Johnson Siding Volunteer Fire Station – Fire Stations

Skyline Engineering, LLC provided Mechanical and Electrical engineering design for this 7500 SF fire station including coordination with the demolition of the existing facility. This all-electric project features in-floor hydronic heating, on-site truck-fill water tanks, a monitored on-site septic holding tank, a backup propane generator, and miscellaneous special systems. (2006 - $1,000,000)

Project Data

Owner
Johnson Siding Fire District

Location
Johnson Siding, South Dakota

Building Type
Fire Station

Building Area
7500 square feet

Mechanical Systems / Features
Truck-Fill Storage Tank
CO/NO_x Detection
Gas Depletion Exhaust
Sand/oil Separator

Electrical Systems / Features
Emergency Generator
Electrical for EOC Communications

Construction Cost
$1,000,000

Completion Date
December 2006

Mechanical Engineering

An air-air heat pump was utilized for the office spaces, kitchen, restrooms, and communications areas.

A primary/secondary pumping system with injection pumps was utilized for control of the radiant floor zones. Since the facility was all-electric, redundant modulating electric boilers were designed to provide all the radiant floor heating loads.

Occupant protection from apparatus bay diesel exhaust was achieved by with CO/NO_x detection alarm and control of an exhaust system.

Since the facility is on a site with a limited water supply site well, a truck-fill storage tank was located on the mezzanine and designed for a quick truck fill.

A sand/oil water separator was designed for the facility.

Electrical Engineering

Electrical design included fluorescent bay lighting, emergency lighting via generator and exterior in-grade façade lighting.

The service entrance was a 600 amp, 120/240V, single phase service located on the mezzanince of the apparatus bay. The emergency power system features a 10 KW propane standby generator and infrastructure for the conference room to perform Emergency Operating Center functions.

Systems featured overhead paging system and an addressable fire alarm system which also monitored the status of sewage holding tank, gas detection and other systems.