

Introduction Bundle

A Smart Way to Build



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Introduction

TILT WALL: GETTING IT BUILT FASTER, STRONGER AND BETTER

This document will help you to learn about the benefits and processes behind tilt-up construction for your next project

Tilt Wall Ontario is a subcontractor committed to bringing a superior building product to the Ontario construction industry since 2002. With our tilt-up construction and design experience we are able to assist our clients in designing buildings with lasting beauty and value.

Tilt-up construction is a method of building developed more than 100 years ago where walls or building elements are cast on-site. They are lifted (tilted) into place and braced until permanent structural connections are completed. Tilt-up walls can be insulated and/or load bearing with a wide variety of finishes. The many applications of the tilt-up system deliver quality, speed, economics, durability and beauty. With more than 60 buildings and 3,000 panels comprising over a million square feet of panels Tilt Wall has become a leader in tilt-up construction in Ontario.

Over the years, Tilt Wall has built an impressive portfolio featuring a wide range of complex projects, from educational institutions like the University of Guelph's Bio-Products Discovery and Development Centre to multi-storey residential buildings like Muskoka Bay Resort's condominium. In doing so, Tilt Wall has received many industry accolades: 6 Ontario Concrete Awards, 5 Tilt-Up Concrete Association Awards and the TCA's 2018 Contractor of the Year.

Tilt-up construction is able to offer the following advantages:

- Energy efficiency through 100% continuous insulation and zero thermal bridging
- Thermal mass storage through exposed interior concrete
- Durability on the exterior and interior with solid concrete
- Flexibility in interior and exterior design
- Structural integrity with load-bearing concrete panels
- Security and safety
- Sustainability
- Speed of construction
- Cost savings



Tilt-Up Advantages

► Energy Efficiency

Insulated tilt-up panels come in a variety of type and thickness of rigid insulation, ranging from 50mm to 200mm thickness. To form insulated concrete walls, concrete is poured on both sides of the foam and the finished panel is held together with a non-thermal conductive fiberglass tie. The thickness will be determined by the thermal characteristics of the insulating material and the thermal loads on the structure. Insulation values range from R10 to R67. The higher the R value the lower the HVAC demands. Large tilt-up panels have sealed joints, reducing uncontrolled infiltration. In a site-cast tilt-up panel, the insulation is 100% continuous, spanning from edge to edge and top to bottom. The insulation is protected from sun, rain, wind, rodents and bugs by the concrete once the panels have cured. The rigid insulation is protected in the panel and retains its R-value over time.

► Thermal Mass

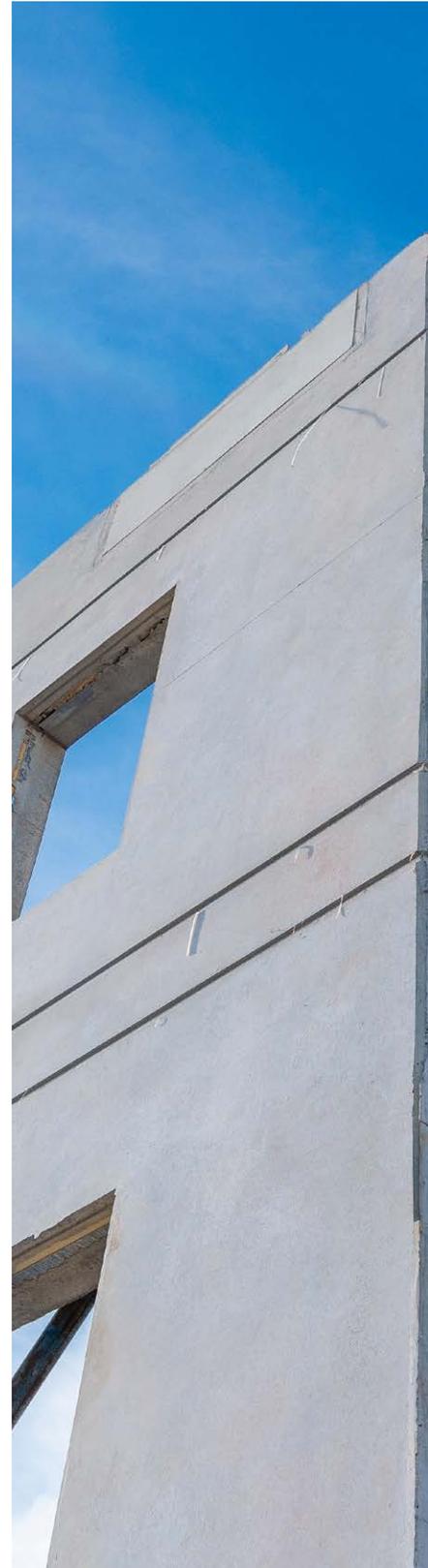
The panel's excellent thermal mass characteristics make it one of the most energy efficient methods of construction. Tilt-up concrete sandwich wall panels used as an interior surface can save materials by eliminating the need for interior framing and drywall, all while allowing concrete to gradually store and release heat to help moderate daily temperature swings. Thermal mass can improve comfort, resiliency and save energy.

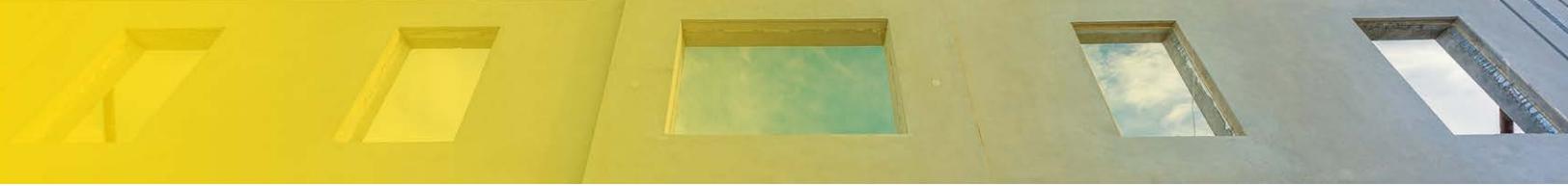
► Durability

Concrete panels are low maintenance, which means cost savings for the entire life of the structure. Normal exterior concrete strength is 30 MPa with air to help it through the freeze-thaw cycles that exterior of building are subject to. Solid concrete on the exterior helps protect the insulation and structural integrity of the building from natural elements such as wind-driven-rain, gale force winds, fires and extreme temperature swings all which can deteriorate a building over time. The panels are a cost-effective, energy-efficient, durable, strong and fire-resistant cladding system that will outlast most other building methods.

