be found start on page F-7 in the Design Standards from 2014, Figure F-1. There will be 3 sand Filters, two of which will be in year round operation, one is there as a stand by. The distribution lines are 4" diameter perforated pipe, there are 14 lines, and the maximum volume of the distribution pipes is 900 gallons. When water is pumped into the sand filter the pipes will be 83% full, the state allowable minimum is 75%. When a sand filter is in operation it will be dosed 4 times a day, each dose will be 750 gallons. The collection laterals are also 4" perforated

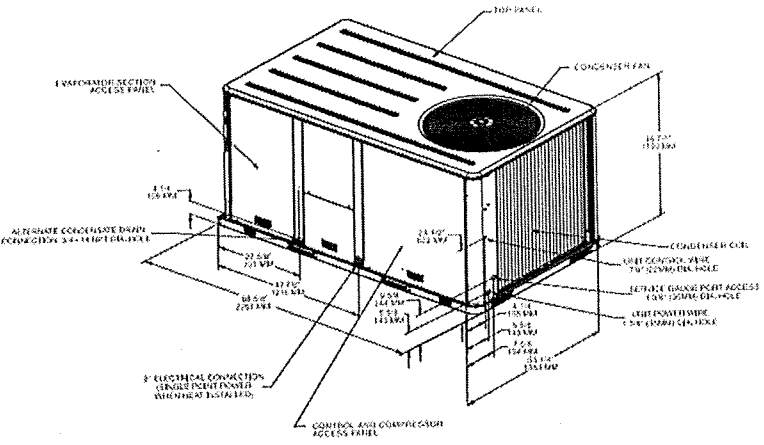
pipes, there are 4 of them located in low points in the filter. The filtered water will be collected at the bottom of the filter and discharge as surface water. The filter sand has to be able to pass a ¼" sieve, also have an EGS with nitrification between 0.25 – 1.0 mm and without nitrification 0.50 – 1.0 mm. Under the topsoil, on top of the filter a layer of permeable geotextile must be installed, along with a liner around the outer perimeter of the filter. Refer to figure F for the sand filter details.

Dosing Pit

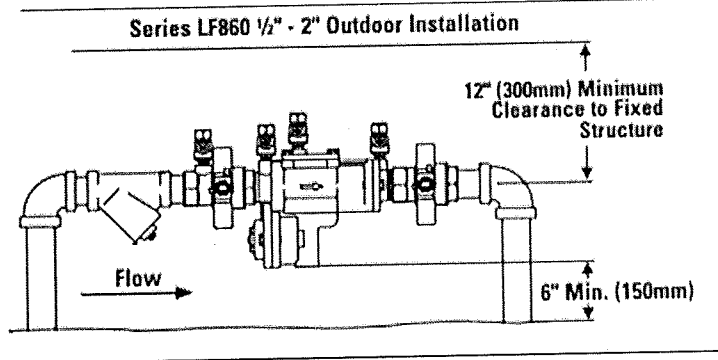
The dosing pit is located between the sand filters and the septic tank, water flows out of the septic tank into the dosing pit. From there it is stored until enough volume has been collected for a dose of 750 gallons. There is a high water trigger in the pit at 1600 gallons, after a discharge 100 gallons will be left in the pit so that the pumps will still have water covering it. The pits overall volume will be 2000 gallons. There will be two Liberty Pumps 1100-series 1103/LEH152M, these pumps will be able to provide 150 gpm and 30' of head. The pumps are each connected to a distribution valve, which allows either of the pumps to supply water to any of the filters. The pumps will alternate so each one will run 4 times a day. The pumps are shown in figure G.

