

Manitoba Consulting Engineer

Official publication of the Association of Consulting Engineering Companies - Manitoba

VOLUME 8 • MMXVII



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Richard Tebinka,
M.A.Sc., FITE, P.Eng.

What Lies Ahead?



It is an honour to serve as ACEC Manitoba's President for 2017-2018.

I wish to extend my thanks

to the example and accomplishments set by our Past-President, Allyson Desgroseilliers, our Board, our volunteers, and of course, going forward, the person who will have the challenge to keep us all on track, Kerri Hiebert. Without the commitment and work of all of these individuals we would not have the strong, well organized, and well led organization that we have today.

For those who don't know me, I joined the Board in 2013, and have served on the Transportation, Government Affairs, Nominating, and Golf Committees. I have found it to be a very rewarding experience and trust that the coming year will be the same. I would encourage staff of all of our member firms to consider joining one of our many committees, and down the road, the Board - you will not regret it. If you are working for an engineering consultant that is currently not a member, encourage your firm to join our association. By doing so, you will better understand and be aware of the many roles available to volunteers, and the many initiatives being undertaken by the Board and the committees. The goal is to increase our association's, and hence our member firms', profile and make operating and working in Manitoba a positive experience, offering opportunities for growth and advancement.

Some of our recent accomplishments, as well as initiatives that will continue over the coming year(s), include:

- We have initiated closer ties with Engineers Geoscientists Manitoba, specifically, inviting their association's

If you are working for an engineering consultant that is currently not a member, encourage your firm to join our Association.

Director of Government Relations to join our Government Affairs Committee, with joint interest in issues such as limits of liability, the workings of the New West Trade Partnership Agreement, as well as other matters.

- We regularly meet with other associations representing technologists and technicians, and architects in Manitoba. We have also initiated contact with Manitoba Professional Planners Institute and will begin meeting with them in the coming year. We are also looking at initiating meetings with the Winnipeg Construction Association and Manitoba Heavy Construction Association on possible areas of joint interest.
- We have been involved in the Winnipeg Chamber of Commerce, and recently began attending events hosted by the Manitoba Chamber of Commerce, with key ones being the annual dinner with Government Ministers, and the MLA December reception. We also plan on attending the upcoming dinner with Deputy Ministers. Our representation on the Winnipeg Chamber Board ensures we have a voice in business matters affecting our industry.
- We have resurrected the Past Presidents meetings, asking past presidents to be involved in

drafting our new criteria for Board nominations and membership (completed in early 2017), led by our then Past President, Alana Gauthier, as well as input to the Government Affairs Committee.

- We reviewed and streamlined membership categories, including the creation of a new membership category – Retired Members, with two members to date.
- We have had positive feedback from the Provincial Government on opening discussions to potentially reduce the current 30-year limits of liability down to 10 to 15 years, in line with all other Provinces. We must continue to pursue this matter.
- Manitoba has signed the New West Trade Partnership Agreement, and as an Association, we will be reaching out to municipal jurisdictions with input on how that may change, or not change, how they procure engineering services.
- We will continue to pursue the possibility of introducing Qualifications Based Selection for engineering service with the City of Winnipeg and Province.

As you can see, our Board has been active, and we have a number of initiatives we plan to pursue over the next year.

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Infrastructure: Investing in prosperity, productivity and competitiveness

ACEC-Canada makes recommendations to federal government



The Association of Consulting Engineering Companies - Canada (ACEC) believes that

infrastructure can be an effective investment in our social, economic and environmental quality of life. ACEC has made its annual recommendations to the House of Commons Standing Committee on Finance as part of the government's pre-budget consultations for 2018. ACEC applauds the federal government's current commitment to infrastructure investment, however, believes there is still much work to be done and has made recommendations on how government can most effectively invest in infrastructure to create prosperity.

Prioritize investments that enable economic prosperity

Firstly, priority should be given to core infrastructure that grows the economy, creates jobs and expands the tax base. Growing the economy will be essential to making further investments in community and social infrastructure viable and sustainable in the long term. Studies show that every dollar spent has the potential to increase GDP by as much as \$1.20. By contrast, infrastructure underinvestment is costing the Canadian economy 1.1% of real GDP annually and reducing the long-term profitability of Canadian businesses by an average of 20%.

The recent commitment of \$2.1 billion to transportation and trade corridors by the federal government is an excellent investment. Other such investments to consider include those recommended by the Canadian Chamber of Commerce in its recent report *Stuck in Traffic for*

10,000 Years: Canadian Problems that Infrastructure Investment Can Solve.

Implement national corridors to accommodate multiple infrastructure assets

ACEC recommends that the federal government work with all levels of government and relevant stakeholders to identify, acquire lands and facilitate the securing of approvals for a network of **national infrastructure corridors**. A nationwide network of these corridors would connect all regions of Canada, help address social and environmental concerns and facilitate the planning, development and implementation of both public and private infrastructure projects in a less costly and more time effective manner.

This approach would eliminate the need for multiple reviews of major nation building projects and allow governments to better consult with the First Nations and local stakeholders on the correct path for a right-of-way where projects could be built. One of the key benefits is that a national corridor would require a significantly smaller geographical and environmental footprint than the current fragmented approach. It would also allow for a more efficient and environmentally sustainable way of extracting natural resources and deliver them to market, helping to grow Canada's economy.

Use QBS to achieve quality, innovation and long-term savings

Supporting Canada's infrastructure represents a significant investment of tax dollars. Upfront procurement decisions have an impact on not only the cost and quality of the design and

construction phases, but on operations and maintenance of infrastructure assets. Engineering and other professional services typically account for only 6%-18% of capital costs of infrastructure projects and 1%-2% of total costs over the life-cycle of infrastructure assets. Yet, these services dramatically impact all aspects of the financial and operational success of infrastructure for decades.

In order to ensure the best outcome and value to taxpayers, Qualifications-Based Selection (QBS) should be used for the procurement of engineering and other professional services. The **National Guide to Sustainable Municipal Infrastructure** (a collaboration of the Federation of Canadian Municipalities, National Research Council, et al.) recommends QBS in its publication entitled the *Best Practice: Selecting a Professional Consultant*. This guide was developed by the public sector for the public sector.