► Design Flexibility

Using one of the most fluid building products on the market means that any tilt-up building can be attractive which you can take great pride in. Textures produced by form liners and other methods can result in a wide variety of finish patterns including stone, brick, wood grains and others. An unlimited array of colourings can be added to the concrete, or coatings can be applied after the fact for beautiful affects. Interior wall panels with a smooth finish will resist everyday wear and tear, provide a clean, durable and mold resistant surface no matter the occupancy.





► Structural Integrity

Tilt-up panels are load bearing, meaning they eliminate the need for beams and columns along exterior walls. They are usually designed to span between the foundation and roof beams without the need for additional intermediate supports. They can accommodate a variety of loads, including wind, seismic, equipment, structural loads and provide blast resistance.

► Security

Tilt-up concrete applications offer superior fire resistance compared to conventional construction materials. The sandwich panels can provide up to 4 hours fire resistance, they have inherent fire containment characteristics, they add safety and security which can improve insurance rates and speed mortgage approvals. Damage to a concrete building is generally minimal and easily repaired. Tilt-up structures withstand wind and hail storms and are impenetrable by the smallest rodent, insect, or even the most determined human.

► Sustainability

The raw materials used in tilt-up panel construction are generally sourced locally, reduces construction waste, and minimizes transportation and disposal costs. They can be designed to be disassembled, saving materials and extending the life of the panels. The durability creates a long life-cycle with low maintenance, reducing the need for replacement and maintenance during a building's life.

► Speed of Construction

In tilt-up construction much of the work on the walls is done simultaneously. As the walls are built the exterior and interior finishes are completed along with the insulation, air and vapour barriers. Since tilt-up panels are load bearing, the footing and foundation work tends to be simpler also speeding up the construction process. When required a temporary casting slab can be used on-site, which further accelerates the schedule. With 90% of the work happening at ground level the need for scaffolding and aerial work is also minimized, once again speeding up productivity.

► Costs

The speed of construction allows for earlier occupancy and reduces the overall construction time and costs. Elimination of most exterior steel columns and piers can also be a significant savings. With tilt-up being an all-in-one exterior wall system much of the small costly details around openings, parapets and transition points in construction materials and finishes is eliminated.

Tilt-Up Process



1 Site Preparation & Foundation Slab

All required materials and equipment are gathered for the job. Next, the concrete floor slab is poured.

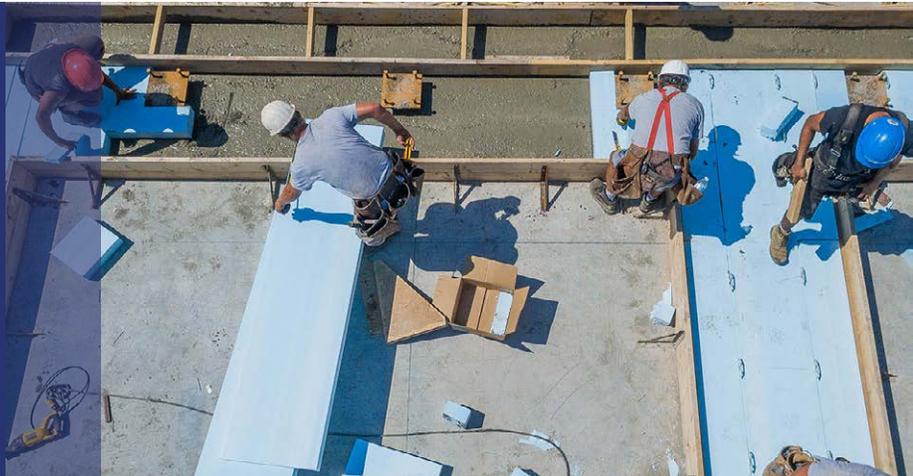


2 Forming Wall Panels & Adding Form liners

The crew assembles the panel forms on the floor slab. The panel forms serve as molds for the concrete. Each form provides the panel's exact shape and size as well as openings for doors and windows

3 Pouring Outer Layer & Adding Insulation

Concrete is poured into the prepared forms to create the panels. Sandwich insulation is also encased into each building panel to give tilt-up structures true edge-to-edge insulation.





4 Panel Reinforcement, Inserts and Embeds & Pouring Inner Layer

Up next, workers tie in the steel grid to reinforce bars into each form. This part of the process gives the panels additional structural integrity. Workers also install inserts and embeds, which will be used to lift the panels later. Then the inner layer of concrete is poured.



5 Lifting Concrete Panels In Place

The concrete panels are given time to solidify; The crew then connects the panels to a crane. The crane then lifts the panels from the floor slab into position. From here, the workers will connect the panel's braces to the slab.

6 Panel Finishings & Caulking Joints

During the last step of the process, the building begins to look like a finished product. Exterior walls are finished and the joints are also caulked to prevent water penetration.



Cost Comparison ON SCHOOLS

School Name - One-Storey	Location	Type	Floor Area sq. ft.	Bid Amount	Per Foot
Holland Marsh District Christian School	Newmarket	Tilt-Up	30,490	\$ 4,488,500	\$ 147.21
Grace Christian School	Dundas	Tilt-Up	28,200	\$ 4,700,000	\$ 166.67
Half Moon Bay Elementary School II	Ottawa	Conventional	49,570	\$ 9,092,000	\$ 183.42
Avalon Catholic Elementary School	Orleans	Conventional	49,356	\$ 9,093,800	\$ 184.25

Average costs per foot for a 1-storey school:

Conventional:	\$	183.83
Tilt-Up:	\$	156.94
Savings:	\$	26.89

School Name - Two-Storey	Location	Type	Floor Area sq. ft.	Bid Amount	Per Foot
Findlay Creek Elementary School	Findlay Creek	Tilt-Up	73,000	\$ 12,797,000	\$ 175.30
Half Moon Bay Elementary School	Ottawa	Tilt-Up	63,720	\$ 11,652,000	\$ 182.86
Broadview Public School	Ottawa	Tilt-Up	74,180	\$ 15,547,000	\$ 209.58
Kingston Centre Catholic Elementary School	Kingston	Conventional	35,000	\$ 7,953,000	\$ 227.23
Fernbank School	Stittsville	Conventional	110,000	\$ 25,178,000	\$ 228.89
École élémentaire catholique Avalon II	Orleans	Conventional	47,790	\$ 11,676,000	\$ 244.32

Average costs per foot for a 2-storey school:

Conventional:	\$	233.48
Tilt-Up:	\$	186.84
Savings:	\$	46.64

Tilt-Up Construction has saved the public:

275,210.00 sq. ft. of school at \$ 46.64 per foot:	\$ 12,835,794.40
58,690.00 sq. ft. of school at \$ 26.89 per foot:	\$ 1,578,174.10
Total:	\$ 14,413,968.50

Please note:

- Values are bid results and may not reflect actual construction costs.
- Note: All school construction timeframes are from 2014 to current day.

