



**MODULAR CONSTRUCTION FOR CAPITAL
SCHOOL PROJECTS: ADDITIONS AND
NEW SCHOOL CONSTRUCTION**

FALL 2024



3294 262nd Street Aldergrove, BC V4W 2X2 ■ T 604.381.3678 ■ info@fortmodular.com

fortmodular.com



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INTRODUCTION

Historically, School Districts have used minimal off-site construction, mostly limited to modular portable classrooms. However, with the critical need to expedite delivery of new school classrooms, off-site construction is being considered as a solution for permanent school additions and new school construction.

In 2023, several school additions were awarded as pilot projects to off-site construction companies, each providing a different approach and solution to reduce the on-site construction timeline. **Fort Modular was privileged to be awarded three of these pilot projects in Metro Vancouver.** We're beyond proud to confirm that we're the only company that completed their projects in time for the start of the 2024 school year.

Fort Modular is uniquely positioned and has the best solution to maximize the reduction in onsite construction timeline. Our permanent modular approach also complies with:

- Ministry funding constraints
- BC Building Code, Accessibility, and Life Safety requirements
- LEED Gold Energy Performance, and/or other energy performance requirements

We welcome an opportunity to clarify any outstanding questions, provide a tour of our factory, or attend a site visit on any of our completed school addition projects.

Kind regards,



Rick Welch
VP, Modular Construction
Fort Modular Inc.

A SUMMARY OF COMPLETED SCHOOL ADDITION PROJECTS

2 Storey, 6 Classrooms, Design-Bid Build (8902 SF)

Included 2nd storey breezeway to existing school and accessible lift

- **Contract Award:** November 27, 2023
- **BP Application:** January 26, 2024
- **BP Issued:** March 27, 2024
- **Occupancy Date:** August 30, 2024

Occupancy 5 months from issuance of Building Permit

5 Classrooms, Bid-Build (6660 SF)

- **Contract Award:** October 27, 2023
- **BP Application:** December 10, 2023
- **BP Issued:** April 18, 2024
- **Occupancy Date:** August 28, 2024

Occupancy 4 ½ months from issuance of Building Permit

6 Classroom, Bid-Build (7720 SF)

- **Contract Award:** October 27, 2023
- **BP Application:** December 10, 2023
- **BP Issued:** April 4, 2024
- **Occupancy Date:** August 29, 2024

Occupancy 5 months from issuance of Building Permit



B COMPANY PROFILE

FORT MODULAR Inc. was founded in 2013 by Mark and Bryan DePedrina, both lifelong modular industry experts. Today, Fort Modular is BC's largest privately and locally owned independent provider.

Operations include rentals, renovations, relocations, new and used sales, and modular construction services. The head office is in Aldergrove, and multiple manufacturing, service, and office locations are in the lower mainland and the BC interior.

Our modular construction includes temporary, relocatable, and permanent solutions. Permanent modular construction fully meets all code, accessibility, and energy performance requirements equal to or greater than conventional construction.

Fort Modular is a vertically integrated company delivering turnkey modular construction projects:

- General Contracting & Project Management
- Preconstruction, Design, & Project Development
- Manufacturing
- Transportation
- Installation & Site Construction

Fort Modular's largest business market for modular construction is education and childcare. Other markets include commercial, industrial, and residential.

Litigation History: None

Main Office location:

3294 262nd Street, Aldergrove, BC V4W 2X2
 Phone: 604.381.3678
 Email: info@fortmodular.com

Affiliations

- VRCA, Vancouver Regional Construction Association
- ICBA, Independent Contractors and Businesses Association
- SICA, Southern Interior Construction Association
- MBI, Modular Building Institute
- CCAB, Canadian Council for Aboriginal Business
- A4LE, Association for Learning Environments
- CIH, Chartered Institute of Housing

Numerous Modular Building Institute Awards of Distinction, including Green Building, Temporary Modular Education, Permanent Modular Education, and Relocatable Modular Education



C OUR TEAM



**Mark
Depedrina**

Owner/Founder

604.240.4068 mark@fortmodular.com



**Bryan
Depedrina**

Owner/Founder

604.833.3735 bryan@fortmodular.com

ROLE

- Committed to timeless, common sense business values.
- Maintaining a positive work environment for our staff and clients. Strategic business leadership and sound fiscal management.
- Leading corporate values based on humility, accountability, responsiveness, and trust.