QBS focuses on the qualifications of the project team and their understanding of the project objectives. QBS results in a project scope, schedule and budget that are realistic, commercially fair and responsible. QBS also encourages and rewards innovative projects. However, current public procurement practices often discourage and even penalize innovation by: assuming the lowest price is the best price; by unilaterally transferring all risk to the proponent; and by not respecting intellectual property of service providers. *An Analysis of Issues Pertaining to Qualifications-Based Selection* by two universities confirmed the financial and operational benefits of using QBS based on years of experience in the US. 🇺🇸

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IS THERE SUCH A THING AS ‘INDIGENOUS ENGINEERING’?

By Marcia Friesen, Ph.D., PEng.

Associate Dean (Design Education), Faculty of Engineering &

Director, Centre for Engineering Professional Practice and Engineering Education

“I THINK IN SOME AREAS WE HAVE GOT [SIC] RIDICULOUS. WHAT IS INDIGENOUS PHYSICS? PHYSICS IS PHYSICS. IF WE ARE TO COMPETE IN THE JOB MARKET WE MUST LEARN TECHNOLOGY AND ENGINEERING. WE NEED TO BE TAUGHT SUBJECTS PROPERLY. I AGREE THAT WE NEED TO REASSESS THE CURRICULUM BECAUSE WE NEED REAL UNITS THAT TEACH THE SUBJECTS WITHOUT THIS RIDICULOUS INSERTION OF CULTURE, THE IDEA THAT YOU HAVE TO HAVE AN INDIGENOUS OR ASIAN PERSPECTIVE, TO BE FRANK, IS SILLY. THE SCIENCES AND MATHS SHOULD BE TAUGHT PROPERLY.”



These were the opinions of Warren Mundine speaking at a 2014 symposium on Indigenous content in STEM fields, hosted at The University of South Australia. Mundine was, at the time, Chair of the Australian Prime Minister’s Indigenous Advisory Council, whose role is to advise government on practical changes which can be made to improve the lives of Indigenous peoples in Australia. **I thought the remarks were surprising, and indeed they appeared to lead to rifts within the Council.**

Canadians also live with a legacy of troubled relationships between Indigenous

Canadians and non-Indigenous Canadians, rooted in a history of colonialism and racism. As part of the long road to restoration, the Truth & Reconciliation Commission’s Calls to Action (2015) call for education for reconciliation, including the inclusion of Indigenous perspectives and content into post-secondary programs. One of the many goals under The University of Manitoba’s Strategic Priorities 2015-2020 is also to, “ensure every student graduates with a basic understanding of the importance and contributions of Indigenous peoples in Manitoba and Canada.”

In the Faculty of Engineering at The University of Manitoba, we are discussing how we will incorporate Indigenous perspectives and content into the engineering curriculum. Moreover, how will we do it in a way that is naturalistic and meaningful, rather than as an add-on at risk of being disconnected from what is perceived to be the “real” curriculum? A Google search of “Indigenous perspectives in engineering curricula” reveals that many universities in Canada are at the same place, knowing this is something that needs to be done, but not quite sure how to do it.

So, at The University of Manitoba we have started talking to people – more specifically, over the past six months we’ve spoken to a number of Indigenous engineers and design professionals working in Manitoba. We’ve asked them to comment on Indigenous knowledge and perspectives from which all engineering undergraduate students would benefit, and professional skills that are important for engineering professionals who want to build a career in Manitoba.

They discussed the need to consciously set aside what we all think we know about Indigenous people and be open to re-learning.

They spoke of respecting different types of knowledge related to knowledge of communities, environments, and relationships. To succeed as a service provider in Indigenous communities, they spoke of the need to listen, to go in humble, and recognize one’s own lack of education in other systems of learning. They spoke of the critical role of taking time to build trust and to develop a community’s sense of ownership of the project. These are professional values that we can continue to cultivate in our undergraduate engineering students.

There are some logical starting points for this in our curricula. Every engineering program has a course called ‘Technology and Society’, or something similar. The course typically explores the interface between engineering and other professions, the engineering profession’s role in society as a whole, and its regulatory mandate to act in the public interest. This is a natural place to highlight the history of Indigenous and non-Indigenous relationship by engaging with concepts of ingenuity and invention relative to First Nations, the structure of treaties and how they interact with development, and the concept of social license.

Dr. Leonnie Kavanagh, P.Eng., the instructor of such a course at The University of Manitoba, has often invited Dr. Ovide Mercredi, former national chief of the Assembly of First Nations, to her class to speak to his first-hand experience as a youth in Grand Rapids, Manitoba, when Manitoba Hydro came in to develop

“FINALLY, THE INDIGENOUS ENGINEERS AND DESIGNERS WITH WHOM WE SPOKE ASKED US TO RECOGNIZE THAT THERE IS NO “PAN-CANADIAN” INDIGENOUS PERSON AND THERE IS NO SINGLE PROFILE OF A RESERVE.”

hydroelectric power. He speaks powerfully of how the activities of Manitoba Hydro forever changed the physical, economic, and social landscape of the Indigenous community living there, without their engagement or inclusion.

The required Engineering Economics course is another opportunity to touch on the influence and role of funders (e.g. federal government) on infrastructure choices and the principles of valuation inherent in funding guidelines and



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strategies. It is also an opportunity to examine differences between Indigenous and Western perspectives on concepts like 'ownership' and 'access', the division that Western society makes between the private and the public, and how that impacts land use planning, appropriation, and resource development.

Every engineering program also includes design courses and a capstone design project. Design projects can serve as vehicles for more explicit Indigenous

perspectives and content. **For example, infrastructure development, energy independence, and food security are of great concern to remote Indigenous communities in Canada.** Design projects can also be framed to explicitly consider Indigenous design principles including a commitment to relationships, culturally relevant design, respecting Mother Earth, fostering a sense of community, and embracing a Seven Generation view. Students can be encouraged to ask, "Is this

a good outcome?" but also to ask "for whom is this a good outcome, and for whom is it not?"

Finally, the Indigenous engineers and designers with whom we spoke asked us to recognize that there is no "Pan-Canadian" Indigenous person and there is no single profile of a reserve. There are differences within Indigenous traditions and between communities. This is overlaid with the natural evolution of communities to modern practices and technology, as expected, driven by youth.

