

Manitoba Consulting Engineer

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VOLUME 13 · MMXXII

2022 KEYSTONE AWARD WINNER

RED RIVER COLLEGE POLYTECH

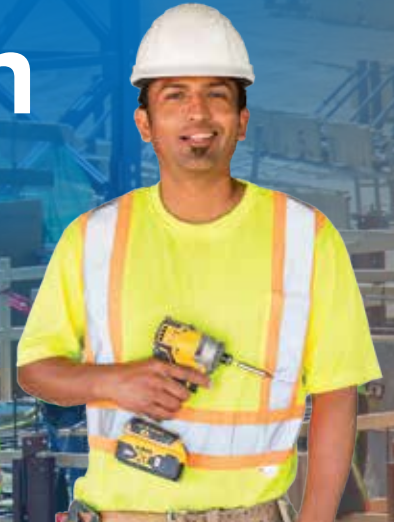
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E-mail: info@kelman.ca • Web: www.kelman.ca
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Design/Layout: Tracy Toutant
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Advertising Co-ordinator: Stefanie Hagidiakow

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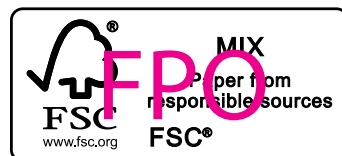
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Mario Scerbo, M.Sc., P.Eng.
President ACEC-MB

Our Committees Keep us Moving

As I enter my second and final year as ACEC-MB's President, I cannot help but think back to my previous message. In last year's message, I spoke of the ongoing pandemic that was having a significant impact on our industry. Technically, we are still in the pandemic but the new 'normal' is now different to pre-pandemic 'normal'. Work arrangements for many are now permanently changed, with increased accommodation to working remotely. We have seen great changes to our working relationships and other profound shifts in the industry such

as early retirements, labour shortages, increasing costs and supply chain disruptions. These issues are all having an impact on our business.

Through it all, our executive board and our sub-committees have continued to meet on a regular basis to address issues that are relevant to our consulting industry. In all, we have 18 Committees and working groups, with over one hundred volunteers serving our collective interests.

This past year, ACEC has continued to advocate for the consulting engineering industry. We continue to make our clients aware of the Qualifications Based Selection (QBS)

for the procurement of engineering services. We also meet regularly with government clients on behalf of our membership to review contract terms, procurement plans and provide common industry feedback on issues that affect us all.

I would like to personally thank Kerri, our excellent executive board, the committees and all the volunteers that make up our association. I look forward to working with all of you over the next year. 🍷

Sincerely,
Mario Scerbo, M. Sc., P. Eng.
ACEC-MB President

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Kerri Hiebert
Executive Director,
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Celebrating Leadership

 Consulting engineers offer professional engineering services and expertise to both public and private sector organizations. Consulting engineers also act as independent agents and advocates for their clients, are responsible for finding innovative solutions to technical problems, and they provide strategic advice to business and management.

These professionals offer a wide array of services and expertise in areas not only related to engineering and science, but also in economic sectors such as energy, resource development, environmental protection, and manufacturing. Our firms are responsible for designing and building much of the public infrastructure.

The mandate of ACEC-MB is to create a strong business environment for Manitoba Consulting Engineering Firms, their business partners and clients across all sectors. We are the trusted voice representing over 1600 members, providing advocacy and member value to the firms, and to each and every employee of those firms.

How do we achieve this? Volunteers, that's how! ACEC-MB has always had a strong base of volunteers, and it's those volunteers who bring the ideas to the table and work to achieve the goals of the Association. Our Board and Committees are populated with individuals that want to see the

Association succeed and strive to provide outstanding value to our membership.

I have been the Executive Director for ACEC-MB for five years, and worked for many years before on contract, providing administration and event planning services to many of our committees. What I noticed years ago and continue to see today is the dedication of our volunteers to commit their time and energy to support the mandate and goals of the committees. I have watched new members join and progress through the ranks, into leadership positions on the committees as well as at their firms. I applaud our member firms' leadership for supporting employee involvement, and know that the firms also benefit greatly from the growth that their employees achieve.

Speaking of growth and leadership in 2022; the National ACEC-Canada Young Professionals Network (YPN), through research and member engagement, decided to change the name of the committee to the Future Leaders Network. Our ACEC-MB Young Professionals Committee will now go by the name Future Leaders Committee. This change is a perfect reflection of the YP Committee and what I observed over the years. The young professionals involved with the committee have been a perfect example of the development I have seen in so many of our Future Leaders. I know that each of them evolves in their leadership roles with the support

from their firms and encouragement to participate. The value that the firms and the Association gains is exponential. I feel like a proud parent when I see the successes these committee members experience in their careers and lives.

I would like to similarly recognize the Technical Women in Consulting Engineering Committee (TWICE), who will celebrate their 10th anniversary as a committee in 2023. I was working for the Association when TWICE was just an idea, and have seen it become a force in the Consulting Engineering world. Other provinces often reach out to seek advice from the TWICE Committee, and have developed committees following their model. It's always a pleasure when I meet with my counterparts and hear that the TWICE Committee has inspired a similar committee in their province, and I feel honoured that it was Manitoba that started such an important initiative.

There are members on each and every committee that have done amazing things for the Association, and have invested a lot of personal time to make sure our membership is getting what they need. I personally want to thank all of our members, past and present, who are making a difference and I encourage any member who would like to join one of our committees to do so: you will get to know people from other firms and disciplines, and have an important role in what your Association can do! 🌟

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KEYSTONE AWARD 2022

**Red River College Polytech
Manitou a bi Bii daziigae**

AWARDS OF EXCELLENCE

Building Engineering

Red River College Polytech Manitou a bi Bii daziigae

Environmental

Jefferson East Combined Sewer Relief –
Semple Trunk Sewer

Municipal & Water

Cockburn West Sewer Relief Project

Transportation

South Perimeter Highway Design Study & St. Norbert Bypass
Functional Design Study

Enhancing a Winnipeg Treasure: Wellington Crescent Roadway,
Path and Riverbank

Crescent Lake Causeway in the City of Portage la Prairie

AWARDS OF MERIT

Municipal & Water

Northeast Interceptor Sewer Crossing of the Red River

Transportation

Winnipeg Transit Master Plan

CACI of a New Bridge on PTH 16 over the
Assiniboine River

Rising Star Award

Steven Goldstine, P.Eng., PMP

Engineering Action Award

S. Brad Cook, P.Eng

Lifetime Achievement Award

Neil Klassen CET, FEC (Hon.)



