



Queen's
UNIVERSITY

CIVIL ENGINEERING
THE NATURAL AND BUILT ENVIRONMENT



10

building

partnerships

LINKING CIVIL ENGINEERING FACULTY • STUDENTS • ALUMNI + INDUSTRY



Headlines

Welcome to the 2010 edition of our Building Partnerships newsletter. We use this opportunity to update you on the many activities undertaken by Faculty and Staff in the Department over the last year. We achieved many milestones this last year and experienced loss, too. With the addition of Dr. Kevin Mumford in January and the return of Dr. Kerry Rowe from his duties as Vice Principal (Research) in September we are now at a faculty complement of 16. Next July 1st, Dr. Ryan Mulligan, a Coastal Engineer, presently employed as an Assistant Professor at East Carolina University, will join our faculty bringing more critical mass to the Hydrotechnical Engineering group.

We continue to enjoy large undergraduate enrollment with 126 entering 2nd year last September. Under the present budgetary constraints, this has placed increasing pressure on our teaching resources. Despite this, our professors receive some of the highest student evaluations in the Faculty of Engineering and Applied Science and we continue to sustain appropriate numbers of teaching assistants, such that we deliver our courses at a very high standard. Our graduate student numbers are relatively stable compared to previous years with approximately 104 students in the

program. The average number of graduate students per faculty member is the highest in the Faculty and continues to be 2nd highest in the Country.

As a result of budgetary pressures and as a means to review the administrative structure of the University, Principal Woolf asked each Faculty to develop an academic plan which will provide a road map for future direction. Our Department took this opportunity to build a five-year Strategic Plan in which we outline our existing strengths and proposed directions. I encourage you to have a glance at this concise document (less than five pages) located on the front page of our web site. Should you have any comments on the content please feel free to contact me directly (kent@civil.queensu.ca).

For those of you who have visited Ellis Hall recently, you will recognize that we have made many changes and upgrades to both the laboratory and teaching facilities. As a result of the arrival of new faculty members and the expansion of our graduate programs, much remains to be done, and usable space has become a premium. The Department is in the process of developing a comprehensive Space Plan that will help us optimize our space and provide a direction for future renovation and expansion. This is a large undertaking and the final plan is not likely to be completed until mid-2011.

The Queen's-RMC GeoEngineering Centre and the Water Research Group, both of which are led by individual faculty from our Department (Dr. Moore and I, respectively) experienced both success and growth during the last year. The GeoEngineering Centre underwent a review by the Canada Foundation for Innovation which has funded several of the large-scale testing facilities utilized by the Centre. The review was very positive with the review team suggesting that the GeoEngineering Group was one of the best (if not the best) of its kind in the world. The Water Research Group was formed in January of 2010 and includes approximately 40 faculty members and researchers from 16 disciplines spread between Queen's and RMC. Although the group is new, there have been several

funding proposals which involve numerous Group members, already initiated. For example, several researchers have participated in a Queen's-led proposal involving more than ten universities to investigate climate change effects on watersheds across the country.

Finally, on a sad note, we lost two long-standing members of the Department this year, Dave Tryon and Russ Kennedy. Dave passed away suddenly in early February after enjoying only a few months of retirement, truly a sad outcome following such a lengthy and industrious career providing technical support to our many research projects. Russ Kennedy's departure was also sudden, although he has left a wonderful physical legacy in addition to the memories, in the form of the Kennedy Field Station. We continue to work with Dr. Kennedy's family in developing novel teaching and research activities at the property. Stay tuned for more on this next year.

Although we continue to face many challenges related to the size of our undergraduate program and budgetary constraints, the Department is very enthusiastic about the future. In order to improve our situation, we actively seek endowment support for a variety of initiatives. For example during 2010 we established two new named teaching assistantships, the Dr. Laurence Hall Senior TA, and the Piasetzki & Nenniger Senior TA, both of which are used to support 4th year courses. We have many more ideas and your comments or suggestions in this area are very welcome. I hope to conduct a reception tour including several cities across Canada in late spring and early fall 2011, and encourage you to come out for a more detailed update on Departmental activities. If you have any other comments or wish specific information on some of what you have read herein, please contact me at kent@civil.queensu.ca or via phone (613) 533-6417.

