Regional Health

Our engineers have worked with Rapid City Regional Hospital for over ten years. During that time, we have been involved in the mechanical and electrical design of multiple additions and improvements to the 650,000 square foot main campus located on Fairmont Boulevard as well as numerous satellite facilities owned and managed by Regional Health.

System designs for this client not only need to represent the ultimate in performance and reliability, but also need to be as energy and water efficient as possible. With the assistance of Skyline Engineering, Regional Health has been able to reduce main campus energy use per square foot by over 20% and water consumption per square foot by over 50% since the year 2000.

Dietary Renovation ($2,000,000 – Anticipated completion August 2013)
Remodel of existing dietary food preparation area includes variable flow cooking hoods to minimize excess exhaust from space. Occupancy sensors in the space will control lighting and be used to minimize airflow.

Third Floor Patient Room Expansion ($5,000,000 – Completed 2012)
Project involved addition of patient rooms above the existing emergency department. Similar to the patient tower, air handling units are fully variable volume. This addition also incorporates a heat recovery ventilator that handles exhaust airflow and recovers heat to the outside air stream.

Central Utility Plant ($20,000,000 – Latest upgrades complete fall 2011)
Skyline Engineering worked with Rapid City Regional Hospital and HDR to develop a new Central Utility Plant to replace the existing plant serving RCRH. A study of the existing plant determined the plant should be replaced. A new location also allowed for logical expansion of the medical facility. Incorporating state of the art boiler and chiller technologies along with auxiliary system upgrades and electrical system improvements largely contributes to the savings that are now being realized:

- Variable primary 100% variable speed plant design
- Chiller plant optimization software and techniques
- Low temperature/high delta T chiller technology with free cooling
- Cooling tower cold weather drain sequence and sump for water conservation
- Dual fuel boilers which allow operation on interruptible gas and diesel
- Variable speed boiler burners with linkage less technology
- Flue gas monitoring and trim control systems
- Boiler Stack economizer and blow down heat recovery system
- Steam tunnel preheat of boiler makeup air
- Instantaneous domestic water heating system
- Water and energy conserving variable speed air cooled oil-less vacuum pumps
- Variable speed medical air plant
- Variable speed screw compressors for plant air
- Development of "Z2" emergency power branch capable of operating CW plant

Ninth & Tenth Floors of Patient Tower ($9,300,000 – Complete 2008 & 2004 Respectively)
Remodel included upgrade of mechanical and electrical services serving the patient tower necessary to support full remodel of the tower floors. Full variable speed was incorporated in to the air handling systems along with active outside airflow controls allowing precise control of outside air necessary to meet ventilation code without over ventilating. Domestic hot and cold water pumping cost was also reduced by relocating booster system in to the tower and incorporating variable speed. Water consumption was further reduced through the use of low flow plumbing fixtures and elimination of cross connections by RCRH maintenance. High efficiency lighting technologies were also employed.