RED RIVER COLLEGE POLYTECH Manitou a bi Bii daziigae

NAMING

Manitou a bi Bii daziigae is Red River College Polytechnic's expansion of the Exchange District Campus, and the first RRC Polytech building to receive an Indigenous name. Manitou a bi Bii daziigae was previously known as the Innovation Centre project. The name **Manitou a bi Bii daziigae** translates to "Where Creator Sits (Manitou a bi) and Brings Light (Bii daziigae)." The name is in the Anishinaabemowin (Ojibwe) language of RRC Elder-in-Residence Paul Guimond, and is one of the most common languages spoken in the Treaty No. 1 territory. Elder-in-Residence Miss Una Swan of the Cree nation, supports this naming and the choice of language as one spoken by her loved ones: "To me, it means it's a place where the spirit lives, where there's light, where it's progressive, forward thinking. You walk into the building and you feel the energy there. It's so positive and it represents new beginnings and forward-thinking ideas that were not thought of

before. Everything Indigenous people would have wanted done for this building has been done. All the material that could have been used from the old building was reused, and it's run by the sun. It epitomizes the Indigenous community here in Manitoba. We're very excited and proud about this building. You walk in there and you know it's an Indigenous building."

The first part of the name, **Manitou a bi**, signifies the importance of where the building is in Winnipeg, Manitoba, in Treaty No 1. The meaning of "Where Creator Sits" has a few reasons for its deeper meaning by honouring the unique history of how Indigenous peoples came to meet and gather in the Winnipeg area on the converging rivers, as well as a representation of the diverse cultures and spiritualities of Indigenous peoples. It's our home. It drives innovation and leadership from the centre outward. It also means creators of the light that connects and represents many facets of **Bii daziigae**.



The second part of the name, **Bii daziigae**, describes the purpose, intent, functionality, and beauty of the new space. “Bringing the light” is about the building’s aim to bring students, staff, community and business together to collaborate, bring new ideas, solve problems, future think, and utilize and create the newest technology. It signifies bringing in a new era of hope with the renewed commitment to pursuing truth and reconciliation in everything at RRC Polytech. It also represents the building’s solar energy and sustainability efforts, as well as the natural light that pours through the many windows and main open agora, which inspired the Elders.

Twice a year during spring and fall solstice, the name will be honoured and celebrated so it continues to guide and direct all who enter the building in a good way. The name was introduced through a pipe ceremony during the official opening in the public agora for the new space.



CONSULTATION

The Elders-in-Residence of RRC, Elder Paul Guimond, Okonace (Little Eagle Bone) from Sagkeeng First Nation, and Miss Una Swan, Black Eagle Woman, from Fisher River Cree Nation, were approached and offered tobacco in the spirit of reciprocity to begin a traditional naming process for the newest building at the Exchange District Campus, known previously as the Innovation Centre Project. The new name would represent a new era and new beginning, and would reflect the history and the community where the building stands.

Many Elders and Knowledge Keepers not only carry the living histories, teachings and stories of their ancestors, but in many different ways, act as a gateway between other worlds as they seek guidance for what is asked of them through their spiritual relationships. Our Elders-in-Residence share this knowledge by bringing their deep spiritual relationships and gifts with them throughout their work at RRC Polytech in everything they do.

Indigenous knowledge, teachings and traditions were prioritized in the design and creation of the building to ensure Indigenous students, staff and community were represented through art by Anishinaabe artist Jackie Traverse and Cree/British artist KC Adams and more; functionality for ceremony with ventilated spaces, including the 210-seat Roundhouse Auditorium; and the intention for inclusive spaces to connect and collaborate. Elders-in-Residence played a critical consultation role for many aspects and designs of the new building.

PROJECT BACKGROUND

Manitou bi Bii daziigae is one of three locations within Red River College (RRC) Polytech’s Exchange District campus in Winnipeg. The 100,000-sf facility is a combination of new construction and the redevelopment of a century-old building to establish a state-of-the-art facility for applied research, entrepreneurship and commercialization featuring 18 classrooms and five labs. With a goal of becoming RRC’s fourth LEED-certified building and to live up to its innovative mandate, a goal of 100 energy use





OUR ELECTRICAL AND POWER SYSTEM DESIGNERS, IN COLLABORATION WITH THE PROJECT ARCHITECTS AND STRUCTURAL ENGINEERS, PRODUCED A SOLAR SYSTEM DESIGN TO ACHIEVE LESS THAN 100 EUI AND NEAR NET ZERO EFFICIENCY.

intensity (EUI) and a near net zero efficiency was set. To help achieve this, the design includes Building Integrated Photovoltaics (BIPV) on the building rooftop and façade.

SCOPE OF WORK

Our electrical and power system designers, in collaboration with the project architects and structural engineers, produced a solar system design to achieve less than 100 EUI and near net zero efficiency. Similar-type post-secondary buildings of 100,000-sf have a 200 to 300 kWh/m²/year EUI.

PROJECT'S INNOVATIVE ENGINEERING SOLUTION

Utilizing the Construction-Management process, modeling was performed

on the building design to ensure it met the stringent goals of a reduced energy and carbon footprint. Utilizing the modeling information, designers were able to first optimize the rooftop panels using a variety of parameters including row pitch, module orientation and overall system efficiency. Being able to maximize the rooftop bifacial photovoltaic solar panel configuration, we were able to substantially boost energy production within the defined investment cost. Our winter weather was also taken into account including roof snow coverage with snow accumulation on the panels integrated into the modeling sequence. This was done by utilizing PVsyst software with the most advanced criteria of solar design.



By utilizing specialized photovoltaic system software, we finessed positioning of the grid system to determine the most advantageous row pitch and module orientation to achieve overall system efficiency and maximize energy output. We achieved this in part by understanding how we could increase the number of panels traditionally used in a similar-type application in order to increase solar harvesting. The elegant Building Integrated Photovoltaics (BIPV) along the façade, the first of its kind in Canada, include solar glass panels, which when viewed from different directions, appear to change colours while absorbing and conducting energy. The BIPV system provides both solar energy and structural protection to the facility. The combination of the rooftop and façade photovoltaic system significantly reduces the building's reliance on utility power during daytime periods. This is the first application of this technology in Canada.

In the case of the façade panels, technology that doubles as an architectural feature enabled us to again substantially increase the total

surface area for solar absorption. Solar panel inverters located on the rooftop join multiple solar panels – or strings of panels – into a common bus which then feeds energy 100,000 square-foot building. These inverters turn the DC output collected from the institute's solar panels into alternating current (AC). Inverters serve as the gateway between the photovoltaic system and the building, drawing energy from the solar panel system. Rooftop PV system is a 55 kWp system capable of generating 88 MWh electricity per year. The system is grid-tied and uses three three-phase inverters. Containing nine different size modules, the façade PV system is a 105 kWp system capable of generating 135 MWh electricity per year.

