



Queen's UNIVERSITY

CIVIL ENGINEERING

building

partnerships

LINKING CIVIL ENGINEERING FACULTY • STUDENTS • ALUMNI + INDUSTRY



FALL 05



Headlines

Welcome to the fifth edition of our Building Partnerships newsletter, and my first "Headlines" editorial". As you will read in the ensuing pages, research activity in this department is flourishing with a number of our faculty winning awards and honours. Our students continue to be very active - not only in taking part in engineering activities, but in undertaking very worthwhile endeavours in the community. The quality of our undergraduate students is exceptional, and each graduating class will no doubt make significant contributions to society. Many of the achievements of our students during the past academic year are highlighted inside this newsletter.

Our program is currently enjoying enrollment levels rivaling those that occurred in the late 1970's. We currently have over 275 undergraduates enrolled in second through fourth years and anticipate a graduating class in 2006 in the order of 85 students. Additionally, we have a record number of graduate students enrolled this fall, with over 100 students registered in PhD and Master's programs. These

large numbers are taxing our classroom and research facilities; however, it is encouraging to see such interest in our program.

We have a number of major initiatives being started this fall including the development of a revised curriculum to reflect the changes currently being experienced in the field of civil engineering. As part of the curriculum review, we will be canvassing alumni and industry to gain an understanding of what graduating students should possess in terms of desirable skills and knowledge. The department will also be developing a five year strategic plan, to chart our path forward. This will include a review of our teaching and research profiles, our facilities, marketing the department and overall operational issues.

The Department is continuing to strengthen our relationship with industry through research and undergraduate teaching initiatives such as the Job Network, Industry Open House, Engineering Forum, Curriculum Development, Collaborative Research and a successful fourth year industry based design course.

We are going to make an effort to give all our graduating engineers (past and present) an email address for life, which will likely be in the format name@civil.queensu.ca, so you can proudly demonstrate your heritage, if you so desire. We hope to have this in place by July 2006. If you would like to have access to this service, let me know by December 31, 2005.

I hope you enjoy the newsletter and if you have any ideas or suggestions about how you can help the department succeed or how the department can assist you in your endeavors, please contact me at hallk@civil.queensu.ca or phone (613) 533-2127. ☺

Kevin Hall

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ACI'S FPR COMPOSITE COMPETITION - NYC

On April 17th, 2005, Queen's sent a team of four undergraduate students, supervised by **Mark Green**, to compete in the American Concrete Institute's FRP Composites Competition held in New York City.



The team consisted of fourth year students **Liz Oldershaw** and **Brant Oldershaw**, and third year students **Nick Bronsema** and **Karl Repka**. The goal of the competition was to design and build a 1 m span beam, with maximum limits for height and width, constructed out of concrete and fibre reinforced polymers (FRP's). The results were excellent as the team went up against over 20 teams from around the world and came out on top. With 3rd place awards in the strength-to-weight category AND in the predictions category, Queen's had the Top Overall Performance and the Top International Performance in the competition. In fact, the loading mechanism was unable to break the Queen's beam and it is now on display in the foyer of Ellis Hall.

CONCRETE CANOE TEAM

Queen's Berserkers 2005 enjoyed a very successful year. This was also our first year of construction in the new Integrated Learning Centre which offered excellent facilities to expand on the technologies and construction techniques used by the team. The competition was held in Windsor, ON from May 5-8, 2005. The team finished 2nd in the races due to much paddling practice with our skilled coach Jim Raffan. The team learned a tremendous amount from the entire process and enjoyed working on the project. Goals for next year include exploring different techniques of designing and applying concrete that is lighter than water to eliminate reliance on buoyancy. The team would like to greatly thank all of our sponsors who helped make this wonderful project and experience possible.



CONCRETE TOBOGGAN TEAM

This year's Great Northern Concrete Toboggan Race was held by the University of Alberta in Calgary, with the actual race taking place at the site of the 1988 Olympics, Canada Olympic Park.