EXPERIENCE

- 20+ years of experience in modular construction each. Bringing second generation expertise in all facets of modular construction and experience with numerous large school projects, including Surrey College, Simon Fraser University, and the Full-Day Kindergarten Classroom program.
- Both are community minded and actively engaged in the community, bringing and building meaningful connections.





**Rick
Welch**

VP Modular
Construction

250.319.0757 rick@fortmodular.com

ROLE

- Assists owners in better determining if/when a modular approach is suitable for their project.
- Provides critical input on modular constructability, feasibilities, and execution strategies. Develops hybrid construction approaches combining modular, conventional, and other construction methods.
- Provides leadership, oversight, and problem-solving solutions.

EXPERIENCE

- 30+ years in modular construction (construction management, preconstruction, and project development).
- Successfully delivered projects from Honolulu to Baffin Island and Nunavut to California, including logistically challenging projects requiring barging, sea lifts, ice roads, rail, and helicopter delivery.
- Project experience includes institutional, education, childcare, healthcare, multi-unit residential housing, single-family housing, student, hospitality, workforce housing, and project values exceeding \$120MM.
- Project Management Professional certified (PMI).
- Chartered Institute of Housing, chartered member (CIHCM).
- Construction Management, diploma.
- Association for Learning Environments, member.
- Quantity Surveyors Society of BC, past associate member (QSSBC).





Calvin Benson

Director of Manufacturing

ROLE

- Responsible for leading the integrated design from preconstruction to close-out and overall building performance.
- Oversight of the design and engineering processes and controls.
- Lead overall quality assurance and document control processes.
- Provide input on value engineering and alternative analysis.
- Ensure compliance with third-party and owners' requirements.

EXPERIENCE

- + 30 years of Architectural Design for a variety of markets.
- Architectural and Civil Drafting, University of the Fraser Valley.
- AutoCAD Computer Design, University of the Fraser Valley.
- Architectural Desktop Accent Centre for Technical Knowledge.
- Quality First HVAC Design Heating and Ventilating Cooling Industry Association of BC.
- Association for Learning Environments, member.



Argon Robinson

Construction Manager

ROLE

- Constructability reviews, value engineering, and alternative analysis.
- Leads the planning, coordinating, managing, and execution of the on-site scopes of work, including self-performed and subcontracted scopes of work.
- Oversee the field reporting and communication on major projects.
- Responsible for on-site health, safety, and environmental programs and reporting.

EXPERIENCE

- 20+ years in modular construction (Site Supervisor, Project Manager, Director of Projects).
- Led the development of over \$32M for CMHC and First Nations Multi-Family Housing modular projects, multiple hotel projects, and hundreds of others, including multi-unit residential buildings.
- Certified in numerous construction software programs including Aconex, Cube, PR, FTQ, Procure, Citrix, SharePoint, and Kwiktag.
- CAB Certification.
- Safety Essentials for Supervisors and Management (SEFSAM).

D OFF-SITE FABRICATION METHODOLOGY

MODULAR CONSTRUCTION EXPLAINED

- Modular construction is when the building is designed and constructed in numerous modules in a factory, with floors, roofs, walls and finishes all pre-assembled.
- Modular construction resembles traditional construction in design and appearance, offering both temporary and permanent options.
- Temporary modular buildings (aka portables) typically have a preset design, are intended for short-term occupancy, and use alternative foundation and finishing materials for cost savings. However, they still meet code requirements.
- Permanent modular construction uses the same materials and meets the same codes, standards, and life expectancy as conventional construction. School additions are considered permanent modular construction.
- Modules are transported from the factory to the site and then craned onto the foundation. They are then interconnected on-site, and the final touches are added.



MODULAR VS. OFF-SITE CONSTRUCTION

- Off-site construction captures many prefabricated systems, including modular and panelized methods. Panelized construction is typically limited to pre-assembly of the framing work (typically walls, floors and roofs, with mechanical, electrical, plumbing and interior finishes completed on site).
- Modular construction has a substantial on-site speed advantage over panelized construction, as it's delivered in a more completed state from the factory, including painted walls, mechanical, electrical, plumbing, and millwork.



