

EXOTM

Construction Group

A4LE Industry Partner Award Submission
Company: EXO Construction Group
Product: EXO Building System
2025-07-29

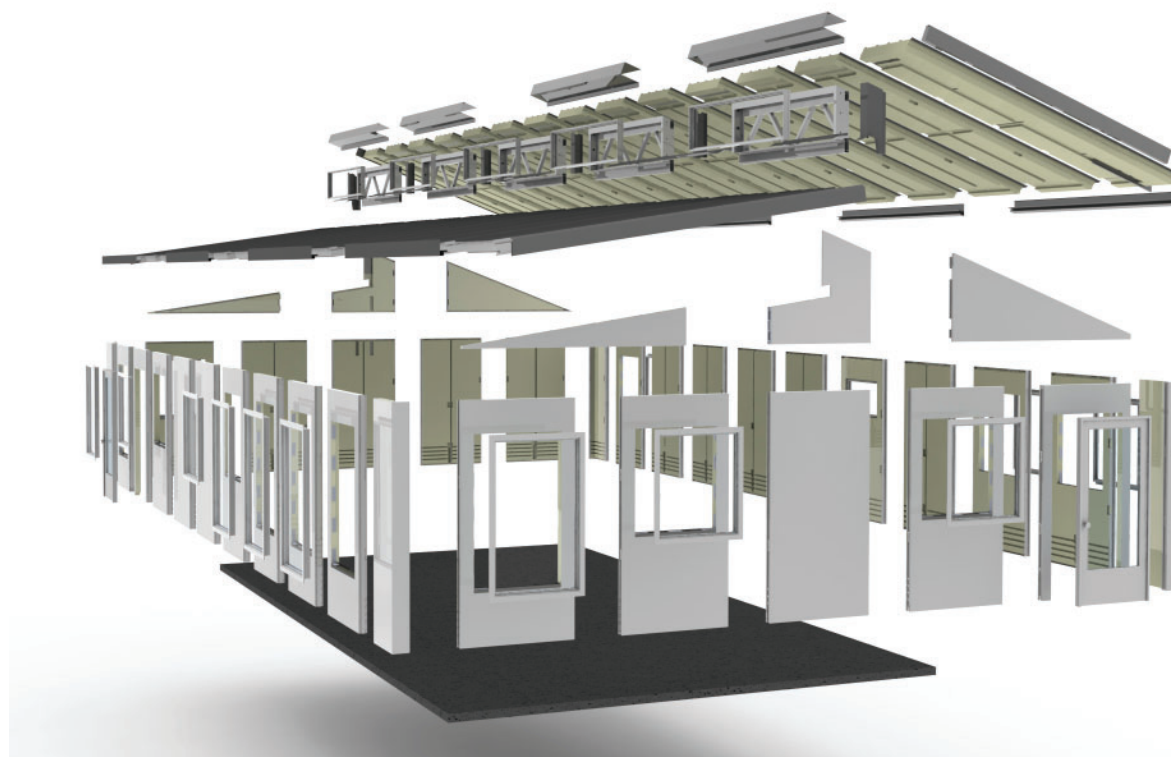


Introduction

The EXO™ Building System is a series of structurally insulated panels that come together to create pre-fabricated buildings. Due to the ease of installation on site, the advantages of our building system are: vastly reduced construction times, little to zero construction waste, and truly custom building designs to best suite our customers' needs. Initial development started in 2008, from an idea to bring emergency housing to areas in crisis.

The building system needed to be lightweight, strong, easily transported and erected in short construction times. From these requirements, a panel system was developed that had all essential elements embedded in its technology, from the interior vapour barrier, to the insulation, the structural frame, and the exterior envelope. EXO has combined all these elements to create a truly unique modular building construction solutions for schools, childcare facilities, healthcare facilities and multiple government buildings.

Over the last 15 years our focus has been devoted to bringing positive learning environments to the private and public education sector. Due to our shortened construction times and ability to design and build schools that meet or exceed the needs of the Ministry of Infrastructure here in British Columbia, our buildings are helping address massive growth in BC.



Innovation/Usage

Please describe how this product brings innovation to the market place. What characteristics or techniques are improved upon or new to the market?

Inspired by Lego, the EXO Building System takes a new approach to how permanent buildings are erected. With a combination of custom sized and shaped wall and roof panels we bring a new perspective to not only modular buildings, but to construction in general. Our panels are a composite assembly combining multiple layers and components of the building envelope, including the structure, insulation, interior vapour barrier and exterior membrane.

With quality and longevity being a major concern in construction industry, we are able to address this by fabricating our building system in a climate controlled environment that avoids exposing sensitive envelope materials to the elements, such as rain.



Describe how the product incorporates the use of new technologies (i.e. emerging technologies within the past few years or a new technology developed)?

The insulation used in an EXO panel is a closed cell polyurethane foam that we worked on with BASF to find a blend that has an FSR (Flame Spread Rating) rating of less than 25. The benefit to Polyurethane is that it has a superb R rating, and since it is a closed cell foam, no moisture will ever penetrate our structure. This helps prevent any rot or corrosion over time.