< CONTENT >

Our Students	2-3
News & Notes	4-5
Industry Open House	6-7
Congratulations	8

Our Students

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Queen's Concrete Canoe Team TAKES IT BACK TO BASICS

Taking it back to basics was the starting point for a year of Queen's Concrete Canoe (QCC) that will not soon be forgotten. The 18', 287 lb HELLIBELLE VII was both sleek and strong, boasting an unheard of 16 MPa compression strength. Add to that the V-shaped hull and glass-finish and the canoe was truly a testament to enhanced aesthetic design. The 2010 Canadian National Concrete Canoe Competition (CNCCC) was hosted at the University of Toronto in mid-May. With all QCC members wearing LEGO heads for this year's theme, Queen's spirit and enthusiasm overwhelmed the exhibits and races, further increased with the attendance and support of Canoe alumni members from years past.

Having perfected the QCC's traditional design process with the 2009 Vengeance, the canoe executive began the year with the goal of trying something entirely new, and inevitably more complicated. The result: a dual-form injection mould using self-consolidating concrete and lightweight fibreglass reinforcement. "Innovation and testing were key," explains Construction Lead Jordan Jenah, "We overhauled the entire canoe design process from form to concrete and then implemented advanced quality assurance measures to ensure the canoe construction would be a success." The team budgeted three full months to the development and testing of both the dual form and self-consolidating concrete, culminating in the successful production of a three-foot test section in late November.

One of the major milestones of the year was the development of a self-consolidating concrete using low density materials and in accordance with competition rule restrictions. "It's liquid!" exclaimed Deidre Poot and Jamie Morris, Co-Heads of Concrete, when after several weeks of experimental concrete mixes and strength testing, the basis for the final mix design was discovered. Both fluid enough to be poured into the dual-form and strong enough to resist the

tensile forces of paddling, the design was exactly what the Team had been working towards. In addition, the mix had a density of only 1165 kg/m³, quite low for SCC concrete, and incorporated two recycled aggregates, as well as silica fume and fly ash as environmentally-friendly cementitious substitutes.

Outgoing Captain Laura Garner was thrilled with the progress and accomplishment of the team in the 2010 year: "This year was an ambitious one for us. We tried a lot of new things, shortened our timeline, and still managed to increase recruitment and team interest around campus. I know that the new executive will do a great job next year and I look forward to contributing once again in my new role as Internal Sponsorship. Several veteran canoe members graduated this year but even now post-grad they will tell you that Queen's Concrete Canoe is not only an incredible learning experience but also one of their best memories of Queen's."

Next year incoming Head of Concrete, Cian O'Neill-Kizoff, is looking to take the team to new heights: "A buoyant concrete, lighter than water; that's the goal." New Captain Charlie Tardif looks forward to competing at the CNCCC 2011, to be hosted by Université Laval in Quebec City. Queen's previously won Bronze the last time Laval hosted in 2001, setting high hopes for a return to the awards podium in 2011.

The Queen's Concrete Canoe Team would like to thank all of its corporate sponsors, as well as support from Queen's University, the Department of Civil Engineering, the Faculty of Engineering and Applied Science, the AMS, and the Engineering Society.

You can find out more about the team and track their progress at <http://engsoc.queensu.ca/canoe>.



2010 QUEEN'S CONCRETE CANOE TEAM (QCC)

GRADUATE STUDENT ACTIVITIES

The graduate student population in the Department of Civil Engineering is over 100 this year, with students coming together from Civil, Mechanical, Chemical, and Geotechnical backgrounds. Our research varies as well, involving work in environmental, geotechnical, hydrotechnical, and structural engineering. When not doing research, we spend our time in classes, TA'ing, and at conferences around the world.

Throughout the year, graduate students meet for events like the Welcome Back Lunchroom Mixer, Hallowe'en movie night, and Christmas party. We also participate in several of the events with the undergrads, like bowling, bonspiel, and the Civil trip. The summer is particularly busy for the graduate students with a golf tournament, Canada vs. the World soccer game, and plenty of BBQs.

The Civil Graduate Executive is made up of both M.Sc. and Ph.D. students who meet monthly to plan events and discuss information from the Department and the Society of Graduate and Professional Students. The forum organizers are also a part of this committee, along with their duties for the Robert and Joyce Jones Speaker Series. Thanks to the generous contribution of Robert K. Jones (Sci '52) and A. Joyce Jones (Arts '53) there are weekly presentations from representatives from industry, other universities, or faculty and graduate students within the Department. If you are interested in presenting a recent project or initiative, please contact Brendan and Tamer at forum@ce.queensu.ca.