The Queen's Concrete Toboggan Team had one of its most successful seasons

ever with the 2005 team; "Queen's Cool Runnings". Our team placed Second overall, a highest standing ever for a team from Queen's. We also won the award for the Best Overall Toboggan Design; another Queen's First. Other notable accomplishments at this year's competition included: 2 successful and safe toboggan runs, the best braking deceleration of any toboggan at the competition and a top speed of 58 km/h. Furthermore, our toboggan design turned heads with its innovative rack and pinion steering system and unique fibre-glass moulded concrete skis. These accomplishments were also recognised within the Queen's community with the team's acceptance of the Queen's Engineering Society's Excellence Through Innovations Award for 2004-2005.

The upcoming 2006 GNCTR will be held in Montreal, Quebec and we are extremely excited about the potential of our newest team "Days of Thunder".

We would like to thank everyone for all of their wonderful support, from everyone at Ellis Hall to all of our sponsors. Without your aid none of these successes could have been possible.

Thank you!

THIS YEAR'S SPONSORS

AECON
Akins-Brewer Lumber Ltd.
Anchor Concrete Products Ltd.
Axim Italcementi Group
Brenntag Canada
Cadbury Adams Canada Inc.
Cement Association of Canada
CH2MHILL
Counterpoint Engineering Inc.
Cruikshank Construction Ltd.
Dufferin Concrete
Ellis Don Construction
Fisher Auto Parts & Equipment
Formula SAE Design & Race
Team of Queen's University
Halsall Associates Ltd.
Home Depot
Jim Raffan
Kinder Surprise
Kloosterman Holdings Inc
L.V. Lomas Ltd.
MetalCraft Marine Inc.
MMFX Technologies Corp.
O'Connor Associates Environmental Inc.
Peter Kiewit Sons Co.
Queen's Alma Mater Society
Queen's Engineering Society
Queen's Dept. of Civil Engineering
Queen's Faculty of Applied Science
RONA
Stantec Consulting Ltd.
Steve's Snowmobile Repairs
St. Lawrence Cement
St. Mary's Cement
M. Sullivan and Son Ltd.
Telus Mobility
TRAILHEAD
XCG Consultants



News & Notes

"NEW OPS"

Luke Bisby received \$104,468 to examine the high-temperature performance of fiber reinforced polymers. This work will further our understanding of the fire safety properties of these high-strength, non-corrosive and lightweight materials, which may be utilized in a range of building applications.



Bernie Kueper has obtained a \$560,000 research contract to develop and apply numerical models to investigate the remediation of soil and groundwater impacted by volatile organic compounds. Bernie has also been busy lecturing on this topic in shortcourses and at conferences around the world, and has recently returned from a week of teaching in Melbourne, Australia.



THE OUTSTANDING CONTRIBUTION MEDAL

Awarded to **Kerry Rowe** by the International Association for Computer Methods and Advances in Geomechanics for outstanding and seminal research contributions in geomechanics that have been adopted for basic research and practical applications, June 2005.



As one of five promising Queen's researchers, **Richard Brachman** received the Chancellor's Research Award. He is recognized for his innovative large-scale experiments. His research will assess the physical response of polymer liners and pipes used in manholes and landfill sites. The results will provide safe and economic methods to repair infrastructure, and contribute to the sustainability of the environment.

Ivan Campbell has been elected as a Fellow for both the Canadian Prestressed Concrete Industry and the American Concrete Institute.

INTERNATIONAL ASSOCIATION OF HYDRAULIC RESEARCH 2005 ARTHUR IPPEN AWARD

Congratulations to **Ana da Silva** on her selection as the winner of the International Association of Hydraulic Research 2005 Arthur Ippen Award. The Ippen Award was established by the IAHR Council in 1977 to memorialise Professor Ippen, IAHR President (1959-1963), IAHR honorary member (1963-1974), and for many decades an inspirational leader in fluids research, hydraulic engineering, and international co-operation and understanding. The Award is made biennially by IAHR to one of its members who has demonstrated conspicuously outstanding ability, originality, and accomplishment in basic hydraulic research and/or applied hydraulic engineering, and who holds great promise for continuation of a high level of productivity in this profession. The awards are made at the biennial congresses of IAHR, where the most recent recipient delivers the Arthur Thomas Ippen Lecture.