While some discussed the importance of all Canadians learning the history of colonialism and some of its most destructive elements like the Indian Residential School system, others spoke of the potential for collective nation building through a re-envisioning of "a Canadian identity for Indigenous people, and an Indigenous identity for Canada." Another commented, "the younger generation does not necessarily carry the trauma of the past and we don't do them any favours by entrenching historical, clichéd notions of Indigenous design, rather than new ideas." **This designer spoke of the need to re-imagine engineering with Indigenous peoples, rather than as something that one does to or for Indigenous people and communities.** This is easy to write down on this page, but likely requires some fundamental re-setting of the way in which non-Indigenous Canadians' practice engineering.

In the Faculty of Engineering, we are committed to this important aspect of the curriculum in preparing graduate engineers for professional practice in Manitoba, and to ensure that the Faculty of Engineering truly welcomes Indigenous students, faculty members, and partners.

One concrete development is the current hiring of an Indigenous Scholar jointly between the Faculty of Engineering and Faculty of Architecture to assist us in these directions, and as we continue, I welcome your thoughts and contributions. Please feel free to contact me at marcia.friesen@umanitoba.ca. ☎



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2017 MANITOBA AWARDS OF EXCELLENCE



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KEYSTONE AWARD WINNER

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Project Name: **Eureka Nunavut - Water and Sewer in the Far North**

Firm: **AECOM Canada Ltd.**

Client: **Public Works and Government Services Canada**

This project also won an Award of Excellence in the Municipal and Water Technology Group

AECOM was retained by Public Services and Procurement Canada (formerly Public Works and Government Services Canada) as a consultant on this multi-disciplinary engineering project that will provide upgraded sewer and water systems under conditions unique to the High Arctic Weather Station, located in Eureka, Nunavut on the 80th parallel.

The project supplies 22 months of raw water storage, with accommodation for up to 2.4 meters of ice and temperatures as low as -55 C. Eureka's wastewater treatment system will meet stringent Wastewater System Effluent Regulation (WSER) guidelines that were implemented under the authority of the Fisheries Act – this is one of the first times these guidelines have been applied to a location this far North. AECOM's solution includes a containerized biological wastewater treatment process using Moving Bed Biofilm Reactor (MMBR) technology to remove organic compounds, while reusing an existing storage lagoon cell.

Lagoons are the most common type of treatment system for small southern communities, however, Eureka's climate is cold most months of the year and therefore, the existing lagoon was only providing marginal treatment.

The MBBR plastic media provides increased surface area for microbial growth, which is the main mechanism of treatment. This system decreases the space required to treat the same volume of sewage, which allows the system to be housed indoors, where the conditions can be controlled to promote microbial destruction of pollutants in the wastewater. The existing lagoon can then be used as



a retention pond prior to discharge instead of using it for treatment.

In Eureka, all heating and power is provided by fossil fuels, so it was important to minimize the footprint of the treatment unit, to minimize energy consumption. Eureka's raw water supply also required replacement. The existing freshwater reservoir is leaking and it is located near a contaminated site, however, the reservoir cannot economically be relocated. AECOM used several types of advanced materials such as geocomposites and geomembranes in the design of the new reservoir to ensure that it would supply enough volume, it would be watertight and it would remain unaffected by underlying contaminated soil.

A drain system was also designed, which would be installed underneath the reservoir to convey any potentially contaminated water away from the reservoir and treat it for hydrocarbons



prior to discharge downstream of the reservoir intake. The majority of these contaminated soils will be covered by the reservoir berm and they will freeze in place rather than drain. These technologies will ensure a safe water supply for residents in Eureka while managing the remediation of an environmentally damaged site.

Improvements in instrumentation and controls for water and wastewater processes have allowed mechanical plants to become very compact, which allows most of the process equipment to be installed into modified shipping



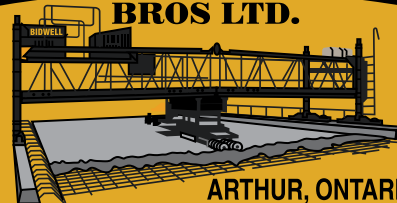
containers and then transported to site as units. This reduces contractor time on site as well as start-up time for the new mechanical plants. These improvements have also allowed for remote monitoring of the process by experienced operators so that experienced personnel are not required for daily operations.

Due to the remoteness of the station, the only access to the community is by ship, which comes once or twice per year, or by air, which is costly. Also, the risk of freezing is very high, and due to the remote location, failure of the processes for more than a day would be devastating to the community as there is no alternate water supply. Electricity is produced entirely by diesel generators. The complexities in this project were not due to the scale, or number of pipe tie-ins, but rather it was an exercise in minimizing: power consumption, operator attention, maintenance requirements, chemical consumption, and the potential for system failure. The project team completed an extensive review of existing climate data, maps, drawings, previous studies and existing experiences about design and construction in arctic zones in order to complete this project.

Water and wastewater systems are essential infrastructure to any remote research station. The lack of raw water storage capacity can impact the research station's ability to focus on its national role to observe arctic weather and climate. Providing 300 days of raw water storage will give an appropriate sustainability to the station for surviving

in the harsh arctic weather, which has the potential to attract more arctic research. This project demonstrates that it is possible to have a positive social impact while also being economically and environmentally responsible. As a result, it will be used as an example project for remote, cold climate locations.

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AWARD OF EXCELLENCE

Energy Resource Development Category



Project Name: **Geomagnetic Disturbance Vulnerability Assessment**

Firm: **Teshmont Consultants LP**

Client: **AltaLink**

Electricity is a vital part of our lives. The temporary or long-term loss of electricity can result in outcomes ranging from inconvenience to life threatening. Geomagnetic Disturbance (GMD) events can negatively influence the operation of power grids. Historically, several GMD events have caused permanent damage to critical electrical infrastructure, caused blackouts, and affected the lives of millions of people, resulting in billions of dollars of mitigation measures. AltaLink engaged Teshmont to perform an investigation into the vulnerability of their system to GMD. Teshmont determined the magnitude of GMD currents in AltaLink's system and the corresponding impacts on system performance for multiple GMD scenarios.



