Kingswood Regional Schools
Wolfeboro, New Hampshire

General Information

Location: 396 South Main Street, Wolfeboro, NH 03894

Project Cost: $67,242,614

Scope: 368,095 ft^2

Cost Per Square Foot: $182/$ft^2$

Completion: 2012

Enrollment: 1700 with Technology Center

Architect: CMK Architects P.A.

Engineers: Structural- FBR & Associates, Mechanical- Yeaton Associates, Electrical- EBS Inc., Civil- White Mountain Survey

Funding/Grant: New Hampshire provided 3% additional reimbursement for CHPS, which amounted to approximately $2 million

Certification: CPHS Verified

Project Overview

Kingswood Regional Schools underwent additions and renovations to three on campus schools: Kingswood Regional High School, Kingswood Regional Middle School and Lakes Region Technology Center. The facility was designed to meet CHPS and received additional funding for meeting this standard. One of the system's sustainable design feature is a closed loop geothermal system. The entire facility is heated and cooled by heat pumps that use ground energy from over 300 400-foot deep bore holes.

Energy Facts:
27 EUI - High School Building
32 EUI - Middle School Building

There were several reasons for the project: the original High School had not been renovated since it was built in 1964, other campus buildings needed upgrades and program requirements necessitated additional building space.

The benefits of this project include 18 new classrooms, 4 new science classrooms with 4 essentially gutted and renovated, a new 900 seat auditorium, new music and art classrooms, as well as extensive locker rooms for team sports.

In the Technology Center, a new building was developed for the agricultural science and auto body programs. Most of the programs were expanded, re-organized, renovated with additions, and a new office wing for program space and security was developed for the entrance.

Lakes Regional Technology Center Entrance

Other needs included upgrades for all systems including electrical, mechanical, and HVAC. In addition, energy efficiency renovations incorporated proper insulation and energy efficiency lights. This project had many health and safety benefits, such as increased cafeteria space, less congestion in the halls, better air quality, front entrance security doors with card access systems, and consistent heating and/or cooling.

The project was completed in two phases. Phase one included the construction of the new multi-purpose building, the synthetic and natural turf athletic fields, and the Geothermal Ground Heat Exchanger piping system. Phase two of the project was completed over two years and included each school being re-roofed and renovated with sustainable design features. The project was completed four months ahead of schedule, even though the campus remained occupied during construction.

Natural lighting in Science Lab

Agri-Science Center

Sustainable Design Elements

Energy Efficiency

- Well-sealed, insulated building shell
- Modulating HVAC systems with variable air volume boxes in rooms and variable frequency drives on air handling units
- Geothermal heat pump for full heating and cooling, and electricity
- Total energy costs are approximately $1.00 per square foot

Indoor Environmental Quality

- Rubber or ceramic tile installed to eliminate stripping and waxing
- Radiant heat added to new slabs and in existing ceilings
- High performance HVAC filters installed (MERV 13)

Lighting

- Electronic daylight controls installed with photocell sensors
- Emphasis placed on natural day light in design plan
- Sky lights added
- Continuous dimming T5 fluorescent lights
- LED outdoor lights

Water Usage

- Low flow fixtures installed
- Porous pavement
- Solar-powered sensor faucets
- Rain water storage installed with dual plumbing to allow rain water use in restrooms
- Water bottle filling stations

This case study was prepared by NEEP with information provided by CMK Architects. For more information about High Performance Schools, please contact John Balfe, NEEP High Performance Buildings Associate at jbalfe@neep.org or 781-860-9177 x109. All photos credit to CMK Architects.