Ana traveled to Korea in September to receive her award and delivered the Ippen Lecture at the IAHR Congress. Well done Ana.



Industry Open House

**This year's OPEN HOUSE
was a GREAT SUCCESS
with 24 PARTICIPANTS!**

Thank you to this year's participants:

Ellis Don Construction
Canadian Forces Recruiting Centre
Golder Associates Ltd.
Armtec
Canadian Wood Council
Stantec Consulting Ltd
EBA Engineering Consultants
CH2M Hill
O'Connor Associates
Environmental Inc.
Halsall Associates Ltd
Ontario Society of Professional
Engineering
Utilities Kingston
City of Kingston
Peter Kiewit Sons' Co. Ltd.
Cruickshank Construction Ltd.
Llynlea Corporation
Trow Engineering
Ministry of Transportation
McCormick Rankin Corporation
J.L. Richards & Associates Ltd.
Materials and Manufacturing
Ontario
Career Services QUIP
Sernas Group Inc.
Centre for Water and the
Environment

Next year's Industry Open House

will be held on

Thursday, January 26/06.

Please contact Cathy Wagar
if you wish to participate:

613 533-6000 ext 74227

Or email:

wagarc@civil.queensu.ca

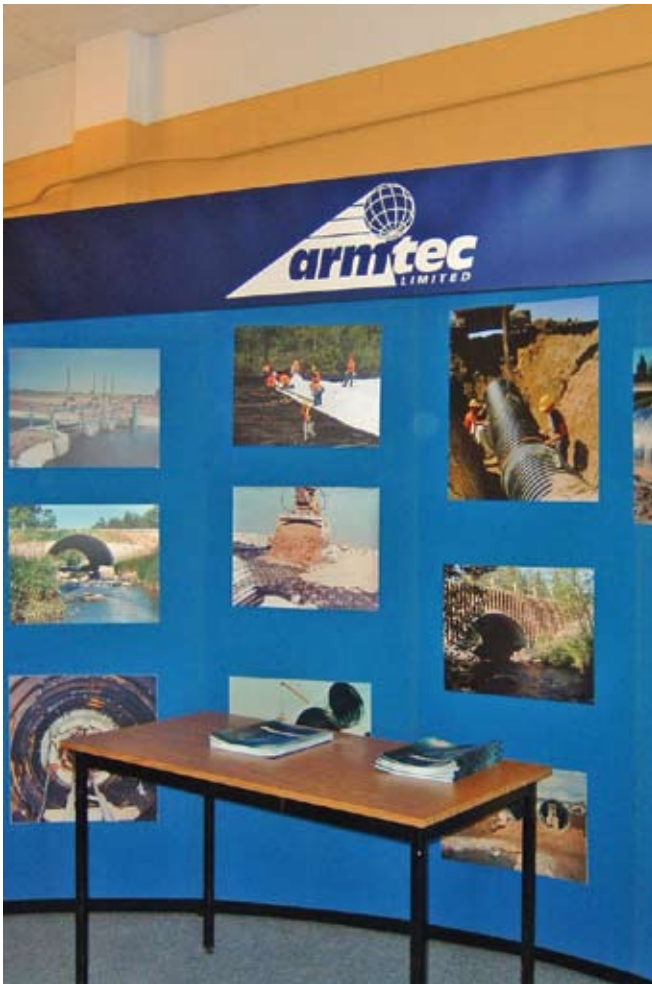


INDUSTRY OPEN HOUSE

Our 8th annual Industry Open House was held on January 27, 2005 with 24 companies participating. The days events began with registration and setting up displays followed by presentations to the visiting companies outlining the Departments programs, activities, and initiatives. Next the itinerary allowed for our guests to attend the Robert and Joyce Jones Forum while enjoying a pizza lunch and a brief break afterward before opening the doors to the main event.