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AWARD OF EXCELLENCE

Municipal and Water Technology Category

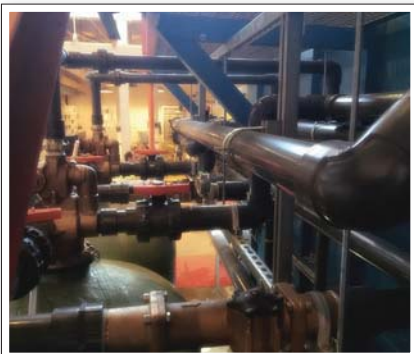


Project Name: **Rainy River Trihalomethane Pilot Study and System Upgrades**

Firm: **KGS Group**

Client: **Town of Rainy River, Ontario**

The Town of Rainy River has had excessive levels of Trihalomethane (THA) and Haloacetic Acid (HAA), known carcinogens, for years. KGS Group, with the University of Manitoba, conducted detailed pilot studies on ion exchange and nanofiltration systems to mitigate THA and HAA levels and meet Canadian Drinking Water Quality Guidelines. Results of the pilot study demonstrated that both processes would meet guidelines; however, analysis of the facility footprint and economic factors defined the ion option, as it would not require costly building expansion and was much more practical to operate. The Town of Rainy River received a congratulatory letter from Ontario for this excellent project.



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AWARD OF EXCELLENCE

Environmental Category

AECOM

Project Name: **Rehabilitation of Large Diameter Non-Circular Trunk Sewers**

Firm: **AECOM Canada Ltd.**

Client: **The City of Winnipeg**

This project included the rehabilitation of two large diameter trunk sewers within the City of Winnipeg's combined sewer network. The Selkirk Avenue trunk, a 2030 x 1630 mm brick egg sewer, exhibited signs of severe deterioration. Active deterioration of the section required the emergency bracing and shotcrete stabilization prior to completion of the rehabilitation work. The Mission Trunk, a 2980 x 1980 mm concrete egg sewer located immediately upstream of the flood pumping station exhibited signs of severe sewer fabric loss. Both were successfully rehabilitated with glass reinforced polymer panels, extending their useful service life for an additional 50 plus years.



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AWARD OF EXCELLENCE

Building Engineering Category



Project Name: **Manitoba Hydro Service Centre - Ashern Manitoba**

Firm: **WSP Canada Inc.**

Client: **Manitoba Hydro**

The Manitoba Hydro Service Centre in Ashern, Manitoba was designed and constructed as a highly sustainable building modelled after the design principles of the Manitoba Hydro Place in Winnipeg, on a smaller scale of course for a rural community. The desire was to demonstrate that highly sustainable design principles could be implemented effectively and efficiently with the intent to raise the bar in rural Manitoba for others to emulate. It achieved an energy performance level of 62% better than the Model National Energy Code for Buildings (1997). For comparison, the LEED Platinum Manitoba Hydro Place achieved 65% better than the 1997 Model National Energy Code Buildings.



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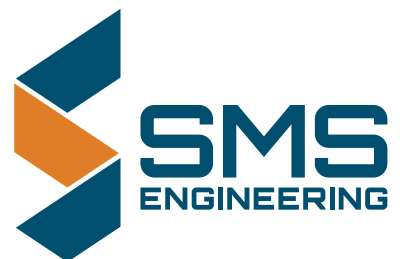


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A high-angle photograph of two men working together at a desk. One man is pointing at the laptop screen while the other looks on. The image is overlaid with a blue tint. The laptop screen shows a technical drawing or software interface.

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AWARD OF MERIT

Municipal and Water Technology Category



Project Name: **Cartier Regional Water Cooperative - Headingley Water Treatment Plant**

Firm: **Stantec Consulting Ltd.**

Client: **Manitoba Water Services Board**



The Cartier Regional Water Co-operative's Headingley Water Treatment Plant (WTP) was developed to meet the growing regional water demands of three rural municipalities plus Canada's first and largest tri-modal inland port and two correctional facilities. Working with Manitoba Water Services Board and the Water Co-op, Stantec's engineering

team developed a concept based on an integrated membrane treatment system consisting of ultrafiltration membranes followed by low-energy reverse osmosis membranes to treat a challenging water source from the Assiniboine River. Following a successful pilot, and fast-tracked construction, the state-of-the-art WTP was put into service in March 2016.




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AWARD OF MERIT

Industrial Category

Project Name: **Soldiers Pond Synchronous Condenser Facility**

Firm: **KGS Group**

Client: **GE Renewable Energy**

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KGS provided engineering services, in collaboration with GE Renewable Power Canada, to design and build a synchronous condenser (SC) facility at Soldiers Pond for the Lower Churchill Project in the province of Newfoundland and Labrador. KGS Group completed the civil works component for the SC facility and provided engineering and site support including geotechnical, civil, structural, mechanical and electrical engineering. The SC facility includes a main building and several remote auxiliary components. The main building includes a two-story control section and an adjacent full height machine hall which houses three (3) 175 mega volt ampere reactive synchronous condenser units and associated auxiliaries.







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AWARD OF MERIT

Environmental Category

AECOM

Project Name: **Emergency Rehabilitation of St. James Interceptor Siphon**

Firm: **AECOM Canada Ltd.**

Client: **The City of Winnipeg**



This project included the rehabilitation of the St. James Interceptor Siphon which crosses beneath the Assiniboine River in Winnipeg. The twin siphon is comprised of twin 500 and 600 mm steel siphons, conveying flows from 2200 hectares of northwest Winnipeg. Results of an advanced electromagnetic inspection in 2014 resulted in the emergency rehabilitation of the siphon using cured-in-place pipe (CIPP). Despite the challenges faced during the rehabilitation process, including active leaks within the 500 mm siphon, both siphons were successfully rehabilitated, extending the crossing remaining service life by a minimum of 50 years.



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AWARD OF MERIT

Small Projects Category



Project Name: **Lyndale Drive Emergency Works**

Firm: **TREK Geotechnical Inc.**

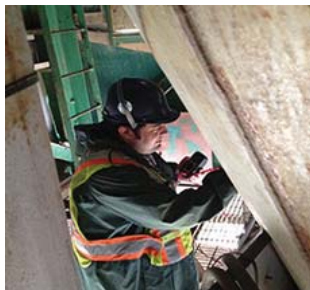
Client: **The City of Winnipeg**



In 2013, significant horizontal displacement and vertical settlement was observed on Lyndale Drive indicating a major failure of one of the previously constructed retaining walls. TREK Geotechnical Inc. was retained to provide riverbank monitoring as well as emergency design and construction of riverbank stabilization measures. This project was an outstanding success with Lyndale Drive experiencing a compelling reduction in displacement rates. This success affected the safety of the surrounding residents' homes as well as the pedestrians, cyclists and motorists who use Lyndale Drive and the adjacent riverfront park.