Cost Comparison

ON COMMERCIAL DEVELOPMENT



Choosing the right building method requires a thorough analysis of the construction methods available to get an accurate comparison on construction costs and long-term savings.

Items to consider when computing the total cost of building construction include:

- Savings to excavation
- Elimination of exterior piers and columns
- Savings to perimeter steel
- Elimination of multiple trades
- Speed of construction and reduction of overhead

	Tilt-Up (7-month schedule)	Conventional (9-month schedule)
General requirements	\$ 618,478.00	\$ 738,478.00
Concrete work	\$ 930,842.00	\$ 1,367,497.00
Masonry and precast		\$ 1,419,738.00
Tilt-up	\$ 1,460,000.00	
Interior demising walls	\$ 216,486.00	\$ 472,486.00
Structural steel/misc metals	\$ 998,580.00	\$ 1,520,180.00
Contingencies	\$ 211,219.30	\$ 275,918.95
Total	\$ 4,435,605.30	\$ 5,794,297.95

Savings on a 81,000 sq. ft. building

Savings with Tilt-up in \$: 1,358,692.65

Savings with Tilt-up in %: 23.40%

Energy Usage Comparison ON SCHOOLS



Among its many benefits, one of the biggest draws of tilt-up construction is its energy efficiency. At a time when environmental impact is top of mind and school districts are looking for ways to cut energy costs, tilt-up buildings are an ideal solution.

Some of Ontario's school districts have the unique challenge of responding to drastic enrollment increases while increasing the sustainability of their buildings. Tilt-up makes it possible to achieve both goals.

Tilt-up construction takes advantage of concrete's thermal mass properties as well as more energy-efficient insulation systems and reduced air infiltration. This results in less air leakage and stable indoor temperatures, which can cut energy costs by up to 35%.

Traditional Construction VS Tilt-Up Construction



York Region School Board Average
 Electrical: 5.29 kWh
 Gas: 1.00 m³



CEPEO School Board Average
 Electrical: 12.4 kWh
 Gas: 1.24 m³



King Christian School
 Electrical: 4.58 kWh -14%
 Gas: 0.58 m³ -42%



Des Sentiers School
 Electrical: 9.30 kWh -25%
 Gas: 0.39 m³ -68%

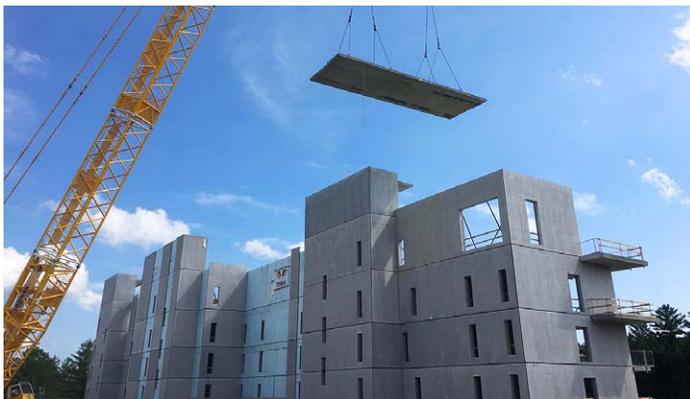
*School energy usage per square feet

Muskoka Bay Resort Condominium

PROJECT LINK: [Tiltwall.ca/project/muskoka-bay-resort-condominium-gravenhurst-ontario-2019/](https://tiltwall.ca/project/muskoka-bay-resort-condominium-gravenhurst-ontario-2019/)

Construction on Muskoka Bay Resort's five-storey, multi-unit condominium started in early 2019. Panel construction began the first week of March, the foundation was completed by the end of April, and all underground and floor slabs were completed at the end of May. Panels were erected from June 3 to July 18. Because of the size of the building, Tilt Wall had to adjust some parts of its process.

PROJECT:	Muskoka Bay Resort Condominium	SQUARE FOOTAGE OF PANELS:	111,928 sq ft
ADDRESS:	1217 N Muldrew Lake Rd. Gravenhurst, Ontario	NUMBER OF PANELS:	338
YEAR BUILTS:	2019 – 2020	HEAVIEST PANEL:	119,927 lbs
ENGINEER OF RECORD:	Blackwell	TALLEST PANEL:	13'-0"
GENERAL CONTRACTOR:	Alliance Homes	LARGEST PANEL:	882 sq ft
BUILDING USE:	Residential		



LIFTING PANELS
Because of the size of the building, Tilt Wall installed panels one floor at a time.



REAR VIEW
Tilt-up panels bear the load of the entire five-storey multi-unit building.

Project Profile

Home For Good

PROJECT LINK: [Tiltwall.ca/project/home-for-good-belleville-on-2019/](https://tiltwall.ca/project/home-for-good-belleville-on-2019/)

With the need for a durable and affordable building option, Geertsma Homes turned to tilt-up construction. This project is a 40 unit apartment designed with exterior and interior load bearing tilt-up and a hambro floor system.

PROJECT:	Home for Good	SQUARE FOOTAGE OF PANELS:	33,886 sq ft
ADDRESS:	490 Sidney Street, Belleville, Ontario	NUMBER OF PANELS:	62
YEAR BUILD:	2019	HEAVIEST PANEL:	84,900 lbs
ENGINEER OF RECORD:	Barry-Bryon Associates (BBA)	TALLEST PANEL:	33'-8"
GENERAL CONTRACTOR:	Geertsma Homes	LARGEST PANEL:	856 sq ft
BUILDING USE:	Affordable Housing		

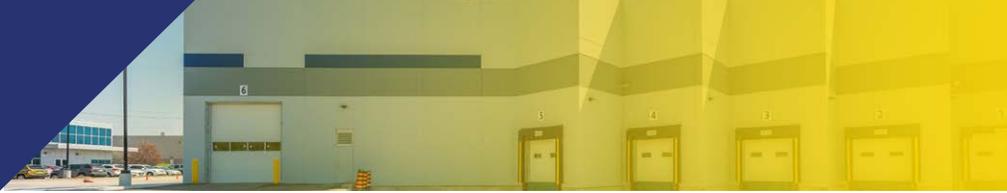


LIFTING PANELS
Once the concrete hardens, many panels can be raised in a single day.



EXTERIOR
These strong, maintenance-free structures often cost less and still have the ability to incorporate unique architectural elements as desired.

Project Profile



PPFD New Facility

PROJECT LINK: Tiltwall.ca/project/ppfd-new-facility-whitby-ontario-2016-2/

“Tilt-up was recommended based on efficiencies from the standpoint of operating the building, as well as construction timing and costs,” says PPF chief operating officer Aaron Kee. This offered significant energy savings over the life of the building. The project required 88 tilt-up panels with Tilt Wall using the Delta Tie Insulated Sandwich Panel Thermal System to provide 39,665 square feet of continuous insulation.