SCHEDULE AND COST ADVANTAGES OF MODULAR CONSTRUCTION

1. Modular is the fastest off-site construction method

- The primary reason most owners choose modular is because it's the fastest project delivery — typically by more than 50% — as civil and foundation work is completed concurrent with modular fabrication. This can also equate to overall project cost savings (reduced financing costs, reduced inflationary risks, reduced on-site general requirements, reduced interim measures (portables), etc.).
- A reduced project schedule reduces the impact on the owner. For school districts, this reduces the timeline the facilities department and key staff are required to oversee the construction project.

2. Reduced schedule risks

- Because manufacturing is completed in a factory, delays on-site with civil works typically do not impact the overall project schedule. Examples of civil risks avoided include weather, unknown soil conditions, contamination, and archeological.
- Manufacturing in a factory greatly reduces weather and seasonal impacts (weather events, winds, winter work, daylight hours, etc.).
- Reduced impact from on-site noise bylaws and other on-site working restrictions.
- Resolves challenges typical in conventional and panelized construction delivery, such as overlapping scheduling delays and extended project timelines due to a lack of qualified subtrade availability.

3. Reduced project costs and cost risks

- Fort Modular's completed permanent modular school additions demonstrate our solution readily meets MOE's funding constraints.
- Greater schedule certainty allows owners to better plan around committed occupancy dates. For school districts, this can eliminate the requirement for temporary portables and other expensive interim measures.
- Faster project schedules and decreased on-site work reduce financing costs, inflationary risks, and general requirement expenses (fencing, portable toilets, equipment rentals, site supervision, etc.).
- Decreased project duration is often reflected in owners' cost savings when contracting Construction Management and/or other project consultants.
- In-house tradespeople working in a factory setting reduce risks of cost escalation compared to contracted subcontractors. This is especially prevalent in growing communities.
- Replicable construction, like school additions, provides modular manufacturing companies with economies of scale, which results in cost savings for owners.
- A potential disadvantage of modular construction is the higher transportation costs when the factory is located a significant distance from the project site (e.g., out of province).

Other benefits of modular construction for school addition projects:

■ Less Site Disruption

Significantly shortened on-site duration greatly reduces the construction impacts on the school environment, including noise, disruptions, and safety issues. This includes reductions in on-site vehicle traffic, contractor vehicle parking, material deliveries, construction noise, pedestrian and student safety, etc.

■ Flexible Future Planning Capabilities

Even permanent modular buildings can be relocated in the future.

■ Sustainability

Significant waste reduction compared to conventional and other off-site construction methods.

■ Greater Quality

Modular factories are CSA A277 accredited, requiring strict quality control measures above and beyond conventional and other off-site construction methods, and modular construction consistently outperforms conventional with air leakage testing.

■ High Sound Transmission Ratings

Added benefit of improved sound transmission between floors and between walls due to the double wall and ceiling/floor assemblies in modular construction.

■ Increased Structural Design

Because modules are designed to withstand transportation and craning requirements, they're built to a higher standard than conventional or panelized construction. This often results in overall improved seismic capabilities for the building.



Quality Control

Fort Modular's Project Manager is accountable for the entire project's Quality Assurance and Quality Control. Our Director of Design and Engineering is responsible for Quality Assurance and Quality Control from the design stage through to manufacturing.

At Fort Modular, we believe that quality control starts with effective document control, including stakeholder and communication management processes. Validating the inputs and project documentation, especially in the early stages, significantly reduces scope, schedule, cost, and quality risks later in the project lifecycle. We manage these risks early by collaboratively selecting an information-sharing platform and validating project information internally by department managers. This process is completed and signed off by the department managers at pre-determined milestones during the planning and execution stages.

Our modular factories are CSA A277 accredited, requiring strict quality control measures above and beyond conventional and other off-site construction methods. We are audited by independent inspection agencies to maintain our CSA certification. As an example, modular construction consistently outperforms conventional in air leakage testing. Each module, as it's assembled, receives hundreds of quality control inspections that are recorded and filed with each module. Any failed inspection is reported, corrective measures are taken, and then re-inspected before the module advances to the next stage in the production line.

In the factory, each module is subject to inspection by the local Authority Having Jurisdiction, as well as the engineering and consultant teams, to provide the Schedules and Letters of Assurances on Part 3 buildings. Owners and their representatives also often complete inspections.

The primary quality control benefit owners receive with modular construction is earlier validation of scope, performance, and quality. The first modules in manufacturing that are tested and completed provide a visual reference, confirmation, and quality baseline for the remaining manufacturing. This added assurance to owners is available almost 50% faster than conventional or panelized construction and provides an earlier opportunity for any corrective measures or product specification changes, if needed.

