

# Manitoba Consulting Engineer

The official publication of the Consulting Engineers of Manitoba

VOLUME I · MMX

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# Ron Typliski brings wealth of experience to presidency

**I**ncoming CEM president, Ron Typliski, P. Eng., has spent over 32 years in the engineering profession since graduating from the University of Manitoba in 1978 with a degree in civil engineering. Ron's early aspirations were to be an environmental engineer and, in order to realize his dreams, Ron traveled to northern Manitoba for his first job as an environmental engineer-in-training with a northern Manitoba mining company. After spending 13 years in the north, Ron returned to Winnipeg to begin a career in the engineering consulting industry focused on delivering environmental engineering services.

Over the years, Ron's career has evolved and taken him into the operations management area to the position he presently holds with AECOM as its vice-president and district manager for Manitoba. In addition, Ron continues to apply his engineering knowledge to environmental engineering projects and oversees AECOM's environment business line in Manitoba.

Ron takes over the CEM presidency after having spent the last five years as a member of the CEM Board of Directors. As well, Ron also serves as a member of the Winnipeg Chamber of Commerce Board of Directors. In his spare time, Ron likes to spend time on Lake of the Woods chasing the many fish species



that roam the lake. In the winter, his passion is snowmobiling and ice fishing. As Ron puts it, there are few weekends in summer, fall or winter when he is at home with his feet up watching TV. Ron and wife Donna have two grown boys who reside in Vancouver, so travel to the west coast to visit the boys is a high priority throughout the year.

Ron looks forward to the challenge the CEM president's role will no doubt provide in the upcoming year and to continue to work on the many ongoing initiatives established by his predecessors and the CEM Board. ☺



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Ron Typliski, P. Eng.

## Upholding the legacy for future generations of consulting engineers

It is a great pleasure and honor to assume the position of CEM president for the upcoming year (2010/2011). I feel very fortunate to be taking over the helm of an organization that is running very well and firing on all cylinders. My past five years on the CEM Board of Directors has given me an opportunity to get to know and work with some of the best leaders our industry has to offer. Many of these great leaders have held the CEM presidency before me and I have had the good fortune to work with them on the CEM Board and watch them in action. Harley Pankratz, Todd Smith, Bill Brant and Roger Rempel are all former presidents whom I have worked with over the past five years and all have left their mark on shaping our organization to what it is today. One other important person, who has done so much for our organization, is our Executive Director Shirley Tillett. Her tireless work behind the scenes working with our Board and all our CEM committees has been instrumental in steering our organization to the sound footing we enjoy today. Our association is financially sound and supported by a strong Board of Directors and committee chairs who have accomplished much over the years.

I would also like to acknowledge the efforts of all our committees, 10 in total, and all the volunteers who work on these committees. Countless hours are spent by these great volunteers, with the support of their employers, to advance and strengthen our organization and profile in the community.

I am very pleased with the progress of two of CEM's more recent initiatives, the launch of the Image Committee and Young Professionals Group. These two initiatives have really taken off over the past few years and have sparked much interest with our young people, who are our future. For many of us who have been in this business for a long time, mentorship and succession planning are vital to keeping our industry strong and sustainable in the future. We must do all we can to listen to what our young people are telling us, what interests them and what motivates them. They are the future and we must be responsive to their needs and interests in order to attract and retain them in our industry for many years to come. By having a voice on our CEM Board of Directors, we can ensure that the voice of our young professionals is heard and is contributing to the future of our association. I am also especially proud of the work of the members of our Image Committee for their tireless efforts at promoting our profession and our association. It is their hard work and efforts that have produced this inaugural *Manitoba Consulting Engineer* magazine that will be distributed to all of our CEM members and many of our clients.

As president, I am honored to have the opportunity to serve CEM and give back to a wonderful organization that has given so much to me over the past five years. I will do my best to uphold the strong traditions and ethical standards that presidents before me have nurtured and instilled into our CEM organization.

I look forward to working with our Executive Director Shirley Tillett, with our Board of Directors, and with our many committees to advance our association and strengthen our image and voice in the community. Every year, at our Engineering Awards of Excellence Gala, I am reminded of the innovative engineering work our member firms do for the betterment of all Manitobans. Engineers' work touches all facets of our society ensuring the health, safety and prosperity of our communities. We must never take for granted our moral duty and responsibility to ensure that we always impart the highest level of engineering excellence and ethical standards to our work at all times. It is our responsibility to uphold this legacy for future generations of consulting engineers just as our fore fathers have done for us.

During my upcoming year as president, I intend to build on the solid foundation laid before me by my predecessors. Much has been done over the past 30 years by CEM to advance the engineering consulting industry in Manitoba, however, there is still much more we can do. We must continue to work hard at increasing public awareness and appreciation for the important role that consulting engineers play in the application of leading edge technology for the betterment of society and our world around us.

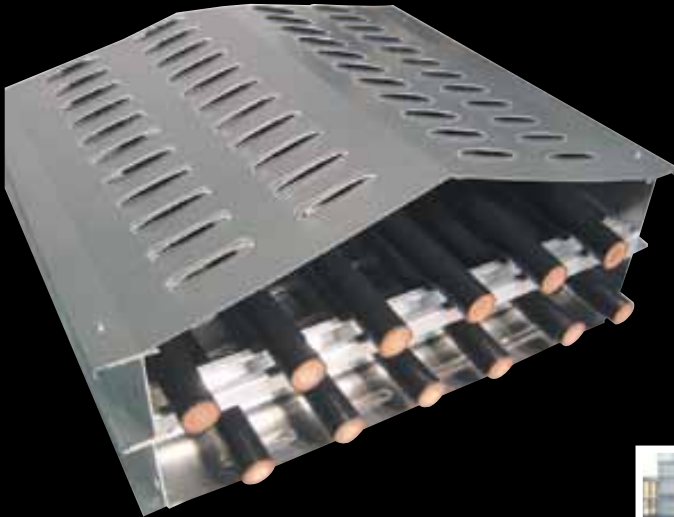
We have a great team of leaders and volunteers with abundant energy and spirit to meet the many challenges ahead of us. I look forward to working with all of our team in the upcoming year and wish all of you much success. ◊



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Consulting Engineers of Manitoba

# CEM works to keep profession strong

**F**ounded in 1978, the Consulting Engineers of Manitoba Inc. (CEM) is a non-profit organization dedicated to improving the business environment for consulting engineering firms in the province and providing society with the highest standards of engineering and safety.

Today, CEM is a vibrant association, active on issues vital to the industry and to the community at large. Manitoba firms represent an industry of over \$180 million, including over \$25M in foreign revenue. The association has over 30 principal members employing over 1,500 individuals.

CEM is also a member organization of the Association of Consulting Engineering Companies-Canada (ACEC), a national non-profit business organization founded in 1925 under federal charter by a small number of qualified independent consulting engineers. Nationally, its 500 member firms, engage in more than 150 major fields of specialization necessary for the well being of today's complex society, contribute in excess of \$15.4 billion to the Canadian economy, and employ more than 90,000 people.

Through the efforts of the Board of Directors and many active committees, CEM works towards the achievement of a number of goals, including:

1. increasing public awareness of the pivotal role that consulting engineers play in the application of technology, safety and protection of society, and of their importance to the natural resources and manufacturing-based economy of Manitoba;
2. ensuring provincial government recognition of consulting engineering's leading role in the management and application of technology, and of its benefits to Manitobans;
3. strengthening and increasing association membership and, as a result, providing an effective voice on critical issues facing the consulting engineering industry;
4. strengthening and increasing the working relationship with the organizations and associations closely affiliated with Manitoba's consulting engineering community; and
5. promoting the engagement of engineering firms using the *National InfraGuide of Best Practice* for selecting a consultant (qualifications-based selection), which is the industry-recognized process.

For more information about CEM, please visit our website at [cemanitoba.com](http://cemanitoba.com).



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# Best practice for hiring engineers

Public sector experts emphasize qualifications and long-term savings for taxpayers

What is the best way to hire an engineer for an infrastructure project? Leaders in the public sector, such as provincial governments, municipalities and public utilities, have an answer.

In 2006, the *National Guide to Sustainable Municipal Infrastructure (InfraGuide)* released Best Practice for Selecting a Professional Consultant. This Best Practice promotes the principles of qualifications-based selection (QBS), rather than priced-based selection, as a method for selecting professional engineers and other consultants. This is interesting – and encouraging – because this document was written predominantly by the public sector for the public sector.

The Best Practice, which was developed using extensive interviews and research, suggests that many

infrastructure agencies do, in fact, recognize that QBS encourages innovation, lifecycle cost savings, and sustainability. Supported by this Best Practice, public officials will now have the necessary ammunition to make meaningful and effective changes to the way they invest in infrastructure.

*InfraGuide* was a collaboration of the Federation of Canadian Municipalities, Infrastructure Canada, the National Research Council and the Canadian Public Works Association, to help municipalities make informed decisions and promote sustainable infrastructure investment. *InfraGuide* created both a national network of experts and a collection of published best practice documents for use by municipal decision makers and technical personnel in public and private sectors. *InfraGuide* published over 50 best practices.

## Sustainable and long-term value for taxpayers

The Best Practice is intended to encourage creativity and innovation that can result in better value to taxpayers by selecting the right engineering team. In developing the current best practice for procurement, *InfraGuide* concluded that the long-term savings that can be gained from selecting engineering services using the principles of QBS are far more significant than short-term savings provided by the lowest-price design. *InfraGuide* recognized that improving public infrastructure is a long-term and sustainable investment in a municipalities' economic, social and environmental quality of life.

Decisions made during project planning and design have ramifications over the entire service life of a project. The public will have to live with those decisions for decades, even generations. An appropriate investment in professional



services at the onset of a project can potentially reduce capital, maintenance and operating costs, while improving reliability and extending service life. Conversely, reducing the investment at the design stage can result in significant higher capital, operating and maintenance costs throughout the service life of the project.

#### Benefits already being realized

Procurement methodologies consistent with the Best Practice proposed by *InfraGuide* are already in use in many public sector organizations throughout the United States and Canada, including the province of Quebec, where it was mandated by law. "Selecting the right team based on qualification, not lowest price, ultimately provides the best value for the best return on investment," stated Peter Steblin, former general manager and implementer of QBS at the City of London.

*InfraGuide's* Best Practice is also important to the consulting engineering sector, allowing engineering firms to provide the necessary resources to meet their client's expectations, to innovate and to add value. To taxpayers, this means better services and savings.

#### It is time to take action

Still, in order for taxpayers to realize the benefits of the Best Practice, the public sector must demonstrate leadership by adopting the Best Practice. For its part, the consulting engineering sector will then have the necessary resources to that ensure taxpayers receive the best possible return on infrastructure investments.

Our economic, social and environmental quality of life is directly related to the state of our public infrastructure. Therefore, when public sector infrastructure experts from across Canada conduct one of the most extensive reviews of procurement practices ever undertaken in this country, we should take notice. When they make such strong and specific recommendations, we should act – and implement the *InfraGuide* Best Practice for Selecting a Professional Consultant.

#### Accessing the Best Practice

Electronic versions of the Best Practice for Selecting a Professional Consultant can be found free of charge by visiting [www.thebestpractice.ca](http://www.thebestpractice.ca)



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## Infrastructure is an investment – not an expense

**N**ever in recent memory has infrastructure been so much on the minds of government than over the past year of economic (and occasionally political) uncertainty.

The Association of Consulting Engineering Companies (ACEC) is encouraged that infrastructure is starting to become recognized as an investment in our prosperity rather than an expenditure. However, as demonstrated by the temporary and short-term nature of most infrastructure

funding mechanisms, we still have much work to do to ensure that Canadians and their governments at all levels fully understand that there is a significant difference between public spending and public investment. Unless ACEC and its members speak out, the current investments in infrastructure will be short-lived and taxpayers will be short-changed.