PROJECT:	PPFD New Facility	SQUARE FOOTAGE OF PANELS:	39,665 sq ft
ADDRESS:	180 William Smith Drive, Whitby, Ontario	NUMBER OF PANELS:	88
YEAR BUILD:	2016	HEAVIEST PANEL:	91,245 lbs
ENGINEER OF RECORD:	WalterFedy	TALLEST PANEL:	40'-0"
GENERAL CONTRACTOR:	Johnson Building Construction Inc	LARGEST PANEL:	1,561 sq ft
BUILDING USE:	Distribution Warehouse		



AERIAL VIEW
All panels were constructed and erected in under 7 weeks



LIFTING PANELS
Lifting from the interior of the building speeds up the erection of tilt-up panels.



ERECTED PANELS
Load-bearing insulated panels shortened the construction timeline.

Richmond Hill Medical Building

PROJECT LINK: [Tiltwall.ca/project/richmond-hill-medical-building-london-ontario-2015/](https://tiltwall.ca/project/richmond-hill-medical-building-london-ontario-2015/)

The unique lot setbacks, less than ten feet around two sides and about fifteen feet on a third side also posed construction challenges. Walls had to be fire rated and there was limited construction access for these sides of the building. Using site-cast insulated tilt-up construction helped overcome both of these difficulties. Using a heated floor slab enabled casting of the panels in early March, and in early April the panels were erected.

PROJECT:	Richmond Hill Medical Building	SQUARE FOOTAGE OF PANELS:	18,284 sq ft
ADDRESS:	215 Fanshawe Park Rd W, London, Ontario	NUMBER OF PANELS:	32
YEAR BUILD:	2015	HEAVIEST PANEL:	96,000 lbs
ENGINEER OF RECORD:	Barry-Bryan Associates (BBA)	TALLEST PANEL:	29'-0"
GENERAL CONTRACTOR:	Grand River Contracting Inc.	LARGEST PANEL:	937 sq ft
BUILDING USE:	Doctors' Offices & Pharmacy		



LIFTING PANELS
Large panels were cast and erected on-site.



INTERIOR VIEW
Tilt-up panels are load bearing, which saved construction time and materials.

Project Profile

Production Rower Royal Canin

PROJECT LINK: Tiltwall.ca/project/royal-canin-guelph-ontario-2007-2009/

One of the highlights on this project was taking the structural core stairwell, which was designed as poured-in place, and converting it to tilt-up panels. The panels for this were cast on the side while the main floors were being constructed using a combination of tilt-up panels and structural slabs. Once the main floors had been poured and achieved the required strength (5 days) the 53-foot-high panels were erected.

PROJECT:	Royal Canin Canada	SQUARE FOOTAGE OF PANELS:	41,599 sq ft
ADDRESS:	100 Beiber Rd, Guelph, Ontario	NUMBER OF PANELS:	155
YEAR BUILD:	2007 - 2010	HEAVIEST PANEL:	111,600 lbs
ENGINEER OF RECORD:	Retiz Consultants	TALLEST PANEL:	51'-0"
GENERAL CONTRACTOR:	Nelson Timbro	LARGEST PANEL:	1,164 sq ft
BUILDING USE:	Manufacturing Facility & Laboratory		



FRONT VIEW
Most of the tilt-up panels were covered with insulated metal panels.



POURING PANELS
The Tilt Wall crew forms all components on-site, including this stairwell panel.



INSIDE VIEW
Tilt-up construction's versatility allows for both exterior and interior walls to be formed on-site.

Project Profile

1269 Commerce Way

PROJECT LINK: Tiltwall.ca/project/commerce-way-woodstock-ontario-2014/

The building is multi-tenanted, and the design reflects unique architectures for each suite. This promoted the creation of three unique frontages, and allowed the design builder to employ three different tilt-up solutions. Currently the new building sits at the epicentre of a new industrial park. While the neighbouring complexes dwarf this new structure, this new contractor's office sits proud as a "jewel" for better construction possibilities.

PROJECT:	1269 Commerce Way	SQUARE FOOTAGE OF PANELS:	19,950 sq ft
ADDRESS:	1269 Commerce Way, Woodstock, Ontario	NUMBER OF PANELS:	45
YEAR BUILD:	2014 – 2016	HEAVIEST PANEL:	82,100 lbs
ENGINEER OF RECORD:	Barry-Bryan Associates (BBA)	TALLEST PANEL:	29'-4"
GENERAL CONTRACTOR:	Tilt Wall Ontario Inc.	LARGEST PANEL:	946 sq ft
BUILDING USE:	Mixed Office & Light Commercial		



LIFTING PANELS

An entire panel can be raised in a matter of minutes with tilt-up construction.



EXTERIOR VIEW

This bold design stands out from the neighbourhood's rectangular industrial buildings.

Lakeland Developments Warehousing

PROJECT LINK: [Tiltwall.ca/project/lakeland-developments-warehousing-barrie-ontario-2019/](https://tiltwall.ca/project/lakeland-developments-warehousing-barrie-ontario-2019/)

The Lakeland Developments Warehousing Project was a prime example of the speed of tilt-up construction. Panel construction began on September 9, and panels were erected in just 8 hours over the course of October 7-8. In addition to a short construction schedule, tilt-up construction helped reduce overall costs for this warehouse. Tilt-up will also enable the building owners to operate the space more efficiently over time.

PROJECT:	Lakeland Developments Warehousing	SQUARE FOOTAGE OF PANELS:	19,950 sq ft
ADDRESS:	50 Lockhart Road Barrie, Ontario	NUMBER OF PANELS:	45
YEAR BUILD:	2019	HEAVIEST PANEL:	63,750 lbs
ENGINEER OF RECORD:	StructuralEdge Engineering	TALLEST PANEL:	29'-4"
GENERAL CONTRACTOR:	Lakeland Developments Warehousing	LARGEST PANEL:	946 sq ft
BUILDING USE:	Warehouse		



LIFTING PANELS

Cranes are brought in to do the heavy lifting of the panels- the heaviest panel was 63,750 lbs.