Warranty

- Fort Modular's standard one-year warranty with extensions available upon request
- Original Equipment Manufacturers (OEM) warranties provided
- RCABC 25-year roofing warranty



E RELEVANT PROJECT EXPERIENCE

For brevity, only recent projects included, and excludes private school and university projects.

SCHOOL NAME	CONSTRUCTION BUDGET	SIZE (SQ FT)	COMPLETION DATE
George Hilliard, Westmount SD73 Kamloops - 2 Portable Portable Classrooms	\$388,863	1920	2021
Alexis Park Elementary SD22 Vernon - 2 Portable Portable Classrooms	\$317,500	1920	2022
Seaton Secondary SD22 Vernon - 2 Portable Classrooms	\$317,500	1920	2022
Hudson Road Elementary SD23 Kelowna - 2 Portable Classrooms	\$423,572	1920	2022
James Whiteside Elementary John G. Diefenbaker Elementary SD38 Richmond - 8 Portable Classrooms	\$1,200,000	7680	2022
Banting, Minnekhada, Moody, Roy Stibbs, Smiling Creek SD43 Coquitlam - 11 Portable Classrooms	\$1,844,784	10560	2022
Chemainus, Duncan, Khowhemun, Palsson, University Way SD79 Cowichan Valley - 5 Childcare Centers	\$3,668,973	2880	2022
Ecole Beausoleil SD93 CSF Victoria - 12 Unit Portable School Addition	\$3,014,946	11520	2022
Beirsto Elementary SD22 Vernon - 2 Portable Classrooms	\$427,690	1920	2023
Vernon Senior Secondary SD22 Vernon - 2 Portable Classrooms	\$427,690	1920	2023
Shannon Lake Elementary SD23 Kelowna - 1 Portable Classroom	\$269,267	960	2023
Mount Boucherie Secondary SD23 Kelowna - 1 Portable Classroom	\$269,267	960	2023
Chief Tomat Elementary SD23 Kelowna - 1 Portable Classroom	\$269,267	960	2023
Garden City Elementary & Spul'u'kwuks Elementary SD38 Richmond - Childcare Centers	\$1,634,635	1440	2023
James McKinney Childcare SD38 Richmond - Childcare Centers	\$737,160	1440	2023

SCHOOL NAME	CONSTRUCTION BUDGET	SIZE (SQ FT)	COMPLETION DATE
William Bridge Childcare SD38 Richmond - Childcare Centers	\$737,160	1440	2023
James Whiteside Childcare SD38 Richmond - Childcare Centers	\$737,160	1440	2023
Adult Education Centre SD38 Richmond - Childcare Centers	\$878,326	1920	2023
Maple Lane Elementary Manoah Steves Elementary SD38 Richmond - 2 Portable Classrooms	\$1,277,011	1920	2023
FW Howay Elementary SD40 New Westminster - Childcare Center	\$891,652	2880	2023
Lord Tweedsmuir Elementary SD40 New Westminster - Childcare Center	\$891,652	2880	2023
Alpha Secondary, Brentwood, Cameron, Kitchener SD41 Burnaby - 6 Portable Classrooms	\$1,309,746	5760	2023
Minnekhada, James Park, Cape Horn, Banting SD43 Coquitlam - 7 Portable Classrooms	\$1,954,227	6720	2023
Frances Kelsey SD79 Cowichan Valley - 2 Portable Classrooms	\$436,627	1920	2023
New Westminster Secondary School, Lorde Kelvin SD40 New Westminster - 6 Portable Classrooms, 1 Washcar	\$1,996,359	5760	2023
School District 59 Peace River 1 Portable Classroom	295,380	960	2023
School District 41 - To Be Determined SD41 Burnaby - Portable Classrooms	\$673,647	960	2024
School District 44 - To Be Determined SD44 North Vancouver - 4 Portable Classrooms	\$1,080,580	3840	2024
School District 62 Sooke SD62 Sooke - Washcar	\$180,815	350	2024
Richard Bulpitt Elementary SD35 Langley - 2 Storey, 6 Classroom School Addition	\$4,569,055	8468	2024
William Cook Elementary SD38 Richmond - 5 Classroom School Addition	\$2,700,000	7728	2024
Brighthouse Elementary SD38 Richmond - 6 Classroom School Addition	\$2,900,000	8832	2024
Talmei Elementary SD38 Richmond - 6 Classroom School Addition	\$3,049,000	8832	2025

F PROJECT MANAGEMENT

MANAGEMENT APPROACH

Fort Modular is committed to fostering effective working relationships with school districts, owner's representatives, and other project team members. We achieve this through teamwork, responsiveness, accountability, transparency, open communication, a positive approach, and a vision to build and maintain long-standing relationships in the education sector.