Figures

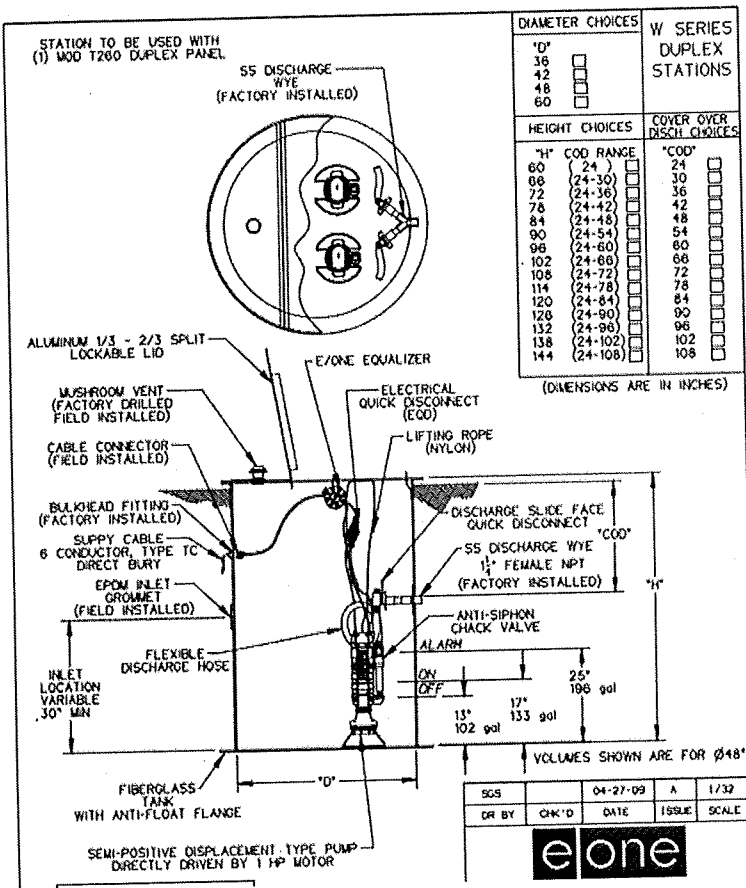
A. HVAC manufacturer detail



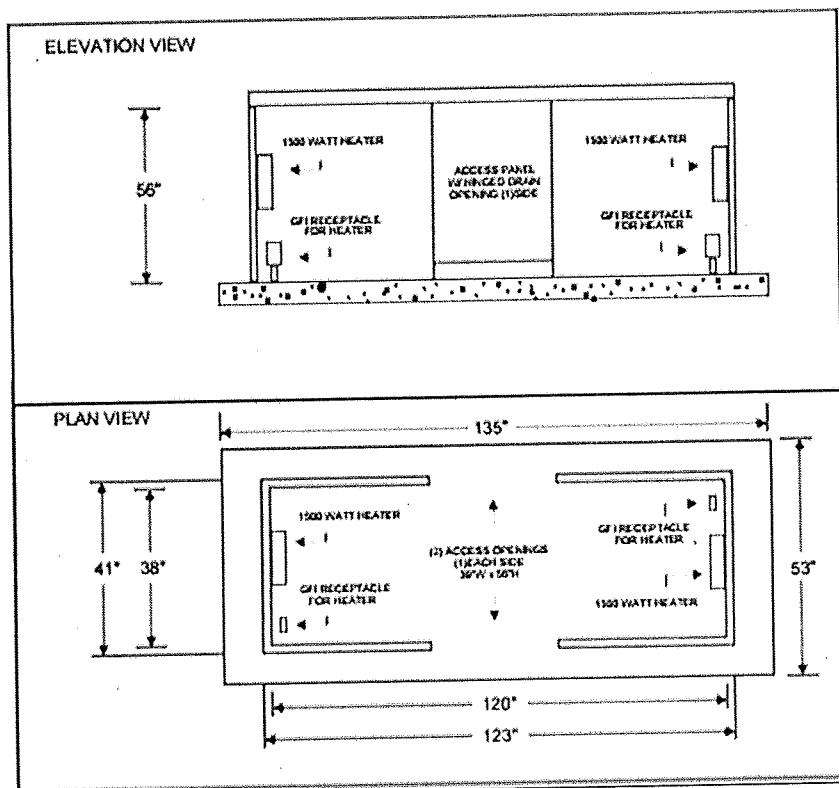
B. FEBCO LF860U RPZ



C. E-One fiberglass basement septic pump station

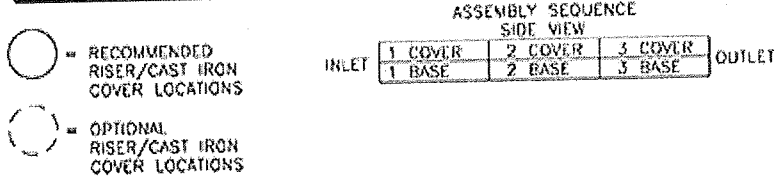
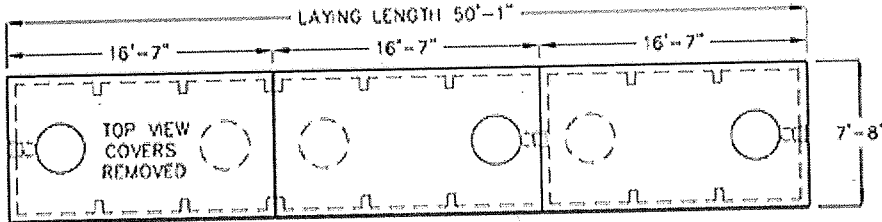
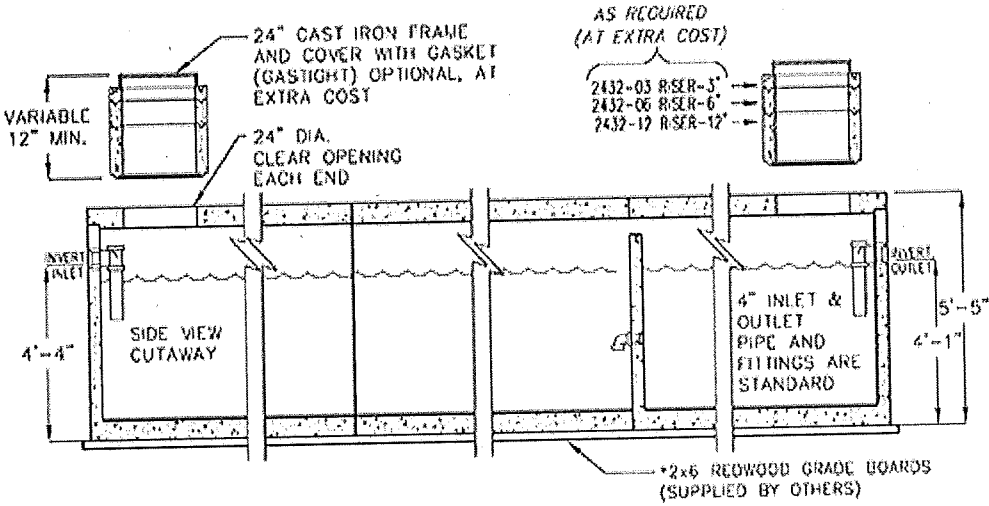


