



USGBC
Montana Chapter

FRENCHTOWN SCHOOL
DISTRICT

FRENCHTOWN, MT

Frenchtown Public School District
consists of three schools serving over
1,200 K-12 students



Features at a Glance

- ✓ Long-term energy savings
- ✓ Reduced fossil fuels reliance
- ✓ Building orientation exploits natural lighting to maximize system efficiency

USGBC Montana Chapter

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Cooling from the Underground

Using Alternative Energy Sources in Our Schools

By [Page Huyette](#)

Ingenuity by Necessity

Coming up with new solutions to old problems is often brought on by necessity. Building on the success of a related project completed in 1979 that was the first school facility in Montana to use a heat pump system for cooling, a team of professionals working with the district researched, designed and expanded the system and added a fire pump with 1,000 gpm capacity. The 2009 construction included a vocational facility and expansion of an existing building which uses this alternative method for cooling as a direct response to escalating energy costs and tight state budgets for school improvement projects.

The school district invested in commissioning services by CTA Group in Missoula to confirm that previously installed systems were operating and saving energy as originally projected. This project doubles the size of the facility and is projected to lower energy costs by an additional 30%.

How Heat Pump Cooling Works

Groundwater maintains a constant temperature year round, making it an effective way to heat structures in winter and cool them in summer. Just below the earth's surface, the temperature remains about 50 degrees for the first several miles before heating up to thousands of degrees Fahrenheit. Using a pump to access the water makes it possible to tap into that constant temperature near the surface, using it to cool buildings.

The pumps contain a liquid refrigerant that absorbs heat from the building, transferring it back to groundwater as it evaporates. These pumps run at variable speeds which work with the flow rate as building cooling needs fluctuate.

Visit <http://www.usgbcmontana.org/> and click on Committees>Green schools for more information on green schools in Montana



“Using locally available resources for heating and cooling buildings is something everyone should consider. Weaning ourselves from fossil fuels makes good sense”.

--Nick Salmon, CTA Group

Cost Savings and Maintenance

While alternative systems cost more upfront to install than conventional systems relying on fossil fuels, they result in an average of 30-60% lower energy costs per year. The absence of outdoor condenser systems which are often vulnerable to weather and vandalism also adds to lower maintenance and parts replacement costs.

A single motor is used for both cooling and the fire suppression systems assure the pump is continuously operational. This differs from conventional systems that require monthly safety testing for sprinkler systems. Pump motors require periodic basic maintenance.

Partners in Success

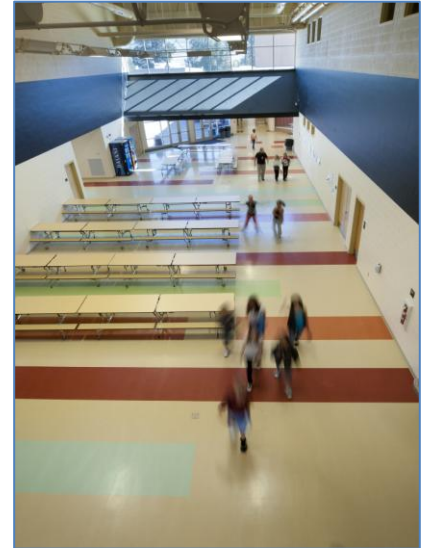
Upon review of the up-front costs and long-term energy savings, the district’s facility committee supported the decision to use a geothermal system and is pleased with the results. Construction was provided by Martel Construction with construction management by Steve Conway and project management by Ryan Dunn.

District Superintendent:

Randy Cline
cliner@ftsd.org
 or 406-626-2600

District website:

[Frenchtown School District](http://www.frenchtownschool.org)



New construction oriented in an east-west direction maximizes natural lighting

Project Coordination:

Nick Salmon, CTA
nicks@cta.com

Project Construction:

Martel Construction, Steve Conway
 406-837-1063

Project Size:

85,000 sf existing
 125,000 sf new construction

Funding: Local bond funding and grant funding by the Quality Schools Program of Montana

About Our Chapter

The USGBC Montana Chapter promotes balanced social, economic, and environmental stewardship in Montana by leading and educating about green building practices that will create healthy and sustainable communities in which to live, work, and play.

For more information on the State of Montana Quality Schools Program visit:
<http://commerce.mt.gov/content/QualitySchools/docs/PlanningGuidelines.pdf>

<http://www.usgbcmontana.org/>