THE OVERALL PROJECT RESULTS

An innovative combination of two photovoltaic systems – one applied to the roof of the existing heritage area and the other to the roof and new façade of the educational facility, required integration into a rooftop inverter system able to combine and

convert the energy into usable power within the 100,000-sf facility. A less than 100 EUI rating is nearly unheard of in our severe climate and can only be achieved with an obsessive focus on energy consumed. Even with this obsession, it was clear that the building must generate its own energy to achieve the project's energy goals. The use of photovoltaics was important, and complex, especially given the location within a city environment. Consideration had to be given to shadow, pollutant accumulation and the physical space available to mount photovoltaics. That, coupled with a facility combining heritage and new build with 1,200 occupants visiting each day, made it challenging to produce enough energy to bring it to the 100 EUI level. Our team followed the Construction Management delivery method and worked closely with an electrical contractor during design. This allowed the goals of the project to be defined and budgeted early, and it furthered the expertise within the team on matters relating to constructability. ☺

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The Total Precast Concrete High-Rise Building Design Example guide is an additional document to the CPCI 5th Edition Design Manual which is the primary technical resource in Canada for the design, manufacture, and installation of precast and prestressed concrete. The purpose of this document is to provide technical guidance to AEC Professionals to assist with the design of total precast concrete buildings.



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PROJECT NAME: **Red River College Polytech Manitou a bi Bii daziigae**
FIRM: **SMS Engineering Ltd.**
CLIENT: **Number Ten Architectural Group and Diamond Schmidt Architects**



Manitou bi Bii daziigae is one of three locations within Red River College Polytech's Exchange District campus in Winnipeg. The 100,000-sf facility is a

combination of new construction and the redevelopment of a century-old building for a state-of-the-art facility of applied research, entrepreneurship and commercialization. With a goal of becoming RRC's fourth LEED-certified building and to support its innovative mandate, a goal of 100kWh/m²/year energy use intensity (EUI) and a near net zero efficiency was set. To help achieve this, the design includes Building Integrated Photovoltaics (BIPV) on the building's façade and rooftop photovoltaics.

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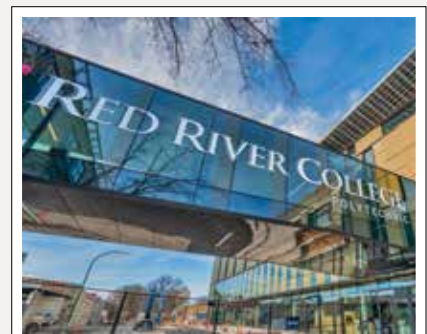
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PROJECT NAME: **Jefferson East Combined Sewer Relief - Semple Trunk Sewer**
FIRM: **AECOM Canada Ltd.**
CLIENT: **City of Winnipeg**



The Semple Trunk Sewer provides combined sewer relief for the Jefferson East Combined Sewer District in Winnipeg, Manitoba. Construction included approximately 400 metres of 1,800-millimetre and 1,140 metres of 2,100-millimetre land drainage sewer (LDS), associated lateral sewer stubs, catch basins and manholes. To minimize disruption of the neighbourhood, the project specifications stipulated long drive tunnels. The sewer was installed using two-pass tunneling methods with a grouted-in-place carrier pipe. The tunnel was constructed in a single drive of approximately 1,540 metres over the course of approximately five months.





PROJECT NAME: **Cockburn West Sewer Relief Project**
FIRM: **KGS Group**
CLIENT: **City of Winnipeg**



This project was fundamental in reducing basement flooding and sewage overflows to the environment in the Cockburn and Calrossie Sewer Districts in Winnipeg. 700 metres of large diameter storm trunk sewer was successfully installed using two-pass tunnelling under Taylor Avenue, with no interruption to several critical utilities located within this busy regional street. This project is the first large-diameter pipe project in Manitoba designed to use modern two-pass tunnelling technology, and the first to include a reverse S-curve alignment. It also included the development of the first pass-through chamber for use in tunnelling in Manitoba.

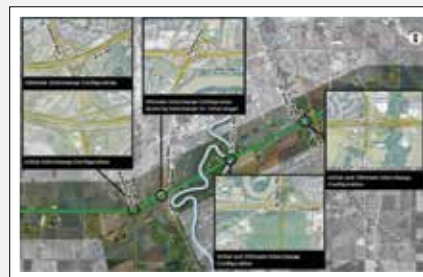
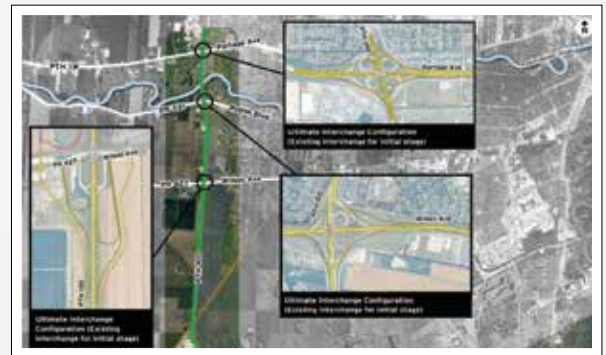
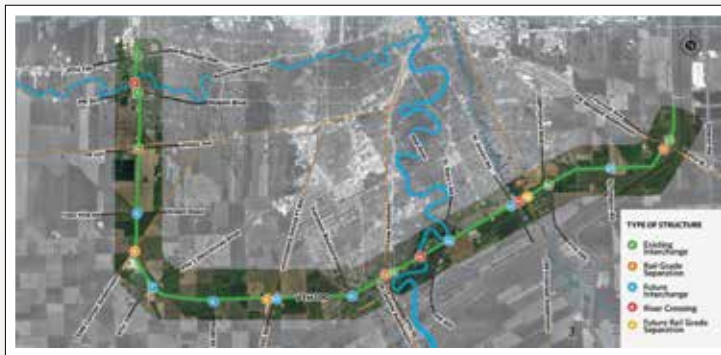




PROJECT NAME: **South Perimeter Highway Design Study & St. Norbert Bypass Functional Design Study**
 FIRM: **WSP Canada**
 CLIENT: **Manitoba Infrastructure**



The South Perimeter forms the south link of the Perimeter Highway around the City of Winnipeg. It is approximately 42 km in length and travels through four municipalities. Tied to this project is the St. Norbert Bypass, with travels through a fifth municipality. The project was to bring PTH 100 to freeway standards, with 22 grade separations, including interchanges, river crossings, and rail grade separations. Overall developing a freeway plan for PTH 100 and an express plan for future St. Norbert bypass. Alternative interchange types were examined; including cloverleaves, Parclos, trumpet, diamonds, diverging diamonds, and hybrids.