It is certainly true that investing in infrastructure can have an almost immediate stimulus effect that can

cascade through the economy – creating direct and indirect employment opportunities. However, there are other opportunities to build our economy through infrastructure investment that are still not being leveraged to their full potential.

The longer-term benefits of infrastructure investment include much more than job creation. A longer-term strategic view of infrastructure investment would not only provide much needed employment opportunities, but also create a stronger and more robust economy that is more resistant to periodic downturns. From water systems to hockey rinks, from roads and public transportation, to museums and hospitals – infrastructure permeates every aspect of our economic, social and environmental quality of life. However, the payback on these investments spans decades – requiring a perspective that far exceeds usual government budgeting cycles.

By leveraging the strategic value of infrastructure, Canada can increase its competitiveness as well as its attractiveness as a place to live and invest. Conversely, short-term programs often result in the most expedient projects, rather than the ones with the most strategic or long-term economic value. This limits the potential long-term competitive advantages to the Canadian economy and the opportunity to receive the best return on infrastructure investment, in turn, is jeopardized.

Further, the tendency towards one-time funded infrastructure programs creates a great deal of uncertainty for provinces and municipalities. Such uncertainty does not allow municipalities to adequately plan their longer-term infrastructure needs – preventing them from investing strategically.

There is a great deal at stake. In response, the ACEC Board of Directors has assigned government relations and advocacy as the top priority for the association. Activities will be expanded

“We still have much work to do to ensure that Canadians and their governments at all levels fully understand that there is a significant difference between public spending and public investment.”



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and staff will aggressively be promoting the need for a long-term and sustainable approach to infrastructure investment. ◊

Andy Robinson, P.Eng.,  
Chair, ACEC Board of Directors  
John Gamble, CET, P.Eng.,  
President, ACEC

## Business Practices

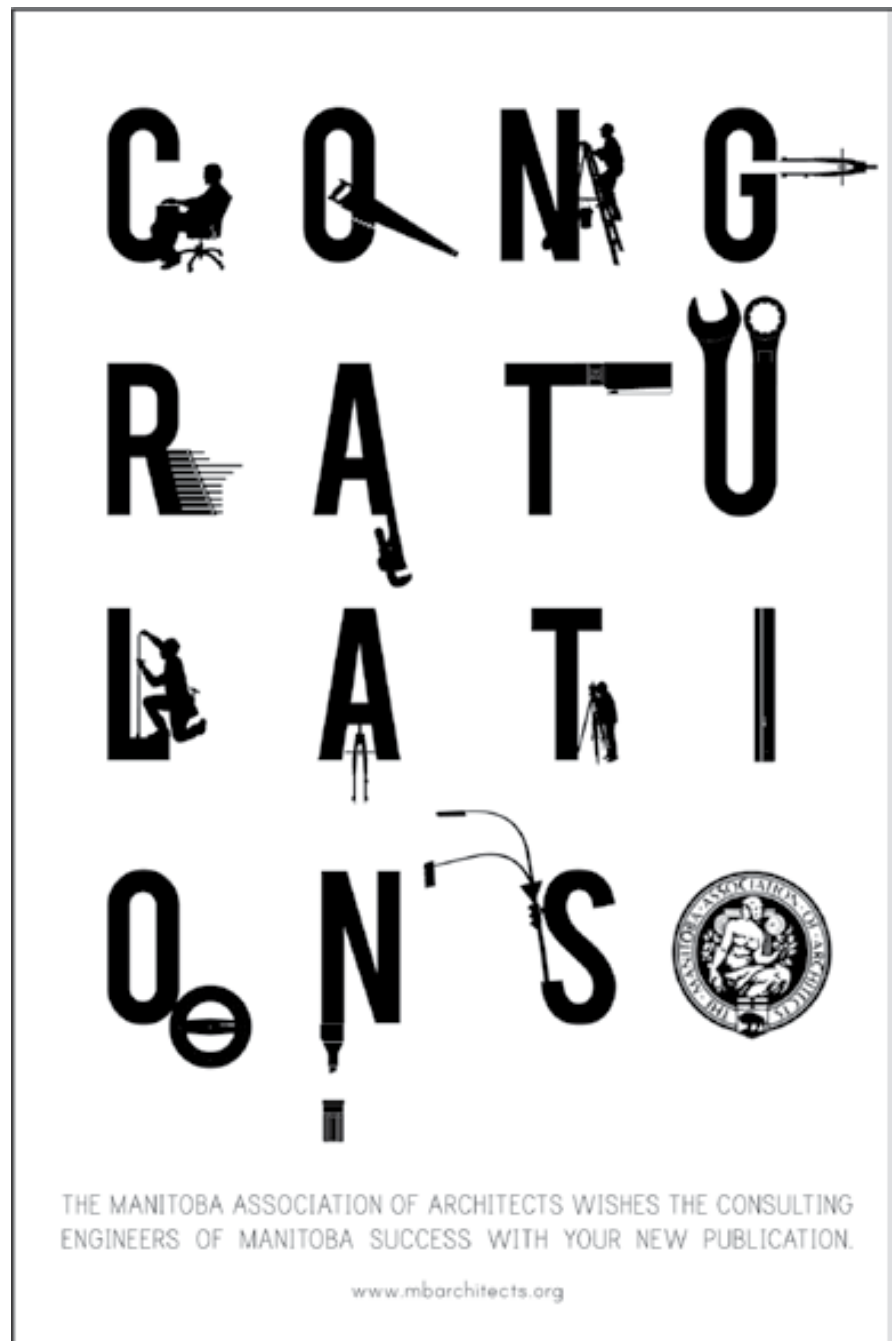
Business Practices is an annual meeting designed to give the Consulting Engineers of Manitoba an opportunity to discuss the latest trends, issues and challenges facing the consulting engineering industry today.

In 2010, the meeting featured City of Winnipeg Councillor, Gord Steeves, who gave a presentation on the scope, evolution and transformation of the way capital projects are built in Winnipeg and in Canada. He was followed by Marcia Friesen, IEEQ Director, who engaged a group discussion evaluating the IEEQ program and its value to CEM membership. Among other updates, the latest developments for a CEM “Marketing Strategy” were presented by Jim Chess of Chess Communications. ACEC-Canada, the Association of Canadian Engineering Companies – Canada was represented by their President, John Gamble, who gave the feature presentation on the newly released ACEC Document 31. It is an extremely important document and over the past six years, has undergone an extensive revision by some of the most respected legal, insurance and managerial people in the engineering industry. It carefully sets out the obligations of both parties to a consulting engineer assignment in Canada today, avoids all-inclusive language, and defines the kind of liabilities and warranties that should reasonably be expected of an engineering company. ◊



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# ACEC student outreach concludes year-round roll out

As the university year comes to a close, the *Engineering Legacies* campaign wraps up its 2010 spring cross-Canada tour. Since the fall, the *Engineering Legacies* campaign has visited more than 20 post-secondary institutions across Canada as well as several provincial and national engineering conferences.

As a result, ACEC and its member organizations have been able to speak to hundreds of engineering students about the exciting and rewarding opportunities that exist in a career in consulting engineering.

The website [www.engineeringlegacies.com](http://www.engineeringlegacies.com) has drawn thousands of students to view various video modules featuring different kinds of engineering. The site also refers students to ACEC and CEM member firms to find a job.

“The videos are very good at demonstrating the variety of industries and work environments that consulting engineers are part of. It was certainly enough to spark the curiosity of students who are looking to start their careers,” says Ashkan Eshagbeigi, fifth year student and president of the McMaster Engineering Society.

The *Engineering Legacies* campaign has not only helped in creating a better understanding of the industry among engineering students, but it has contributed to raising the profile of the industry at universities across Canada and abroad.

For more information about the *Engineering Legacies* campaign, please contact Susie Grynol, Vice-President, Policy and Public Affairs at [sgrynol@acec.ca](mailto:sgrynol@acec.ca) or 1-800-565-0569. ◊



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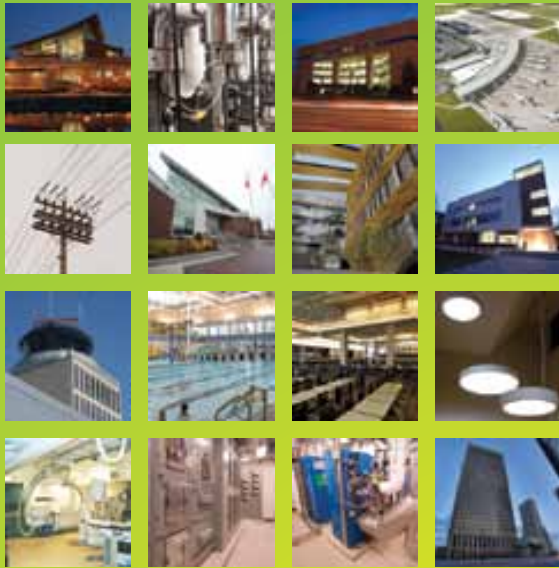
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## 2010 Judging Panel

**James Blatz, Ph.D., P.Eng.**, is the associate head of Civil Engineering at the University of Manitoba. He is a principal of TREK Geotechnical Inc., and is involved on a number of national and international Boards. In 2008, he was appointed by the Minister of Industry to the Natural Sciences and Engineering Research Council of Canada, which supports Canada's science and technology strategy.

**Jay Doering, P.Eng., Ph.D., (Panel Chair)**, holds a B.Sc. in Civil Engineering from Queen's University and a Ph.D. from Dalhousie University. He began his academic career at McMaster University and then moved to the University of Manitoba, where he is currently a professor of civil engineering. Jay is a former head of Civil Engineering and currently dean of the Faculty of Graduate Studies for the University of Manitoba. He has more than 20 years experience as a practicing professional engineer.

**Dave Ennis, P.Eng.**, is a former executive director and registrar of the Association of Professional Engineers and Geoscientists of Manitoba, now retired. He is the Manitoba director of Engineers Canada – the federation of 12 provincial and territorial associations which license Canada's professional engineers. He is a graduate in Civil Engineering from the University of Manitoba.

**Digvir S. Jayas, Ph.D., P.Eng., P.Ag.**, is VP (Research) and distinguished professor at the University of Manitoba. He has served as chair of the Canadian Engineering Qualifications Board of the Canadian Council of Professional Engineers, and as president of the Canadian Institute of Food Science and Technology, the Canadian Society for Bioengineering, and the Association of Professional Engineers and Geoscientists of Manitoba. Currently, he is serving on the Boards of the Manitoba Chamber of Commerce, Composite Innovation Centre, TRIUMF, TRILabs and ISIS Resource Centre, and as president of the Manitoba Institute of Agrologists.

**Grant Koropatnick, P.Eng.**, is the executive director and registrar for the Association of Professional Engineers and Geoscientists of Manitoba (APEGM). He is a graduate civil engineer and holds a certificate in Human Resource Management from the University of Manitoba. With more than 20 years experience, Grant has held technical and managerial positions in human service environments including the University of Manitoba and the Pembina Trails School Division.

**David Kuhn, Ph.D., P.Eng.**, graduated with a Ph.D. from Queen's University and is currently a professor and head of Mechanical and Manufacturing Engineering at the University of Manitoba. Prior to joining the university, he was a professor at the University of Toronto in the Department of Chemical Engineering and Applied Chemistry and a consultant for Chemical Engineering Research Consultants Limited.



The judges for the 2010 Awards of Excellence were (Back L-R) Dave Ennis, Grant Koropatnick, Barry MacBride, Doug McNeil, Jay Doering (Panel Chair) and Malcolm Symonds; (Front L-R) James Blatz, Digvir Jayas, Jeannette Montufar and David Kuhn.