Our panels also utilize a new cover board product that has the exterior membrane integrated into it, thus alleviating the need for membrane application in the field. This drastically reduces our time on site and expedites entire projects.

Our current build is the first building in western Canada to use this product. It came highly recommended to EXO by more than one envelope engineer due to it meeting and exceeding the rain screen requirements and because it does away with field installation of membrane, which can often happen in cold and damp environments.



Elaborate on how the product is used to provide an advantage to the learning environment?

In the modular construction world, volumetric buildings are often made with the constraint of being transportable on the highway. Since the EXO Building System is a panel system we are not bound by the same constraint. Due to this we can offer more custom tailored solutions that can incorporate a large number of architectural details that promote positive learning environments. There are no height or shape limitations to our panels, therefore we can offer high ceilings and almost any roof/ceiling style. Our tall wall panels can also accommodate very large windows, and one of our most popular models features a clerestory roof that allows natural light to flood in through the roof of the building.

The diversity of configurations we can offer also allows for the footprint of the building to accommodate any architectural detail or classroom format desired. One such example is the integration of interior collapsible walls that we integrate into our buildings to allow for 2 or 3 classrooms to easily transform into one large collaborative learning space. Since the structure of the EXO buildings is embedded in our panels, it allows for us to create large wide open areas and accommodate these requests.



Environmentally-friendly Manufacturing and Safety

Describe the use of recycled materials that are used in either the manufacturing or operation or describe how the product may be recycled at the end of life.

The EXO panels structurally are steel that can be recycled at the end of life. Since our panels click together like building blocks during construction, they can be disassembled in the same way at the end of their 60+ year design life. The disassembly does not require large equipment or any kind of demolition, thus making it an easy and clean operation to take our buildings down.

Explain the level of sustainability of the product as it relates to the environmental, social or economic benefits of the learning environment.

Thermal modeling is a large part of what we do to ensure our panels and buildings meet or exceed the energy requirements from the building code. Our job sites also produced very little waste. Since we control most of the fabrication in our manufacturing facility, we can better manage the amount of waste on site. The EXO panels are quite versatile and do not require a large footprint to install. Our streamlined, panel-by-panel assembly approach minimizes disruption to the surrounding land and natural habitat.

EXO Construction Group incorporates several sustainable practices that align with green building standards. The company emphasizes minimizing environmental impact through designs that produce almost zero construction waste, use recycled materials, and optimize energy efficiency. Our buildings are designed to meet or exceed BCBC and ASHRAE standards, ensuring high energy performance and low maintenance costs over their lifecycle.

We have a partnership with top building science experts, for energy consulting, ensuring projects comply with the BC Energy Step Code and other sustainability standards. For example, our project at Dr. Charles Best Secondary School achieved significant energy efficiency targets, reducing the building's carbon footprint while creating a comfortable learning environment. The project complied with all BC Building Code regulations and standards, achieved energy efficiency targets through consultation with our building science experts as per the BC Step Code, met HVAC system requirements under ASHRAE standards, and adhered to all local building and environmental codes. One critical aspect of the project mentioned above was the heightened level of site coordination required due to the limited space available around the construction site, especially considering its proximity to a Sensitive Protected Environmental Area (SPEA). The project's success hinged on meticulous planning and execution, ensuring that the addition was seamlessly integrated with the existing school structure while minimizing the impact on the surrounding natural environment. This addition not only expanded the school's capacity but also did so in a way that respects and preserves the local ecosystem. This is just one project exemplifying our commitment to sustainability and environmental sensitivities.

Explain how the product promotes safety. This can be physical safety of a product or overall safety performance (i.e. student physical safety, building safety, etc.)

With the use of low FSR materials in combination with approved fire barrier methodologies, we are able to provide non-combustible buildings. Our buildings are considered pre fabricated but all standard safety equipment and measures can be applied to them, such as fire suppression systems. Our buildings are also designed and approved by some of the top structural engineers to meet or exceed the regional building codes. This ensures we have buildings that are built safe in all environments, including earthquake events, high snow and wind loads.



