

Custer Elementary School



Design build project for a new 56,000SF elementary school. The structure consists of a pre-engineered metal building with interior metal stud walls. Mechanical systems include energy recovery ventilators and distributed water-to-air heat pumps connected to a ground source heat exchanger (wellfield). Electrical systems included efficient fluorescent lighting, heat metering, interactive learning, RFID Access and intrusion security system, closed circuit security, fire alarm and Atomic Clocks.

Project Data

Owner

Custer School District

Location

Custer, SD

Building Type

Educational

Building Size

56,000SF

Mechanical Systems / Features

Energy Recovery Ventilators
Distributed Water-to-Air Heat Pumps
Ground Source Heat Exchanger

Electrical Systems / Features

Efficient FI Lighting & Occ Controls
Two 120/208v amp Power Services
Heat Metering
Infrastructure for Interactive Learning
Integrated Intercom/Phones/Class Bell
RFID Card Access / Intrusion Security
PoE CCTV Security
Addressable Fire Alarm
Data/Tele Wired to Cat 5e
Atomic Clocks

Construction Cost

\$7,000,000

Completion Date

2011

Mechanical Engineering

Mechanical systems consist of distributed water-to-air heat pumps with energy recovery ventilators to provide ventilation requirements. A primary-secondary pumping scheme allows the building to be pumped without flow to the borefield during times when excess energy is available for reuse within the facility.

The facility is equipped with a full DDC control system and allows off-site monitoring and optimization.

Electrical Engineering

The facility lighting predominately utilized efficient troffer fixtures in the classrooms where occupancy sensors combined with wall switches provide economical control of each classroom's lighting. The shared use area lighting, the gymnasium lighting and the commons/cafeteria lighting consisted of multiple technologies to facilitate excellent control for an extensive list of planned activities.

The power to the facility included two 800 amp, 120/208v, 3 phase service entrances with heat metering.

The special systems include; Computer and overhead projector-based interactive learning board system, an intercom system, extensive RFID access security system, a closed-circuit television systems (CCTV), occupancy and intrusion detection, addressable fire alarm system and atomic clocks. Communications wired with copper and fiber for a category 5e network.