SKYLINE ENGINEERING LLC

Tiospa Zina Tribal School – Phase III

Currently under construction, this 50,000 SF middle and high school addition provides classrooms, science and computer labs, a music room, library areas, administrative offices, and tribal cultural areas for the Native American student body near Agency Village, South Dakota. This addition follows a Phase II elementary school addition to an existing gymnasium involving a classroom, cafeteria, and support wing including offices and administration areas.

The project also includes a Stadium with Press Box, a Bus Maintenance/Storage Building, and a Concessions Stand.

Project Data

Location
Agency Village, South Dakota

Building Type
Educational

Building Area
50,000 square feet
(Addition)

Mechanical Systems / Features
Ground Source Heat Pump
150-Ton Well Field (Phase III)
30-Ton Well Field (Bus Barn)
Energy Recovery

Electrical Systems / Features
Interior/Exterior Lighting
Power Distribution
Emergency Generator
Lightning Protection
Fire Alarm

Completion Date
Scheduled for December, 2003

Architect
AmerINDIAN Architecture
www.amerindian.com

Mechanical Engineering
The mechanical system is based on a ground source heat pump system to conserve energy. The design includes a dedicated outside air preconditioning unit with a total energy heat recovery wheel to control humidity and supply outside air to the space. The conditioned primary air is supplied directly to the water-to-air ground source heat pumps serving the facility.

The design for the Bus Maintenance/Storage Building includes a geothermal system involving ground source water-to-water heat pumps serving an in-floor radiant heating system with multiple zones.

Electrical Engineering
The electrical design features a new 3000A, 208V main service and distribution system to feed the entire facility. An emergency generator system has been provided to automatically power emergency egress lighting and manually transferred heating system loads in the event of an extended power outage.

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

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