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PROJECT NAME: **Enhancing a Winnipeg Treasure:
Wellington Crescent Roadway, Path and Riverbank**
FIRM: **KGS Group**
CLIENT: **City of Winnipeg**



Riverbank movement threatened the path, road and other critical infrastructure assets on Wellington Crescent, a key transportation corridor along the Assiniboine River. KGS Group's multi-disciplinary team coordinated with various City of Winnipeg departments to combine several isolated projects into one mega project that required significant public and stakeholder engagement. We developed an optimal design that reduced construction costs and timeline. Aligning with the City's vision for the waterfront, our approach also bolstered the long-term health of the riparian forest, minimized social disruptions, and increased public use and active transportation opportunities. These improvements will ensure Wellington Crescent remains a Winnipeg treasure.



PROJECT NAME: **Crescent Lake Causeway in the City of Portage la Prairie**
FIRM: **AECOM Canada Ltd.**
CLIENT: **City of Portage la Prairie**



The Island Park Bridge provided access to residences, businesses, the Industrial Exhibition Grounds and recreational facilities on the island. Due to the age, condition and capacity of the structure, it was decided to replace the timber bridge with a causeway and arched bridging structure. The new Crescent Lake Causeway includes: additional lanes and two roundabouts for improved traffic flow after major events on the island, improved vehicle-pedestrian safety; an active transportation pathway for cyclists and pedestrians, crossings for snowmobiles and cross-country skiers, and landscaping to blend the arch culverts, precast stone retaining walls, causeway and roundabouts with the surrounding aesthetics.



PROJECT NAME: **Northeast Interceptor Sewer Crossing of the Red River**
FIRM: **AECOM Canada Ltd.**
CLIENT: **City of Winnipeg**



The Northeast Interceptor is one of three interceptors conveying wastewater to the North End Water Pollution Control Centre (NEWPCC), and services approximately 2,300 ha of land in northeast Winnipeg. To accommodate growth within the catchment, AECOM completed the preliminary and detailed design of an additional sewer river crossing of the Red River. AECOM utilized the City's InfoWorks CS model to evaluate the proposed design for both basement flooding and sewer overflow risk in the City's collection system. The successful installation consists of 240 m of 1,200 mm diameter reinforced concrete pipe installed using trenchless microtunnelling techniques.

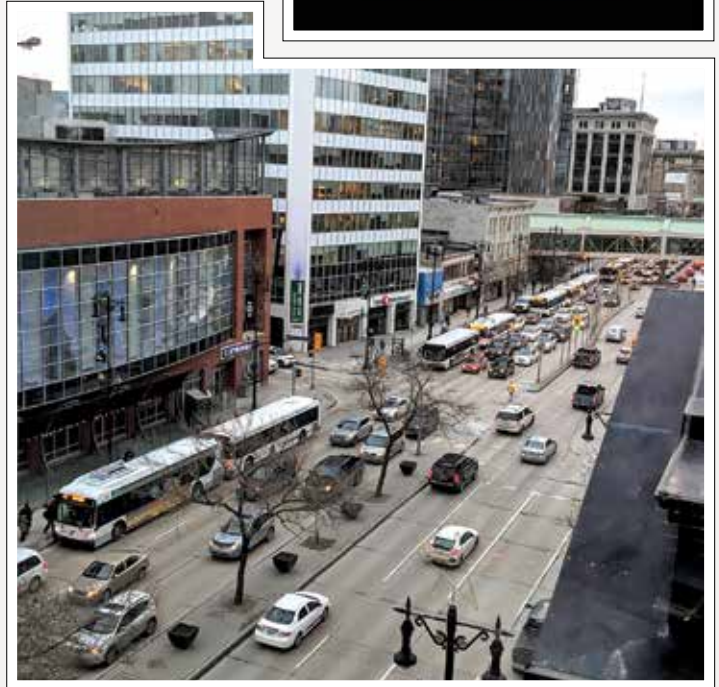




PROJECT NAME: **Winnipeg Transit Master Plan**
FIRM: **Stantec Consulting Ltd.**
CLIENT: **City of Winnipeg**



Winnipeg Transit received a comprehensive transit planning document structured to promote growth in transit mode share. The document is based on managing data to generate an understanding of what was needed to accommodate the mobility needs of Winnipeggers of all ages and abilities in the most sustainable, cost-effective, and reliable manner. The result is a plan for a well-integrated transit network that provides multiple mobility options, can facilitate economic growth, and improve quality of life. Winnipeg residents will soon have a socially sustainable means of travelling from point A to point B meeting their expressed needs while being fiscally responsible.





PROJECT NAME: **CACI of a New Bridge on PTH 16 over the Assiniboine River**
FIRM: **Dillon Consulting Limited**
CLIENT: **Manitoba Infrastructure**



Dillon was the Engineering Service Provider (ESP) for the Contract Administration and Construction Inspection (CACI) services for a new bridge and approach roadworks over the Assiniboine River on PTH 16 Yellowhead Highway west of Russell, Manitoba, marking the first time Manitoba Infrastructure issued both bridge and road construction CACI services to an ESP. The bridge, constructed in 1964, is a major Canadian East-West Corridor, and had exceeded its original design service life, was in poor condition, and had experienced several major flood events. The replacement included a three-span bridge constructed adjacent to the existing alignment and approximately 1.8 kms of roadworks.





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Congratulations, Mario Scerbo President of ACEC-MB



Congratulations to Mario Scerbo, P.Eng., on his role as President of the ACEC-Manitoba Board of Directors for 2022-2023.

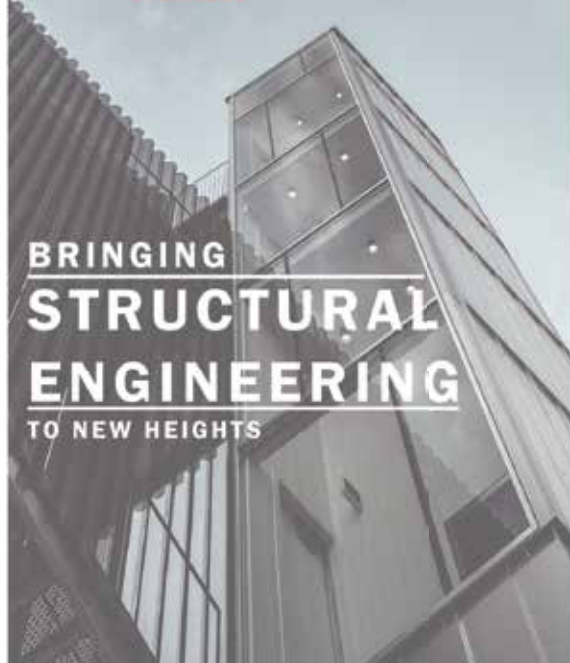
Mario is Manager, Buildings and Structures in our Winnipeg office. He has 26 years of experience in multi-discipline project management, assessments, feasibility studies, planning, design, and construction, including traditional design-bid, EPC, design-build, and Public-Private Partnerships.

A long-serving volunteer with the Association, Mario says, "I'm looking forward to serving as President and working with industry colleagues to promote Manitoba consulting engineering firms."



