SKYLINE
ENGINEERING LLC

Belle Fourche City Hall

This project provides the City of Belle Fourche new city offices and other much-needed city operations spaces. The 15,000 SF of new facility includes offices, council chambers, and other support spaces. The facility infrastructure includes provisions to be used as an emergency operation center.

Project Data

Owner
City of Belle Fourche, South Dakota

Location
Belle Fourche, South Dakota

Building Type
City Hall Offices

Building Area
11,000 square feet
4,000 square feet -basement

Mechanical Systems / Features
High Efficiency Furnaces and Condensing Units
Total Energy Recovery Ventilation
Networked Smart Thermostats
Simple HVAC Controls Systems

Electrical Systems / Features
New Underground Service
Direct/Indirect Linear Lighting
Parabolic Lighting
Fire Alarm
Systems Rough-in

Construction Cost
$1,700,000

Completion Date
2008

Mechanical Engineering

To maintain simplicity of design and operation, high-efficiency furnaces coupled with high efficiency air conditioning systems were used in this facility. This approach had the supplemental effect of keeping installed costs relatively low while providing an energy efficient system to keep operating costs low. The applications of furnaces to this project also permitted the use of simple HVAC controls (individual "smart" thermostats networked to be able to use the same time-of-day scheduling), and this allows the average building occupant to effectively operate the systems.

To further augment the energy efficiency of the building and to help the furnace systems handle the relatively large amounts of ventilation air required by AHSRAE for this commercial building, a total energy recovery ventilator was used. In the winter months, this device extracts beneficial heat from the exhaust air streams and transfers it to the ventilation air stream. The heat flow is reversed for warm-season operation. An energy recovery ventilator was not used for the council chambers, since the shorter durations of occupancy in this area offered too little energy recovery opportunity to justify the cost of the ventilator.

Electrical Engineering

Lighting for this office space mixed traditional efficient office space lighting techniques with direct/indirect linear and bowl fluorescent lighting. The facility uses unitary emergency lighting.

New underground services included a 600 amp main switch for the main building and a separate site lighting service panel. The facility was also equipped to be served by a portable emergency generator should the need arise to utilize this facility as an emergency operations center.

Special systems for the facility included: fire alarm and raceway for access security, data and telephones.