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AWARD OF MERIT

Infrastructure and Transportation Category



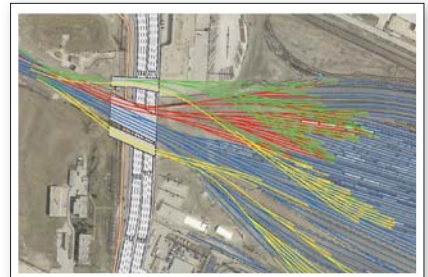
Project Name: **CPR Yards Crossing Functional Design Study**

Firm: **Stantec Consulting Ltd.**

Client: **The City of Winnipeg**



The City of Winnipeg undertook a functional design study of the CPR Yards Crossing at Arlington to be completed in 2016. Through a collaborative process involving Stantec Consulting and a highly specialized technical team, the City's Steering Committee, a Public Advisory Committee (PAC) and the public, a balanced analysis that best matched the project goals was developed. This comprehensive functional design study has formed an essential foundation for meeting the needs of a diverse set of stakeholders, planning the future of a structure, a crossing, and a Canadian urban neighbourhood. It also sets a standard of excellence for future projects.



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RISING STAR AWARD

Dana Bredin, P. Eng.

The *Rising Star Award* is intended to recognize exceptional achievements in the early years of a person's career. This award was established in 2008 in recognition of the 30th Anniversary of the Consulting Engineers of Manitoba. The award is intended to celebrate a young individual who has demonstrated excellence in business practices, outstanding achievements in their applicable fields, leadership in the community and active participation in the Association. The award was first presented to Daniel Zaborniak in 2008, Jason Cousin in 2009, Beth Phillips in 2010, Owen Van Wallegghem in 2011, Jonathan Epp in 2012, Kimberly Yathon in 2013, Kristen Poff in 2014, Jomar Manzano in 2015 and Lin Watt in 2016.

Dana is an intermediate engineer with over six years of progressive engineering experience in the environmental infrastructure group in WSP's Buffalo Place office in Winnipeg. Since graduating in 2010 from the University of Manitoba, Dana has been involved in the design, construction, and commissioning of many municipal projects throughout Manitoba and into Nunavut. His areas of expertise include wastewater treatment and storage, solid waste disposal, contract administration, geotechnical projects and commercial development.

Dana has progressed in the wastewater field from surveying and assisting with geotechnical investigations, to detailed design, Environment Act Proposal submissions, slope modelling and analysis of dykes, construction coordination, contract administration, both resident and non-resident, as-constructed surveys, quantity calculations and progress payments. He is well versed in dealing with clients, contractors and regulators, and has become a "one-stop shop" for conventional and aerated lagoon systems in Manitoba.

Dana administered the Baker Lake Airfield Lighting Replacement early in his

career as he was the lone consultant on-site in an isolated environment dealing with the contractor. He brought the project to a successful completion with limited resources and back-up. Early in his career, under the guidance of Dean Gould, Dana became involved in Lake Winnipeg shoreline erosion protection projects and after Dean's passing, continued to provide design and contract administration services, culminating in the Grand Beach Boardwalk Rehabilitation Project.

Dana is actively involved in the engineering community through ACEC-MB, and is a member of the Canadian Geotechnical Society (CGS), as well as the Canadian Society of Civil Engineers (CSCE). During the past six years on the ACEC-MB Image Committee (two years as Chair) Dana was pivotal in promoting and raising awareness of the consulting engineering community. He did so through the development and implementation of several events and programs. Dana led the coordination and launching of the annual 640 event now in its 4th year, and he was part of the team that planned the table design for the 3rd Annual Table for 1200, which highlighted and promoted ACEC-MB to Winnipeg's design community. Dana also helped coordinate the Speakers Bureau, which is a program aimed to inspire pre-university students to consider pursuing a career in science, technology, and engineering. Besides his involvement in the Image Committee, Dana previously spent over three years as an active member of the ACEC-MB Young Professionals Committee and was also involved with the former Business Practices Committee.

Dana is involved in the community through volunteering for a theatre production group at St. Timothy Parish, as well as previously coaching water polo at the high school level. He has also volunteered at Winnipeg Harvest, actively participates in the Manitoba Marathon,



and has participated in events to raise money for KidSport Manitoba.

Dana has achieved so much in the early years of his career and has shown immense dedication to promoting ACEC-MB and the engineering profession – he truly is a rising star!

LIFETIME ACHIEVEMENT AWARD

David P. Krahn, P. Eng.

As part of the Awards of Excellence Program, the Consulting Engineers of Manitoba acknowledge the individual achievements of Manitoba's consulting engineers through the *Lifetime Achievement Award*. This award is presented to a Manitoba engineer in recognition of his or her leadership, achievements and contributions to consulting engineering.

In 2016, Dave celebrated his 40th Anniversary with Dillon Consulting Limited (Dillon) where Dave began his career following his graduation from the University of Manitoba in 1976, with his Bachelor of Science in Engineering. Through the years Dave has risen through the technical ranks of his profession, moving into management positions for technical projects and a variety of company committees. In 1985 he was appointed as an Associate, and in 1988 he became a Partner at Dillon. Dave is well acknowledged and respected by the City, the Province and across the country for his expertise. Within Dillon, Dave is a trusted advisor and his expertise is sought after across the country.

Dave is a professional engineer currently registered in the provinces of Manitoba, Saskatchewan, Ontario, and British Columbia. He specializes in the planning, design and construction administration of a broad range of transportation facilities, including highways, interchanges, arterial roads, transit, airport runways, taxiways and aprons. Dave's professional career leaves a legacy of historic transportation and infrastructure projects for both the City of Winnipeg and the Province of Manitoba.

