

Sammamish High School

Success Story



Campus Crown Jewel

Sammamish High School's new campus replaces an existing one-story facility with a three-story, state-of-the-art educational facility spanning 320,000 square feet and serving nearly 1,000 students in grades 9-12. Designed by Integrus Architecture, Sammamish is the last of Bellevue School District's high schools to be modernized. According to Jack McLeod, director of facilities and operations for the school district, "Sammamish will be the crown jewel."

Both ornamental and functional, the high school features Rockfon stone wool acoustic ceiling systems throughout the high-profile facility. In total, distributor Valhalla Construction Products provided more than 250,000 square feet of Rockfon ceiling systems to installing contractor Forrest Sound Products.

Helping enrich modern learning and living, Rockfon innovative stone wool products support natural solutions and sustainability, as well as peace of mind and quality of life.

Collaborative Approach

Curriculum and facility focus on STEM and Problem Based Learning

According to Integrus, Sammamish High School's replacement and modernization project involved multiple phases throughout four years. The new three-story high school integrated an existing performing arts facility into the first phase of construction. In addition, a new two-story athletic building, glass arts facility and concession/ticket booth are sited to work with existing fields.

Central to the school's design is a curriculum emphasizing Problem-Based Learning (PBL) and STEM programs. STEM is the educational acronym for science, technology, engineering and math. Sammamish also adds arts and robotics to the curriculum. Students are taught to develop

critical thinking skills in PBL assignments by identifying the problem, then designing, engineering and fabricating appropriate solutions.

Assignments include a need for "clean" spaces, with computer access for engineering and drawing, as well as "dirty" spaces for active, creative fabrication. PBL also places high demand on spaces for teaming and collaboration, as well as areas for performance and display of their work.

According to McLeod, "Flexibility is still really one of the key elements." The building is designed with the future in mind. The idea is for the building to be able to adapt to teaching needs as the years pass.

Partnering with Integrus Architecture, Sammamish school's design team helped determine the vision and must-haves for the new building. Integrus worked closely with a group of faculty, students, school district staff and design consultants to develop a set of "guiding principles" for the site development and building design. The design team continued to work with this group throughout the development of the design to ensure the final results supported these principles and goals.

Fact

"Every student should have the same opportunity to hear and understand what is being said whether they are learning to weld in a noisy shop or reading Latin in the library."





3 stories

320,000

square feet

1,000 students in grades 9-12

Guiding Principles

We Are One School

- Establish a singular and welcoming identity of enduring character.
- Make visible the work of students and faculty.
- Maximize visual connections between spaces to encourage interaction and spark dialogue.
- Provide an easily supervised, safe and secure facility.
- Provide common areas that encourage interaction across grades and disciplines.

Variety of Quality Learning Environments

- Create a variety of spaces for small-, medium- and large-group learning and interaction.
- Provide spaces that support and encourage project-based learning.
- Organize spaces to encourage interaction, collaboration and innovate uses – both for students and staff.
- Integrate display and presentation spaces throughout the school.

Flexible and Adaptable Context

- Provide flexible spaces that can easily adapt to changes in teaching and learning styles.
- Create common spaces and learning resource areas that support multiple functions.
- Provide variety and flexibility in furniture types and arrangements.
- Integrate spaces to create and construct within learning areas.
- Provide seamless access to technology.

Professional Perspective

- Foster learning environments reflective of contemporary professional environments.
- Provide spaces to support mentoring and interaction with the professional community.
- Provide clear way finding and zoning of the campus for students, staff and visitors.
- Provide faculty and staff areas to support distributed leadership and professional collaboration.

Awareness of the Environment

- Establish strong visual and physical links between interior and exterior spaces.
- Maximize views and daylighting.
- Provide outdoor learning opportunities.

Listening and Learning

Creating a good acoustic experience for classrooms, gym, common areas, music, offices and more



Fact

Rockfon Sonar offers a Noise Reduction Coefficient (NRC) of up to 0.95 NRC.

"The amount of collaboration that went into the project was unprecedented. The architect, school district, principal, teachers and students collaborated to create a school that focused on making a positive impact for both the natural environment and student learning environment," summarizes Ben Pedersen, Rockfon district sales manager for the Pacific Northwest. "The goal was to create the high school of the future – for sustainability, learning environment, community outreach and safety."