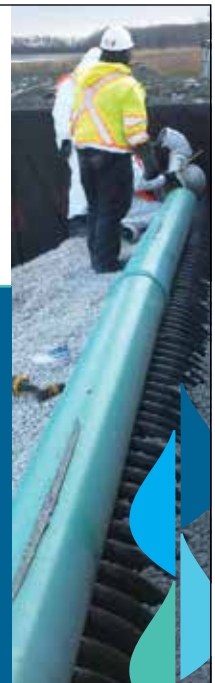
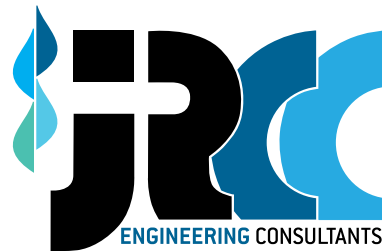
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STEVEN GOLDSTINE, P.ENG., PMP



Steven is a municipal engineer at Dillon Consulting, where he has worked for just over a year, following almost eight years at WSP/MMM Group. Immediately upon graduating with honours from the University of Toronto, Steven began his career in consulting engineering and moved back home to Winnipeg shortly thereafter. Throughout Steven's career, he has worked on a variety

of municipal and land development projects, ranging from street and watermain renewals in the City of Winnipeg, to business park developments in CentrePort, to more recently becoming involved in infrastructure improvements for First Nation Communities. He has also worked on a number of multidisciplinary projects including Qaumajuq at the Winnipeg Art Gallery.

Steven's passion for engineering and his community is demonstrated through his longtime involvement with ACEC. He's been a member of the Association's Image Committee for five years, working to promote the business of Consulting Engineering in Manitoba through volunteering at events, running the social media accounts, and the reviewing the annual publication and website. He has also served as the Young Professional liaison to his office, encouraging his peers to become more involved in events and programs with ACEC.

Additionally, Steven has participated in ACEC's mentorship program, pairing up with students in engineering at the University of Manitoba to provide insight and guidance as they navigate entry into the world of professional engineering. The program included formal events, as well as casual meet-ups with the mentees. Following the conclusion of the program, Steven maintained contact with his mentees, once again demonstrating his commitment to his profession and its people.

Steven's involvement in the local engineering community extends beyond ACEC. He is an active participant at Engineers Geoscientists Manitoba events and a regularly attends workshops, conferences, and lunch-and-learns hosted by various associations. He is also an advocate for sustainable development, volunteering with Sustainable Building Manitoba and teaching LEED training classes for those looking to pursue their accreditation.

Steven has proven to be a leader among developing professionals in consulting engineering in Manitoba. His dedication and commitment to advocacy on behalf of the industry is worthy of acknowledgement and an admirable example of a rising star. 🌟

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S. BRAD COOK, P.ENG



Brad is a registered professional engineer (P.Eng.) in Manitoba with a Civil Engineering Technology Diploma from Red River College and a Civil Engineering Degree from the University of Manitoba. He spent the early part of his career with Manitoba Transportation & Infrastructure as a Project Engineer before joining Stantec Consulting in 1997 as a Project Manager. In

2004 he transferred to Las Vegas and in 2006 moved to Atlanta to become Managing Leader of Stantec's Transportation Groups in Georgia and Florida. In 2010 he returned to Winnipeg as Practice Leader of Stantec's Winnipeg Transportation Group. More recently, Brad worked with Dillon Consulting from 2017 to 2020, and is now a Senior Transportation Engineer and Project Manager with AECOM.

With more than 30 years of experience, Brad has managed diverse teams of transportation professionals including staff in the roadway, bridge, traffic engineering, transportation planning, aviation, and construction administration disciplines. His roles have included resource and budget planning and implementation, business development and client liaison, proposal preparation, and technical input and reviews on major projects. Brad's technical experience includes analysis, design and project management for roadway and highway functional and detailed designs, land use and transportation planning studies, contract administration and construction management, and public engagement programs. Brad has worked on hundreds of transportation infrastructure projects across

Manitoba, Canada, and in the United States, and has developed a thorough understanding of the transportation industry and his clients' needs.

Brad has been consistently involved with ACEC-MB over the past 20 years. He served on the very first Awards Committee, developing what has now become the annual ACEC-MB Awards of Excellence in Consulting Engineering. On his return to Winnipeg, he joined the Transportation Committee and served as committee Chair for ten years until 2021. Nominated as a Director to the ACEC-MB Board in 2016, Brad served as association President from 2019 to 2021 and currently serves as Past-President. Brad continues his track record of involvement with ACEC-MB, currently serving as Chair of the Government Relations Committee, Chair of the Nominating Committee, Board Liaison for the Transportation Committee, and as a member of several sub-committees. Brad's commitment to the engineering profession includes involvement with the Urban Development Institute, City of Winnipeg and MTI Specification Review Committees, and acting as liaison between ACEC-MB and MHRC. Brad also played a key role as a member of the Growing Manitoba's Economy Group, a coalition of business leaders who met several times with senior government Ministers to discuss maintaining Manitoba's economy during the COVID pandemic.

Outside of work, Brad enjoys spending time with his wife of 25 years, Lisette Dansereau, and their three grown sons. In the summer they appreciate weekends at the cottage and the beach and Brad enjoys riding his motorcycle. In winter, Brad and Lisette become rabid Jets fans, attending home games and watching away games together on television. In his down time, Brad enjoys working on home renovations and creating museum-quality models of ships and airplanes. 🇨🇦

Brad has worked on hundreds of transportation infrastructure projects across Manitoba, Canada, and in the United States, and has developed a thorough understanding of the transportation industry and his clients' needs.



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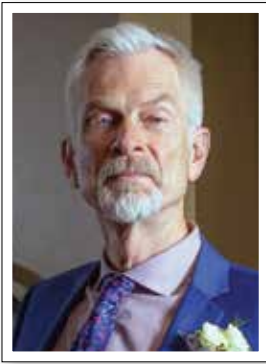
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NEIL KLASSEN CET, FEC (HON.)



Neil is a Manager of Program Management with AECOM Canada Ltd. He graduated with a diploma in Engineering Technology (Structural) in 1983 from Red River College and is a Certified Engineering Technologist with CTTAM. Neil has been employed in consulting engineering throughout his career. In his role, Neil manages engineering technologists, engineers, planners, and scientists

in delivering large multi-year engineering projects for private and government clients. Neil also manages and leads the structural engineering department in the Buildings+Places Business Line in AECOM's Winnipeg office.

Neil was the AECOM program manager for Manitoba Hydro's Stage V Infrastructure program, which was a nine-year program that provided a broad range of engineering services for infrastructure required for the Keeyask Generating Station and the Keewatinohk Converter Station. Currently Neil is leading the project management services for Indigenous Services Canada's Manitoba Schools Initiative that includes management for all aspects of this federal government initiative to design and construct four new K-12 schools (and one school renovation) in four northern First Nation Communities. The project is being completed over a five-year period (delayed due to COVID). Neil was also project manager for the Cooling Tower Biocide System Replacement at Brandon Generating Station. This project was presented the Award of Excellence in the Industrial category in 2007 by ACEC-MB.