During the afternoon students had a chance to meet with representatives of the companies, see their displays and find out more about each company. Fourth-year student teams prepared posters which were on display showing the work that they had done on their Industry Design Project for CIVL467. After these activities and before heading home the participants and event organizers went to the University Club to relax and have dinner, which was sponsored by Materials and Manufacturing Ontario (MMO) and greatly appreciated.





Stantec Award for Excellency in Industry Design winners: Kenny Cheng; Meredith Briglio; James Orr

INDUSTRY-BASED DESIGN COURSE

A special thanks to all our industry partners who have so generously given of their time to share their expertise and provide invaluable mentorship to our fourth year students undertaking their final year capstone design course – CIVL467. The following partners were involved during the past academic year: Baird & Associates, Cataraqui Region Conservation Authority, CH2MHill, Cruickshank Construction Ltd, Llynlea Corporation, McCormick Rankin Corporation, Stantec Consulting Ltd, Timber Systems, Yolles Engineering, and financial support was provided by MMO.

If your company would like to suggest a design project, please contact Kent Novakowski at kent@civil.queensu.ca





BRUCE ANDERSON—HOW I SPENT FOUR MONTHS IN CHINA:

As the China Scholarship Council Visiting Senior Scholar in the Institute of Biodiversity Science, School of Life Science, Fudan University Shanghai, I was able to do a lot of visiting of and discussion about, research installations, a lot of teaching about stormwater management planning and engineered phytotechnologies, and a lot of touring and eating. All activities allowed me to make some new and valuable contacts (in Shanghai, Suzhou, Nanjing, Beijing and Guangzhou), and I fully expect that these partnerships will grow over the coming years.

WELCOME TO CIVIL!

Andy Take joined us as an Assistant Professor in September 2004. Andy's research interests are in the area of Geotechnical Engineering .

Pascale Champagne joined us as an Assistant Professor in July 2005. Pascale's research interests are in the area of Passive Treatment Systems, Sustainability and Development of Alternate Waste Management Strategies .

Leon Boegman joined us as an Assistant Professor in September 2005. Leon's research interests are in the area of Environmental Hydraulics Specializing in Stratified Flows in Lakes and Oceans.

FAREWELL

We would like to thank **Moe Hussain**, Director of the Centre for Water and the Environment (CWE), for 5 years of service. Moe is returning to his position as Director, Strategic Research at Health Canada. We wish Moe all the best.

STRAW-BALE CONSTRUCTION

Earlier this year, well known straw-bale builder Chris Magwood, who presented at the Robert&Joyce Jones Civil Engineering Forum this past winter, asked **Colin MacDougall** and **Steve Vardy** to test an earthen-plastered straw-bale wall. For building official approval a test wall had to



withstand 23.5kN/m under monotonic compression. About a dozen students from Sir Sanford Fleming made the trek from Haliburton to build the 8' by 8' wall. Steve Vardy and Brendon Taylor then prepared the wall for testing. The wall was fitted with two 100kN load cells, seven displacement transducers, and two hydraulic rams. Paint was also applied to wall so that **Andy Take's** displacement-tracing photo program could be used. At the end of May, the wall was tested and the ultimate load of the wall peaked at an impressive 30kN/m. The building permit was approved and construction is currently underway in Haliburton.



Where Are They Now?



The faculty, staff and students of the Department of Civil Engineering would like to wish **Dave Turcke** all the best as he moseys on out into the sunset, wearing his new, shiny cowboy belt buckle. Dave's humble beginnings as a truck driver for Elmhurst Dairies formed the basis for his first appointment at Queen's as an assistant professor in this Department in 1974. Since then, Dave's easy going character was backed by a strong commitment to improve the educational experience for all students in this department – an initiative that he was highly successful at. As a colleague, or as a boss, Dave always treated everyone with respect and support. Super Dave, have a blast.