A particular passion for Dave is sustainable development and the advancement of urban mobility issues. The vision of rapid transit by the City of Winnipeg and Winnipeg Transit has been under development for years and Dave has been contributing engineering expertise to these projects

throughout his entire career which include the following:

- Canadian Public Works Association, 2013, "Southwest Transitway - Stage 1" - Project of the Year
- Canadian Consulting Engineering Award of Excellence, 2013. "Southwest Transitway - Stage 1"
- ACEC-Manitoba - Award of Excellence, 2013 "Southwest Transitway - Stage 1"
- ACEC-Manitoba - Award of Merit, 2011, "Southwest Transitway - Osborne Station"
- ACEC-Manitoba - Award of Excellence, 2011, "Southwest Transitway - Tunnel"
- ACEC-Manitoba - Award of Merit, 2008, "On Street Transit Priority Program"

Dave has contributed to ACEC-Manitoba by guiding and encouraging staff to become involved in ACEC-Manitoba at the Board and Committee level. In the late 1990's he joined the Transportation Committee with a mandate to promote the expertise and professional services of Manitoba engineering firms to assist with transportation services and infrastructure. During his term as Chair of the ACEC-Manitoba Transportation Committee (2001 to 2004), Dave advocated extensively for both public and private clients to revise their procurement procedures in an effort to change the industry culture and transition to a quality based procurement selection process. His position as an ACEC-Manitoba board member (2006 to 2009) provided the opportunity to further advocate for the engineering community and the strong capabilities that exist locally. A major emphasis of Dave's business development activities was fostering trusting working relationships and communicating the image of transportation engineering consultants as vital, effective, and trustworthy resources. Dave also served as Treasurer of ACEC-Manitoba from 2007 to 2010.

In his limited spare time, Dave previously served as Secretary Treasurer,



and Chair Moderator on his church board from 1986 to 1997 for the direction and guidance of a congregation of over 300 members. Although his career and professional volunteerism occupied most of his time, over the last 40 years Dave has also made time to give back to the community, supporting and sponsoring many causes and organizations including: his daughter's ringette team, community baseball teams, the local boys and girls clubs, Siloam and Union Gospel Missions, MS Society of Canada and the Variety Club.

Dave embodies the spirit of the Lifetime Achievement Award for his dedication to advancing the engineering profession, selfless volunteerism, and commitment to ACEC-Manitoba. His team members revere Dave for his mentorship, his technical expertise, and his leadership skills. He truly leads by example, expecting excellence from his team while instilling and acting on the belief that family should be one's first priority.




ACEC-MB at Table for 1200

ACEC-MB took the bull by the horns at this year's Table for 1200 event by creating their biggest and most elaborate centerpiece yet! Through a series of brainstorming sessions, ACEC-MB Image Committee members Steven Goldstine and Morgann Becket developed an idea that not only promoted the ACEC brand and looked great, but was interactive and fun. The five foot long (or 1.5m if you will) series of interconnected PEX piping and supports conveyed water and other libations across the length of the table and into the awaiting glasses. Despite a few minor leaks, the centerpiece worked great, looked even better, withstood strong winds, and garnered the attention of many passersby including Mayor Bowman who even stopped by to test it out himself.


The annual pop-up dinner party organized by StorefrontMB brought 1200 Winnipeggers clad in white on the evening of June 3, 2017 to dine in the shadows of the historic Exchange District buildings along the entire length of Rorie Street, from the Richardson Plaza to Market Avenue. Joining Steven and Morgann at the ACEC-MB table this year were ACEC-MB Image Committee Chair Misty Klassen, ACEC-MB Board of Directors President Richard Tebinka, and their guests.








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19th Annual ACEC-Manitoba Golf Tournament

The Association of Consulting Engineering Companies – Manitoba held their annual golf tournament, now in it's 19th year, on Wednesday May 17, 2017 at the Pine Ridge Golf and Country Club. This year's tournament had an attendance of 96 golfers. A cool, yet sunny day, welcomed the golfers onto the links at the Pine Ridge Golf Club. A fantastic dinner and great prize draws concluded the evening.

We congratulate the first place team John Highmoor, Ken Smallwood, Kerry Lines, and Alex Grenier with a winning score of 59.

Second Place winners were the team of Kurt Chekosky, Jeff Fontaine, Juice Lambert and Karl Loder with a score of 62.

Most honest team winners were Sandee Cabigting, Noah Moscovitch, George Trudeau, and Wally Jackson.

Contest winners were:

- Longest Drive Hole 4 – Richard Hawkins
- Longest Drive – Hole 15 – Jarrod Malenchak
- Closest to the Hole 7 – John McKusker

- Closest to the Hole 16 – Kurt Chekosky
- Straightest Drive Hole 2 – Bruce Wilton
- Straightest Drive Hole 11 – Tony Latiza

The Association of Consulting Engineering Companies – Manitoba would like to give a special thank you to WSP our Keystone Sponsor. We would also like to thank all of our prize, hole and event sponsors as well as all the golfers for making this event successful. ACEC-MB is proud to donate \$1500 to The Movement Centre of Manitoba, a non-profit organization that is committed to improving the physical health of children and adults with physical disabilities.

Shown are Co-Chair Reynold Cabigting (Sison Blackburn Consulting Inc.), Justin Burley, Communications Coordinator, The Movement Centre of Manitoba and Michael Van Helden (TREK Geotechnical Inc.) golf committee member.

Keep your calendars open for the 20th annual golf tournament at the Pine Ridge Golf and Country Club May 16, 2018.



Tournament Champions



Second place



Most honest team



Golf Co-Chair Reynold Cabigting (Sison Blackburn Consulting Inc.) and Michael Van Helden (TREK Geotechnical Inc.) golf committee member present a cheque for \$1500 to The Movement Centre of Manitoba



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Transportation Reception

The Transportation Committee's client reception was held on March 2, 2017 at The Metropolitan Entertainment Centre. This event has been held annually since 2009 and provides a forum for staff from member firms to meet clients from Manitoba Infrastructure (MI) and the City of Winnipeg in an informal setting to discuss opportunities within the Transportation Sector.

The event was well attended by staff from MI and the City's Public Works and Transit Departments along with ACEC-MB members. Brief introductory remarks from Deputy Minister Lance Vigfusson on behalf of MI and Public Works Director Lester Deane on behalf of the City were appreciated. Unlike past years' there was no invited speaker; instead attendees spent time discussing issues of interest to the transportation community. According to feedback received, the event was a success."





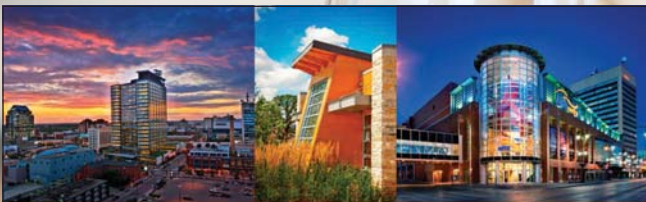
Energy Reception

The Energy Science and Technology Committee's Energy Reception was held on March 7, 2017 at The Metropolitan Entertainment Centre.

