

Evan's Orthodontics



This facility is the new home for Evan's Orthodontics. The wood-frame facility is two stories with a basement totaling approximately 9500 SF. The lower level is mostly support services, the main level is composed of the orthodontic functions and the upper level is primarily offices. The facility was designed considering the special needs of a children's clinic.

Mechanical and electrical systems included gas-fired high efficiency HVAC furnaces with DX cooling and energy recovery, dental vacuum, air and water systems, special low-voltage accent lighting, a backup generator, and an addressable fire alarm system.

Project Data

Owner

Evan's Orthodontics

Location

Rapid City, South Dakota

Building Type

Orthodontic Clinic

Building Area

9,500 square feet

Mechanical Systems / Features

- High-Efficiency Furnaces
- DX Cooling
- Dental Air/Water Systems
- Energy Recovery Ventilation
- Hands Free Faucets
- Dewatering system

Electrical Systems / Features

- Direct/Indirect Pendant Lighting
- Low-Voltage Accent Lighting
- X-ray Machines
- Backup Generator
- Fire Alarm/Security and Access

Completion Date

Spring, 2005

Mechanical Engineering

The building is served by 7 high efficiency variable speed air handling units providing the building with +90% efficient gas heat and air conditioning in seven distinct zones. Complete building ventilation is provided through heat recovery ventilators that also serve the buildings exhaust needs. These ventilators recover 80% of the exhaust heat and transfer the heat back in to the outside air system during winter time operation.

The plumbing system includes a dental vacuum and air system serving the dental equipment and laboratories. Automatic faucets are used extensively throughout for convenience and cleanliness allowing hands free operation. Due to its close proximity to Rapid Creek, the building also includes a dewatering system backed up by emergency power.

Electrical Engineering

The electrical power system consisted of a pad mount transformer providing a 120/208V, 3PH, 4W secondary service to an 800 amp main fused disconnect switch and distribution panel. In addition, a 15 KW back-up generator for critical equipment and life-safety lighting was coordinated and installed.

Interior lighting design predominantly featured energy efficient fluorescent lighting and special low-voltage MR-16 accent Lighting. Parabolic and acrylic-lensed troffers were specified for the offices; lensed direct/indirect 5-lamp pendants for the operatory space; art sconces were utilized for corridors; and a combination of ceiling suspended direct/indirect luminaries and low voltage accent lighting were installed for a dramatic lobby. Exterior lighting design featured metal-halide lamps for both the parking lighting and the facility exterior signage lighting.