

Rockfon® panels help create a sustainable learning environment

University of Toronto Scarborough, Environmental Science & Chemistry Building, Toronto, Canada



University of Toronto Scarborough Campus' (UTSC's) new \$52.5 million Environmental Science & Chemistry Building (ESCB) welcomed its first students this autumn. Contributing to the building's multiple goals, Rockfon acoustic stone wool ceiling panels and suspension systems support the University's architectural vision, functional performance requirements and sustainability criteria, while completing the project within budget and on schedule.

Products in use

- Rockfon® Medical™ Plus
- Rockfon Artic®
- Rockfon Alaska®
- Chicago Metallic® Barriergrid®
- Chicago Metallic® 1200

Located on the north campus, ESCB's science and education research hub offers masters and doctoral programs addressing environmental issues, such as climate change, groundwater pollution in urban settings, restoration of degraded environmental systems and rising sea levels. With respect to the promise of its discipline, the building is designed and built to achieve LEED® Gold certification through the Canadian Green Building Council (CaGBC). Once certified, it will be the second building at the University of Toronto Scarborough to attain this international rating.

Rockfon ceiling systems help meet multiple goals including CaBGC's LEED Gold criteria.

"Being a building specifically housing the environmental science and chemistry groups within the Department of Physical and Environmental Sciences, there was no question the building would have to operate as efficiently as possible," said UTSC Facilities Management Department's project manager, Hovan Stepanian, M.Sc.

He continued, "It was a mission of mine to achieve the highest possible level of efficiency for this type of energy-use intensive building prior to the design team and contractor coming on board.

Initially, we targeted Silver; however, working with the design team, we were able to fine-tune the various sustainability initiatives to target Gold."

ESCB's design-build team included Diamond Schmitt Architects with EllisDon Corporation. Inspired by nature, the 11,779-square-meter (126,788-square-foot) new building reflects the academic pursuits housed within the facility, as well as its setting on the edge of a ravine. The five floors of laboratory space rely on a modular approach for flexible adaptation to future academic and technological needs.

University of Toronto leadership joined representatives from Diamond Schmitt and EllisDon in lifting their shovels for the groundbreaking ceremony on Oct. 8, 2013. Nearly two years later, the project was completed on time in July 2015.

Working closely with the team, Nelmar Drywall Company Ltd. depended upon Patene Building Supplies to supply Rockfon's ceiling systems throughout the phased construction. In selecting Rockfon, Diamond Schmitt's associate, Nigel Tai, M.Arch., OAA, MRAIC, LEED AP, noted that he found these ceiling systems to be "cost-effective and aesthetically pleasing with good performance."



Rockfon's stone wool ceiling panels are made from basalt rock and contain up to 42 percent recycled material to support ESCB's LEED Gold criteria. Stone wool ceiling panels also are lightweight and cut easily to accommodate the facility's columns, light fixtures and sprinklers.

Atrium with Alaska

Conceived as a highly flexible research and teaching space, ESCB connects laboratories and academic offices around a five-story, sky-lit atrium. Throughout the atrium, boardroom and meeting rooms, Rockfon Alaska acoustic stone wool panels in special sizes with shiplap edge details were installed in Chicago Metallic 1200 Series exposed 15/16-inch ceiling suspension system. In total, Nelmar Drywall installed 190 square meters (2,045 square feet) of Rockfon's ceiling systems on the atrium alone. An additional 1,750 square meters (18,837 square feet) of Artic ceiling panels were installed through the corridors, as well as in faculty offices.

Rockfon Alaska has an NRC of 0.90 exceeding performance expectations for ESCB. These stone wool ceiling panels have a high-performing, sound-absorptive material, which can help increase speech intelligibility and improve concentration.

"We wanted a sharp, clean look for the ceiling surface. The hairline shiplap joint detail was important to us, as well as the custom 2-by-5-foot proportion," said Tai. "Smooth finishes and good light reflectance were critical. We use the ceiling finishes as a reflective surface to bounce light around in the meeting rooms and boardrooms."

Scott Debanham, Rockfon's district sales manager, understood the essential mix of aesthetics and performance for the project. "We had a perfect solution. The smooth white surface of our Alaska acoustic stone wool ceiling panels reflects up to 86 percent of available light, dispersing natural light more effectively. The better distribution of light means offices can lower their light loads and reduce cooling costs, helping meet LEED's energy-efficiency criteria," he explained.

