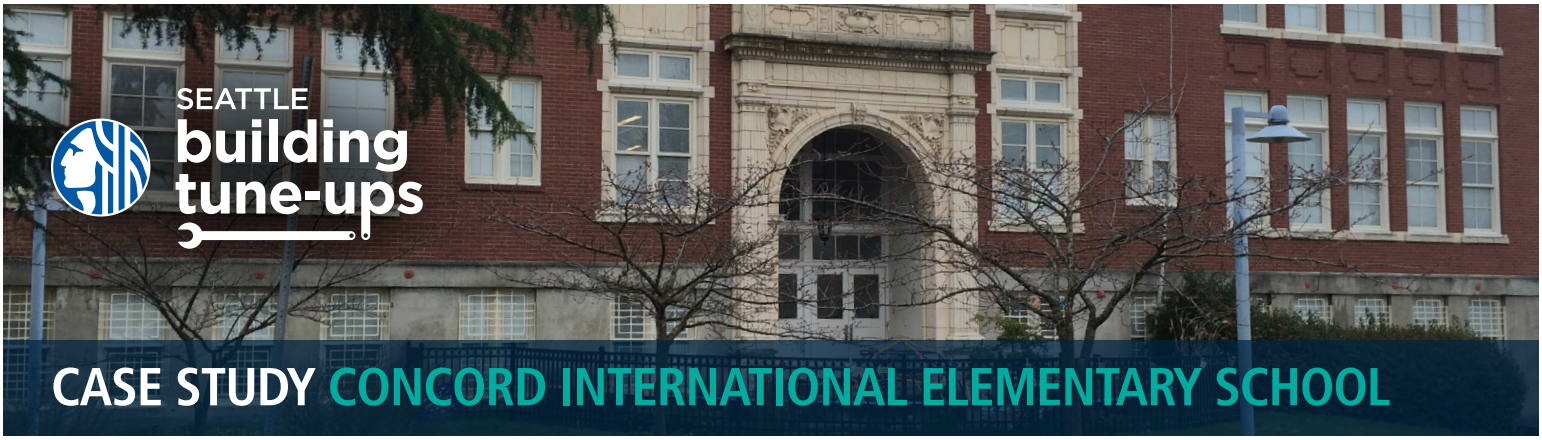


SEATTLE building tune-ups

CASE STUDY CONCORD INTERNATIONAL ELEMENTARY SCHOOL

Concord International Elementary School provides its student body with a global education and perspective to help them succeed in a 21st century world. A recent Building Tune-Up is providing students a healthier, more comfortable place to learn, work and play.

Concord public school is located along the Duwamish River in the South Park neighborhood of Seattle. It serves a multiethnic community of 347 students, 74% of whom were on free or reduced-price lunch plans during the 2017-2018 academic year.

Built in 1913, the 64,500 SF Concord building was originally designed in the Colonial Revival style and constructed in brick, steel and heavy timber. It is listed as a Seattle Historic Preservation Landmark. In 2000, the building was renovated to add a new gym and several classrooms.

In 2018 and 2019, the Seattle Public School District's in-house retro-commissioning staff of four formed a "Tune-Up Team" to ensure its 113 school buildings' water and energy systems met or even exceeded the Seattle Building Tune-Ups requirements. Working with the District's Resource Conservation Specialists to review past energy use, the team also identified elementary schools in need of immediate fixes that could benefit from participating in the City of Seattle's Tune-Up Accelerator Program to get a head start on their required Tune-Up, including Concord.

"We were already doing a fair job managing the building, but we could only address the obvious things that were broken or not working right. The Tune-Up program gives us the opportunity to have our retro-commissioning staff dig in deep and find the source of a problem that isn't as obvious. That's the best thing about this program—finding the hidden opportunities is a big win." **—RINA FA'AMOE-CROSS,** SPS RESOURCE CONSERVATION SPECIALIST

Undergoing the Tune-Up process revealed the importance of occupant behavior. No matter how energy efficient a building is, SPS Resource Conservation Specialist Rina Fa'amoe-Cross notes, "We need the teachers, staff and students to take action. If we get everything done and people still leave doors and windows open, our fixes won't accomplish much. When we all change habits and follow-through on energy-smart actions, we'll see really significant savings."