36th Annual Concrete Toboggan Race

Queen's students represent well at the 36th Annual Great Northern Concrete Toboggan Race. The Queen's Concrete Toboggan Team recently returned to Kingston after participating in the 2010 GNCTR hosted by McMaster University in Hamilton, ON. Thirty-one team members, from diverse academic backgrounds, proudly donned GPAs, tams and kilts to compete against four hundred students from 19 other universities from across Canada. Queen's continued their strong showing at the competition, finishing fourth overall and bringing home the Team Spirit Award for the second year in a row. The team's concrete design finished a close second and also received high marks for their Technical Display, Technical Report and Technical Presentation. The fourth place finish was even more impressive given the team's operating budget was a half to a third the size of the budgets commanded by the top three winners. Both the competition and the team received coverage from numerous media sources including Radio Canada, Global News and CTV News as well as local newspapers. The team also had a chance to interview with local Kingston DJ Brian Scott of FLY FM morning show during the competition. The Queen's



Concrete Toboggan Team would like to thank MetalCraft Marine, the Science '70 Alumni, Three Streams Engineering, Calfrac Well Services and all its sponsors for their continued support.

If you have any questions don't hesitate to contact Nathan Murdoch at toboggan@engsoc.queensu.ca Nathan Murdoch Team Captain Queen's Concrete Toboggan Team.

Thanks to BED

The Better Equipment Donation (BED) is a student initiative that improves engineering education by purchasing equipment for the undergraduate program. Civil purchased a drying oven for the labs and the study area was equipped with 2 quick-stop PC stations, centralized assignment drop-off centre and an office equipment station.



Civil Club

Civil Club is a committee of undergraduate students, elected by their peers, to represent the student body in the Department of Civil Engineering. The committee acts as liaisons between the students in the department and the Faculty of Engineering & Applied Science and the Engineering Society. Students are given opportunities to meet students in different years, as well as, meet Professors and Staff through organized events such as the Welcome Back BBQ, Bowling with Profs, and Curling with Profs. Civil Club also organizes a trip to an American city every January. This allows students to see the ways their knowledge can be applied through visits to sights such as the Sears Tower in Chicago and the Big Dig in Boston. This year, over a hundred students traveled to New York City. The Club is also actively involved with Department related events. Civil Club aids the department in running an industry open house every year, which welcomes industry representatives from engineering companies across North America. This gives Civil students an unrivaled opportunity to network with these companies to gain summer experience and full time careers. In addition, Civil Club aids graduating students by assembling their resumes for these industry representatives to ensure that the graduating class is getting ample opportunity to find jobs once they graduate. Civil Club also works hand in hand with the department to review and improve the curriculum for all students.

Queen's vice-principal honoured by Royal Academy

KINGSTON, ON – Vice-Principal (Research) Kerry Rowe has been admitted by Prince Philip (Duke of Edinburgh) into the United Kingdom's Royal Academy of Engineering during a ceremony this fall in London.

Dr. Rowe, who is also a civil engineering professor, is one of only six international Fellows admitted to the Academy, and the only Canadian, whose election was announced at the academy's annual general meeting in London on July 5.

"I am delighted. It's very significant recognition of Canadian engineering and I'm pleased to be one of the very few Canadians to have been recognized by the UK's Royal Academy," says Dr. Rowe. "It's recognition of the international stature of our geotechnical and geoenvironmental research and the impact it has had, not just in Canada, but around the world."

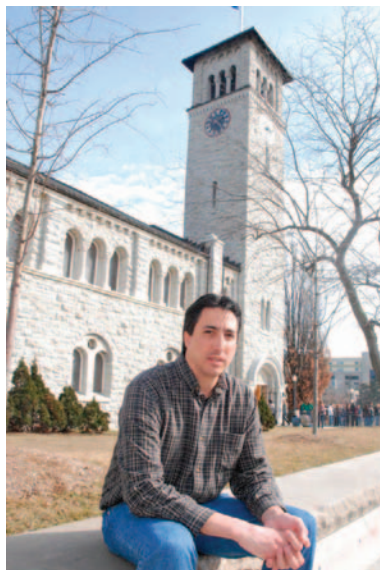
The author of three books and more than 200 journal articles, Dr. Rowe's research has won many awards including the Killam Prize, the Ontario Ministry of Environment Award of Excellence, and the Professional Engineers Ontario Engineering Medal. He was the first civil engineer to ever be awarded an NSERC Steacie fellowship. He has also served the profession in many capacities, including president of the Engineering Institute of Canada (2006-08), the Canadian Geotechnical Society (2001-02) and of the International Geosynthetics Society (1990-94).