On a personal note, I first met Dave in 1976, when he was the professor in a structural theory course I was forced to take – Dave was one of the best. Through the past 30 years, I have had the privilege of working with Dave in an industrial setting and while at Queen's. Dave has been a great mentor and friend, always freely dispensing sound advice. I owe you Bucko!
by: Kevin Hall

KAITLYN PALMER B.SC.'00

I enjoyed my four years of undergraduate engineering (Civil, Environmental) at Queen's so much that after graduating in 2000, I decided to do a course-based Master's Degree in Civil (Hydro-technical). While completing my Masters I also managed Clark Hall Pub and worked as a Teaching Assistant in the department. After putting off working in the "real world" for an extra year and a half, I moved home to Toronto and accepted a position working in Municipal Stormwater Engineering at Stantec in Markham. I enjoyed the challenge of applying what I had learned in my years at Queen's to tangible projects, but realized that engineering as a career was not the best match for me. The process of choosing a new path was unnerving; there were so many potential opportunities. I recognized that one of my most enjoyable experiences was working as a T.A., and that lead me to teacher's college. I graduated, yet again, last May and have been working in the Toronto area teaching high school math and physics. This first year of teaching has been intense, but I love being in the classroom guiding future engineers.



ANNUAL ISIS CONFERENCE

OTTAWA, MAY 2005
AWARD WINNERS:

Poster Competition

"Clearest Message: Theme 2"

Ershad Chowdhury & Xiumei Duan

Poster Competition

"Clearest Message: Theme 3"

Sarah Foster & Kevin MacLean

Joanne Kesselman Scholarship for Women in Engineering winner:

Sarah Foster

"Best Graphics"

Andrew Kong

FUNDRAISING TO REBUILD CIVIL ENGINEERING

Dave Turcke (Civil faculty 1974 to 2005) and **John Redfern** (former CEO Larfarge Canada and Science 57) are currently on a mission to upgrade our laboratories. The department has ambitious plans to upgrade structural, geotechnical and hydraulic laboratories to the tune of \$10 million. Dave and John will be visiting civil industries and alumni in an effort to raise a significant portion of this capital. If you can help in any way, either by donating or providing assistance with the fund raising, please contact Dave at turcke@civil.queensu.ca.

CONGRATULATIONS

Mike Cho-Chu (MSc Eng) March '05
currently working for Accenture in Toronto, ON

Sue Trickey (MSc Eng) April '05
currently working for Golder Associates in Ottawa, ON

Matt Kennedy (MSc Eng) July '04
currently working for Golder Associates in Vancouver, BC

Shulian Li (MSc Eng) Sept '04
currently working for Sigmund Soudack & Associates Inc. in Toronto, ON

Andreas Georghiou (MSc Eng) Sept '04
currently working for Structure Workshop in London, UK

Brian Lapos (MSc Eng) Sept '04
currently working for Golder Associates in Toronto, ON

Andrew Kong (MSc Eng) June '05
currently working for Carl Walker Inc., in Philadelphia, PA

Tarek El-Tahawy (PhD) Nov '04
currently working at Helwan University in Egypt

Aaron Dent (MSc Eng) Jan '05
currently working for Halsall Associates Limited in Sudbury, ON

Dan Babcock (MSc Eng) Apr '05
currently working for Golder Associates in London, ON

Siebren De Jong (MSc Eng) May '05
currently working for Dr. Colin MacDougall

Mike Laska (MSc Eng) Apr '05
currently living in Ottawa, ON

Heather Lindsay (MSc Eng) Apr '05
currently working for AMEC in Mississauga, ON

Joan Ng (MSc Eng) Jan '05

Stephen Anthonio (PhD) Jan '05
currently living in Ghana

Hanakumbo Mwang'onze (MSc Eng) July '04
currently living in Vancouver, BC

Vernon Brown (MSc Eng) Aug '05

Ershad Chowdhury (MSc Eng) Aug '05
currently enrolled in the PhD program in Civil Engineering at Queen's.

Siddwartha Mandal (MSc Eng) Nov '04

Paul Hurst (MSc Eng) Jan '05
currently working for Golder Associates in Ottawa, ON

PLEASE SEND COMMENTS AND/OR NEWS TO:

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