Neil served as President of CTTAM for two years in 2014/15, and as board member for six years. His volunteer work with CTTAM also includes participation in numerous committees including the CTTAM-EGM Joint Committee.

Neil served as President of CTTAM for two years in 2014/15, and as board member for six years. His volunteer work with CTTAM also includes participation in numerous committees including the CTTAM-EGM Joint Committee. Neil currently sits as a Director on the Association of Consulting Engineering Companies-Manitoba (ACEC-MB) Board of Directors and is a long-standing member of the Engineering Science and Technology Committee and Past-Chair. Engineers Geoscientists Manitoba appointed Neil as a council member in September 2016 and is serving in the final year of his third two-year term on Council this year. As a Council member Neil has also participated on the Bylaw Review Committee, Certificate of Authorization Consultation Group, Authentication of Professional Documents Task Group, Investigation Committee/Discipline Committee Procedures Manual Task Group, and participated on numerous Appeal Committees and on a Council Appeal Hearing.



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jeff@kelman.ca

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23rd Annual ACEC-MB Golf Tournament

The 23rd Annual Golf Tournament took place at Bridges Golf Course on Thursday, September 8, 2022. Almost 100 golfers hit the links on a nice but windy day for a round of Texas Scramble, lunch, dinner, contests and prizes.

Golfers enjoyed lunch sponsored by Stantec Consulting Ltd, beverages sponsored by ENG-Tech and drove golf carts sponsored by Tri-Core Project Ltd.

For the second year in a row, our Tournament winner was a team from KGS. Congratulations to: Matthew MacKay, Sean Charles, Scott Larson and Shaun Beatty who ended up with a fantastic score of 63. Golf Committee Chair David Fuchs and Co-Chair Michelle Globush presented the trophy to the winners.

During the day golfers took part in 6 contests on the course. Congratulations to:

- Chelsea Nguyen – Longest Drive Women on Hole 17
- Mark Edgar – Longest Drive Men on Hole 18
- Amu Abimanan – Closest to the Pin on 7
- Fahad Khokhar – Closest to the Pin 13
- Walter Burdz – Straightest Drive on Hole 1
- Brady Perreault – Straightest Drive on Hole 11

Thank you to our Contest Sponsors for making these possible.

We also thank our Hole Sponsors: Hatch Ltd., KGS Group, Nelson River Construction, PRO Engineering, Primary Engineering, Secure Energy, Tetra Tech and Tower Engineering

Golfers were all presented with a thank-you gift for supporting the Golf Tournament and a few lucky golfers left with some really nice draw prizes. Paddock Drilling was once again our dinner sponsor and we thank them for their long-term support of the Golf Tournament.



Left to right; David Fuchs, Matthew MacKay, Sean Charles, Scott Larson, Shaun Beatty, Michelle Globush



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The 10-Year Professional



By Steven Goldstine, P.Eng., PMP

The gradual transition from a “developing professional” to an “experienced professional” can be subtle in the moment, but when you reflect back upon the journey it can often feel quite remarkable and even overwhelming. Have you ever experienced the paradoxical feeling that although you are far more competent at your job now than you were, say, five years ago, you somehow feel less confident in the work you’re doing? Well, it turns out you (and I) are not alone. Psychologists have studied this very idea, termed the Dunning-Kruger effect, “whereby people with limited knowledge or competence in a given intellectual or social domain greatly overestimate their own knowledge or competence in that domain relative to objective criteria or to the performance of their peers or of people in general.” More simply put, early on in your professional career you don’t know what you don’t know and are operating in a naively-confident state. But as you gain experience and exposure to a particular subject area, you start to become more aware of what you don’t know and feel discouragingly realistic about your capabilities. Now to add to the complexities of navigating this challenging time in your career, this is often when you are tasked with increasing responsibilities in project management, design, and/or business development and are expected to have “the answer” in your newfound area of technical expertise.

Welcome to the 10-year professional.

Gone are the days of menial tasks and Young Professional mixers at the local brewery. Say hello to proposal writing, budget reviews, and performance evaluations. But before this starts to sound like an obituary to the ‘fun you’, let’s refocus to the exciting part of this stage in your career.

“Whether it be new recruits in the workplace or through ACEC’s Mentorship Program, there are plenty of opportunities to connect with the future leaders of our industry. Experience and knowledge sharing can be mutually beneficial to both parties, not only providing guidance for the advisee, but also serving as confidence boost to the advisor.”

For me, the most satisfying part of the transition to the veteran squad is the opportunity to mentor the new rookies; to share with them some of my experiences from the past decade in hopes it will provide benefit during their formative developing professional years. At Dillon Consulting, each new hire is assigned an advisor who provides support during the onboarding process as well as career development advice. Recently I was asked to take on this role for an EIT who was starting their first job in consulting. I was thrilled to have the opportunity to mentor someone in a position I once found myself and provide whatever input I could to ease their transition into the professional realm. Whether it be new recruits in the workplace or through ACEC’s Mentorship Program, there are plenty of opportunities to connect with the future leaders of our industry. Experience and knowledge sharing can be mutually beneficial to both parties,

not only providing guidance for the advisee, but also serving as confidence boost to the advisor.

On the flip side of the coin, at 10 years you likely still have a long way to go in your career (sorry), so we must also continue to seek out mentorship and professional development opportunities. As we become more aware of what we don’t know, we can focus our learning and development efforts to those better suited to our interests and needs. Leverage the knowledge of senior staff in your workplace. Attend conferences and technical discussions. Pursue a new certificate or professional designation. Keeping active in the industry and your career should help keep it fresh and fulfilling while reducing complacency.

Every stage in one’s career provides its own unique opportunities and challenges. It’s important to recognize what those are, and to find the ways you can make the most of it. 🇨🇦



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Wally Jackson

The story of Wally Jackson's journey to 20 years as a professional consulting engineer is one that starts with more than a few large detours.

Born and raised in Russell, Manitoba, Wally was not sure where his life was going to take him. "I was unsure about my career choice after graduating from high school," says Wally. "Although I attended the University of Winnipeg, I decided to start a career in broadcasting. For 17 years, I worked as a radio and television news announcer in Thunder Bay and Winnipeg."

"I enjoy helping others whenever I can and I believe it helps to keep a healthy mind and body."

This career path ended when, in 1991, Wally had a sudden change of heart. "I had a mid-life crisis and went back to school, taking Civil Engineering at the University of Manitoba." This sea-change was not free of adjustments for Wally, but his attitude was what drove his survival into a new career. "I was not an 'A' student when I was attending engineering classes, but I learned that perseverance pays off. Although struggling at times with courses like calculus, I discovered that putting in extra effort and sticking with the end goal resulted in success."