He has been elected a Fellow of both the Royal Society of Canada and the Canadian Academy of Engineering as well as professional societies in Canada, USA and Australia.



Prince Philip (left) shakes Vice-Principal (Research) Kerry Rowe's hand during a Royal Academy of Engineering ceremony in London.

Researcher receives National Aboriginal Achievement Award



Duncan Cree (Civil Engineering) has been awarded with the National Aboriginal Achievement Award (NAAA) for 2011.

"This is a very competitive award, and I was really honoured to have been chosen as a recipient," says Dr. Cree. "I hope it will encourage young Aboriginal students to also follow their dreams. Being acknowledged from your own people is something outstanding."

Dr. Cree's involvement with the Aboriginal community has been extensive. To encourage an engineering profession among youth, he was invited to assist in Aboriginal recruitment for the Queens' March 2010 Aboriginal High School Student Recruitment program. He also volunteers at the annual Quebec Aboriginal Science and Engineering Association (QASEA) to act as a judge for high school science fair projects. In addition, he was a guest speaker for Aboriginal youth at the University of Saskatchewan's first-year orientation day.

His current research is in the rehabilitation of concrete bridges using externally bonded fibre reinforced polymers (FRP), which is quickly becoming a viable option for repairing North American infrastructure. The research is funded by the National Sciences and Engineering Council (NSERC).

The NAAA was established in 1993 and exists to encourage and celebrate excellence within the Aboriginal community. Each year, 14 recipients are recognized for their accomplishments in a variety of disciplines. Dr. Cree received the award in the Technology and Trades category.

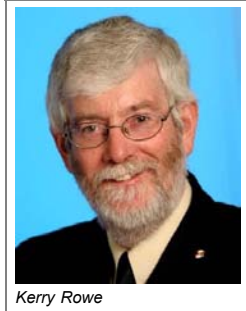
Previously, Dr. Cree was also given the opportunity to be part of the 7th Governor General's Canadian Leadership (GGCL) Conference. He has also received a scholarship through the International Space University (ISU) Summer Session Scholarship Program that was held in Beijing.

Our Grads Travel Internationally

- Alison Snow attended the 12th International Conference on Wetland Systems for Water Pollution Control in Venice, Italy
- Rebecca McWatters traveled to Antarctica to work on her PhD thesis project
- Titia Praamsma attended the International Association of Hydrogeologists Congress in Krakow, Poland
- Mushtag Usman attended the Engineering, Social Justice and Peace 2010 in London, England
- Abbas Dorostkar attended the International Symposium on Environmental Hydraulics in Athens, Greece.

Queen's receives \$9.1 million in Canada Research Chairs funding

Eleven Queen's University researchers have received funding under the Canada Research Chairs program. The funding will create one new Tier 1 chair, three new Tier 2 chairs, and renew the appointments of seven current chairs.



Kerry Rowe

The university's newest appointments are Kerry Rowe (Civil Engineering), Ian Janssen (School of Kinesiology and Health Studies), Amy Latimer (School of Kinesiology and Health Studies) and Malcolm Thorburn (Law).

Kerry Rowe, Tier 1 Canada Research Chair in Geotechnical and Geoenvironmental Engineering

Dr. Rowe is an award-winning and internationally-recognized scholar in geotechnical engineering. His research covers a wide range of topics including developing improved methods of protecting groundwater and surface water from contamination due to landfills, mineral processing in the field and mine wastes. He specializes in examining and extending the lives of different engineered liner systems. Another aspect of his research examines improving methods for building embankments on soft soils found in many parts of Canada. This research is aimed at minimizing the cost of construction and the need for repairs while also reducing the environmental impact of construction, especially near environmentally sensitive areas like wetlands.

"I am delighted by this recognition of our past research and the proposed new research," says Dr. Rowe. "This funding will assist the university at a time when there is severe pressure on the university budget."

New Tag Line

One of the outcomes of the Department's strategic plan was to better reflect what civil engineering is about at Queen's and to develop a tag line to reflect this. We use this new tag line on our letterhead, business cards and the class photo wall in the picture. Our new web site will also include the tag line in the header.