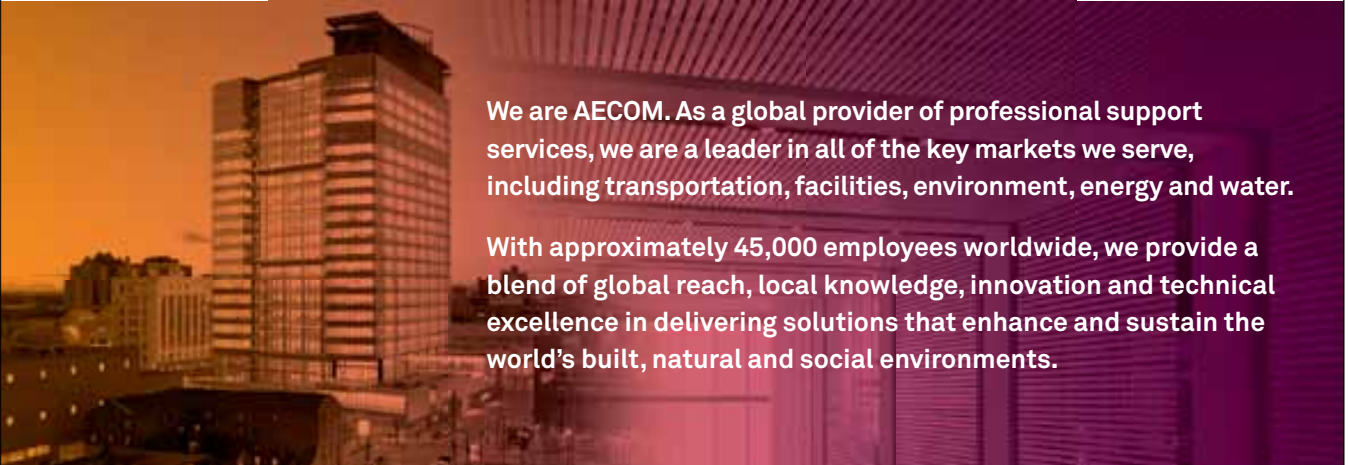
**Barry D. MacBride, M.Sc., MBA, P.Eng.**, has a B.Sc. in Civil Engineering, M.Sc. in Environmental Engineering, and MBA, all from the University of Manitoba. After graduation, he worked in consulting engineering in Winnipeg for eight years. In 1980, he joined the City of Winnipeg and, in 1998, became the director of the Water and Waste Department.

**Doug McNeil, M.Eng., P.Eng.**, is deputy minister of Manitoba Infrastructure and Transportation. Previously, he spent almost six years with the Manitoba Floodway Authority as VP of Engineering and Construction, and VP of Hydraulics. Doug has also held various engineering positions with the City of Winnipeg in the Water and Waste Department. Doug received his bachelor and master's degrees in Civil Engineering from the University of Manitoba.

**Jeannette Montufar, Ph.D., P. Eng.**, graduated with her Ph.D. from the University of Manitoba, where she is now an associate professor in Civil Engineering. Jeannette has done extensive research and consulting work in the US and Canada and is active in professional organizations including the Canadian Institute of Transportation Engineers, where she is VP-elect; and the US Transportation Research Board, where she is member of the Pedestrian and Motor Vehicle Size & Weight Committees.

**Malcolm Symonds, P.Eng.**, is an engineer-in-residence and associate professor in Design Engineering at the University of Manitoba. Previously, he spent 36 years in the aerospace sector with the Royal Canadian Navy, the Air Reserve, and Bristol Aerospace, where he retired as Director of Engineering Services. He has been president of APEGM and is now on the CEQB of Engineers Canada.

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## Keystone Award

### Award of Excellence – Building Engineering

#### AECOM Canada Ltd. and Crosier Kilgour Partners Ltd.

#### Manitoba Hydro downtown office building

Victor Hugo said, “An invasion of armies can be resisted, but not an idea whose time has come.” Now that the pressure for infrastructure sustainability has become irresistible, the futuristic new 22-storey, ‘cold-climate sustainable,’ \$238 million Manitoba Hydro Place in downtown Winnipeg is an idea whose time has come.

Things really have changed. While care, experience, technology, and wisdom have always informed building design and construction, another dominant factor has emerged—sustainability. While sustainability was traditionally only paid lip service—if addressed at all—sustainability standards now are proliferating globally. But even with that proliferation, the new Manitoba Hydro headquarters is a watershed structure. Dubbed the ‘first of the next generation of sustainable buildings,’ Manitoba Hydro Place is a game changer.

“Manitoba Hydro’s new head office building in downtown Winnipeg is an energy-efficient structure that embodies and demonstrates our commitment to sustainable development,” explains Tom Akerstream, head office facilities manager for Manitoba Hydro. “The building has won numerous awards and was recently recognized as Best Tall Building in the Americas by the Council on Tall Buildings and Urban Habitat Institute.”

The largest office building in Winnipeg, this 64,000-square metre edifice accommodates 1,800 Manitoba Hydro employees in environmentally sound comfort. Integrating time-tested environmental concepts with advanced technologies, Manitoba Hydro Place is designed specifically for its locale, the extreme climate of Winnipeg.

# AECOM



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As the coldest city in the world that nonetheless harbours a population of more than 600,000, Winnipeg is known for its extremes. Bringing persistent snow from mid-November to mid-March, Winnipeg winters are cold and dry, while summers are hot and humid. Adding to the building’s sustainable-design challenge, Winnipeg is a windy city, making winters feel even colder. So, Manitoba Hydro Place designers faced considerable challenges. Here is how they answered them.

To achieve a high level of energy efficiency while maintaining user comfort, the designers maximized the use of passive energy systems while minimizing the use of active energy systems. From the south-facing winter gardens to the solar chimney, these passive systems exploit the environment and natural processes to reduce energy usage. Judiciously applied active systems supplement the passive systems as needed.



# Keyston

For example, the building features a one-metre-wide double façade curtain-wall system with a double-glazed outer wall and a single-glazed inner wall. Creating a buffer zone between the interior and the outdoors, the curtain wall insulates the building against both heat and cold. Automated louver shades control glare and heat gain, while radiant slabs function as an internal heat exchange with the geothermal field. Vents in the exterior façade open automatically with actuators whenever the building mechanical ventilation systems are shut down. When this occurs, the building's internal computer network notifies occupants that the building is in 'natural ventilation mode' and that occupants are free to open interior façade windows at their own discretion.

Low-intensity, thermo-active concrete ceilings heat and cool the building by circulating heated or cooled water in plastic tubes embedded in the concrete. This also allows the thermal mass of the concrete to stabilize the building temperature; moderating the temperature swings from day to night also helps minimize building energy use.

Another significant building feature is the 115-metre solar chimney. Marking the north elevation and main Portage Avenue entrance, the solar chimney is a key element in the passive ventilation system. Relying on the natural stack effect to draw used air out of the building in the summer months, a solar absorber retains heat for building operations after the sun has set. In winter, exhaust air is drawn to the bottom of the chimney by a fan. Heat recovered from this exhaust air is then used to warm the parkade and preheat incoming cold air from the south atria.

In contrast to conventional buildings, occupants of Manitoba Hydro Place can enjoy fresh air regardless of outside temperatures. This is largely the result of three six-story south atria that form the 'lungs' of the building. Drawing in outside air, the atria precondition the air to 10 degrees Celsius before it enters workspaces through adjustable vents in the raised floors. In addition, a 24-metre waterfall feature in each atrium humidifies or dehumidifies the incoming air.





# e Award

Adding to the building's 'firsts,' Manitoba Hydro Place also boasts the largest closed-loop geothermal system in Manitoba, with possibly the largest exchanger located under a structure. Two hundred and eighty bore holes—each 150 mm in diameter and 125 metres in length—circulate glycol that is cooled in the summer and heated in the winter by the ground source heat exchanger. Water is circulated through the heat exchanger and distributed through the thermal mass of the concrete structure to heat or cool the space as needed. But sustainable design did not just end on the inside of the front door.

Manitoba Hydro estimates that its new structure will save the utility more than \$15 million in annual operating costs. While the building exceeded Manitoba Hydro's 60% energy savings target (the building actually achieves a 64% rate), the building site was also strategically selected because a significant percentage of the city's bus routes pass by its front doors, including routes to suburban Winnipeg (where 80% of Manitoba Hydro employees live). Back when the offices were

## Judges' comments

The judges selected this project because of its overwhelming complexity, state-of-the-art environmental technology, and foresight in addressing the municipal and occupant interfaces and comfort. It is not only a utilitarian structure but also an aesthetic example of how Manitobans and Canadians are moving into the future.



# Keystone Award

located in the Winnipeg suburbs the majority of the employees drove to work alone. Today, more than 65% of the relocated employees commute to Manitoba Hydro Place via transit.

Another singular feature that sets Manitoba Hydro Place apart was its design methodology. The integrated design process (IDP) mandated by Manitoba Hydro is a collaborative method for designing buildings; it emphasizes the development of holistic design. By all accounts, the project team experienced a very profound collaboration.

“Manitoba Hydro Place shows how a true IDP can result in a well-planned, highly sustainable building,” explains John Monroe, AECOM vice president of design for Western Canada. AECOM provided mechanical and electrical engineering services and worked in close partnership with energy consultant Transsolar Energietechnik from Stuttgart Germany and with Crosier Kilgour & Partners Ltd., who provided structural engineering services. “The process required not only an exceptional client, there also had to be an exceptional team.”

Critical team players also included the project’s design architects, Toronto-based Kuwabera Payne Mckenna Blumberg. Reinforcing the IDP ethos, partner Bruce Kuwabera said, “The architect is no longer at the top of the pyramid, but one member of the team.” Munroe adds, “A key piece of operating costs is energy, obviously, but clients also understand that facility life-cycle costs are considerable. High-quality, sustainable buildings are more effective and more efficient. They make for happier long-term occupants, and that represents a stable financial base for building owners. To optimize that outcome, you need a truly effective design process—and that is exactly what IDP facilitates.

“By working collaboratively,

by partnering, every stakeholder has a voice in the process. That kind of partnership promotes efficiency in every discipline, serving the greater good of the structure, the owner, and the project team itself. IDP isn’t just a good idea; it’s an invaluable tool.”

The project team’s success has not gone unnoticed. At their 11th Annual Manitoba Awards of Excellence, the Consulting Engineers of Manitoba (CEM) bestowed on Manitoba Hydro Place the Keystone Award and an Award of Excellence, specifically citing AECOM and Crosier Kilgour &

Partners Ltd. for their work on the downtown high-rise. But the CEM was by no means the only fan of the edifice.

Former Manitoba Premier Gary Doer believes that, “Along with being a model for energy efficiency and a source of pride for Manitobans, Manitoba Hydro’s new office building will be the next pillar in the revitalization of Winnipeg’s downtown.”

Tom Akerstream adds, “The building meets the business needs of Manitoba Hydro, in particular providing a quality of space second to none for our employees. And it is also having a positive impact on the sustainable future of Winnipeg’s downtown. The building is a source of pride for Manitoba Hydro employees and all Manitobans, and it has surpassed Manitoba Hydro’s expectations.”

Things have changed. And Manitoba Hydro has changed them with the design and construction of Manitoba Hydro Place. Paraphrasing Victor Hugo once more, Manitoba Hydro has set a new standard in sustainability for office towers by fully realizing “an idea whose time has come.”

*“The building meets the business needs of Manitoba Hydro, in particular providing a quality of space second to none for our employees and is also having a positive impact on the sustainable future of Winnipeg’s downtown”*

Tom Akerstream, M. Arch, B. Arch., B.E.S.  
Manager Head Office Facilities/Energy Advisor  
Downtown Office Project, Manitoba Hydro



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## Award of Excellence – Building Engineering

### Accutech Engineering Inc.

#### John Arnalukjuak School – Arviat Nunavut

Accutech Engineering Inc. was retained by the Government of Nunavut as the Prime Consultant for the design and development of the John Arnalukjuak School, located in Arviat, Nunavut. Arviat is an Inuit community, having the second largest population in Nunavut. There are no roads connecting Arviat to Southern Canada, or any other community in Nunavut. All access into Arviat is either by air or by summer sealift.