Wally got his start in the field at Stantec Consulting in Winnipeg. His first career mentor was Chuck Lee, engineer and owner of Nelson River Construction. "He provided advice and guidance that was instrumental in my work on municipal infrastructure projects."

Wally's first job as a site engineer was on a street reconstruction project on Main Street. "It was memorable because of the learning experience, the complexity of working with construction crews, and providing expertise using engineering basics."

One of his favorite projects, as he looks back, was a new highway construction in central Manitoba, where he was the project engineer. The site was inaccessible by land, so he and the team flew into the site for meetings. "It was very satisfying to realize how important it is to be on site to monitor project progress and solve ongoing

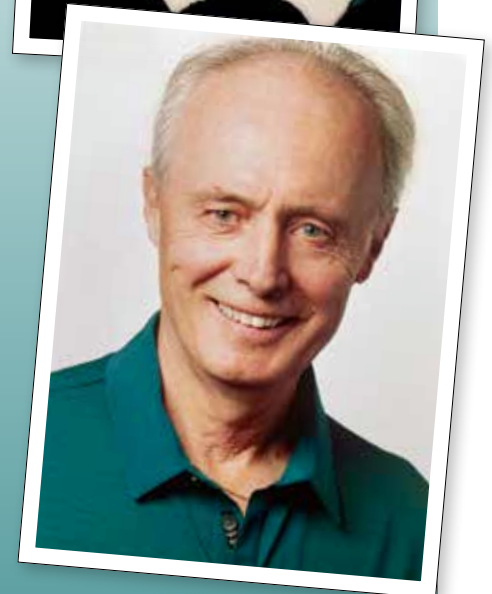
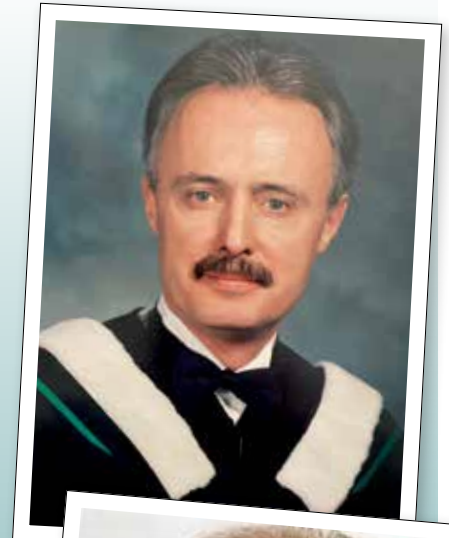
engineering problems as they arose. Watching the completion of a crucial highway link for an Indigenous community was very rewarding."

After six years of retirement, Wally has found yet another passion to pursue: volunteering. He

has volunteered as a communications advisor at Winnipeg Harvest, served lunch-time meals at the Main Street Project, volunteered as a driver for Cancer Care Manitoba, and joined the Board of Directors for the Manitoba Prostate Cancer Support Group. "I enjoy helping others whenever I can and I believe it helps to keep a healthy mind and body," says Wally.

He has not made a career of it yet, but since retiring he is using his ACTRA membership to take on the role of background actor in many movies that have been shot on location in Winnipeg and rural Manitoba.

His advice to others who, like him might have been unsure about their path in life? "My advice would be to convince yourself that you can do it, against all odds, and you will realize that the effort is worth it." 🍷



"My advice would be to convince yourself that you can do it, against all odds, and you will realize that the effort is worth it."

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 Contact: Brent Wall
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 Email: bwall@accutecheng.ca
 Website: www.accutecheng.ca



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 Contact: Todd Smith
 Tel: (204) 477-5381
 Email: todd.smith@aecom.com
 Website: www.aecom.com/ca



Associated Engineering
 Contact: Jeff O'Driscoll
 Tel: (204) 942-6391
 Email: odriscollj@ae.ca
 Website: www.ae.ca



Boge & Boge (1980) Ltd.
 Contact: Hans E. Boge
 Tel: (204) 942-7276
 Email: hanseb@boge-boge.com
 Website: www.boge-boge.com



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 Contact: Tony Mitousis
 Tel: (204) 272-3255
 Email: tony_mitousis@cgmeng.ca
 Website: www.cgmeng.ca



Crosier Kilgour & Partners Ltd.
 Contact: Haney Louka
 Tel: (204) 943-7501
 Email: baney.louka@ckpeng.com
 Website: www.ckpeng.com



DGH Engineering Ltd.
 Contact: Irene Kutzak
 Tel: (204) 334-8846
 Email: ikutzak@dghengineering.com
 Website: www.dghengineering.com



Dillon Consulting Limited
 Contact: Indra Kalinovich
 Tel: (204) 453-2301
 Email: ikalinovich@dillon.ca
 Website: www.dillon.ca



DRI Geotechnical Engineers
 Contact: Gil Robinson
 Tel: (204) 632-7252
 Email: gilrobinson@drgeotechnical.com
 Website: www.drgeotechnical.ca



ENG-TECH Consulting Limited
 Contact: Clark Hryhoruk
 Tel: (204) 233-1694
 Email: engtech@mymts.net
 Website: www.eng-tech.ca



Hatch Ltd.
 Contact: Tim Dean
 Tel: (204) 786-8751
 Email: tim.dean@batch.com
 Website: www.batch.com



J.R. Cousin Consultants Ltd.
 Contact: Jason Cousin
 Tel: (204) 489-0474
 Email: jrcousin@jrcc.ca
 Website: www.jrcc.ca



Jacobs Engineering
 Contact: Stephen Godon
 Tel: (204) 488-2214
 Email: stephen.godon@jacobs.com
 Website: www.jacobs.com



Katzner Survey Consulting
 Contact: Joern Katzer
 Tel: (204) 621-7386
 Email: katzner.surveys@gmail.com
 Website: www.katzersurveys.com



KGS Group
 Contact: Helmut Graumann
 Tel: (204) 896-1209
 Email: hgraumann@ksgsgroup.com
 Website: www.ksgsgroup.com/contacts/winnipeg



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 Tel: (204) 779-7900
 Email: sreaburn@mcw.com
 Website: www.mcw.com



Morrison Hershfield Limited
 Contact: Beth Phillips
 Tel: (204) 977-8370
 Email: bphillips@morrisonhershfield.com
 Website: www.morrisonhershfield.com



Neegan Burnside Ltd.
 Contact: Adam Rose
 Tel: (204) 949-7110
 Email: adam.rose@neeganburnside.com
 Website: www.neeganburnside.com



Primary Engineering and Construction Corporation

Contact: Ben McLeod
Tel: (431) 305-0211
Email: mb@primaryeng.com
Website: www.primaryeng.com



Sison Blackburn Consulting Inc.