WALL DETAIL

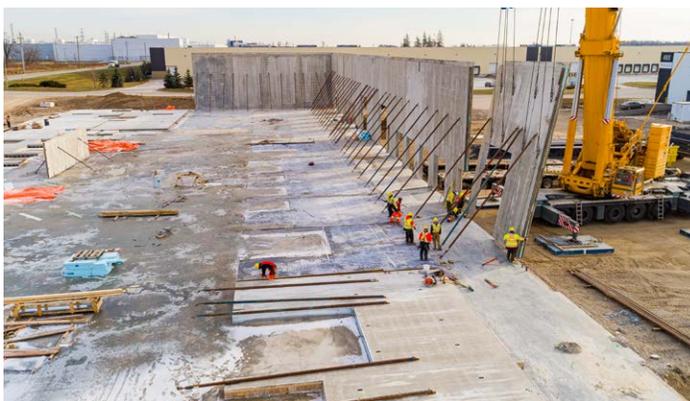
Beautiful architectural elements are worked into the design prior to casting.

Granval Warehousing

PROJECT LINK: [Tiltwall.ca/project/granval-warehousing-woodstock-ontario-2019/](https://tiltwall.ca/project/granval-warehousing-woodstock-ontario-2019/)

This multi-tenant industrial warehouse project began in fall 2019. The first floor was formed on October 15, and panel construction started October 21. The first section of walls was lifted into place in early December, and the remaining walls were lifted in early 2020. Though the warehouse is quite large, totalling 100,000 sq. ft., it was designed to be divided into 10 separate units, with each one measuring 10,000 sq. ft.

PROJECT:	Granval Warehousing	SQUARE FOOTAGE OF PANELS:	54,364 sq ft
ADDRESS:	377 Woodbridge Ave, Woodstock, Ontario	NUMBER OF PANELS:	45
YEAR BUILD:	2019	HEAVIEST PANEL:	120,000 lbs
ENGINEER OF RECORD:	GranVal Construction Inc.	TALLEST PANEL:	34'-9"
GENERAL CONTRACTOR:	Granval Construction Inc.	LARGEST PANEL:	1,604 sq ft
BUILDING USE:	Multi-Tenant Industrial Warehouse		



LIFTING PANELS
Once the concrete hardens, many panels can be raised in a single day.



WALL DETAIL
These strong, maintenance-free structures often cost less and still have the ability to incorporate unique architectural elements as desired.

Project Profile

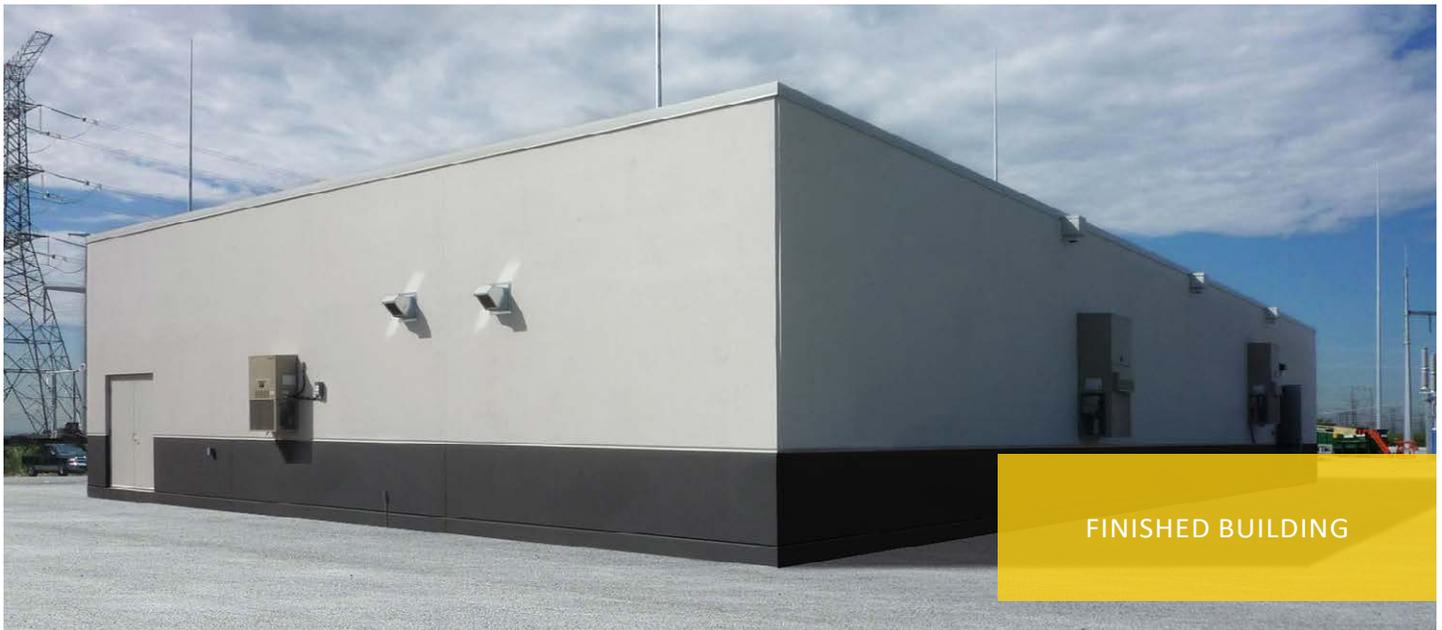
Clarington Transfer Station

PROJECT LINK: [Tiltwall.ca/project/clarington-transfer-station/](https://tiltwall.ca/project/clarington-transfer-station/)

In order to expedite the construction of the Relay Buildings A and B, while providing an economical alternative to a precast building, BBA recommenced and organized a change of construction methodology to tilt-up concrete construction. The alternate method of construction was able to provide multiple benefits to the owner and the design-build team.

PROJECT: Clarington Transfer Station Relay Buildings A & B
ADDRESS: 2745 Townline Rd N, Clarington, Ontario
YEAR BUILT: 2016
ENGINEER OF RECORD: Barry-Bryan Associates (BBA)
GENERAL CONTRACTOR: JJ McGuire General Contractors
BUILDING USE: Relay Buildings

SQUARE FOOTAGE OF PANELS:	20,338 sq ft
NUMBER OF PANELS:	66
HEAVIEST PANEL:	46,153 lbs
TALLEST PANEL:	19'-7"
LARGEST PANEL:	351 sq ft



WINTER CONSTRUCTION

Using a heated slab and curing blankets allows construction to continue.



LIFTING PANELS

A small crew is able to lift a project's many tilt-up panels in a short time frame.

Project Profile

Broadview Public School

PROJECT LINK: [Tiltwall.ca/project/broadview-public-school-ottawa-ontario-2016/](https://tiltwall.ca/project/broadview-public-school-ottawa-ontario-2016/)

Broadview Public School was a complex job with an aggressive construction timeline. This school was designed using concrete to showcase the creative style of the architect firm. Using insulated tilt-up sandwich panels allowed for an energy efficient school at costs that rival traditional construction methods.