Integrus elaborates, "The previous generation of schools often placed fabrication areas – traditional 'shop' and/or vocational education – at the perimeter of the campus often out in the 'Back 40.' With the incorporation of Career and Technical Education/STEM curriculum into the culture of modern schools, these spaces are being located within the heart of the facility as a resource for all students. This presents new challenges for noise control. At Sammamish High School, for instance, the library is directly above the major fabrication studios and needed significant sound isolation in the floor ceiling assembly between the two uses."



"Creating a good acoustic experience improves learning and understanding. Every student should have the same opportunity to hear and understand what is being said whether they are learning to weld in a noisy shop or reading Latin in the library," explains Rockfon acoustic specialist Gary Madaras.

Integrus worked with acoustical design consultant, Sparling, to understand baseline acoustics for high school classrooms and other environments. "We worked to identify the most suitable materials and systems to meet the needs of each of the specific users – administrative offices, gym, common area, typical classroom, music, etc."

As the ceiling installation contractor, Forrest Sound Products' senior project manager Charles Roetcisoender helped select the right products for the specification. "His understanding of the acoustical significance of placing Rockfon tiles throughout [the project], along with meeting Integrus' visual requirements, not only produced a beautiful looking school, but created an education space that is performing at a peak level," praised Forrest Sound Products' president Doug Bixel. "One just needs to walk through this school to see and feel the difference."

Madaras continues, "Due to its fiber structure, stone wool's high-performing, sound-absorptive properties provide Rockfon ceilings with excellent noise reduction capabilities. This also reduces reverberation and improves speech intelligibility."

"Rockfon also provided technical product guidance allowing for easy installation in the manufacturing or robotic lab spaces where high volume noise activity occurs," notes Integrus.

Pedersen proudly adds, "Sammamish High School was the first in the Northwest to use Rockfon Alaska® and Sonar® acoustic stone wool ceiling panels with high fire performance and the best sound absorption."

Safety and Sustainability

Supporting comfort, health and wellness

"Along with optimizing acoustics for concentration and comfort, Rockfon ceilings also support the newest educational building codes and regulations," emphasizes Pedersen. "Providing a great line of defense against indoor health hazards, our Rockfon stone wool ceiling panels are resistant to mold, bacteria and humidity, and are GreenGuard® Gold Certified for low VOCs. This stringent certification process considers safety factors that may impact people who are more vulnerable, such as children."

Complementing the stone wool panels, Rockfon Chicago Metallic® suspension systems also have no reportable VOCs in the finished product. For Sammamish's ceilings, Chicago Metallic 4000 Tempra™ 9/16-inch and 1200 Seismic 15/16-inch suspension systems were installed by Forrest Sound to meet the project's seismic design category requirements.



Fact

"Rockfon ceiling panels helped the designers create amazing, beautiful spaces and also protect the space with their unique qualities."

Enhancing safety with sustainability, Chicago Metallic suspension systems contain up to 90 percent recycled content and are 100 percent recyclable at the end of their useful lifecycle. Rockfon stone wool ceiling panels contain up to 42 percent recycled materials and primarily are made from abundantly available basalt rock.

Green building guidelines for schools, such as the Washington Sustainable Schools Protocol, continue to highlight recycled material content, to reference indoor air quality and GreenGuard Gold certification, and to promote optimized acoustics as part of occupant comfort and wellness.

Additional sustainability strategies Integrus employed for Sammamish High School included facilitating an eco-charrette with district and school staff, developing a daylighting model to explore options, and specifying high-efficiency mechanical units and plumbing fixtures, LED lighting with intelligent lighting control systems and solar panels. With respect to these attributes, energy efficiency and the advantages of daylighting remain at the forefront for sustainable buildings.

250,000

square feet of Rockfon ceiling systems

Sammamish High School was the first in the Northwest to use Rockfon Alaska and Sonar acoustic stone wool ceiling panels.

Lighting the Way

Maximizing natural light helps minimize electricity and save energy

Sammamish students enter the high school on the second floor where most of the administrative offices and common assembly areas are located. At the heart of the school, a three-story study commons is capped with skylights and smooth, white Rockfon ceiling panels to reflect the daylight. The third floor hosts art and science studios with high ceilings and lots of natural light. The ground floor contains additional robotics, engineering, technology and math classrooms to complete the STEM curriculum.

As lockers are unnecessary due to the digital curriculum and student laptops, window walls have replaced traditionally opaque barriers between classrooms and the hallways. This provides greater connection between students and staff, as well as extends daylight more deeply into the building's interior. The design team used 3-D modeling design tools to coordinate systems and structure to maximize floor-to-ceiling height and daylight.