Concord school circa 1965

WHAT IS A BUILDING TUNE-UP?

Building Tune-Ups are assessments of building energy and water systems to detect and correct operational or maintenance problems. Through Tune-Ups, building owners find operational efficiencies and low- and no-cost fixes that improve building performance. The City of Seattle requires Tune-Ups every five years for buildings with 50,000 SF or more of non-residential space.

Want to learn more?
seattle.gov/buildingtuneups

Seattle
Office of Sustainability
& Environment

FINDINGS AND FIXES REVEALED

After assessing Concord's energy and water systems, the Tune-Up Team identified the following required fixes:

- **Improve HVAC preventative maintenance:** Better preventative maintenance standards were needed to make sure the school's heating, cooling and ventilation continued to work properly.
- **Repair dampers:** Several dampers were not shutting or opening properly, limiting airflow for cooling, heating and fresh air.
- **Replace or adjust lighting photocells and sensors:** Many of the sensors and photocells that control school lighting had been painted over or were not functioning properly, causing the lights to be on all day.

GOING ABOVE AND BEYOND

The Tune-Up Team also implemented the following voluntary measures to create an even healthier and more comfortable learning environment:

- **Space heating:** Make the more efficient condensing boiler the school's primary heating source.
- **Hot water:** Reprogram hot water controls to save on natural gas and money.
- **Lighting:** Confirm occupancy sensors are working, replace batteries and adjust sensor positions to ensure they are pointing in the right direction to save electricity.

SPS: COMMITTED TO IMPROVING SCHOOLS

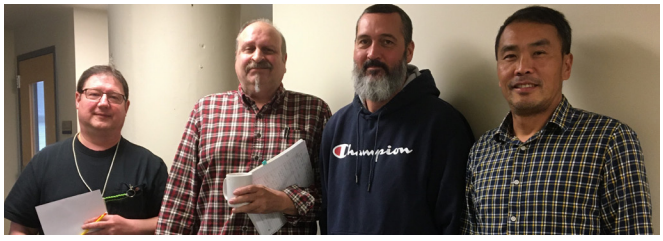
As one of the largest building owners in the city, Seattle Public Schools is committed to operating their buildings as efficiently as possible to provide a great learning environment and manage costs. For those reasons, it made sense for the District to enroll 22 elementary schools in the City's Tune-Up Accelerator Program to jump-start upgrades to buildings most in need of improvements. At the same time, SPS also "Tuned-Up" three middle and K-8 schools, nine high schools and the John Stanford Center to comply with the mandated Tune-Ups required in 2019. Common actions included:

- Aligning HVAC operating times and setpoints to match school schedules.
- Adjusting HVAC dampers and valves for optimal performance.
- Fixing lighting photocells and sensors and identifying opportunities to update to LEDs.

The SPS Tune-Up Team estimates that most of the work they do to improve the energy and water efficiency of school buildings pays itself back in three years or less through utility bill savings.

"We go far beyond the requirements and touch every piece of energy consuming equipment and device in the entire building including the portable classrooms. From heat pumps to boilers to faucets to light switches. Besides evaluating the buildings, we fix them too. Ninety-five percent of the problems we identify, we correct on the spot."—**PHIL JOHNSON,** SPS RETRO-COMMISSIONING MECHANICAL COORDINATOR

MEET THE SPS TUNE-UP TEAM



SPS Retro Commissioning team: Left to right: Michael Workman, Phil Johnson, Dax Parry, Kin Lam

SPS Resource Conservation Team: Left to right: Rina Fa'amoe-Cross, Ian Brown, Graham Goodman

This project was supported by the Seattle Building Tune-Up Accelerator Program through the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Buildings Technologies Office Award Number DE-EE0007556. Seattle City Light provided a limited time incentive to owners of mid-size buildings that met the Building Tune-Ups requirement in advance of their mandated deadline.