For electric light, ESCB uses all LED lighting fixtures. Debanham continued, "Rockfon's stone wool ceiling panels are lightweight and cut easily, so it was not difficult to accommodate the numerous light fixtures and sprinklers needed throughout the facility. With respect to fire safety, stone wool withstands temperatures up to 1177°C (2150°F). It does not melt, burn or create significant smoke. All of this improves overall safety, which can limit building damage and give precious extra seconds for emergency evacuation if such an unfortunate event were to occur."

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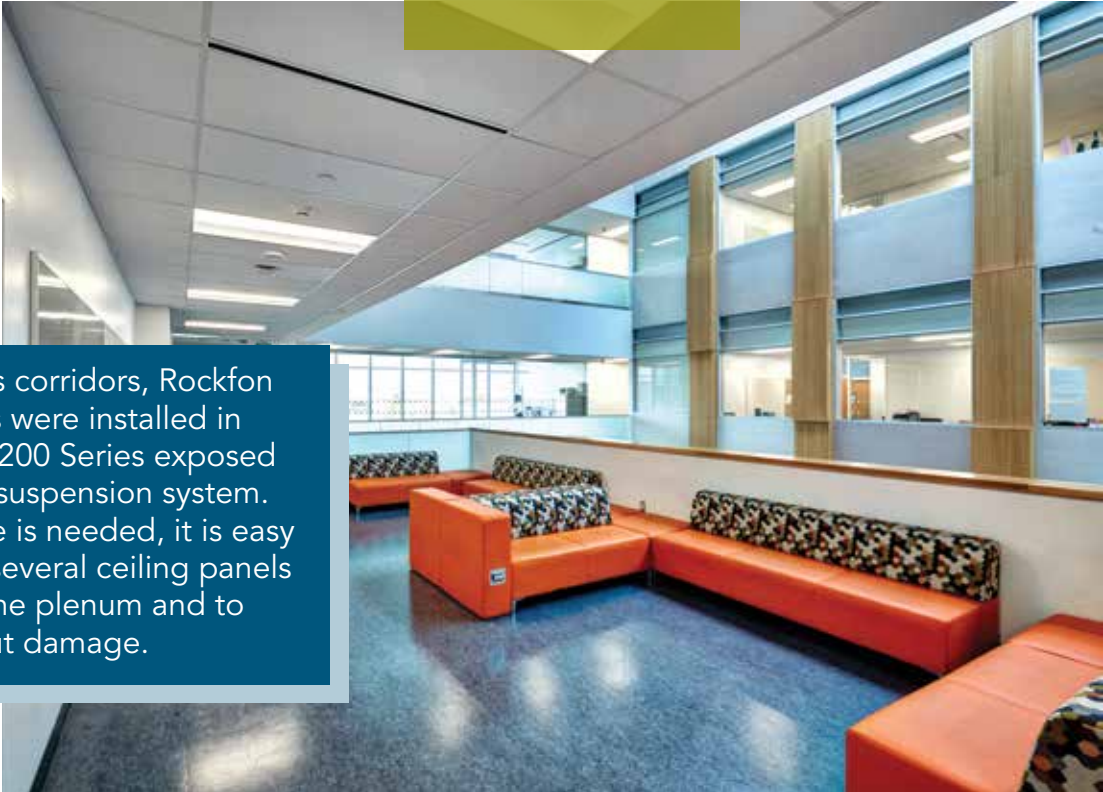
Sound and sustainable

Rockfon stone wool ceiling panels in North America also are UL/ULC certified for Flame Spread and Smoke Development. In addition to these attributes and the high light reflectance, Tai highlights several other performance benefits of Rockfon's stone wool panels. He listed: suitability as return air plenum ceiling, easy access to plenum, easy to clean surface, recycled content and a minimum Noise Reduction Coefficient (NRC) of 0.70. Exceeding expectations, most stone wool ceiling panels have an NRC of 0.85 or higher and Rockfon Alaska has an NRC of 0.90 as standard.

Due to its inherently open porous structure, stone wool is a high-performing, sound-absorptive material. "NRC is important in areas where people converse in groups and high levels of noise are present. High sound absorption helps control the ambient noise levels and prevents excessive reverberance. This increases speech intelligibility, improves concentration and mitigates the 'Lombard effect,' where people talk louder and louder to make themselves heard when trying to talk in noisy environments," advised Debanham.

