

## Tiospa Zina Tribal School



This 650 student K-12 tribal school allows students to progress through four “Learning Lodges” based on Sioux traditions using state of the art educational experiences and theories.

The initial phases of this project provided science and computer laboratories, music room, library, industrial arts facilities, and full cafeteria as well as a gymnasium and administrative offices for the Native American student body near Agency Village, South Dakota.

The final phase of the project included a stadium with press box, bus maintenance and storage building, and a concessions stand.

### Project Data

#### Owner

Sisseton-Wahpeton School Board

#### Location

Agency Village, South Dakota

#### Building Type

Education

#### Building Area

107,000 square feet

#### Mechanical Systems and Features

Distributed GSHP  
125 Ton Bore Field (Phase II)  
150 Ton Bore Field (Phase III)  
30 Ton Bore Field (Bus Barn)  
Energy Recovery Ventilation

#### Electrical Systems and Features

Interior and Exterior Lighting  
Power Distribution  
Emergency Generator  
Lightning Protection  
Fire Alarm

#### Construction Cost

\$18,000,000 (Total 3 phases)

#### Completion Date

2004

#### Mechanical Engineering

The mechanical systems for this school were based on energy efficient ground source heat pumps. The design includes dedicated outside air preconditioning units with total energy wheels for energy efficient ventilation supply and humidity control. Combining these state of the art technologies resulted in a comfortable, quality facility that also minimized operational cost.

The design of the bus maintenance and storage building utilized water-to-water ground source heat pumps to produce heating water for use in an in-floor radiant heating system.

#### Electrical Engineering

The electrical design featured a new 3000A, 208V main service and distribution system to feed the entire facility. The emergency generator provided for emergency egress lighting also allows heating loads to be manually transferred in the event of an extended power outage.

Lighting systems include fluorescent classroom, corridor, cafeteria, office and garage lighting as well as exterior HID building, site and parking lot lighting. The large corridor and library spaces are illuminated with metal halide uplights and fluorescent cove lighting to create an open courtyard effect.

Electrical system design also included a complete building lightning protection system, full coverage fire alarm system and a cable tray system throughout the building to accommodate installation of the computer cabling.