PROJECT:	Broadview Public School	SQUARE FOOTAGE OF PANELS:	56,974 sq ft
ADDRESS:	535 Dovercourt Ave, Ottawa, Ontario	NUMBER OF PANELS:	117
YEAR BUILD:	2015 – 2016	HEAVIEST PANEL:	85,200 lbs
ENGINEER OF RECORD:	Cunliffe and Associates	TALLEST PANEL:	35'-9"
GENERAL CONTRACTOR:	Frecon Construction Ltd.	LARGEST PANEL:	1,080 sq ft
BUILDING USE:	Elementary School		



COURTYARD VIEW
Creativity can be expressed in many forms with concrete.



LIFTING PANELS
Flexibility with cement allows for breathtaking spaces for education.

Project Profile

Humber College Toronto

PROJECT LINK: Tiltwall.ca/project/humber-college-building-b-toronto/

When Humber College decided to build their new North Campus Academic and Student Service Building tilt-up construction was chosen as the building method to help overcome some of the challenges on this project. In keeping with the university's sustainable-design goals, the combination of precast and insulated tilt-up resulted in a building that is thermally efficient.

PROJECT:	Humber College Building B	SQUARE FOOTAGE OF PANELS:	41,203 sq ft
ADDRESS:	207 Humber College Blvd, Etobicoke, Ontario	NUMBER OF PANELS:	60
YEAR BUILT:	2007	HEAVIEST PANEL:	166,000 lbs
ENGINEER OF RECORD:	Barry-Bryan Associates (BBA)	TALLEST PANEL:	43'-0"
GENERAL CONTRACTOR:	Graham	LARGEST PANEL:	1,011 sq ft
BUILDING USE:	Classrooms, Student Centre & Office		



LIFTING PANELS
Panel construction began in January and the last panel was erected March 28.



EXTERIOR VIEW
The low-maintenance exterior also looks great!

Project Profile



Grace Christian School

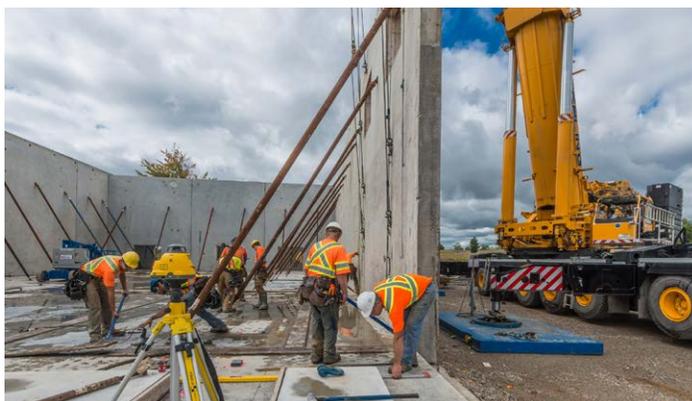
PROJECT LINK: [Tiltwall.ca/project/grace-christian-school-dundas-ontario-2017/](https://tiltwall.ca/project/grace-christian-school-dundas-ontario-2017/)

Grace Christian School chose tilt-up because as a private school funded by donations every dollar counts! Long term savings was also a factor as tilt-up will save approximately 30% per year on energy consumption. Working with volunteer-based construction on this project did pose challenges, but the simplicity of the tilt-up method overcame these quite easily.

PROJECT:	Grace Christian School	SQUARE FOOTAGE OF PANELS:	38,059 sq ft
ADDRESS:	497 Milgrove Rd N, Dundas, Ontario	NUMBER OF PANELS:	116
YEAR BUILD:	2017	HEAVIEST PANEL:	77,600 lbs
ENGINEER OF RECORD:	Strudet Inc.	TALLEST PANEL:	27'-9"
GENERAL CONTRACTOR:	Reformed Society of Flamborough	LARGEST PANEL:	864 sq ft
BUILDING USE:	Elementary School		



FRONT VIEW
A combination of brick and concrete usher this project from the old into the new.



LIFTING PANELS
The fully insulated panels provide an energy-efficient envelope.



INTERIOR – SCHOOL LIBRARY
Concrete painted white in the library is a space for bright minds to study in comfort.

Project Profile



King Christian School

PROJECT LINK: Tiltwall.ca/project/holland-marsh-christian-school-gwillimbury-ontario-2014/

After several revisions to drawings and exploring many different building options, site-cast tilt-up concrete was chosen as the construction method for the school's new facility. Not only was tilt-up a more economical way of building, but the highly energy efficiency of tilt-up panels will reduce energy consumption by about 30%!

PROJECT:	King Christian School	SQUARE FOOTAGE OF PANELS:	34,671 sq ft
ADDRESS:	19740 Bathurst St, East Gwillimbury, Ontario	NUMBER OF PANELS:	122
YEAR BUILD:	2014	HEAVIEST PANEL:	68,900 lbs
ENGINEER OF RECORD:	Steenhof Building Services Group	TALLEST PANEL:	24'-0"
GENERAL CONTRACTOR:	Maple Reinders	LARGEST PANEL:	912 sq ft
BUILDING USE:	Elementary School		



FRONT VIEW OF BUILDING
Thin brick gives this school the traditional look.



AERIAL VIEW
Using tilt-up for all the interior walls sped up construction of the overall project.



GYM INTERIOR
Painted concrete panels give the interior of the gym a durable and bright look.

L'école Élémentaire Publique Cité Jeunesse Addition

PROJECT LINK: Tiltwall.ca/project/cite-jeunesse-addition-cfb-trenton-ontario-2014/

This project involved an addition to an existing tilt-up school. This addition comprised a daycare which required a large amount of natural light. Cantilevered panels were used in the corners to create large openings. The exterior finish of the building used thin brick to match the existing and stained concrete to give the addition its own unique look. Panels on this school were designed with future consideration of a second-storey addition.

PROJECT:	Cité Jeunesse Addition	SQUARE FOOTAGE OF PANELS:	10,413 sq ft
ADDRESS:	30 Fullerton Avenue, Trenton, Ontario	NUMBER OF PANELS:	33
YEAR BUILD:	2014	HEAVIEST PANEL:	63,900 lbs
ENGINEER OF RECORD:	WSP	TALLEST PANEL:	15'-4"
GENERAL CONTRACTOR:	Frecon Construction Limited	LARGEST PANEL:	596 sq ft
BUILDING USE:	School Daycare Addition		



LIFTING PANELS
Large panels spanning the width of the addition helped to keep costs down.



CANTILEVERED PANELS
Cantilevered panels allowed for large openings for sunlight to shine into the daycare.

Toronto District Christian High School Expansion

PROJECT LINK: [Tiltwall.ca/project/toronto-district-christian-high-school-woodbridge-ontario-2019/](https://tiltwall.ca/project/toronto-district-christian-high-school-woodbridge-ontario-2019/)

Construction on Toronto District Christian High School started June 6, when the casting slab was poured. Panel construction began July 23, and the final panel was lifted into place on October 30. The project showed the architectural versatility of tilt-up construction. Toronto District Christian High School was an existing structure, but needed to expand to accommodate the demands of its growing student body.