Renewal, Tenure & Promotion

Yves Filion received renewal for a further three years.

W. Andy Take received tenure and promotion to Associate Professor.

These appointments were effective July 1, 2010. Congratulations to all for well deserved recognition.

Department of Civil Engineering

Your Development & Alumni Relations Team

Our alumni and friends from the Department of Civil Engineering have a long standing tradition of being engaged. Your support allows us to enhance the quality of the educational experience of our students. You can help through student internship or employment opportunities, design and research topics and sponsorships, as a guest speaker or financial funding for academic chairs, library resources, industry collaborations and curriculum initiatives. The Faculty of Engineering and Applied Science has a dedicated and experienced team to help alumni reconnect with the Department or fulfill their philanthropic goals to provide the lasting benefits of an even better University for generations of students to come.

We are here to work with you and explore how you can make an impact on the future of our students. For more information on supporting Civil Engineering at Queen's please contact:

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Industry Open House

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This year's **OPEN HOUSE**
was a **GREAT SUCCESS**
with **32 PARTICIPANTS!**

Thank you to this year's participants:

AMEC Earth & Env.
Anchor Concrete
Armtec
BGC Engineering
Conetec
Counterpoint Engineering
Decommissioning Consulting
Delcan
Dillon Consulting
EBA Engineering Consultants
Ellis Don
Golder
Halsall Assoc Ltd.

Hatch
Hatch Mott MacDonald
J.L. Richards & Assoc.
MMM Group
McCormick Rankin
McIntosh Perry Consulting
Ministry of Transportation
O'Connor & Assoc.
Peter Kiewit
R.J. Burnside & Assoc.
R.V. Anderson
Read Jones Christofferson
S.N.C. Lavalin
Stantec
Terraprobe
The Johnson Company
The Sernas Group
Thompson Rosemount Group
Thurber Engineering Ltd.





Industry Open House



The 2011 Industry Open House will be held on January 27, 2011, and again we are anticipating large number of companies attending. Please contact Cathy Wagar (Industry Open House Coordinator) at 613 533 6000 ext 74227 for more information.

SPRING REUNION 2011

Please come and join us for the Spring Reunion 2011 from May 27-29, 2011. Civil Engineering will be hosting a reception on Saturday May 28th in Civil Engineering, 2nd Floor in the afternoon.

Everyone is welcome!

CONGRATULATIONS

to all of our Graduate Students who received their degrees
at the Spring and Fall Convocation 2010

Mohamed M. M. El-Taher (PhD) June '10
Supervisor: I. D. Moore

Jana K. Levison (PhD) June '10
Supervisor: K. S. Novakowski
Currently Postdoctoral Fellow at the University of Quebec (Montreal)

Ershad U. Chowdhury (PhD) June '10
Supervisor(s): M. F. Green, L.A. Bisby

Mohammad Reza Saiedi (MAsc) June '10
Supervisor(s): A.Z. Fam, M.F. Green
Currently working for McCormick Rankin, Kingston

Yu Ching. Lai (MAsc) June '10
Supervisor: A.Z. Fam
Currently working for Steenhol Building Service Group, Toronto
Bing Q. Huang (PhD) June '10
Supervisor: R.J. Bathurst

Habib Ahmari (PhD) June '10
Supervisor: A.M.F. da Silva

Rebecca S. McWatters, (PhD) June '10
Supervisor: R.K. Rowe
Currently Postdoctoral Fellow at Queen's University, Kingston

Tiago Avelar Pereira Caldas, (MEng) June '10

Peter A. Mitchell (MAsc) June '10
Supervisor: L.A. Bisby

Samuel D. Rogers (MAsc) June '10
Supervisor: M.F. Green
Currently working for Aureus Solutions Inc.

Khaled M. Abdelatty (PhD) Oct '10
Supervisor: R.K. Rowe

Tarek Sharaf (PhD) Oct '10
Supervisor: A.Z. Fam
Currently Postdoctoral Fellow at Queen's University, Kingston

Stephanie P. MacLeod (MAsc) Oct '10
Supervisor: Y. Fillion
Currently working for Utilities Kingston

Wojciech Mierzejewski (MAsc) Oct '10
Supervisor(s): A.Z. Fam, C. MacDougall
Currently working for Shoreplan Engineering Ltd. Toronto

Please send comments and or news to:

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