Enatai Elementary

Integrated Lighting & Controls

Bellevue School District Modernization Plan

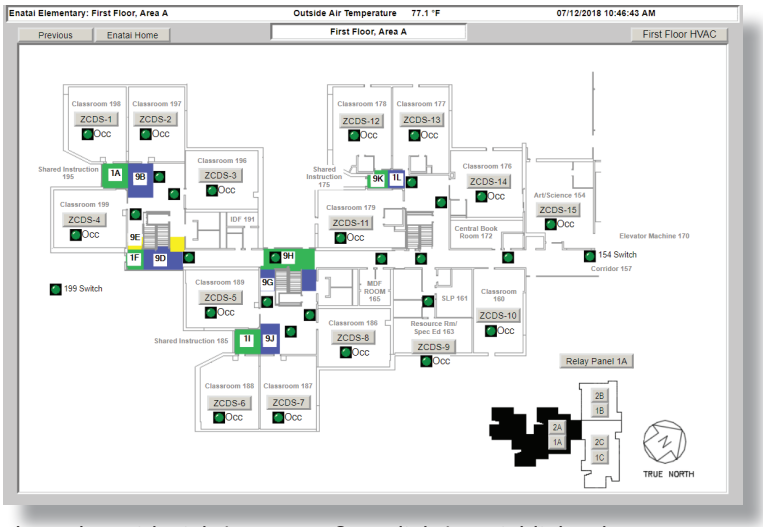
Starting in 2002, the Bellevue School District (BSD) began replacing and updating schools that no longer met the needs of their growing community. BSD's goal with each new school is to exceed energy design requirements as defined by the 2012 International Energy Code. As of 2018, BSD has replaced 18 schools with state of the art facilities that incorporate the latest educational designs and technology to ensure students and teachers have an ideal learning environment. By making each new school as energy efficient as possible, BSD is ensuring they are maximizing their capital dollars which will allow them to make the best use of their general funds. In 2015, as part of the ongoing modernization projects, Enatai Elementary was demolished to make way for an updated facility that will host elementary students well into the future.

Project Highlights

- Unified Lighting & HVAC Controls
- One Point of Contact for Controlled Systems
- No Integration Gateways
- Shared Global Schedules for Lighting & HVAC
- Daylighting & Occupancy Sensors for Increased Energy Savings
- School EUI of 17
- $135,013 in Utility Incentives

Unified Lighting and HVAC Control

BSD is determined to improve upon school designs with each facility replacement. When planning for the new Enatai, BSD decided their next improvement would be to house as many of their controlled systems under one platform as possible. Having worked with ATS Automation for many years, BSD was familiar with the environmental controls provided by the Alerton building management system (BMS) from their other schools. Once ATS demonstrated that they could efficiently control the HVAC equipment and also incorporate all the lighting into the same BMS, BSD chose ATS to provide the HVAC and lighting controls for the Enatai facility. By selecting one vendor, staff at Enatai have access to ATS' expertise for both HVAC and lighting during the original installation and for long-term service. Now Enatai has one point of contact when it comes to the controls for their school — simplifying maintenance and operations.



Floor Plan with Lighting Zones & Daylighting Highlighted

To integrate HVAC and lighting, ATS designed a system utilizing Alerton's Compass BMS and Blue Ridge Technologies' (BRT) lighting control platform. Alerton and BRT combined provide integrated lighting control without the use of proprietary gateways. Utilizing BACnet, BRT controllers are easily added to the Alerton BMS without needing any integration device. This solution allows BSD operators to use the same schedules

for both HVAC equipment and lighting without the need to duplicate work in a separate lighting interface. ATS programmed a global schedule for lighting at Enatai in conjunction with BRT monitoring classrooms and common areas using occupancy sensors and photo cells. The sensors are used for daylight harvesting and turnoff or dim lighting according to lumen levels and whether the area is occupied or not. Classroom lighting control features a traditional on/off switch in the front of all classrooms, as well as a separate adjustment panel near the teachers' desks.

Impact on Energy & Operations

By combining environmental and lighting controls, BSD has ensured that their high efficiency designs and equipment will continue to save the school money throughout the life of the building. "The strategy is that on day one the facility is already saving on utility bills," said Jeff Tweeten, HVAC/Utilities Control Specialist for the Bellevue School District, "by saving on day one, the measured benefits are all about the efficiencies that directly impact the learning environment." With integrated lighting, Jeff and his team can focus on what really matters — ensuring the learning environment is optimal for both students and teachers.

The new Enatai Elementary nearly doubled the size of the original school to 87,500 square feet. The school opened to the public in September of 2016 with over 500 students attending class during the academic year. The school also received $135,013 in utility incentives by Puget Sound Energy (PSE) for exceeding local energy code efficiency requirements and standard practices during construction.

In addition to lighting and environmental controls, the new Enatai elementary school features other energy efficient technology, such as geothermal heating and cooling, solar panels, heat recovery, AstroTurf, solar hot water loop and high efficiency sequences for mechanical equipment. Utilizing solar panels, Enatai recovers approximately 90,000 kWh per year. This harvested energy covers the majority of the school's lighting cost for the year. Enatai's energy use index (EUI) was also significantly improved from the previous facility. The school's combined electric and natural gas EUI is currently 17 and is expected to decrease as system tuning continues. The national median source EUI for K-12 schools is 141. ATS, along with Alerton and BRT, help Enatai maintain optimal performance with rock solid building controls and sequences, along with occupancy-based lighting usage and daylight harvesting.

"The working relationship with ATS and the Bellevue School District is impressive. ATS' service is paramount and one of the main reasons we work with ATS. People make the product."

- Jeff Tweeten
HVAC/Utilities Control Specialist
Bellevue School District

About ATS

ATS, established in 1986, specializes in custom engineered and installed Building Automation Systems control solutions for buildings' mechanical and electrical systems, allowing owners to reduce energy consumption and maximize effectiveness of facilities management personnel. ATS has offices and provides services in Washington, Idaho, Montana, Colorado, Wyoming and Alaska. Contact your local ATS representative to find out how you can start running your building more efficiently and economically. Visit www.atsinc.org to find the location near you.

ATS
450 Shattuck Ave South
Renton, WA 98057
(p) 425.251.9680
(f) 425.251.0949
www.atsinc.org
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