As a part of the committee's mandate to raise the profile of member firms and generate business opportunities within the Energy Sector, the committee once again in 2017 oversaw planning and implementation of the Energy Reception. Prior to the annual reception, the committee coordinated a meeting between the ACEC-MB board and three members Manitoba Hydro Executive including President and CEO Kelvin Sheppard. The focus of the meeting was discussion of upcoming procurement changes at Manitoba Hydro related to the New West Partnership

Trade Agreement (NWPTA), upcoming changes to Manitoba Hydro organizational model, and the future business focus. Outcome of the meeting included an opportunity for further discussion around Qualification Based Selection (QBS).

Manitoba Hydro and ACEC-MB members both came out to support the very well attended event. Brief introductory comments from the Manitoba Hydro CEO Kelvin Sheppard provided his perspective on future outlooks and changing focuses within the organization. According to feedback received, the event was a success. Attendance was similar to 2016 with a slight increase in Manitoba Hydro attendees. 🇨🇦



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Message From the Chair

Greetings from the ACEC-MB Young Professionals Committee (YPC). After four years with the YPC in various roles I can say that it is my honour to assume the role of Chair for the 2017-2018 year. I would like to thank the outgoing Chair Mike MacKay and the rest of the committee members for their support. The YPC is currently made up of Mike MacKay (Past Chair), Ashley Morrissey (Vice-Chair), Vanessa Krah, Kelsey Rutherford, Sohaib Azam, Kate O'Neill, Carol Nabanonba, Mehrnaz Sadrnourmohamadi, and Samantha Symons.

During my time with the YPC I have seen the establishment of several cornerstone initiatives to provide young professionals (YPs) with opportunities to learn about the consulting industry, network, and enhance their career opportunities. The first is our flagship event, the annual Young Professionals

During my time with the YPC I have seen the establishment of several cornerstone initiatives to provide young professionals (YPs) with opportunities to learn about the consulting industry, network, and enhance their career.

Gala. Through the Gala we have been able to bring together over 100 young professionals annually to discuss the role YPs have in consulting and where their careers can take them.

Another key initiative of the YPC is our mentorship program which is run with the assistance of The University of Manitoba. The mentorship program is now entering its fifth year and has shown great success.

The program pairs mentors in the consulting industry with engineering students to provide insight and education on how the consulting industry works. Many YPs within ACEC-MB have volunteered to be mentors proving that while they may be young they have a wealth of knowledge and experience to pass on to future generations early in their career.

As the YPC continues to grow and evolve I look forward to the opportunity to create new avenues for YPs to contribute to the consulting engineering industry and to advocate on their behalf. Some of our key goals for the upcoming year include the organization of more educational opportunities for YPs and to help provide a framework for YPs to connect with senior leaders at their respective companies.

I see this last point as a key initiative as it often appears that the development of a YPs career is left up to their managers in early years and that YPs may be too shy to openly discuss their career goals. I think it is important to show that YPs can and should be encouraged to have meaningful discussions with their managers early and often such that they can get the most out of their career and similarly their companies can realize the maximum potential of the YP.

It is clear to me that YPs play a critical role within their companies and they should be proud of the work that they do. I look forward to my time as Chair of the YPC and the opportunity to provide direction to this outstanding group of people. 🙌

Tyson Ehnes,
Chairperson – ACEC-MB Young
Professionals Committee



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Events Summary

2016 ACEC Young Professionals Gala

The 8th Annual ACEC-MB Young Professionals Gala was held on Wednesday, October 19, 2016. Just over 100 people attended the fantastic event held at the Assiniboine Park Tundra Grill. Guests enjoyed Polar Bear sightings in the early evening along with appetizers, and entertainment by CASATI (formerly the Grace Hrabí Jazz Band).



Michael MacKay of KGS Group, the YP Chair, initiated the formal portion of the evening by introducing Grant Koropatnick to bring greetings on behalf of Engineers Geoscientists Manitoba. This was followed by greetings from Allyson Desgroseilliers of Amec Foster Wheeler, President of ACEC-MB, who brought greetings from the ACEC-MB Board. Dinner and networking followed. The evening concluded with the introduction of the Keynote speaker by Michael MacKay. Doug Corbett of Corbett Architecture delivered the keynote address.

Doug Corbett is the Executive Architect for the Canada's Diversity Gardens project, providing advocacy and consulting to Assiniboine Park Conservancy and

Doug's engaging presentation helped ACEC-MB Young Professionals Gala attendees to share and understand firsthand the complexities of engineering design.

the international consultant team. He presented the design for the project and discussed the unique aspects of the iconic Leaf building including the design process, innovative ETFE roof structure, environmental challenges related to the horticultural biomes, and sustainable strategies the Park is attempting with the project and development.

With the design of Canada's Diversity Gardens, the Assiniboine Park is embarking on the third phase of the \$200 million Imagine a Place Campaign. Canada's Diversity Gardens is a \$70 million horticultural attraction that will be located in the southeast corner of Assiniboine Park. It will have four cornerstone attractions including The Leaf, and three main outdoor spaces – the Indigenous Peoples' Gardens, the Cultural Mosaic Gardens and The Grove. Doug's engaging presentation helped ACEC-MB Young Professionals Gala attendees to share and understand firsthand the complexities of engineering design.

The ACEC-MB Young Professionals would like to thank everyone who attended the event and extend a special thanks to Doug Corbett of Corbett Architecture, as well to the generous

Reception (Engineers Geoscientists Manitoba) and Platinum (WSP, KGS Group) sponsors.

2016-2017 ACEC-MB Mentorship Program

The YPC continued the ACEC-MB Mentorship Program for its fourth year. The Program pairs industry professionals with University of Manitoba engineering students allowing the students to gain insight and understanding of the consulting engineering sector. The goal of the ACEC-MB Mentoring Program is to give students an introduction to the challenging and rewarding career opportunities that exist in consulting engineering.

There were three formal events held as part of the program. The first event provided a venue to introduce students to their mentors. The UMES wine & cheese event, sponsored by ACEC-MB, immediately followed the kick-off event and was well attended by mentors and students from the program.