The John Arnalukjuak School project involved the development of a new 5000 square metre Senior School building. The project was developed by the Government of Nunavut to address the needs and concerns of the community facing continued growth in the student population and overcrowding in its existing schools. The new senior school would help to relieve the pressures on these existing facilities and provide space for future growth.

The building features a large, open two-storey meeting and community gathering space called a 'Kiva,' and a multi-media development centre. The school also contains 15 standard classrooms, a language classroom, music and drama room, business/computer room, art, science, physics, CTS trades and CTS studies rooms, a library, gymnasium with stage, kitchen area and administration and support spaces.

Accutech Engineering, along with its architectural sub-consultant, Number Ten Architectural Group, had to overcome several design and logistical challenges and utilized a number of highly innovative techniques, in the planning, design and construction of the building including:

- considerations for the design and orientation of the building to maximize daylight (the community experiences upwards of 20 hours of darkness during the winter months);
- reduction of snow drifting around the new school and potential effects on existing surrounding buildings;
- incorporation of numerous Inuit themes, colours and 'traditional knowledge' principles in every facet of the building form and function;
- construction of the building foundations on the existing permafrost soils, including the use of thermosyphons to mitigate degradation of the frozen ground;
- optimization of the construction schedule and building envelope through the use of pre-fabricated structural insulated panels (SIPs) for the exterior walls (the largest project in Nunavut to utilize SIP technology);
- design of the mechanical and electrical systems to allow the building to be self-sufficient with its own emergency water, sewage and fire water storage and electrical power generation; and

- inclusion of the local Inuit in almost every aspect in the construction of the building under the direct supervision of the general contractor. This provided the local Inuit with valuable training in building construction as well as giving them a sense of pride by helping to build the community's infrastructure.

The overall project schedule from design through to substantial completion required approximately three years to complete. Accutech Engineering utilized a highly-integrated team of designers and construction administrators throughout the project, resulting in a superbly designed and coordinated building system that exceeded the client's and end user's expectations, and resulted in a building that is considered a benchmark of educational facilities in the Arctic.



### Judges' comments

This project was chosen because of the complexity of the work resulting from the remoteness of the site, extreme environmental conditions, and challenges associated with the construction of the school. By applying leading-edge technologies, it ensured that the construction did not degrade the existing permafrost soils and reduce the foundation capacity. The consultant was able to deliver a first-class product that will improve the social and economic conditions of Arviat, Nunavut.

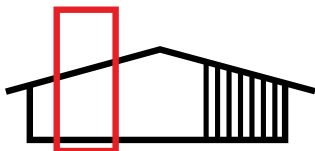


*“The design of the facility continues to either meet or exceed the expectations of the community. In particular, the incorporation of the ‘Kiva’ or gathering space in the central portion of the school continues to play an important role in allowing for community gatherings and events to be held. The design is also sensitive to the culture and landscape of Arviat and utilizes many traditional Inuit themes.”*

Jeff Hunter, A.Sc.T – Community and Government Services, Nunavut

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## Award of Excellence – Infrastructure/Transportation

### Crosier Kilgour & Partners

#### Forget-me-not fountain: Waddell Fountain restoration

In 1908, the death of his wife Emily left Thomas Waddell with an estate valued at over \$55,000.00, but it came with an unusual twist. If Thomas should ever choose to remarry, he would have to donate \$10,000 to the city for the creation of a fountain in Central Park. Five years after Mrs. Waddell passed away, her favourite neighbourhood park boasted a fountain constructed of intricately carved stone, features gothic arches, pendants, basins and flying buttresses.

Fast forward to 2004 and the Waddell Fountain was in poor condition. Many of the ornate stones were damaged or missing. The foundation system had failed and the superstructure was listing. An ill-advised coating had been applied to the lower half of the stone work, masking the detail of the stones and colouring them a light greyish tone.

The design stage reviewed various items including the feasibility of leaving the old foundation in place, possible sources for replacement stones, and various methods for coating removal. It was determined that to perform repairs, but leave the fountain on the old foundation, would not be a long-term solution. X-Ray Diffractometry was used and confirmed that the carved stones were an Oolitic limestone, likely originally supplied from quarries in Indiana or Kentucky. Further, the only successful method for the removal of the existing coating was found to be manual stone dressing by a skilled stone mason.

The masterly quality of this workmanship is evidenced by the smooth lines, fine details and retained symmetry. Without knowledge of the history of the Waddell fountain, one would ever guess that all of the lower stones had been manually worked to remove a tenaciously bonded coating.

The limestone fountain and broad granite steps were completely dismantled. A new foundation of concrete slab, beams, and piles was created. Then the masons re-installed the stone to bring the old fountain back to life. Finishing

touches will be new lighting and plumbing to make the fountain operable once more.

The Waddell Fountain restoration was completed on time and on budget. These days, in the midst of a construction boom, both of these attributes are indeed remarkable. It is a landmark that looks both back, to the early days of Winnipeg's urban growth and forward to a beautiful park setting in the heart of the city.



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#### Judges' comments

The judges chose this project because of the technical and logistical challenges of restoring this historic structure. The results of the meticulous rebuild and considerable challenges overcome in the restoration of the historic fountain emphasized the City of Winnipeg's commitment to the Central Park area and stands to remind Winnipeggers that our home is unique, not only for minus 40°C weather and ravenous mosquitoes, but for the history of how we have become this amazing city.







*“The city of Winnipeg has regained an important link to our social, architectural, economical and recreational vibrancy with the restoration of the Waddell Fountain.”*

Jennifer Hansell, Historical Buildings Officer, City of Winnipeg Planning Property & Development Department

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## Award of Excellence – Environmental

### AECOM

#### 1st and Rosser Remediation Project, City of Brandon

In Shakespeare's *Timon of Athens*, Lord Timon admonishes a poet, "You are an alchemist; make gold of that." Faced with a more down-to-earth challenge, the City of Brandon performed what amounts to environmental-remediation alchemy by changing an abandoned, contaminated brownfield area into a clean, safe, productive green space and commercial property.

Who said the past is inescapable? Despite an industrial history that resulted in hydrocarbon and heavy metal impacts to soil and groundwater, the area around 1st Street and Rosser Avenue in Brandon, Manitoba, now boasts improved air, soil, and groundwater as a result of the **City of Brandon 1st and Rosser Remediation Project**. And that is no small achievement.

Only 150 metres south of the Assiniboine River, and adjacent to one of the main thoroughfares in Brandon, the project encompassed an area of nearly two city blocks. Rife with dilapidated buildings, falling fences, and legacy environmental concerns, the affected area began on the northeast corner of 1st and Rosser and extended to 308 Pacific Avenue East.

With portions of the area listed on Manitoba Conservation's *Contaminated Sites List* since 1996, the project area had hosted a range of industrial activities over the years. Having served as a petroleum distribution facility, rail spur line, fertilizer warehouse, tanning operation, and metal scrap yard and recycling depot, the site devolved into an unproductive and potentially harmful land parcel. That remained the case until the City of Brandon tasked AECOM to lead the assessment and remediation effort.

Beginning in 2001, the project team performed three phases of environmental site assessments to delineate the heavy metal and hydrocarbon-impacted soil and groundwater. Building demolition followed in 2002, revealing what might charitably be described as some "interesting" site characteristics—especially an estimated 1,140 tonnes of broken battery casings and lead-impacted soil. Over the years the land had seen many uses, and their persistent effects meant there were many stakeholders involved in the remediation effort.

Sensitive to changing land-use requirements and the evolving political landscape, the project team gained input from the City of Brandon, the citizens of Brandon, the Brandon Regional Health Authority and Manitoba Conservation before commencing remediation planning in 2005. With planning completed by 2008, the project team then commenced the actual remediation work. Using a variety of techniques and methods, including an electromagnetic survey, x-ray fluorescence technology, stratigraphic modeling, soil solidification/stabilization, on-site GPS survey control, and the installation of an engineered cap, the project team completed remediation in 2009.

Funded by the City of Brandon and the Contaminated and Impacted Sites Program operated by Manitoba Conservation, this \$1.8 million assessment and remediation project has trans-

formed a hazardous industrial wasteland into a valuable commercial property with a unique recreational area that features lush vegetation and walking and biking paths connecting with more than 10 kilometres of trails. This effort has not gone unnoticed.

The Consulting Engineers of Manitoba, a member organization of the Association of Canadian Engineering Companies, bestowed the City of Brandon 1st and Rosser Remediation Project with an Award of Excellence as one of 2009's best engineering projects. According to Brandon city engineer Ted Snure, the award was well deserved.

"The City of Brandon is very pleased with the outcome of the project and AECOM's work and cooperation throughout the eight-year process, from its initial beginnings through to completion. The project entailed numerous challenges, including diversity of changing land-use goals and, at times, outspoken public concern. All of the challenges encountered were well managed by AECOM and the City through a true team effort, leading to a progressive solution. That team spirit was extended to include the Province of Manitoba, as all three partners implemented a brownfield redevelopment strategy that met the needs of each partner."

For many, the past is inescapable. But the City of Brandon has demonstrated that the past does not always dictate the future. Performing what amounts to environmental-remediation alchemy, Brandon, Manitoba Conservation, and the AECOM project team transformed what was once a veritable industrial wasteland into productive, green, public space.



#### Judges' comments

This project was chosen by the judges because of its application of technology, such as, x-ray fluorescence, EM survey, stratigraphic mapping, and solidification/stabilization to remediate hydrocarbon and heavy materials in soil and groundwater. Improved air, soil, and groundwater quality by removing exposure to contaminants has invigorated the surrounding neighborhood and increased its public value.



*“The City of Brandon is very pleased with the outcome of the project and AECOM’s work and cooperation throughout the eight-year process from its initial beginnings through to completion.”*

T.E. Snure, P. Eng., City Engineer



**PROUD WINNER** of a 2010 CEM Award of Merit in Engineering and Transportation for the CentrePort Canada Way Design Build Grade Separations Project

MMM Group Limited (MMM) congratulates the winners of this year’s Consulting Engineering of Manitoba (CEM) Awards and we thank the CEM for recognizing the achievements and contributions of consulting engineers in Manitoba.

MMM is recognized as an industry leader in the provision of quality, cost-effective and technically excellent multidisciplinary engineering solutions for a diverse range of assignments.

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- COMMUNITIES
- TRANSPORTATION
- BUILDINGS
- INFRASTRUCTURE

## Award of Excellence – Energy Resource Development

### Teshmont Consultants LP

#### CU HVDC Transmission System: Shunt-Filter Bank replacement study

Great River Energy engaged Teshmont Consultants LP to carry out the CU HVDC Transmission System Shunt-Filter Bank Replacement Study project, for the replacement of ac filter and shunt capacitor banks containing PCB-filled and aged non-PCB filled capacitors at two HVDC converter stations. Teshmont evaluated the performance of the existing ac filters and determined the performance requirements and ratings of the new ac filters. An innovative, cost-effective and practical solution was provided that met the needs of Great River Energy.

The harmonic contributions from the surrounding ac system for this project were found to be higher than normal at certain frequencies, thus, values typically assumed for the harmonic currents injected by the HVDC converters (5% to 10% is typical) could not be used for this study.

Analysis, interpretation and mitigation of increased levels of background harmonics in power systems is relatively new to the industry and, as such, there is no established standard available. As a result, Teshmont developed several unique methods of calculating the ac harmonic currents contributed from the surrounding ac system. The results of each method were evaluated based on whether enough margin was provided in the ratings to ensure that the filters could withstand the most onerous conditions expected without failure and were the most practical and cost-effective at the same time. Ultimately, one method was selected that best fulfilled these criteria and was subsequently used in the design of the ac filters.

