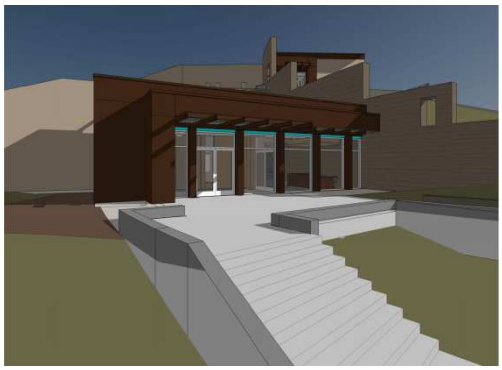
SKYLINE
ENGINEERING LLC

Brinton Museum



This 21,000 SF facility is three-levels, with the majority located below grade and features a curved, rammed-earth wall throughout the center of the building. Charged to preserve and display artifacts from the old west, the facility curates many significant pieces. The facility primarily serves as an art museum with multiple gallery spaces, and also includes artifact storage, gift shop, bistro, commercial kitchen, patio, office spaces, restrooms and other miscellaneous spaces. The MEP systems included high performance geothermal HVAC with stringent humidity control and ultra high efficiency filtration. High performance LED lighting was specified throughout. The project was designed utilizing REVIT modeling software. LEED Gold is the targeted building performance. ($18,400,000 – 2013)

Project Data

Location
Big Horn, WY

Building Type
Museum

Building Area
21,000 SF

Mechanical Systems / Features
Geothermal Heat Recovery Chiller
Central Air Handlers w/ VAV
Gas Phase Filtration
Ultra High Micron Active Filtration
Atomizing Humidification
Dehumidification Capabilities
Dedicated Outdoor Air System
Centralized Control System
RO Water Treatment
High Efficiency Plumbing Fixtures
Hands Free Faucets
Pre-Action Fire Suppression

Electrical Systems / Features
Galleries / Display LED Lighting
High Efficiency Low UV/IR Lighting
Dimming-5fc @ Artifacts
1200 Amps, 208V Service
24 Hour, 600 KW, Em Generator
Power Metering to Panel Level
Addressable Fire Alarm
Cat 6 Data/Tele Connectivity
Wireless Access Infrastructure
Music-Paging Audio & Speakers
Security – CCTV and Card Access

Construction Cost
$18.4 million

Completion Date
2014

Mechanical Engineering

Stringent control of temperature, air quality and humidity levels were required to protect the ancient and historical artifacts on display as well as stored in the museum. A geothermal well field was incorporated with a heat recovery chiller to allow for simultaneous heating and cooling year round. The system has a full back up high efficiency boiler for redundant heating. Seven central air handlers all equipped with gas phase and active filtration in addition to a dedicated outdoor air unit were utilized. A state of the art atomizing humidification system with RO water filtration serves the gallery/display areas. Desiccant dehumidification was used for the archive storage area as this area required lower space temperatures for long term storage. The dedicated outdoor air system (DOAS) was designed to provide year round room neutral temperature ventilation and uses demand control to maximize energy savings.

Electrical Engineering

Lighting a museum is focused on the preservation and display of the artifacts. A single type of high performance LED MR 16 lamp was specified in almost for almost all spaces. The dimmable lamps selected in conjunction with the curator provide a full-spectrum light source with a published CRI of 95, no UV and no IR. Performance is competitive to halogen, but without the energy tax and heat gain. Use of a single lamp type and across the board dimming will allow the client a full range of interchangeability for a multitude of setups.

The main service is a single 1200 amp, 208v service. Utility power is backed up by a single full-facility 600 KW diesel genset with a fuel storage capacity of 24 hours. The genset powers a 40 HP fire pump. The power distribution system is equipped with owner metering.

Systems include an addressable fire alarm system, category 6 data/tele communications wiring, infrastructure for wireless communications, a paging/music system, a card access security system, and a closed circuit television security system.