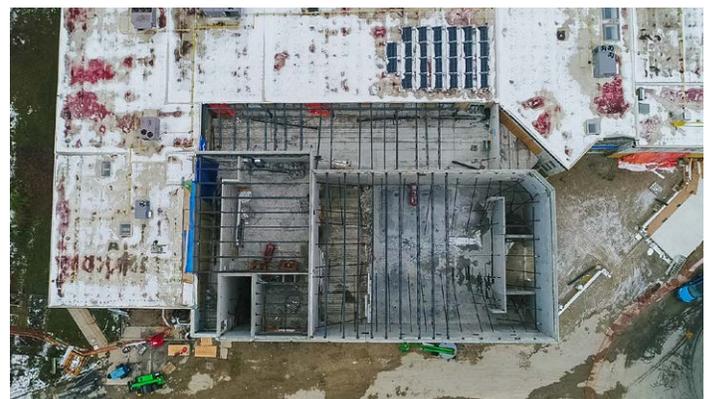
PROJECT:	Toronto District Christian High School	SQUARE FOOTAGE OF PANELS:	16,436 sq ft
ADDRESS:	377 Woodbridge Ave, Woodbridge, Ontario	NUMBER OF PANELS:	41
YEAR BUILD:	2019	HEAVIEST PANEL:	119,000 lbs
ENGINEER OF RECORD:	Strudet Inc.	TALLEST PANEL:	31'5-3/4"
GENERAL CONTRACTOR:	Maple Reinders	LARGEST PANEL:	759 sq ft
BUILDING USE:	Classrooms, Auditorium and new Lobby		



FRONT VIEW
The expansion shows tilt-up construction's versatility and creative energy.



UNIQUELY PATTERNED WALLS
Achieved by placing over 6,000 linear feet of individual reveal strips into the building's new panels.



AERIAL VIEW
This view shows the school's additional class spaces, auditorium and new atrium/lobby.

Letter of Reference



**BARRY BRYAN
ASSOCIATES**

Architects
Engineers
Project Managers



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Canada
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www.bba-archeng.com

December 12, 2014

Letter of Reference for Tilt Wall Ontario Inc.

To whom it may concern:

On behalf of Barry Bryan Associates (BBA), Architects, Engineers, it is my pleasure to provide this positive letter of recommendation for Tilt Wall Ontario Inc.

Tilt Wall Ontario Inc. has worked with BBA on numerous occasions over the past 12 years on a variety of Tilt-Up Projects. Noteworthy project would include:

- Humber College, Building 'B', New Academic Services Building
- Cargowall Industrial Warehouse
- Russell Reid Public School Addition
- Port Hope Police Facility
- London medical Centre Building

We have consistently found the management and staff at Tilt Wall Ontario to be professional, thorough and possess a high level of technical expertise.

I have no hesitation in recommending Tilt Wall Ontario Inc. as a highly competent concrete tilt-up contractor, capable of handling any project, based on our years of experience working with them.

Yours very truly,

Barry Bryan Associates
Architects, Engineers, Project Managers


Dennis L. Bryan, P. Eng., OAA, MRAIC, CAHP
Principal

DLB/gs

Letter of Reference



To whom it may concern:

April 8, 2017

We used Tilt Wall Ontario's innovative site cast tilt-up panels to recently construct a medical building at 215 Fanshawe Park Rd West in London Ontario. The cost savings combined with the speed and durability made it a natural choice for this project. Working with the Overbeek brothers and the team at Tilt Wall Ontario was a pleasure as they delivered on time and on budget. We would definitely recommend their product and services and look forward to working with them in the future. Should you have any questions feel free to contact me.

Regards,

Perry Sempecos
Copia Developments
President
519-701-1779
Pscmpccos@rogers.com

Letter of Reference



July 14, 2011

Mr. Len Overbeek
Tilt Wall Ontario Inc.
Box 20227 Woodstock, ON N4S 8X8
VIA E-MAIL: len@tiltwall.ca

Dear Mr. Overbeek:

RE: ROYAL CANIN CANADA
GUELPH, ON

Just a note to thank you and your organization for the great work you have performed on the various projects you have completed for us in Canada.

As working in Canada is a new venture for our firm it has been a great pleasure working with a company like yours that shows the same work ethic, professionalism, and commitment to quality and safety that we expect from our workers and subcontractors here in the USA. As shown by the fact that we have awarded multiple tilt-up, foundation and SOG projects to your firm between 2007 to present we value you as our partner.

I would recommend Tilt Wall Ontario to any company looking for quality services as you have shown to us that under the most extreme weather, schedule and complex conditions you will perform and do so with outstanding performance and professionalism.

Again thank you for everything you have done to date and we look forward to our continued relationship.

Sincerely yours,

CARL A. NELSON & COMPANY /
CARL A. NELSON CANADA CORP. (d.b.a NELSONTIMBRO)



Ryan Harris
Project Manager

Letter of Reference



DESIGN-BUILD
CONSTRUCTION MANAGEMENT
TOTAL PROJECT DELIVERY

April 18, 2016

To whom it may concern;

We are pleased to provide a reference for Tilt Wall Ontario.

We have had the pleasure of working with them on a project in Ayr Ontario.

We have found their workmanship to be reliable and professional and their office staff and site personnel have met all of our expectations.

We are confident in the service provided by Tilt Wall Ontario and would recommend their services for any size project, large or small.

Sincerely,

A handwritten signature in blue ink that reads 'Dan Woodcock'.

Dan Woodcock, A.Sc.T., LEED® AP, GSC. PMP
Project Manager

Letter of Reference



General Contracting • Design Build • Construction Management

April 8, 2011

Tilt Wall Ontario
P.O. Box 20277
Woodstock, ON
N4S 8X8

Attention: Len Overbeek

Reference: 522 Book Road East, Ancaster

Len

The purpose of this letter is to congratulate your company on an excellent job on the framing for the addition to the church.

The work was completed on schedule by a very professional crew. They come prepared to work and are safety conscious which is part of the GRC culture.

Other subtrades commented on how "square and true" the building was which made it a pleasure to work on the next stage of construction.

We look forward to working with you on future projects.

Regards

A handwritten signature in black ink, appearing to read 'Len Brunen', is written over a white background.