Contact: Darren Blackburn
Tel: (204) 505-0855
Email: dblackburn@sbcinc.ca
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Tel: (204) 925-1150
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in Qualifications-Based SELECTION

In their 2021 final report for the Construction and Design Alliance of Ontario, Helen Zhuang (PQS) and Arnold Yuan (PhD, P. Eng.) quote past US President Dwight D. Eisenhower: “Plans are useless, but planning is everything.”

While Qualifications-Based Selection (QBS) may be mandated across almost the entire United States, only Quebec and the City of Calgary have mandated the use of QBS for hiring design engineers. Price-driven competition is the norm across Canada, despite consistent recent studies that point to price-driven models of procurement as a consistent source of delays, budget overages and shorter lifetime performance of projects. A lack of investment in adequate pre-project planning, and not hiring qualified designers, result in poor documents, delays and overages – characteristics of many Canadian construction projects.

A study from the Hole School at the University of Alberta (UAB) found that “price-dependent processes force firms to reduce their level of effort, which adversely impacts quality, innovation, and safety, particularly during the bidding stages of a project when scope is inherently vague. While price-based approaches were associated with higher cost

overruns and schedule delays in design and construction, QBS projects exhibited lower deviations from budgeted costs and schedules. Additionally, QBS enabled cost savings during construction as opposed to price-based ones. These findings indicate how selecting architectural and engineering firms based on qualifications instead of price can yield better project performance in the key areas of schedule and cost performance.”¹ A similar study in the US out of the American Council of Engineering Companies (ACEC-US) Research Institute had comparable findings across multiple case studies. “A study focusing on US airport public works contracts found that the use of QBS procurement increases the quality of the tender’s design documents, which in turn, increases construction certainty. Additionally, investing more design effort was shown to reduce the project’s final cost from early estimates by solving construction problems during the design phase when the costs are lower than after construction has commenced.”²

The prevailing issues in the industry with QBS lay in the perception and misconception that spending more on design will result in more expensive plans, lengthy construction schedules and unnecessary expenditures. Discussions with owners and policy makers about QBS should be continuous



“ Price-driven competition is the norm across Canada, despite consistent recent studies that point to price-driven models of procurement as a consistent source of delays, budget overages and shorter lifetime performance of projects. A lack of investment in adequate pre-project planning, and not hiring qualified designers, result in poor documents, delays and overages – characteristics of many Canadian construction projects.

and data-driven, emphasizing the value added when a qualified firm is engaged for projects, and the benefits vastly outweighing the perceived risks. “Harnessing the services of competent and highly qualified design firms can leverage the quality and cost-time effectiveness of projects serving the public interest. Unlike what clients assume, selecting consultants based on price does not guarantee cost savings because this may impact quality. Also, a higher design cost might translate to lower construction costs, which can be achieved, for example, by selecting a qualified consultant that provides a sustainable, low-impact design. The quality and costs of construction are greatly impacted by the competence, attitudes, and commitment of design consultants”³

The study out of UAB created the following graph when evaluating and screening firms for qualifications in the pre-planning stages of a project:

Screening proposals during pre-planning thusly, as opposed to Best-Value or similar methods. This allows for data-driven evidence of competency, transparency and proactive EDI, as well as confidence in the planning from day one.

In their comprehensive three-year study for the CDAO, Zhang and Yuan sought out the root causes of schedule delays and cost escalation. They found that it was in the pre-planning phases and in the quality of planning documents that the shortages most often occurred.

The CDAO study identified:

- the important role of the project owner’s commitment to upfront investment during the pre-project planning and design stages on the quality of design documents – and subsequent construction project performance.
- a direct and positive correlation between the amount of time and investment that owners spent in pre-planning – and the quality of design documents in terms of completeness and suitability of purpose.
- that owners and stakeholders should spend more time and effort to ensure they adequately scope the project before going to market
- a need for commitment on the part of the owners to allow the time and budget for design reviews, checks and verifications to be done throughout each phase of the design process.
- that design document quality issues are rooted in unrealistic schedules, inadequate fees, and inadequate information about existing conditions.

Many researchers have indicated insufficient design fees, unrealistic time frames and improper pre-project planning have the potential to lead to poor quality of the design/bid documents.

Research has shown that an error that costs \$100 to address during pre-planning could cost \$1,000 to address during the design phase and \$10,000 during construction.⁴

“We studied three projects in detail from the same public owner as a pilot study. All the project managers from the three parties (owners, consultants, and contractors) were interviewed. Among the three projects, two of them happened to be managed by the same project manager from the owner side. For the two projects, one was completed with a cost decrease of 2%, and another with a 16% increase. The main reason for the cost increase, according to the project manager, was the scope change and poor quality of the pre-project planning, because the project with decreased cost had a conceptual design while the other did not. The project manager strongly recommended having a conceptual design with a more accurate budget in the RFP stage. Interestingly, the third project with less than 1% cost increase actually did not have a conceptual design. However, the owner provided a detailed asset condition assessment report and a thorough environmental assessment as well as an accurate initial budget furnished by an engineering consultant.”

These three examples illustrate how hiring firms based on experience and not cost, with effective and comprehensive pre-planning efforts, save money and time on the back end of a project, entirely in contradiction to the reasoning behind cost-cutting BV bids.

To return to Eisenhower; it is by investing in detailed and thoughtful planning that projects achieve their best return on investment. It is through planning that documents are developed which accurately and fairly represent the project, and through planning that comprehensive scope and suitability is developed. Utilizing QBS gives confidence in the future of project before the first hole is made or pile is poured. 🍷

Endnotes

¹ *Impact of Qualifications-Based Selection of Engineering Services on Project Outcomes*. Simaan AbouRizk, Dr. Ahmad Hammad, Dr. Malak El Hattab, Dr. Lingzi Wu, Amira Eltahan and Maram Nomir. Hole School of Construction Engineering, University of Alberta, 2021.

² *Savings, Innovation & Efficiency: An Analysis of QBS in the Procurement of Engineering Services*. Paul S. Chinowsky and Gordon Kingsley. ACEC Research Institute, 2022.

³ AbouRizk, et. al

⁴ *Impacts of Pre-Project Investment & Quality of Documents*. Dr. Arnold (X.-X.) Yuan and Helen Zhuang, PQS. Ryerson Institute for Infrastructure Innovation, 2021.

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Are you looking to design with helical piles but don't know where to start? Did you know about these two great resources? The "Helical Piles, a Practical Guide to Design and Installation" by Howard A. Perko Ph.D., P.E. is a comprehensive manual. The "Helical Piles Installation and Design Manual" by The Deep Foundations Institute is an excellent condensed manual compiled by the Helical Piles and Tiebacks Committee comprising of more than 50 helical pile experts from a wide range of perspectives.





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