

Prairie Berry Winery



This Design-Build facility is the new home for the Prairie Berry Winery. The facility is comprised of two sides – Retail and Production. The Retail side consists of a tasting station and retail sales, while the Production side utilizes state of the art winemaking and storage technologies. An industrial décor was chosen to reflect the historic mining activities in the Black Hills.

Mechanical and electrical systems included process and airside system energy recovery, geothermal well field, radiant floor systems, and load shedding equipment.

Project Data

Owner

Prairie Berry Winery

Location

Hill City, South Dakota

Building Type

Winery

Building Area

12,865 square feet

Mechanical Systems / Features

- 20-Ton Geothermal Well Field
- Hydronic Radiant Floor Heating
- Water-to-Water Process Heat Pump
- Water-to-Air Airside Heat Pump
- Energy Recovery Ventilation

Electrical Systems / Features

- Load Shedding
- Direct/Indirect Recessed Lighting
- Exterior Lighting
- Communications Connectivity
- Fire Alarm/Security and Access

Completion Date

Spring, 2004

Mechanical Engineering

A 20-ton closed loop well field feeds a water-to-water heat pump system providing heating and cooling water to a multi-temperature storage system. This system serves the heating and cooling needs of the retail side, as well as the process needs of the facility.

Heating water serves a water-to-air heat pump system for the retail area, radiant floor heating in selected process and residence areas, and supplemental unit heaters for loading and delivery spaces. Chilled water serves fan coil units, provides cooling to wine storage areas, and the process side of the facility.

Electrical Engineering

The electrical distribution system consisted of a pad mount transformer providing a 120/208V, 3PH, 4W secondary service for a 600 amp main fused disconnect switch and distribution panel. Load shedding equipment was designed to reduce utility demand costs.

Interior lighting design predominantly featured energy efficient fluorescent lighting. Parabolic troffers were specified for the office ceilings; cross baffle trims were provided on the corridor down lights; and ceiling suspended indirect luminaires were specified for the Lobby and Conference rooms. Exterior lighting design featured high-pressure sodium lamps in the storefront areas matching the future parking lot pole-mounted luminaires.