The economic state of the United States at the time of the project resulted in an especially pronounced emphasis being placed on cost-effectiveness. Teshmont met Great River Energy's needs by producing a cost-effective design for the new ac filters through the application of technology and engineering innovation, while meeting all of the project's technical requirements and staying within the project budget.

Of further benefit to Great River Energy was the equipment arrangement that Teshmont designed for the circuit breaker, disconnect switch, and ground switch that replaced the existing circuit switchers. The new arrangement used the existing foundations to the maximum extent possible through the application of pantograph style disconnect switches. This allowed Great River Energy to reduce the capital expenditures for the project and the time required for the system to be at reduced power transfer due to the installation of the new equipment.

Once implemented, the shunt-filter replacement project will improve the security, reliability and performance of the electricity supply for the greater Minneapolis and St. Paul

area and the larger transmission grid in Minnesota, North Dakota and the surrounding region.

The replacement of PCB-filled equipment with equipment using environmentally friendly material minimizes the environmental hazard at Coal Creek and Dickinson stations.

The replacement of circuit switchers with circuit breakers on each ac filter and shunt bank greatly reduces the probability of outages that may cause reduced power flow into Dickinson sub-station. This contributes to the improved reliability and dependability of the system.



#### Judges' comments

The judges selected this project because of its advancement in technology and science. The project overcame serious, complex limitations to power transfer capability of the CU HVDC transmission system. The consultant's approach should be applicable to future HVDC systems.

*“The work that Teshmont has done provides the basis for the successful implementation of the Shunt-Filter Bank Replacement Project and, through its completion, the future needs of the electric system.”*

Doug Ritter, P.E., Great River Energy



## Making the Connection



+



+



+



We, at **Teshmont**, are in the business of making connections, high voltage electrical connections to be exact. We've designed many of the world's high voltage transmission systems. That's what connects us, a small **Winnipeg** based company, to **China**, **Egypt** and **Brazil**, places where we've played a large role in connecting people to the power they need. We give people access to electrical power and that gives them the power to grow, develop and succeed.

It's something that's in high demand, and that's why we'd encourage you to consider a career in engineering, and if you're looking for a career in high voltage transmission system engineering, encourage you to join our team at Teshmont. Create the connection at [teshmont.com](http://teshmont.com)

 **Teshmont** Creating Connections

## Award of Excellence – Municipal & Water Technology

### KGS Acres Ltd.

#### The Pointe du Bois wastewater collection system renewal project

The Manitoba Hydro community of Pointe du Bois located in the Whiteshell Provincial Park services Manitoba Hydro's oldest hydro generating stations: Pointe du Bois and Slave Falls. The community's original infrastructure was built during the construction of the Pointe du Bois Generating Station, sometime between 1909 and 1926. Among the aging infrastructure was a gravity wastewater sewer system fabricated from vitrified clay pipe that remained in service until very recently.

Despite several rehabilitative upgrades, the system's deteriorated pipes and manholes continued to allow excessive groundwater infiltration that overloaded the community's wastewater treatment plant during spring melt periods and heavy rain events.

Manitoba Hydro retained KGS Acres to develop a permanent solution that managed environmental impact, while minimizing capital costs and maintenance. KGS Acres' services included monitoring flows, diagnosing the problem, developing remedial alternatives, detailed designing of the preferred alternative and contract administration.

KGS Acres implemented a number of unique applications using modern engineering technologies, allowing the design team to efficiently diagnose the problem and develop an efficient, yet cost-effective design. These technologies included survey-grade GPS supplemented by a Light Detection and Ranging (LiDAR) survey of Pointe du Bois and the immediate surrounding region. The data produced from both ground surveys were used to develop a digital terrain model (DTM) of the existing topography using AutoDesk's Land Development Desktop design software. KGS Acres also implemented ultrasonic flowmeters, installed in strategic locations within the existing system, to identify the sections that were experiencing extraneous flows.

KGS Acres' unique solution retrofitted the existing gravity sewer by incorporating it as a protective conduit and alignment for the new high-density polyethylene which was installed within the old clay pipe. The system was converted from a gravity system to a low-pressure-sewer system. To provide the low pressure, each residence and building connected to the system was fitted with a 1-HP progressing cavity grinder pump housed within a 485-L capacity grinder pit. A total of 1,046 metres of new mainline piping was installed. Since completion of the project, flows have been stable and overall wastewater flows to the system have been reduced by 90%, well within license requirements.

The project, located in the Whiteshell Provincial Park, inherently adopted a low tolerance for environmental impact. The retrofit project was a unique and innovative solution that eliminated hydraulic overloading and minimized

the human 'footprint' on the naturally pristine location. The construction technique itself was considered 'green,' requiring minimal excavation to install the new system and also reusing the old pipe network. The construction method also allowed the old wastewater collection system to be kept 'live' during construction, thereby minimizing interruptions to Manitoba Hydro's day-to-day operations at Pointe du Bois.

The final construction costs were still below the original contract price even after implementing several value-added design changes during the construction phase. Ultimately, KGS Acres delivered the project within Manitoba Hydro's timeframe and under the original construction budget.

Pointe du Bois is now home to Manitoba's largest grinder-pump equipped low pressure sewer system.



#### Judges' comments

This project was chosen because installing a new low-pressure sewer system inside the existing deteriorated sewer system was a unique solution. It dealt with the problem of groundwater infiltration and dramatically reduced flows at the wastewater treatment plant. Construction was less expensive with reduced disruption and with reduced risk of damage to other buried utilities.

*“KGS Acres have greatly contributed to improving the daily operations of the Pointe du Bois townsite’s wastewater collection system and wastewater treatment plant, while significantly improving the environmental impacts of the townsite on the Winnipeg River downstream of the Pointe du Bois Generating Station.”*

Trevor Ouellette, P. Eng. and Alexander Karagiannis, E.I.T. – Manitoba Hydro



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# Awards of Merit

## Infrastructure/Transportation

**Project:** Procurement of Design Build Grade Separations for CentrePort Canada Way  
**Firm:** **MMM Group Limited**  
**Client:** **Province of Manitoba – Department of Infrastructure and Transportation**  
**Category:** **Infrastructure/Transportation**



In October 2008, the Province of Manitoba passed the CentrePort Act creating an exciting new project called CentrePort Canada Way. Winnipeg’s geographic location in the centre of Canada provided a unique opportunity to provide a transportation hub to Central Canada and the Heartland of the United States of America. An area north west of James Armstrong Richardson International Airport was selected for development of the Inland Port. To facilitate this vision they needed to construct an Interchange on the Perimeter Highway and CentrePort Canada Way; a bridge over the existing CPR Carberry Subdivision, and a bridge over the existing Saskatchewan Avenue and CPR Glenboro Subdivisions.

MIT selected the Design Build project delivery method and engaged the MMM Group to fast tract the preparation of the Design Build Documents and the Functional Planning Study for the CentrePort Canada Way Project.

## Environmental

**Project:** **Lynn Lake Solid Waste Disposal Ground**  
**Firm:** **J.R. Cousin Consultants Ltd.**  
**Client:** **Manitoba Innovation, Energy and Mines**  
**Category:** **Environmental**



The Town of Lynn Lake solid waste disposal ground (SWDG) was located in a mine tailings area, posing a variety of potential health and environmental issues. Manitoba Innovation, Energy and Mines, in cleaning up toxic mine tailing sites, required the closure of the SWDG.

A new Solid Waste Disposal Ground was needed to provide Lynn Lake and Marcel Colomb First Nation with an environmentally responsible facility with designated compounds for various wastes, including asbestos. J.R. Cousin Consultants innovative design addressed challenges and complexities posed by porous sandy soils with a geomembrane liner and leachate collection and storage system, thus protecting the environment by preventing contamination.





## Awards of Merit

### Municipal & Water Technology

Project: **City of Brandon  
Membrane Treatment Facility**  
Firm: **AECOM**  
Client: **City of Brandon**  
Category: **Municipal & Water Technology**



Determined to push the limits of wastewater treatment, in September 2009, Brandon became the first wastewater facility in Manitoba to install membrane treatment, a technology that produces water suitable for reuse. This project was constructed in phases, with the first phase constructed within 12 months of the start of preliminary design.

The facility also became the first in Manitoba to meet the Province's strict new effluent nutrients limits, removing a nutrient load equivalent to over 150,000 people. The final cost was almost one million dollars under budget from the preliminary design estimates. The process has been operating reliably and efficiently since commissioning.



### Municipal & Water Technology

Project: **Kenora Marine Watermain Replacement**  
Firm: **AECOM**  
Client: **City of Kenora**  
Category: **Municipal & Water Technology**



The City of Kenora had experienced a number of problems with a key piece of infrastructure – the marine watermain. Each time a break occurred; over 2,500 residents and the Lake of the Woods Hospital were possibly affected. AECOM assisted the City with design and construction stage services and a number of improvements were also incorporated into the project.

There were several site constraints and challenges, but due to teamwork between AECOM, client and contractor, practical solutions were achieved. The end product meets Kenora's need for a reliable watermain, and was completed within the required timescale and budget.



## Awards of Merit

### Infrastructure/Transportation

**Project:** CP Emerson Floodway Bridge Crossing  
**Firm:** AECOM  
**Client:** Manitoba Floodway Authority  
**Category:** Infrastructure/Transportation



AECOM constructed a railway bridge and embankment at the CP Emerson crossing as part of the Floodway Expansion Project. The project's performance requirements presented serious challenges to the design and construction of the project and a staged-construction approach and embankment preloading were necessary to satisfy these objective. For the first time in Manitoba, prefabricated vertical drains were used to control post construction settlement and improve stability.

Advanced finite element analysis, dynamic monitoring and geotechnical instrumentation were used to evaluate foundation and embankment performance. The client's needs were achieved; design objective satisfied and work was completed within time and on budget.



## Engineering Action Award

Ralph Kurth, P. Eng.



Ralph Kurth graduated with a B.Sc. (with distinction) in Computer Engineering from the University of Manitoba in 1987. He is dedicated to the Consulting Engineers of Manitoba, actively involved with the Canadian engineering profession, and contributes to the community through volunteer service.

Ralph has worked at Teshmont for over 20 years and, in 2008, was named Teshmont's President. Ralph's diverse career includes experience in power system studies and the design and specification of both AC and HVDC substations. He is experienced in the on-site testing and commissioning of high voltage AC and DC stations, as well as project management and coordination.

Ralph has been involved with the CEM Image Committee since 2007, and presently holds the position of Chair. Ralph has been instrumental in the implementation of the mentorship program, the joint APEGM/CEM public awareness and communication plan, as well as initiating the publication of an annual *Manitoba Consulting Engineer* launched in the summer of 2010. During Ralph's participation on the Image Committee, he has overseen and been involved in ensuring the committee's many activities continue to evolve and grow.

Ralph's dedication, ethics, enthusiasm, and significant contributions as an engineer to society and to the engineering profession are recognized by all.

## Rising Star Award

Beth Phillips, P. Eng.



Beth Phillips arrived in Winnipeg from Vancouver in 2008, where she had been working after completing her undergraduate degree in Civil Engineering from the University of Saskatchewan in 2004. Beth has recently celebrated receiving her professional status as a P. Eng. in both Manitoba and British Columbia. She is also currently enrolled at the University of Manitoba, where she is taking Masters level classes in Civil Engineering.

Beth joined Wardrop Engineering in 2008 and has become an integral part of Wardrop's Infrastructure Division, working on large-scale projects such as the Disraeli Bridge Project, CentrePort Canada Way and the Circle Drive Extensions Project. Beth believes that companies have a responsibility to be strong global citizens and has worked tirelessly in this regard with Wardrop.