The second event of the 2016-2017 Mentorship Program was held January 23, at the University of Manitoba. The event was open to both students and professionals, and was attended by over

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30 people. The panel discussed the multi-faceted challenges of managing today's work environment and how to work collaboratively to produce high performing teams. The panel featured three consulting engineers;

- Robert Taylor, PEng (Dillon Consulting)
- Bert Jackson, PEng (Hatch)
- Lin Watt, PMP, EIT. (Tetra Tech)

The discussion was moderated by the YPC's own Sohaib Azam (Hatch). The mentorship team would like to thank the panelists who volunteered their time and perspectives, and all the mentors who make the mentorship program possible.

The final event saw all student and mentor participants mingling in a final networking event. The 2016-2017 program coordinators, Kelsey Rutherford (SNC-Lavalin) and Sohaib Azam (Hatch) would like to thank all Faculty of Engineering, UMES, and other participants from the 2016-2017 ACEC-MB mentorship program and encourage all mentors to consider volunteering again this September.

Third Annual ACEC YP Curling Bonspiel

On April 4, Young Professionals gathered for the Third Annual Young Professionals Curling 'Funspiel'. The event was once

again held at the Pembina Curling Club. This year's event had nine teams competing for the prestige and glory of becoming curling champions. The bonspiel was set up in a Bingo Curling format where the rules for scoring each end were not revealed until all rocks had been thrown. After the curling was complete, participants gathered upstairs for food, networking, and prizes. Prizes were awarded to the top three teams.

This year's champions came from Dillon Consulting Ltd:

- Charlie Pogue
- Adam Prokopanko
- Leah Hastie
- Kate O'Neill

The runner-ups, from KGS Group were:

- Shelley Burns
- Josee Remillard
- Mike MacKay
- Paul Surgeoner

And in third place was the conglomerate team of:

- Amanda Pushka (AECOM)
- Matt Klymochko (Trek)
- Kyle Speidel (MMM)
- Joel Penner (Fireseeds North)

In addition, the curlers competed in a draw to the button contest. This year's winner was Spencer Findlay from AECOM



who managed to place his rock directly on the button for a convincing victory!

Thank you to all of the participants who came out and made this our best curling event to date. This year was our biggest turnout with participants coming from AECOM, KGS, Crosier Kilgour, SNC Lavalin, Dillon, Trek, MMM, Fireseeds North, and Tetra Tech. We hope to see you back next year as the YP Committee looks to grow and improve this great event. 🇨🇦

Year in Review

Christine Harries, ing., Chair, ACEC Young Professional Network

This past year was characterized by the launch, or relaunch for some, of the mentorship programs with university engineering students. It also welcomed a representative from the Northwest Territories, which had previously been unrepresented. Manitoba, which pioneered the mentorship program, shared their material and experience with the other provinces and territories. One such activity that was retained by other provinces is a Reverse Career Fair where students prepare a mini booth to present themselves and their work. Employers are invited, and circulate, addressing the booths – and candidates that interest them. Quebec has restarted sending YP

speakers to universities to speak about careers in consulting engineering while Manitoba continued its program with the University of Manitoba.

British Columbia is currently working to launch a new northern chapter in the Prince Rupert, Prince George area. They had a very successful YP conference: Leading From Where You Are in May focusing largely on soft skills and communication styles with a successful sponsorship program. Site visits and lunch and learns continue in most provinces, where Saskatchewan held for example, tours of pot ash mines, and Quebec members visited urban farms and waste water treatment plants.

The YPN has begun organizing the YP activity at this year's National

Leadership Conference October 22-24, 2017. The YP session will be held from 3:30-5:30pm on Sunday, and will consist of 'War Game' – a business strategy session. This will be a great opportunity to break the ice and allow all YP's to meet and collaborate at the beginning of the conference. This activity was recently held in BC for YP's and its success motivates us to start off the conference with the activity. The provincial round table will be held at 5:30-6:30pm immediately following the War Game. During this session, provincial and territorial YP reps will present the developments of this past year in their respective areas. All are welcome to attend. 🇨🇦

Our concern for the environment



is more than just talk

As we continue to deliver valuable information through the pages of this magazine, in a printed format that is appealing, reader-friendly and not lost in the proliferation of electronic messages that are bombarding our senses, we are also well aware of the need to be respectful of our environment. That is why we are committed to publishing the magazine in the most environmentally-friendly process possible. Here is what we mean:

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*So enjoy this magazine...and **KEEP THINKING GREEN.***



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what's ailing the self-employed?

How health and disability insurance can help

The Self-Employment Challenge

Being your own boss has its perks. But without an employer's group benefits, self-employment also means fending for yourself in case of illness or disability.



Over two-thirds of surveyed self-employed individuals are concerned about their lack of access to medical coverage and insurance.¹



8 in 10 Canadians are concerned about the government's ability to fund health care, the cost of longterm care, and having enough money if they become disabled or seriously ill.²

The Role of Insurance

Supplementary health and disability income insurance plans help protect against financial loss due to illnesses or accidents.

Why health insurance?

Canadian families are spending an **increasing share of their household income** on health care.³

Households in the 3 top income quintiles had an average:⁴

- **39% increase** in dental spending
- **24% increase** in prescription drug spending

Why disability insurance?

• **1 in 3** people will be disabled for 90 days or more at least once before they reach age 65.⁵

• **49%** of bankruptcies and mortgage foreclosures are due to disability.⁶

• **A disability of over 90 days** is likely to last three years or more for a 35-year-old man or woman, and four years or more for a 45-year-old man or woman.⁷

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¹ Human Resources and Skills Development Canada: 2006 Survey of Self-Employed Individuals: Perceptions of Benefit Coverage, May 2006.

³ Chaplin R, Earl L. Household spending on health care. Health Reports 2000; 12(1): 57-65.

⁵ Canada Life and Health Insurance Association, A guide to disability insurance, November 2012.

⁷ Disability Insurance: Where Will the Money Come From If You're Disabled? Canadian Life and Health Insurance Association, January 2004.

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² Canadians at Financial Risk: 2013 Canadian Life Insurance Ownership Study Highlights, LIMRA, 2013.

⁴ Statistics Canada: Trends in out-of-pocket health care expenditures in Canada, by household income, 1997 to 2009 (April 2014).

⁶ Get Sick, Get Out: The Medical Causes of Home Mortgage Foreclosures. Health Matrix: Journal of Law-Medicine, Vol. 18, No. 65, 2008.

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