Research has shown that U.S. classrooms typically have speech intelligibility ratings of 75 percent or less, meaning every fourth spoken word is not understood. Furthermore, loud or reverberant educational spaces may cause professors to raise their voices, leading to increased vocal stress and fatigue. Considered in the context of academic performance and occupant health, acoustic comfort also can be a factor in LEED certification.

Recycled content is a more obvious consideration with LEED and sustainable design. Rockfon stone wool ceiling products are made from basalt rock and contain up to 42 percent recycled material. In addition to the ceiling systems' contributions to environmentally sound design, ESCB's other sustainable features include an "Earth Tube" system to supply 100 percent fresh air to the administrative wing, geothermal heating and cooling, custom-fritted glazing to minimize solar heat gain, rain water collection for irrigation, 100 percent LED lighting with daylight harvesting, and a high-performance curtainwall.



Throughout ESCB's corridors, Rockfon Artic ceiling panels were installed in Chicago Metallic 1200 Series exposed 15/16-inch ceiling suspension system. When maintenance is needed, it is easy to remove one or several ceiling panels to gain access to the plenum and to return them without damage.

Clean and controlled

“Another natural advantage of water-repellent stone wool is that it not only repels harmful microorganisms, mold and bacteria, but it also meets stringent requirements for restricting volatile organic compounds (VOCs),” commented Isabelle Champagne, Rockfon’s architectural sales manager. Helping improve indoor air quality, Rockfon’s extensive portfolio of stone wool acoustic ceiling solutions has earned UL® Environment’s GREENGUARD Gold Certification for low-emitting products.

Due to their low particle emission, Rockfon Medical products meet stringent requirements for air cleanliness in healthcare and clean room environments. “Where high moisture content is expected, such as the glass-wash facilities, and where the clean room standard is required for sensitive equipment or contamination control, Rockfon Medical Plus ceiling tile together with the barrier grid suspension system is used,” described Tai.

In ESCB’s laboratories, Rockfon Medical Plus ceiling panels meet stringent requirements for clean room environments and contamination control. These ceiling panels also withstand high humidity and rigorous cleaning.

Rockfon Medical Plus has Bacteriological Class B1 and Clean Room Classification ISO Class 4. All Rockfon Medical ceiling panels also are Methicillin Resistant Staphylococcus Aureus (MRSA) resistant. “Rockfon Medical ceiling panels not only help stop the spread of infection, but select product finishes are also designed to withstand rigorous cleaning,” said Champagne.

She elaborated, “All of our ceiling systems at the ESCB are durable and require only minimal maintenance. When maintenance is needed, it is easy to remove one or several ceiling panels to gain access to the plenum and to return them without damage. There’s no need to use special tools, or to start at the wall removing panels until you reach the area that needs to be accessed.”

UTSC’s Stepanian agreed that having a ceiling that was easy to remove and replace was one the most important aspects in selecting Rockfon. In addition, he reiterated acoustic performance and light reflectance, as well as being durable, cost effective and aesthetically pleasing.

Tai cited the “clean, simple and crisp” aesthetics and “the smooth drywall look is definitely something we have in mind when reviewing acoustic ceiling tile options.”