In her two short years in Winnipeg Beth has become an integral part of many local organizations. She encouraged other young professionals to create an Engineers Without Borders Chapter in Winnipeg and is currently VP and Director of Workplace Outreach. In 2008, Beth began working on founding the Young Professionals Committee for Consulting Engineers of Manitoba. The YPC became an official standing committee in 2009 with Beth as Chair. When the YPC was created, the CEM *bylaws* were amended to create a Board position specifically for the YPs. Beth was appointed to the Board and became the first female and the youngest CEM Director.

Beth embodies the intelligence and bright problem solving characteristics of engineers, while diving deep into community service that helps propel the image of the profession.

## Lifetime Achievement Award

George Rempel, P. Eng.



George Rempel graduated in 1961 with a Civil Engineering degree from the University of Manitoba and later added a M.Sc. in Water Resources Engineering. He began his career in the private sector, working as a junior engineer for Shell Oil in Alberta. Upon returning to Winnipeg, he began working in several public sector positions within municipal government, the

former Metro Winnipeg and the City of Winnipeg Water and Waste Department. In 1975, George began working for the firm of James F. MacLaren Limited and quickly became Vice-President. In 1988, George joined Wardrop as head of Environmental Planning and Managing Director. In 1990, George co-founded TetrES Consultants, Manitoba's first consultancy devoted purely to environmental engineering and environmental services.

George's involvement with CEM began in 1978 as a member of the first executive that established the Association of Consulting Engineers of Manitoba (ACEM), now CEM. The executive joined forces to create a unifying voice representing the consulting engineering firms in Manitoba. George has held many positions with ACEM and CEM over the

years, including chair of a range of committees, such as the City of Winnipeg Committee, Manitoba Hydro Committee and the Private Sector Committee, several terms as a founding Director and as president in 1987-1988. It was during George's term as president that ACEM opened its first office and hired its first part-time employee and Executive Director.

Even though George's commitment to the consulting engineering community required a significant investment of his time, he also contributed to the community at large as the co-chair of the capital fundraising campaign for the Engineering Information and Technology Complex at the University of Manitoba and chair for the industry's United

*"The executive joined forces to create a unifying voice representing the consulting engineering firms in Manitoba."*



Way campaigns for several years. George has also been involved in volunteer fundraising for the Manitoba Branch of the Canadian Diabetes Association and the Manitoba Branch of the Canadian Cancer Society, served on community club sports committees, as well as coaching hockey and soccer over the years. George continues to serve his community through active service on a number of United Church committees to this day.

George has been a pioneering figure in advocacy for consulting engineering in Manitoba. For over 35 years, George has functioned as a trailblazer, innovator, industry builder and promoter of many key aspect of the consulting environmental engineering science industry within Manitoba.

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## Can you afford **NOT** to be covered for health and disability expenses?

Most people recognize the need for home insurance, car insurance and even life insurance.

But many overlook the need for two types of insurance, the absence of which could strike at the heart of your finances especially if you're self-employed or don't have adequate coverage at work.

**Extended health insurance.** About half of all Canadians do not have extended health insurance through their employers, so must pay out of their own pocket, or hope their provincial health plan covers it.

In fact, Canadians are spending more out of their own pocket on health care than they were two decades ago — \$452 per person in 2007 compared with \$222 in 1981. Much of the increase was due to the rising costs of health care not covered by provincial insurance, and the fact that fewer costs are being covered.<sup>1</sup>

It has never been more important to have an extended health care plan that covers what your provincial health insurance doesn't: prescriptions, diagnostic services, chiropractors, physiotherapists, semi-private or private hospital rooms, out-of-Canada emergency medical care, ambulances and

more. Dental coverage can help cover the cost of examinations, x-rays, cleaning, fillings, crowns, root canals and even dentures.

If you are self-employed, your premiums for extended health care plans may be tax deductible.<sup>2</sup>

**Disability insurance.** It is far more likely that you will become disabled before age 65 than die. In fact, disability strikes working people far more often than premature death.

If a disability lasts 90 days, it 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.<sup>3</sup>

How is a person with dependants supposed to survive without any source of income? Where will the money come from if you're unable to work?

Disability insurance provides a source of income if you should become ill or injured and can't work. These plans provide monthly benefit payments, based on a percentage of your monthly earnings, while you are disabled and unable to perform your occupation.

While many employers offer disability coverage, keep in mind that you can't take your company plan with you if you leave your job.

A private disability plan is not only portable: some also provide coverage between jobs so you can continue to receive benefits if you become disabled within 12 months of your last employment ending.

Look for a disability plan that offers coverage for different types of disability, such as total disability, residual disability, partial disability and catastrophic loss.

And remember that as long as you pay your own premiums (not your employer or partnership), your monthly disability benefits are tax free.<sup>2</sup>

Being ill or injured can be challenging enough without worrying about being driven into serious debt. With the financial safety net provided by private health and disability insurance, you can focus on your recovery, not on the bills. ■

<sup>1</sup>GPI Atlantic, Economic Security in Nova Scotia and Canada, July 2008.

<sup>2</sup>Contact Canada Revenue Agency for details.

<sup>3</sup>Disability Insurance: Where Will the Money Come From If You're Disabled? Canadian Life and Health Insurance Association. January 2004.

## Engineers Canada-sponsored plans: Your financial safety net

### Extended Health Care Plan & Dental Care Plan

These plans help reduce your out-of-pocket medical costs by paying for those expenses not covered by your provincial health plan. Affordable coverage for you and your family.

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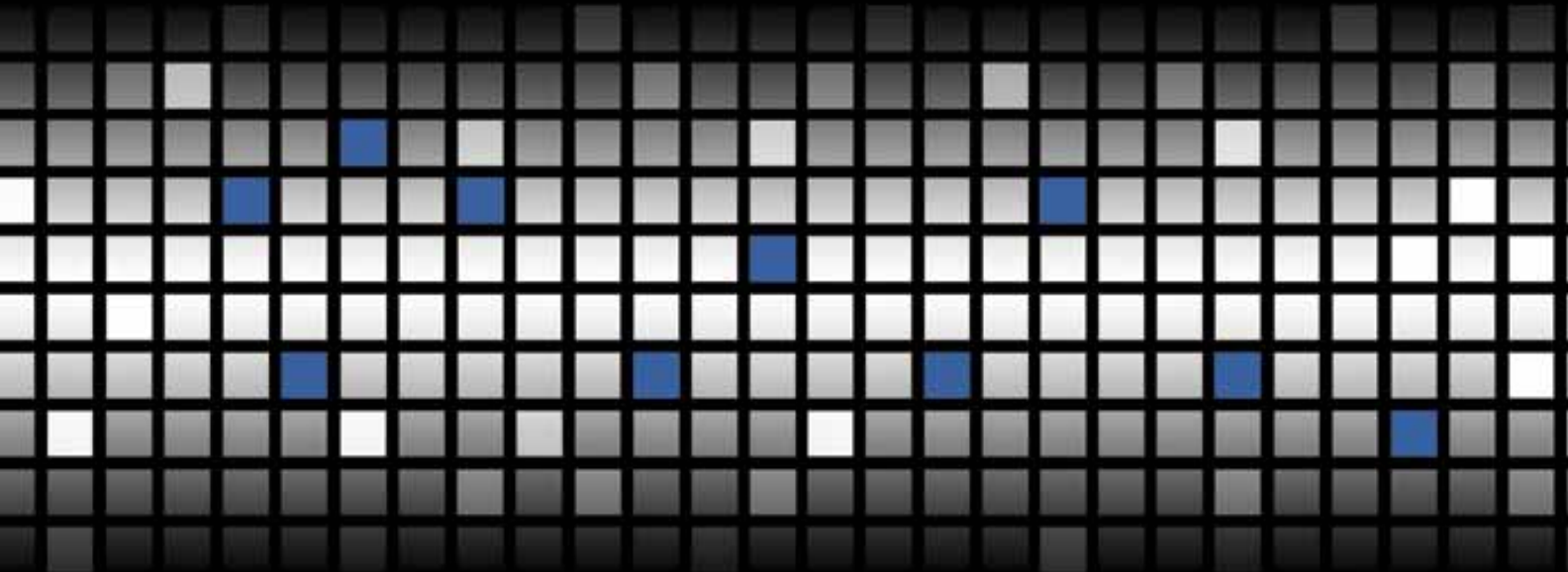


The Manufacturers Life Insurance Company

Engineers Canada plans are underwritten by The Manufacturers Life Insurance Company (Manulife Financial).



# REFERENCE GUIDE TO SERVICES



provided by CEM member Firms



# REFERENCE GUIDE TO SERVICES provided by CEM member companies

Member Matrix		A.F. Eshmade & Associates Ltd.	AECOM	AMEC Earth & Environment	Accutech Engineering Inc.	Almitra Consulting Inc.	Bogge & Bogge (1980) Ltd.	CH2M Hill	Crosier Kilgour & Partners Ltd.	D.E.M. Allen & Associates Inc.	Darren B. Towells Inc.	Dillon Consulting Limited	Dyregrov Consultants	ENG-TECH Consulting Limited	GENIVAR	Goldier Associates Ltd.	Hatch	J.R. Cousin Consultants Ltd.	KGS Group	MCW/AE Consulting Professional Engineers	MMM Group Limited	Neegan Burnside Engineering & Environmental Ltd.	SMS Engineering Ltd.	SMC-Lavalin Inc.	Stantec Consulting Ltd.	TBI Engineering Limited	Teshmont Consultants LP	TetraES Consultants Inc.	Tower Engineering Group Inc.	Wardrop Engineering Inc.	Williams Engineering Canada Inc.	Zandstra Farag Consultants Ltd.			
		COMMUNICATIONS/ TELECOMMUNICATIONS	AM/FM Broadcasting							X						X																			
	Data Transmission Systems						X	X						X	X				X	X									X	X	X				
	Fibre Optics	X					X							X					X	X	X														
	Program Production Facilities													X					X					X											
	Satellite Downlink Stations		X											X											X										
	TV & CATV		X						X					X	X				X	X									X	X	X				
	Terrestrial & Satellite Links		X						X					X																					
	Wireless Systems		X				X	X						X	X					X										X	X				
COMPUTER SCIENCE	Client/Server						X							X	X			X	X													X			
	Controls		X				X											X	X					X						X	X				
	Database Management		X				X										X	X	X						X			X		X	X				
	Graphic Information Systems		X				X			X				X	X	X			X		X				X			X		X	X				
	Internet/Intranet						X			X				X	X										X			X		X	X				
	Process Automation		X				X							X	X				X					X									X		
	Robotics																																	X	
	Software Development		X				X										X	X	X					X	X			X		X	X				
ELECTRICAL	Airport Runway Lighting		X	X			X							X	X				X		X	X		X	X					X	X				
	Alarm & Security Systems		X	X			X							X	X				X	X	X	X		X	X					X	X	X			
	Building Systems		X	X			X		X	X				X	X	X			X	X	X	X		X	X					X	X	X			
	Harmonic Mitigation Systems		X	X			X							X	X				X	X	X	X		X	X		X		X		X				
	Illumination Lighting		X	X			X							X	X				X	X	X	X		X	X					X	X	X			
	Motors & Generators		X	X			X		X					X	X				X	X	X	X		X	X					X	X	X			
	Power Quality Analysis		X	X			X							X	X				X	X	X	X		X	X			X		X	X	X			
	Power Transmission & Distribution			X					X					X	X	X			X	X	X	X		X	X			X	X	X	X				
	Protection & Control		X	X			X							X	X				X	X	X	X		X	X			X	X	X	X				
	Switchgear		X				X							X	X				X	X	X	X		X	X			X	X	X	X				
	Systems Studies		X	X			X		X					X	X				X	X	X	X		X	X			X	X	X	X				
	Transformers		X	X										X	X				X	X	X	X		X	X			X	X	X	X				
ENERGY	Biomass/Wood		X				X		X					X	X						X			X	X			X	X						
	Coal Processing/Transportation						X		X					X	X						X			X							X				
	District Heating & Co-Generation		X				X		X					X	X				X	X	X	X		X	X			X	X	X					
	Electric Power Generation - Hydroelectric		X	X			X		X					X	X	X			X		X			X	X			X	X	X					
	Electric Power Generation - Nuclear			X										X	X	X								X	X			X	X	X					
	Electric Power Generation - Thermal		X						X					X	X	X								X	X			X	X	X					
	Electric Power Systems Analysis						X		X					X	X				X	X	X	X		X	X			X		X	X				
	Energy Conservation		X	X			X		X					X	X				X	X	X	X		X	X			X	X	X					
	Oil & Gas Pipelines			X			X		X					X	X						X				X			X		X	X				
	Oil & Gas Production/Storage/Distribution			X										X	X	X					X				X			X		X	X				
	Oil & Gas Refineries/Processing Plants						X							X	X										X			X		X					
	Solar Energy				X		X										X			X	X	X		X						X	X				
	Wind Energy		X	X			X		X					X	X	X				X		X		X	X			X	X	X					
ENVIRONMENTAL	Air Quality Management		X	X			X		X					X	X				X	X	X		X	X			X	X	X						
	Due Diligence Planning		X	X			X	X		X				X	X				X		X			X	X			X	X	X					
	Environmental Assessments		X	X			X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X			X	X	X					
	Environmental Litigation Support		X	X			X		X					X	X				X	X	X			X	X			X	X	X					
	Environmental Site Assessments & Audits		X	X			X		X	X	X	X	X	X	X	X			X	X	X	X		X	X			X	X	X					
	Expert Testimony, Public Hearings, Expert Witness		X	X	X		X	X		X				X	X				X		X			X				X	X	X					
	Fire & Explosions			X			X		X					X	X				X		X			X	X			X	X	X					
	Groundwater Resources/Hydrogeology		X	X			X		X					X	X	X			X	X	X	X		X	X			X	X	X					
	Industrial Hygiene and Safety		X	X			X		X					X	X				X		X			X	X			X	X	X					
	Industrial Stack Sampling		X	X			X		X					X	X				X		X			X	X			X	X	X					
	Industrial Wastewater Treatment		X				X		X					X	X	X			X	X	X	X		X	X			X	X	X					
	Laboratory & Treatability Studies		X	X			X		X					X	X				X		X			X	X			X	X	X					
	Noise & Vibration		X	X	X		X	X		X				X	X				X	X	X	X		X	X			X	X	X					
	Public Consultations/Involvement		X	X			X		X					X	X	X			X	X	X	X		X	X			X	X	X					
	Risk Assessment		X	X			X		X	X	X	X	X	X	X	X			X	X	X	X		X	X			X	X	X					
	Solid/Hazardous Waste Management		X	X			X		X					X	X	X			X	X	X	X		X	X			X	X	X					