Per: Len Brunen



GENERAL CONTRACTORS • DESIGN BUILDERS • CONSTRUCTION MANAGERS

Tilt Wall Ontario Inc.
1269 Commerce Way
Woodstock, Ontario
N4V 0A2

April 26th, 2017

Attn: Len Overbeek

RE: Letter of Reference

Dear Sir:

Our firm recently completed the new Broadview Elementary school project together and to say I was pleased with your performance would be an understatement. The project parameters were extremely demanding in terms of access, winter conditions and especially in terms of design parameters.

Your firm was responsible for the tilt-up portion of the contract. In all instances your firm has performed beyond the industry norm and your level of both cooperation and competence was refreshing to say the least.

This is our 2nd successful project together and I am now looking forward to our next project together, as I have no doubt about your ability to deliver the next project on time while maintaining the highest level of quality workmanship.

I am very comfortable recommending your firm to any potential client. Should any of your clients wish to speak directly to me about your firm's capabilities do not hesitate to give them my personal contact information.

FRECON CONSTRUCTION LIMITED

Dean Drevniok, P.Eng. GSC
President



**Growing Excellence...
Inspiring Success**

Grand Erie District School Board

Head Office: 349 Erie Avenue, Brantford, Ontario N3T 5V3

Telephone: (519) 756-6301 Fax: (519) 756-9181

October 26, 2012

Tilt-Wall was a key member of the project team responsible for the new addition at the Russell Reid Public School in Brantford, ON. As project owner, I dealt directly with Tilt-Wall's Project Manager (Len Overbeek) from ground breaking to completion.

The Grand Erie District School Board (GEDSB) found Tilt-Wall to be helpful, responsive, courteous, organized, and above all – SAFE. Tilt-Wall was able to successfully coordinate several challenging structural and mechanical systems and reacted to client requests and change orders in a timely manner, which allowed for the successful occupancy of our school on schedule for September 2012.

I would highly recommend Tilt-Wall construction as they treat all members of the team with respect and deliver on their commitments. I look forward to working with Tilt-Wall again in the future.

Sincerely,

David Pitt,

**Division Manager, Construction and Renewal
Facility Services – GEDSB**



Conseil des
écoles publiques
de l'Est de l'Ontario

Technical Services

October, 23 2012

Tilt Wall Ontario Inc.
Box 20227
Woodstock (Ontario)
N4S 8X8

To whom it may concern,

We have used Tilt Wall's « cast on site » system as recently as last year on a school addition project in Cornwall, Ontario. Their system has permitted the school board to shorten the construction schedule, ensure competitive pricing while still providing a top quality product. The product has an impressive life cycle and is virtually maintenance free.

The Tilt Wall team collaborated with on site personnel to ensure that the project was delivered on time. We appreciate their dynamic personalities as well as their open mindedness with regards to finding solutions. Even though they were a subcontractor on site, their attitude and positive approach enhanced the on site moral.

Sincerely,

Roch Landriault
Director of facilities

RL/cil

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Tél. : (613) 742-8960
Télec. : (613) 747-3810
directeur@cepeo.on.ca
www.cepeo.on.ca

February 18, 2011

RE: Tilt Wall Ontario Inc. – Humber College Expansion

To whom it may concern:

I had the pleasure of working with Tilt Wall Ontario Inc. when I was the Operations Manager for Graham Construction and Engineering Inc. in Toronto, Ontario. The project included the construction of a new multi-story academic wing to Humber College in Toronto composed of “tilt-up” wall panels that served as the vertical structural elements of the building, the building envelope and the exterior architectural finish. The project won both architectural and industry awards upon completion.

This was my first personal experience with this interesting construction method and I can say that the Overbeek brother’s high level of experience and fair business dealings made the experience smooth and successful.

When future tilt wall projects present themselves, my first phone call will be to Tilt Wall Ontario.

Regards,



Reynder Van der Meulen



Edward J. Cuhaci and Associates Architects Inc.

171 Slater Street, Suite 100, Ottawa, Ontario, Canada, K1P 5H7 Tel: (613) 236-7135 Fax: (613) 236-1944 Email: info@cuhaci.com Web: www.cuhaci.com

June 30, 2016

TiltWall
1269 Commerce Way
Woodstock, Ontario N4V 0A2

Attention: Mr. Len Overbeek,

RE: Broadview Avenue Public School, Ottawa, Ontario

To Whom It May Concern:

This letter of reference will confirm that TiltWall was the tilt-up concrete panel subcontractor for the construction of Broadview Avenue Public School, a new elementary school project. Our firm provided the prime architectural services for this complex project which consisted of constructing a new school on the existing site in a mature neighbourhood. This site had very limited access staging area and as a result required multiple phases of construction.

The Tilt-up panels for this project included brick veneer and concrete finishes which incorporated unique design recessed images of children's artwork.

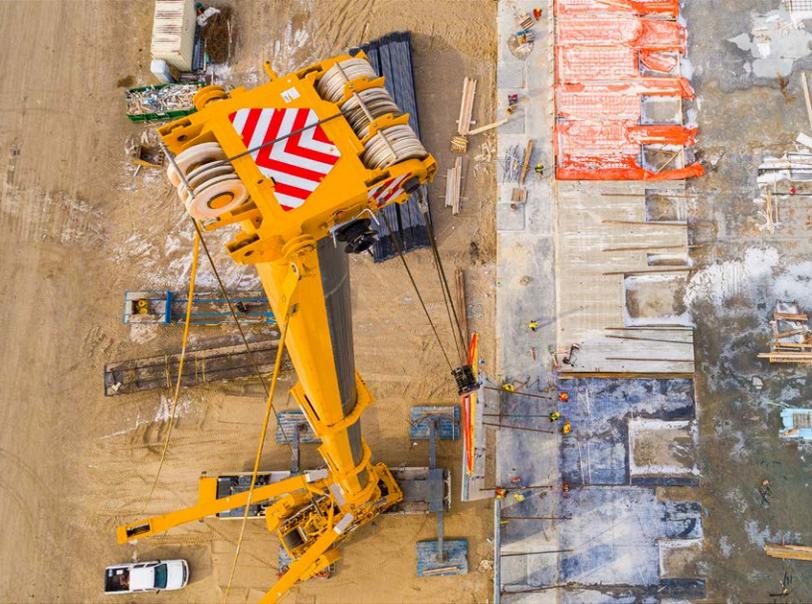
We found that TiltWall demonstrated a thorough understanding of the job at hand and managed their forces in a pro-active manner to maintain quality and attention to detail. This complex job was aggressively scheduled to meet the timelines, and we can attest that TiltWall maintained a professional and cooperative manner with the design team and attempted to coordinate their work with the other construction trades.

Based on our experience, we believe TiltWall services were professional and as such we would recommend this organization.

Sincerely,

Jerzy Jurewicz, OAA, ARIDO, AIA
Vice President

Contact Us



CONTACT INFO

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Experts in Tilt-Up Construction Since 2002