For fast-tracked school addition projects, it is critical for the entire project team to make a concerted effort at the project kick-off to develop a shared understanding of the project requirements, goals, constraints, stakeholders, specific school district standards, and expectations regarding deliverables and communication protocols. Site-specific issues concerning mobilization, access, security, and safety are also factors that need to be addressed. With the project schedule being a critical constraint, it is also essential that the project team commits to and validates the project baseline schedule, including hold points and turnaround timelines. If this information isn't already recorded, Fort Modular creates and records this knowledge and guiding principles in a Project Charter.

We believe the best project management methodology is the one best suited for the project, owner, and project team. Typically, most of our projects follow a Traditional Project Management approach:

1. Initiation
2. Planning and Design
3. Execution
4. Control and Integration
5. Validation

In addition to the Traditional approach, we often recommend an Agile Project Management approach when needed, as this approach can be useful for work areas where the project scope is not clearly predefined, or a new work scope is added. Examples of this could include civil site development if the surveying and geotechnical reports were not available prior to contract award, or a request to add a breezeway to an existing school. This flexible, alternative approach helps ensure the project schedule is maintained while the owner's key design requirements are still included.



Another key strategy Fort Modular implements for fast-tracking school additions is the creation of sub-projects. These sub-projects are planned and developed simultaneously, rather than sequentially. The sub-projects include:

1. Civil
2. Utilities
3. Foundation
4. Long lead procurement (elevators, windows, electrical panels, mechanical equipment)
5. Modular manufacturing
6. Modular site installation
7. Handover, orientations, and documentation

Fort Modular’s project manager is accountable for monitoring and controlling the project schedule and utilizes the following steps:

- Review the schedule, schedule baseline, and critical path regularly.
- Identify variances and take corrective action as needed (reference schedule performance index and schedule variance).
- Monitor the progress of the project and sub-projects, and make necessary adjustments.
- Communicate the priority of schedule management with subtrades, suppliers, and vendors; monitor and validate performance.
- Monitor schedule risk indicators (reference risk management plan) and implement risk management measures as needed.
- Communicate with the project team regarding schedule status and critical path.

Our Fort Modular team has considerable experience delivering sustainable, energy-efficient projects, including LEED Gold, Step Code 4, and Passive House.



FORT MODULAR ADVANTAGES

Conveniently located in Aldergrove, BC.

- Easily available for owner's factory inspections and validation of manufacturing status
- Significantly lower costs for travel and time for Architects, Engineers, Consultants, Construction Managers, Municipal Building Inspectors, and other representatives for factory inspections
- Readily available for in-person and impromptu meetings, improving communications
- Better comprehension of the BC Building Code, unlike some out-of-province competitors
- Considerable transportation cost savings, compared to out-of-province suppliers (and subsequent environmental impacts)

Financial Stability

- Fort Modular maintains a strong balance sheet
- Diversity of operations, including rental division with 600+ assets

Modular Factory

- CSA A277 certification for prefabricated buildings
- Multiple factory/production lines for increased flexibility and capacity
- Covered storage of building materials for protection from the elements provides better quality control on moisture content and reduces risk of damage on materials

Turnkey Capability

- In-house project management, design, preconstruction, manufacturing, transportation, and site installation
- Single-sourced accountability greatly reduces communication errors
- Reduced reliance on third-party subcontractors greatly increases schedule certainty and decreases costs for owners

Our Team

- Our project team's experience is unmatched
- Proven accountability and professionalism working with school districts in BC
- Locally accountable in the community where we live, work, and play and where our children and grandchildren will be attending these schools

Forward Looking

- We have been proactively aligning ourselves with top-tiered architectural, engineering, and contracting firms experienced with institutional school standards and school districts.
- Fort Modular's team members have joined the Association for Learning Environments (AFLE) to understand twenty-first-century learning principles better. We actively attend and present at conferences and have toured several newly constructed conventional schools.