# REFERENCE GUIDE TO SERVICES provided by CEM member companies

## Member Matrix

		A.F. Eshmade & Associates Ltd.	AECOM	AMEC Earth & Environment	Accutech Engineering Inc.	Almitra Consulting Inc.	Boge & Boge (1980) Ltd.	CH2M Hill	Crosier Kilgour & Partners Ltd.	D.E.M., Allen & Associates Inc.	Darren B. Towells Inc.	Dillon Consulting Limited	Dyregrow Consultants	ENG-TECH Consulting Limited	GENVAR	Golder Associates Ltd.	Hatch	J.R. Cousin Consultants Ltd.	KGS Group	MCW/AGE Consulting Professional Engineers	MMM Group Limited	Neegan Burnside Engineering & Environmental Ltd.	SMS Engineering Ltd.	SNC-Lavalin Inc.	Stantec Consulting Ltd.	TBT Engineering Limited	Teshmont Consultants LP	TerrES Consultants Inc.	Tower Engineering Group Inc.	Wardrop Engineering Inc.	Williams Engineering Canada Inc.	Zandstra Farag Consultants Ltd.		
ENVIRONMENTAL <i>continued</i>	Strategic Management of Licensing Processes	X					X			X		X	X	X	X	X	X	X	X	X			X	X			X	X						
	Structural Failures	X	X		X	X				X	X			X		X	X	X	X					X	X					X				
	Surface Water Resources	X					X			X			X	X	X	X	X	X	X	X	X	X	X	X	X			X	X					
	Underground Storage Tank Management	X	X	X			X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X				
	Wind & Water Damage	X	X		X	X				X	X		X		X		X	X	X	X				X	X			X	X					
FISHERIES	Fish By-Products: Processing	X	X							X			X		X										X				X					
	Fish Processing/Storage	X								X	X		X		X			X							X				X					
	Fishery Resources: Evaluation, Development/Operations, Aquaculture	X					X			X					X				X						X			X		X				
	Fishing Vessels Gear/Equipment																								X				X					
	Marine Biology & Oceanography	X								X						X	X								X			X		X				
	Maritime/Harbour Engineering, Trans-shipment Equipment	X					X				X			X		X		X	X						X				X					
	Monitoring, Control & Surveillance (MCS)	X					X				X					X		X							X				X					
	Remote Sensing	X								X					X	X									X			X						
FORESTRY	Building Materials: plywood, lumber manufacturing, etc			X		X	X	X			X						X								X				X					
	Forest Harvesting										X														X			X						
	Forestry Engineering						X				X					X	X								X				X					
	Pulp/Paper Plants, Products	X	X		X	X					X						X	X		X					X			X		X				
	Timber Grading, Wood Species Identification, Wood Damage Assessment							X		X	X																	X						
GEOTECHNICAL	Earth Structures	X	X				X			X	X	X	X	X	X	X	X	X	X	X				X	X	X					X	X		
	Foundations	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X				X	X	X			X	X	X			
	Foundations Design	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X				X	X	X			X	X	X			
	Laboratory Testing	X	X							X	X	X				X	X		X						X	X						X		
	Site Investigations	X	X								X	X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Soil & Rock Mechanics	X	X								X	X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Soil Stabilization	X	X										X	X	X	X	X	X	X	X				X	X	X			X	X	X			
	Tunneling - Soft Ground	X	X				X							X	X	X	X	X	X	X				X								X		
INDUSTRIAL	Machine Design/Analysis			X		X			X															X	X					X				
	Manufacturing Facilities	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X			X	X	X		X	X	X	X	X			
	Materials Handling	X	X	X	X	X			X	X			X	X	X	X	X	X	X	X				X	X			X	X	X	X			
	Materials Storage	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X				X	X			X	X	X	X			
	Plant Maintenance	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Product & Process Design	X	X	X	X	X			X	X			X	X	X	X	X	X	X	X				X	X	X			X					
	Prototyping & Product Development			X		X							X	X	X	X	X	X	X	X				X				X						
WHMIS Programs & Support		X	X	X	X				X			X	X	X	X	X	X	X	X				X			X		X						
MARINE & COASTAL	Erosion Protection	X	X				X			X		X	X	X	X	X	X	X	X					X	X			X	X					
	Marinas	X					X			X			X	X	X	X	X	X	X					X			X							
	Ports & Terminals	X					X			X			X	X	X	X	X	X	X					X	X			X	X					
	Underwater Surveys	X					X			X		X	X	X	X	X	X	X	X	X				X			X	X	X	X	X			
	Waterfront Planning	X					X			X			X	X	X	X	X	X	X	X				X			X	X	X	X	X			
MATERIALS	Analysis	X	X	X	X	X			X				X	X	X	X	X	X	X				X	X			X	X	X	X				
	Corrosion Control & Remediation	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X				X			X		X	X	X			
	Design & Selection	X	X	X	X	X			X		X	X	X	X	X	X	X	X	X	X				X	X			X	X	X	X			
	Quality Issues	X	X	X	X	X			X		X	X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Specifications & Manuals	X	X				X	X	X		X	X	X	X	X	X	X	X	X	X				X	X			X	X	X	X			
	Testing & Certification		X				X	X	X		X	X	X	X	X	X	X	X	X	X				X	X							X		
	Welding		X						X	X						X	X	X	X	X												X		
MECHANICAL	Computational Fluid Dynamics			X		X			X			X	X	X	X	X	X	X	X	X				X			X		X					
	Computer Aided Engineering	X	X		X				X			X	X	X	X	X	X	X	X	X			X	X	X		X		X					
	Cranes & Derricks	X			X				X							X	X	X	X	X				X	X			X						
	DDC System Design	X													X	X	X	X	X	X				X	X	X		X		X				
	Finite Element Analysis										X				X	X	X	X	X	X				X	X			X						
	Fire Protection Systems	X	X		X				X			X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Heating, Ventilation, A/C	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Indoor Air Quality	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Investigations	X	X	X	X	X			X			X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Machine Design	X	X								X						X	X	X	X				X	X			X		X	X			
	Plumbing & Piping	X	X		X					X			X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Refrigeration	X	X		X								X	X	X	X	X	X	X	X				X	X	X		X	X	X	X			
	Software Development	X	X														X	X	X	X				X	X			X	X	X	X			



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MINING ENGINEERING	Blasting Control															X	X		X													
	Geophysics			X							X					X			X						X						X	
	Iron & Steel Works - Rolling/Casting/Forging/etc						X			X					X	X		X					X									
	Metallurgy Extractive - Ferrous Metals										X				X										X							
	Metallurgy Extractive - Non-Ferrous Metals											X			X										X							
	Metals/Minerals/Ore Dressing														X										X					X		
	Non-Ferrous Metals - Fabricating/Rolling/Forging/Casting/Extruding/etc														X				X					X						X		
	Open Pit/Underground Mining														X	X	X								X					X		
Structural/Facility Operations	X	X	X		X	X	X							X	X	X							X	X					X			
MUNICIPAL	Infrastructure Rehabilitation	X	X				X	X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Residuals Management		X				X		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Roads & Streets		X				X			X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Stormwater Management		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Wastewater Collection, Treatment & Disposal		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Wastewater Management		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Water Supply, Treatment & Distribution		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Development Plans		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
PLANNING	Drainage Studies		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
	Emergency Response Plans		X	X			X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Industrial Parks		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Land Use		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Site Plans		X	X			X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Subdivision Plans		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Urban & Rural Design		X				X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Zoning By-Laws		X				X		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
PROJECT MANAGEMENT	Buildings	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Construction Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Contract Administration	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Management of Design	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Multidisciplinary Project Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Procurement Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Project Controls & Risk Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Related Management Services	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Sewer & Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Telecommunications	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Transportation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Value Engineering	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	STRUCTURAL - BUILDINGS	Commercial	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		Foundations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
High Rise		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Industrial		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Inspections & Investigations		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Institutional		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Low Rise		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Parking Facilities		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Residential		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Restoration & Repair		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Seismic Retrofit		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
STRUCTURAL - OTHER		Bridges	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Bunkers & Silos	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Dams & Locks	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Earth Retaining Structures	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Equipment Foundations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Nuclear	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Towers	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Trunks & Shells	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Tunnels	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Water Control & Conveyance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Wharfs	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