D. AquaSHIELD RPZ Protective Enclosure



E. Septic Tank Detail

9000 GALLON LOW PROFILE
BATTERY SEPTIC TANK
MODEL 3XJP3000



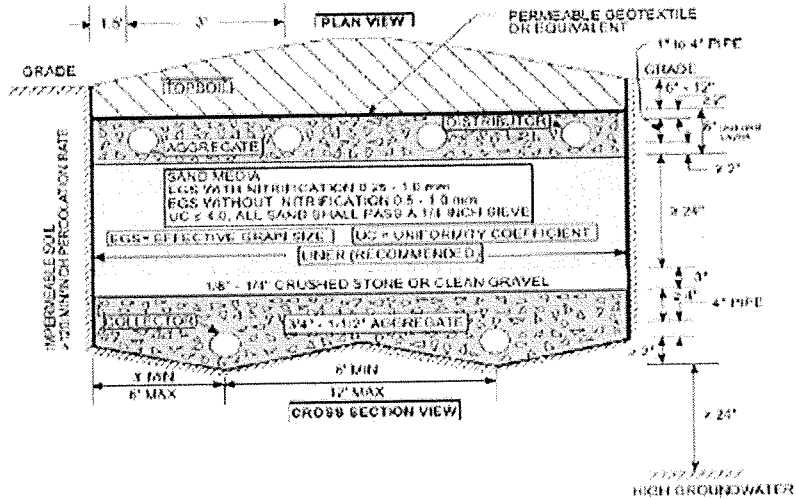
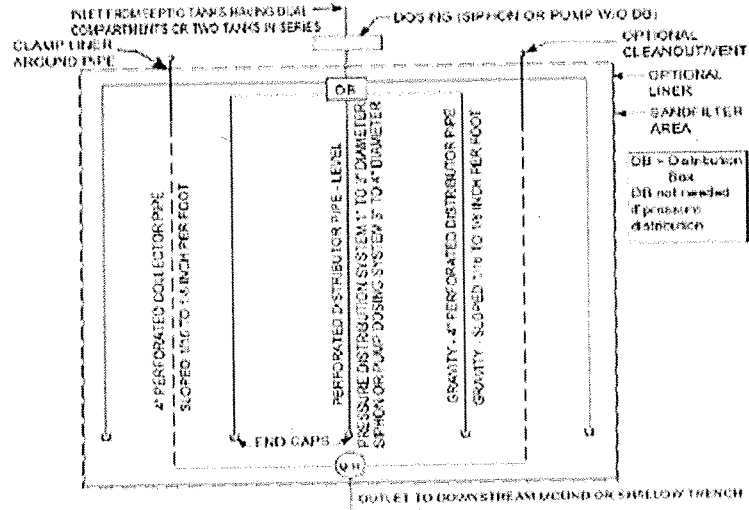
FOR INSTALLATION INSTRUCTIONS, DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.

LIQUID CAPACITY: 9,000 GALLONS.
BOX DESIGN LOAD: H-20 TRAFFIC FROM 1' TO 5' OF SOIL COVER.

11/9/07
9000ST_3XJP3000_B.dwg
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F. Sand Filter Typical



NOTES:

1. A Single Center Collector may be used when the filter width does not exceed 12 Feet.
2. Collector lines to be centered between distributor lines.
3. Gravity distribution may be used to apply effluent to small filters having less than 300 lineal feet of distributor or less than 500 square feet of filter area.

G. Liberty Pumps 1100-series 1103/LEH152M