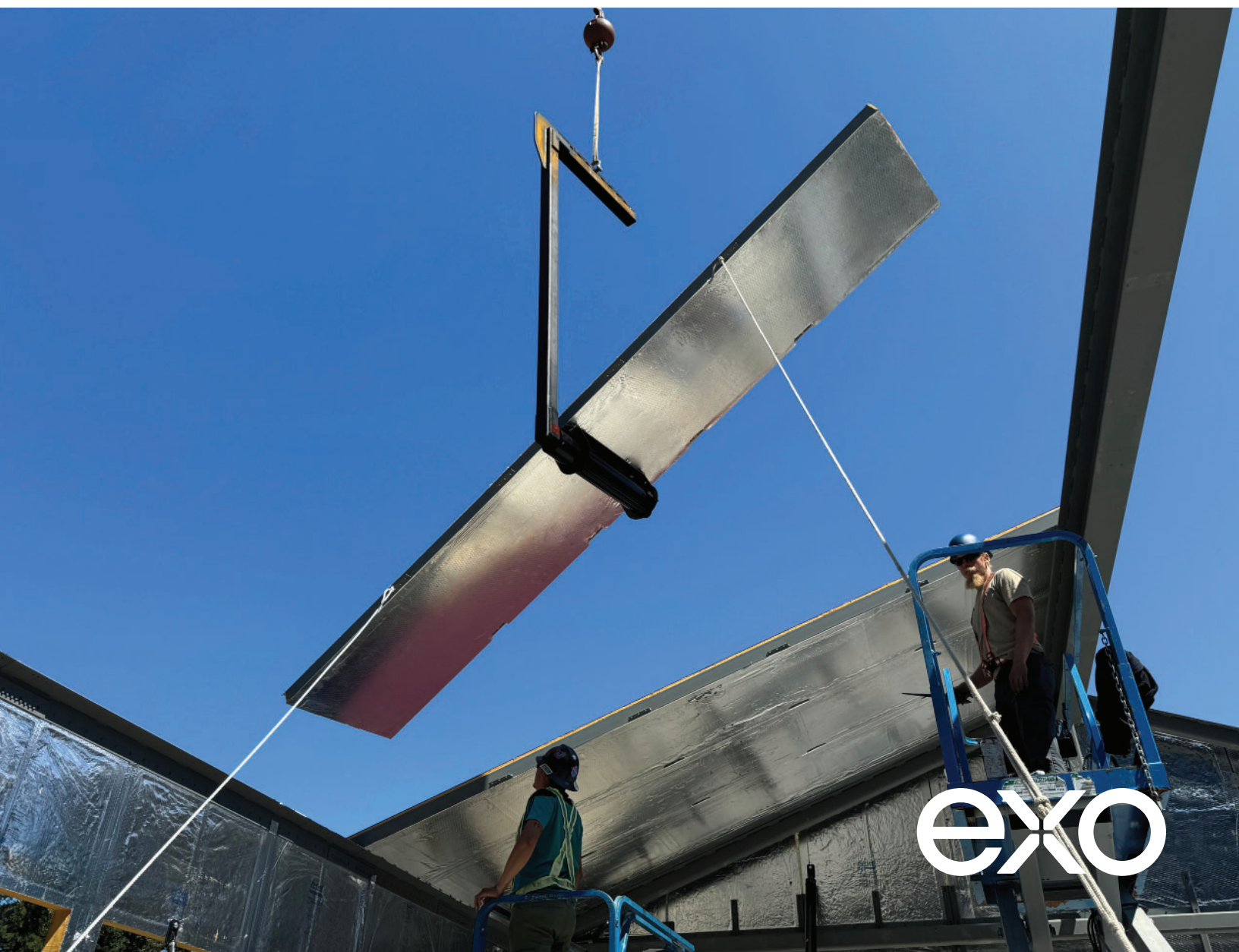
Energy Usage/Savings Economic Performance

Assess the contribution to energy savings either through production of the product, usage of the product, outcome of the product that will impact energy usage, and or a combination of all of these traits.

EXO panels meet or exceed the energy requirements put forth in the building codes in the areas we build in. With this, we are able to create environments that are very efficient to heat and cool. Our roof panels are structural in nature and can support energy harvesting systems such as solar panels.

Describe the product's stated direct cost savings to operations, maintenance, and other areas.

The EXO building system is modular in nature, therefore it can be maintained by individual modules rather than affecting the entire building should any repairs or tenant improvements be needed.



Performance Essay

Communicate attributes about the product not addressed in the above sections which makes the implementation or use of the product in a learning environment distinctive, extraordinary or high performing as it relates to student or long term environmental performance outcomes.

The EXO Building System was launched in 2008 and has evolved over the years into a modular panelized building system that allows the owner of a project to get the building of their desire. All the benefits of modular, but none of the drawbacks. Since our panels can be flat packed and shipped to site, we are able to accommodate most architectural details to suit the client's needs.

This in turn results in a very adaptable system that gets our clients closer to their goal without compromising the looks and performance of the building typically found in modular construction. Our panels ship with the exterior of the building ready to accept any cladding system, while the interior can be finished in the same way any traditional building finished.

Our roof panels ship with standard cover board material, thus giving the opportunity to install approved RCABC warrantied roofing on any of our buildings. Our panels are also suitable for multi-story buildings, with two recent projects including a 2 storey 10 classroom addition and a 2 storey 20 classroom addition attached to a heritage building. EXO has also been approved to do 3 and 4 storey buildings as well, thus allowing our clients to maximize their sqft with the amount of land available.

One of the biggest advantages of our quality system is speed, EXO's typical time line is 1 year for most builds, start to finish. This timeline includes the preconstruction and design phase all the way to completion. In 2024, EXO built two identical schools in one school district under a very tight timeline. The pouring of concrete started in May and the buildings were completed and had students in the classrooms by September and October respectively. The EXO Building System is classified as modular/pre-fabricated structures, but is permanent; with a design life of 60+ years. For all the reasons explained above we have an immense amount of pride in our building panel system and the impact it has for our clients and their communities.