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SURVEYING	Aerial Photography: Photogrammetry/Photo Interpretation/Cartography	X	X									X		X				X	X					X			X						
	Construction Layout Surveys	X										X		X		X	X	X	X	X	X			X	X					X			
	Remote Sensing/Satellite Data/Interpretation/Imagery	X	X									X		X		X	X	X	X	X	X			X			X		X				
	Resource Surveys	X	X									X		X		X	X	X	X	X	X			X			X		X				
	Topographic Surveys	X	X									X		X	X	X	X	X	X	X	X			X			X		X		X		
TEMPORARY WORKS	Excavation Enclosures	X				X	X				X		X	X	X	X	X	X	X	X				X					X	X			
	Formwork	X	X	X	X	X					X		X	X	X	X	X	X	X	X				X					X	X			
	Lifting & Moving			X						X				X	X	X	X	X	X					X					X	X			
	Scaffolding	X	X	X	X	X					X		X	X	X	X	X	X	X	X				X					X	X			
	Structural Shoring	X	X	X	X	X					X		X	X	X	X	X	X	X	X				X					X	X			
TRANSPORTATION	Airport De Icing Facilities	X	X				X				X		X	X	X	X	X	X	X	X			X		X		X		X				
	Airport Jet Fuel Distribution Systems	X					X				X		X	X	X	X	X	X	X	X	X			X	X	X			X				
	Airport Pavement Design	X	X				X				X	X	X	X	X	X	X	X	X	X	X			X	X	X			X				
	Airports	X	X				X				X		X	X	X	X	X	X	X	X	X			X	X	X			X				
	GIS-T Applications	X					X				X		X	X	X	X	X	X	X	X	X			X					X				
	Highway & Road Safety	X					X				X		X	X	X	X	X	X	X	X	X			X				X					
	Intelligent Transportation Systems	X					X				X		X	X							X			X					X				
	Long Distance Rail	X					X				X		X	X							X			X	X				X				
	Parking Studies	X					X				X		X	X	X	X	X	X	X	X	X			X	X				X				
	Pavement Design	X	X				X	X			X		X	X	X	X	X	X	X	X	X			X	X	X			X				
	Pavement Management Systems	X	X				X				X		X	X	X	X	X	X	X	X	X			X	X				X				
	Ports & Harbours	X					X				X		X	X	X	X	X	X	X	X	X			X	X				X				
	Roads & Highways	X	X				X				X	X	X	X	X	X	X	X	X	X	X			X	X	X			X				
	Terminals & Service Centres	X	X				X	X			X		X	X	X	X	X	X	X	X	X			X	X	X			X				
	Traffic Engineering & Control	X					X				X		X	X							X			X					X				
Transportation Planning	X					X				X		X	X	X	X	X	X	X	X	X			X	X				X					
Urban Public Transit	X					X				X		X	X	X	X	X	X	X	X	X			X	X				X					
WATER RESOURCES	Dam Safety Studies	X	X				X					X	X	X	X	X	X	X	X	X			X	X	X			X					
	Flood Control	X	X				X				X		X	X	X	X	X	X	X	X	X			X	X			X					
	Hydraulic Structure Design	X	X				X				X		X	X	X	X	X	X	X	X	X			X	X			X					
	Hydrology	X	X				X				X		X	X	X	X	X	X	X	X	X			X	X			X					
	Ice Engineering	X					X				X		X	X	X	X	X	X	X	X	X			X	X								
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## What is the Young Professionals Committee?

**T**he CEM Young Professionals Committee (YPC) was created in 2009 and aims to enhance the growth and evolution of the consulting engineering industry by promoting and empowering the development of young professionals' careers within the industry.

**The YPC achieves its mission by meeting specific goals, namely:**

- providing young professionals with a greater understanding of the consulting engineering business and CEM's role in it;
- providing networking, mentoring, educational, and career growth opportunities for young professionals;
- providing young professionals with the opportunity to actively contribute and become an integral part of the industry and CEM;
- being a link and progression from the student CEM chapter to professional involvement in CEM; and
- communicating and coordinating with other similar organizations in other jurisdictions to exchange ideas, find mutually beneficial opportunities, and grow and improve the consulting engineering industry.

Since officially launching in October 2009, the YPC has progressively met these goals by holding educational and networking events once a month, giving presentations at the university, and presenting YP concerns to the CEM Board and senior managers of member firms. The YPC has also begun to foster relationships with other Winnipeg professional organizations.

The YPC defines a young professional as any engineer, geoscientist, engineering or geosciences technologist or technician working for a member company with up to 10 years of experience in their applicable field. ◦



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# Beth Phillips, CEM Young Professionals' Committee Chair

**B**eth Phillips, P. Eng., is the founder and inaugural chair of the Consulting Engineers of Manitoba (CEM) Young Professionals' Committee (YPC). After moving to Winnipeg from British Columbia two years ago, she had a vague notion of the Consulting Engineers of BC's Young Professionals Group (CEBC YPG). That vague knowledge consisted of knowing the CEBC YPG existed, was aimed at young consultants, and hosted educational breakfast seminars. Through a casual conversation with her manager, she discovered that she could join the CEM Image Committee and get the CEM's own YPC started.

Under Beth's guidance, the YPC has progressed into a group dedicated to the advancement of young professionals (YPs) by providing networking and learning opportunities. In Beth's own words, "It appears that YPs are given

a lot of opportunities to expand their technical knowledge and skills, but opportunities to learn business and professional skills are generally lacking. The YPC is attempting to provide these opportunities for YPs."

Beth chose consulting engineering because she saw in her future a diverse project list and opportunities to engage not only in the technical aspects of engineering, but the managerial and business aspects as well. In the past year, she has been given many opportunities to become involved in the business side of engineering through her involvement in the YPC. She now sits on the CEM Board in a Board director position created specifically for a YP. As she says, "I have been given a tremendous opportunity to understand what goes on at the highest levels of our business, to better understand the issues we face and the successes we have had. Having that perspective means that I can better

understand our clients, and, therefore, better serve their needs on our projects. The more this understanding can be shared in a thoughtful and responsible way, the better YPs will be able to contribute to their companies' success."

Beth has a long history of involvement in her community through charity work. She has been part of Engineers Without Borders for several years, and she takes pride in trying to give back. However, she does not deny that she has grown immensely due to her volunteer activities, where she has been given the opportunity to develop new skills, expand her network, and make close friends.

When asked about constraints on her time volunteering and working full time, she replies, "One of the most satisfying things in life is to see how you can contribute to someone else's success or enjoyment. When you are running yourself ragged trying to pull something together, you might question whether it is worth the sleep deprivation, but then everything comes together and you see that you have made a difference. Suddenly, you want to do the whole thing over again!"

Beth believes we all have a role to play in making our communities better. She ardently believes we all have the ability to change the world, even if only in a small way. One of her favourite quotes, from Margaret Mead, easily explains her viewpoint: "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." And if you still do not believe her, she offers up this African proverb, "If you think you are too small to make a difference, just try sleeping in a room with a mosquito." ◊



"We all have the ability to change the world, even if only in a small way."



# Young Professionals Committee events

## October 2009 – official launch gala

The Consulting Engineers of Manitoba (CEM) officially launched the creation of its Young Professionals Committee (YPC) with a sold-out Gala Dinner. Over 130 young professionals (YPs), senior managers from local consulting companies, and consulting engineering client representatives gathered at the Western Canada Aviation Museum on the evening of Thursday, October 1, 2009 to network in style. Not only were attendees serenaded by soothing jazz music, but they were also offered an enticing view from an enclosed observation deck of air traffic on the runways of the James Armstrong Richardson Airport. Andrew Steeves, P. Eng., former chair of the Association of Consulting Engineering Companies (ACEC), was the focus of the evening as he gave a brief presentation on how consultants make money and the importance of qualifications based selection (QBS).



## November 2009 – Manitoba Hydro technical tour

The young professionals (YPs) of the Consulting Engineers of Manitoba (CEM) had an exciting and informative tour of one of Winnipeg's newest buildings -- Manitoba Hydro Place. Thirty-six YPs gathered at the new Manitoba Hydro Head Office downtown to be led on a tour around the building. The session began with a presentation, was followed by a tour that highlighted the energy saving features of the building, and ended with a walk through the lobby with its two beautiful fountains. After the tour, each YP was handed a booklet listing some of the details along with pictures of the building.



## January 2010 – Pub Night

The CEM Young Professionals Committee held its first Pub Night at the Tavern United MTS Centre. The evening was a great success, with approximately 25 YPs attending to relax over some drinks and appetizers with the special guest of the evening, John D. Gamble, CET, P. Eng., and president of the Association of Consulting Engineering Companies of Canada (ACEC – Canada). John gave an informal talk about the consulting engineering industry in Canada, including details on its current state, and a perspective on its future. During the Q & A period that followed, YPs were given the opportunity to ask John for his opinion and advice on working in the engineering industry.



## February 2010 – breakfast seminar

The CEM Young Professionals (YP) Committee held its first breakfast seminar at the APEGM offices. 'Keeping Your Project in the Black: Scope and Budget Control and Development' was presented by Rick Haldane-Wilson, P. Eng., CIM. The event was a great success, with 38 young professionals in attendance. Rick discussed project management, budget and scope development, budget control and scope creep prevention. YPs are expected to ask questions, understand the project scope and required level of effort, be aware of deadlines, lines of communication and technical limitations, and own up to mistakes as the sooner a mistake is caught, the faster it can be fixed. ◊



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## A focus on mentorship

Young professionals (YPs) from several Winnipeg-based consulting engineering companies gathered on April 28, 2010 to discuss mentorship. Despite the range of responses, several common themes and needs arose from the group discussion, and many good thoughts about the responsibility of

both mentors and YPs emerged.

Although there are many different areas in which YPs would like mentorship, the main ones were practical application and design, technical knowledge, business, and professional life. Formal mentor programs appealed to YPs; however, it was understood that mentorship

**“What do YPs expect from mentors? They expect to be integrated.”**

programs are only as good as the mentors themselves and the amount of effort they are able to contribute.

So what do YPs expect from mentors? They expect to be integrated. This includes being involved in all aspect of projects, sitting in on client meetings and phone calls, having access to proposal and budget information, and learning about project management. They expect to be challenged with questions that drive them to find innovative answers, and evolve by performing different tasks. They want to understand the thought and theory processes behind the work, and discuss lessons learned to increase efficiency and reduce mistakes.

They expect mentors to listen to their questions and suggestions respectfully, and to encourage them when they do good work. They want to explore different work areas within their company through rotational programs, and to attend professional development and networking events to meet and listen to other senior engineers. They understand that exposure to environments available outside their particular office will cause them to appreciate their existing work environment.

Most importantly, YPs expect to develop a relationship with their mentors outside the office in an informal and casual basis, whether it be through social activities or fun work events. It is important that mentors do not become too busy to mentor YPs. Mentorship will pay dividends down the road.

In return, YPs will strive to meet their mentors halfway and approach their mentors as needed. A strong and engaged mentorship relationship can bring extraordinary benefits to both parties involved; however, effort, time, and understanding are required from both parties to create it. ◊



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# 12th annual golf tournament

Consulting Engineers of Manitoba held their 12<sup>th</sup> annual golf tournament on May 25, 2010 at Larters at St. Andrews. The tournament was the biggest and one of the best tournaments in its 12-year history with 138 golfers in attendance. The weather was partially sunny with temperatures in the high teens to low twenties with very strong winds making scoring low difficult. The winning team (shown with trophy below) battled through the gale winds to score a respectable minus four. After the very windy day of golfing, dinner was served and prizes were awarded. The following is a list of the evening's big winners.



## CEM golf tournament champions:

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Trevor Parker, MMM Group Limited  
Walter Burdz, MIT; Lance Vigfusson, MIT

## Hole contest winners:

- Longest Drive  
Richards Hawkins, GENIVAR
- Closest to the Hole  
Nolan Domenico, AECOM
- Closest to the Line  
Jeff Rempel, SNC Lavalin Inc.

## Door prize winners:

- 42" flat screen TV  
Rick Valiquette, Manitoba Hydro
- ZZ Top tickets  
Ed Wolowich, Wardrop Engineering Inc.
- Blue Ray DVD player  
Tim Ruban, Testlabs International Limited
- Wii Nintendo gaming system  
Kelly Braden, City of Portage La Prairie
- iPod Touch  
Glen Schick, Manitoba Hydro

Consulting Engineers of Manitoba would like to thank the players, prize sponsors, hole sponsors and event sponsors for making this event successful. This year CEM is proud to donate \$1000 to Winnipeg Harvest from this years tournament proceeds. Please keep your calendars open for the 13th annual tournament next year May 31, 2011. ◊



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