In classrooms, corridors and common areas, the white surface of Rockfon ceilings can reflect up to 86 percent of available light. This better distribution of natural light helps educational facilities to lower electric lighting loads and reduce cooling costs, saving both energy and associated costs.

The white surface of Rockfon stone wool ceiling panels can reflect up to 86 percent of available light.



Fact

Rockfon stone wool ceiling panels contain up to 42 percent recycled materials. Chicago Metallic suspension systems contain up to 90 percent recycled content.

Efficient use of natural and electric lighting was a core component of the architectural design. Pedersen describes, "The architect largely designed the ceiling around the high-efficiency lights. This proved to be a significant challenge due to the size of the lights. The light attachment points also were not consistent with normal ceiling grid installation – especially with seismic suspension system considerations."

Bixel at Forrest Sound Products worked closely with the architect and Rockfon to offer an alternative that was compatible with the lights, the standard ceiling systems, the surrounding conditions and the performance specifications. Pedersen praised the effort and successful result saying, "Doug presented a solution to the architect that perfectly accommodated the lights and acoustic ceiling panels within a suspended grid system that met the seismic requirements. Even with unforeseen design changes to the light dimensions, the ceilings were installed on time and to the architect's specifications."



Smooth Installation, Smooth Finish

On schedule, on budget and with the look
designers prefer



Fact

IIDA Northern Pacific Chapter honored this project at the 10th annual INawards in the Design INconcept category.

"Grid and tile is not a real big challenge for us," Bixel acknowledges matter-of-factly. He remembers that the complete ceiling system – suspension system and stone wool panels – went smoothly, "on budget and on time."

Integrus agrees and says, "The product was cost-effective and easy to install."

Sammamish High School's construction started in May 2013 and divided into multiple phases, until it was fully finished in 2017. Students remained on site during most of the

work, which included seismic, fire life safety and ADA improvements; HVAC, electrical and plumbing system upgrades and replacement; and classroom renovations.

Bixel continues, "Sammamish is a large, long school building with a different kind of look. The smooth white ceilings match the architect's expectations."

Pedersen echoes Bixel, noting, "Our tiles are smooth, with no fissures, allowing the architect to create a homogenous flow from space to space. This is the look that designers prefer."

Supporting this aesthetic preference, Forrest Sound also demonstrated to the architect that Rockfon ceiling panels present a neater, cleaner edge appearance than other panel options. Bixel says, "With fiberglass panels, you'll see a yellow line along the

edge. This stands out far more than the treated edge of Rockfon ceiling panels. It's a nicer look that differentiates it from other types of panels."

Pedersen concludes, "Rockfon ceiling panels helped the designers create amazing, beautiful spaces and also protect the space with their unique qualities."

Recognizing Sammamish High School's "amazing, beautiful space," its design was honored by the International Interior Design Association (IIDA) Northern Pacific Chapter at the 10th annual INawards in the Design INconcept category. The jury was impressed by the innovative circulation scheme and the way the building rhythm creates opportunities for informal learning and socialization spaces.



	Name	Location	Website
Project	Sammamish High School	100 140th Ave. SE, Bellevue, WA 98005	www.bsd405.org/sammamish
Owner	Bellevue School District	Bellevue, Washington	www.bsd405.org
Architect and interior design	Integrus Architecture	Seattle, Washington	www.integrusarch.com
Acousticians	Sparling, a Stantec company	Lynnwood, Washington	www.sparling.com
General contractor	Spee West Construction Company	Edmonds, Washington	-
Installing contractor	Forrest Sound Products	Redmond, Washington	forrestsound.com
Distributor	Valhalla Construction Products	Silverdale, Washington	www.valhallaproducts.com
Materials			
Rockfon Alaska® stone wool ceiling panels			
Rockfon Sonar® stone wool ceiling panels			
Chicago Metallic® 4000 Tempra™ 9/16-inch suspension system	Rockfon ceiling systems	Chicago, Illinois	www.rockfon.com
Chicago Metallic® 1200 Seismic 15/16-inch suspension system			
Photographer	Lara Swimmer Photography www.swimmerphoto.com		
Videos	Edutopia	www.edutopia.org/sammamish-problem-based-learning-school-reform www.youtube.com/watch?v=avzLzfIbYNC	

Rockfon is part of the ROCKWOOL Group and is offering advanced acoustic ceilings to create beautiful, comfortable spaces.

At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, supporting our stakeholders in reducing their own carbon footprint along the way.

Stone wool is a versatile material and forms the basis of all our businesses. With approximately 10,500 passionate colleagues in more than 35 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibers for industrial use to insulation for the process industry and marine and offshore.