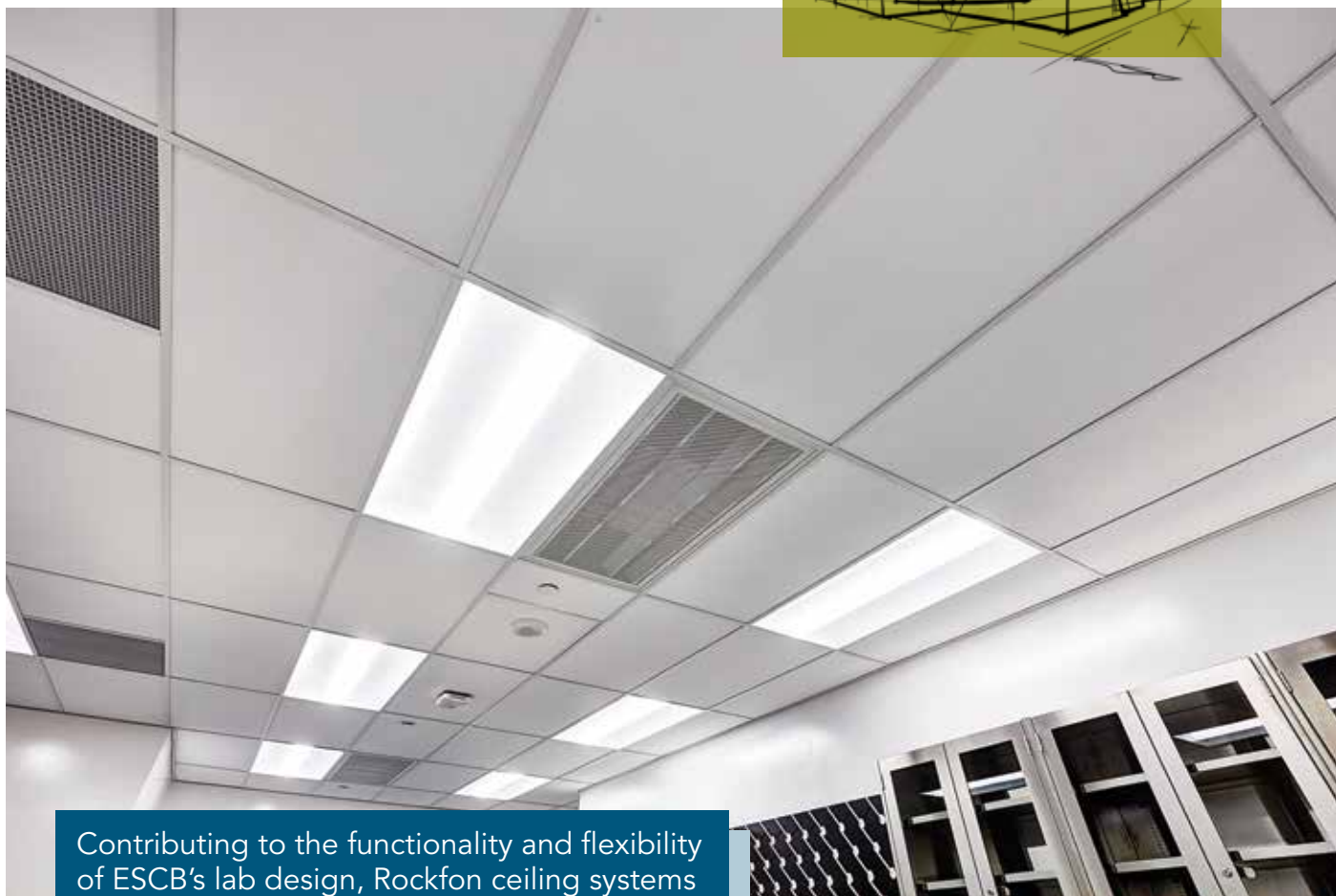
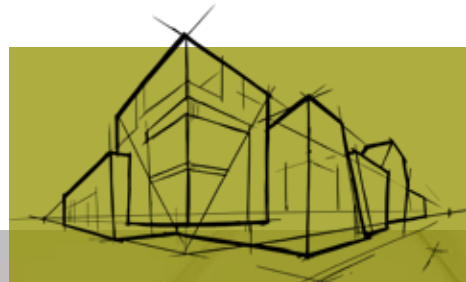
Throughout the atrium, corridors and faculty offices, Rockfon Artic ceiling panels feature shiplap edge details and custom sizes, installed with hairline precision to give the appearance of a smooth, continuous ceiling.

In ESCB’s laboratories, Chicago Metallic 1200 Series exposed 15/16-inch suspension systems supports approximately 1,315 square meters (14,154 square feet) of Rockfon Medical Plus and Artic square lay-in ceiling panels. “The primary aspects of the lab design were its functionality and flexibility. Limiting noise from equipment was a significant consideration, given the research labs are open concept,” emphasized Stepanian.

“The most notable room where Rockfon was used is the central sterilization room. This room contains two autoclaves, numerous dishwashers and is considered to be a higher humidity/wet environment requiring a ceiling system that can be wiped clean,” described Stepanian. “Rockfon was a new product to us and, so far, we are very pleased with the performance and durability.”

Along with meeting the performance specifications, Tai added, “given that Rockfon is priced very competitively,” he expects to see more architects specifying Rockfon.





Contributing to the functionality and flexibility of ESCB's lab design, Rockfon ceiling systems helped limit noise from laboratory equipment, withstand high humidity and rigorous cleaning, and provided "clean, simple and crisp" aesthetics – all while meeting the project's overall goals for sustainability, budget and schedule.

Find out more by visiting www.Rockfon.com

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