

Message from the Chair



We had our first board meeting for 2010-2011 on March 9th when I was acclaimed as chair for the second consecutive term. I would like to take this opportunity and thank all the chapter members who attended the AGM and supported the slate of candidates. I would also like to thank all the elected members who trusted me to lead our chapter for another year.

Our annual general meeting (AGM) in March, combined with our first 2010 certificate presentation ceremony, was very successful. It was even mentioned in the Professional Engineers Ontario (PEO) weekly government liaison report as an example of a triumphant chapter AGM and certificate presentation ceremony. We had a committee of six board members who organized the event for several weeks, and they were one of the reasons why it went well.

We welcomed several guests from the Ontario legislature, PEO, University of Waterloo, and our neighbour chapters. Our honorary speakers for the night were Willowdale MPP David Zimmer, then PEO president-elect Diane Freeman, P.Eng., and University of Waterloo provost and vice-president Feridun Hamdollahpour,

P.Eng., Ph.D. A group picture of newly-minted professional engineers at the ceremony has been posted on our website at www.wtpeo.org.

For the first time in our chapter's history, we recognized and awarded three veteran board members, with a certificate of appreciation award. Their commitment to our chapter went beyond the defined responsibilities of their positions.

Again, for the first time in our history, we circulated an official nomination form for members, interested in joining the executive board; it was sent to all members and was attached to *The Chronicle* prior to the AGM. We hope that this increases the possibility of recruiting more committed people to the board, while not limiting members from contributing to chapter activities. The form is posted on our website if you are interested in joining.

Moreover, we made changes to the by-laws to facilitate a smooth and more practical succession plan for the executive board; these by-laws were approved at the AGM and are posted on our website under "About Us."

We have a very busy term ahead of us with several different events planned, including at least 10 seminars and tours, EIT networking night, student outreach, a mentoring program, and scholarships, all on top of our regular certificate presentation ceremonies and newsletters.

In the end, I invite you to join our committees and help plan our many events and programs. I look forward to working with you all.

Regards,
Changiz Sadr, P.Eng.
Chair, Willowdale/Thornhill PEO Chapter



Jamil Mardukhi, P.Eng., spoke to a structural engineering class of Willowdale/Thornhill vice chair Nanda Lwin, P.Eng., at Seneca College on April 15, 2010. Mardukhi spoke about the construction, design and ongoing structural maintenance of the CN Tower. Lwin teaches at Seneca's School of Civil Engineering Technology. From left to right: Mardukhi, chair Changiz Sadr, P.Eng., Lwin.

THE CHRONICLE

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Willowdale-Thornhill PEO Chapter Executive

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The Chronicle publishes articles of interest to the membership of Willowdale-Thornhill Professional Engineers Ontario (PEO) Chapter. The content of this newsletter does not necessarily reflect the opinions or policies of the council of PEO, nor does the PEO assume responsibility for the opinions expressed herein.

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ENGINEERING NOTES by Nanda Lwin, P.Eng.

Looking Back at Haiti's Tragic Earthquake

Lack of proper building code and construction techniques caused hundreds of thousands of deaths

When disaster strikes a community and destroys physical infrastructure, civil engineers are at the forefront explaining what went wrong and what could have been done to prevent such devastation. Cases in point: the aftermath of 9/11 and Hurricane Katrina. The disastrous earthquake in Haiti earlier this year was no exception. After 9/11, I was asked how the World Trade Center, could be brought down in a matter of minutes. More than eight years later, I am now teaching civil engineering technology at a community college, and I get asked how the effects of the earthquake could have been so devastating.

On January 21st, I found myself in front of my Engineering Problems and Statics class explaining the best I could what exactly went wrong in Haiti. Being here in Toronto all that time, I was by no means an authority to speak on the subject, but from what I could gather I made my best attempt to piece together the civil engineering aspect of the earthquake.

According to the U.S. television network NBC, assessment personnel estimate 65 percent of all buildings in the country have collapsed or are critically damaged, including 13 of the 15 government buildings, half of the schools, 30,000 businesses, and about 250,000 homes.

Questions that abound are predictable. Why wasn't Haiti's infrastructure prepared to take the brunt of a brutal tremor? Weren't the buildings built strong enough to withstand the impact of a 7.0 earthquake? Could engineers have done more to prevent the tragic aftermath of the quake?

The answers to those questions are painful. Many structures in Haiti were not built with seismic design considerations in mind. Pho-

tographs of multistory buildings reviewed by experts show that many of the structures in Haiti have very slender columns holding up very heavy concrete slabs. According to Anne Kiremidjian, a professor of civil and environmental engineering at Stanford University in the U.S., the photos also show that the amount of steel reinforcement in much of the concrete members was minimal, and in some cases, not present at all. (Steel reinforcement bars are embedded to give concrete structures its strength when in tension). Kiremeidjian wrote in CNN.com that this type of construction is appropriate for non-earthquake zones, where the structure is expected to mainly sustain vertical loads, and not the horizontal loads associated with earthquakes. It is because of the minimal reinforcement and the slenderness of the columns, the columns failed, eventually bringing down buildings.

It has also been reported that there were problems with the connections in concrete structures. The columns were not connected properly to the beams and floor slabs. At such interfaces, additional steel bars that run from the columns to the beams must be in place to efficiently transfer the loads between structural members. Sadly, this was not the case in Haiti.

Furthermore, Haiti has no viable building code that establishes a uniform standard of constructing buildings. Haiti needs a code that takes seismic risk into consideration and is sensitive to the country's environment and its prevailing poverty. As Professor Sri-ram Narasimhan of the University of Waterloo sees it, in order for a new code to work in Haiti, it should depend on cheap, local material, be enforceable by Haitian authorities, and establish standards that can be easily followed.

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A heavy dependence on expensive imported building material and reliance of foreign consultants will make the new Haitian code a non-starter.

A proper building code, coupled with Haitian engineers being trained for earthquake design, can improve the situation. However, there is one barrier that prevented sound earthquake design and proper building codes from saving Haiti from the devastating effects of the deadly tremor: money or lack thereof. In the final analysis, it wasn't the earthquake itself that killed. Abject poverty in the tiny Caribbean country was the killer.

Poverty results in a lack of research and guidelines to construct buildings earthquake-resistant. And if they exist, building codes are not complied with, and are difficult to enforce. It means buildings are built on the run and cheaply.

If Haiti rebuilds itself learning the lessons of the 2010 earthquake, hopefully the effects of the next quake will be less devastating.

Nanda Lwin, B.A.Sc., MEPP, P.Eng., is a professor of civil engineering technology at Seneca College. He is a journalist and the author of several books. He can be reached at nanda.lwin@wtpeo.org.



Willowdale/Thornhill Professional Engineers Ontario (PEO) chapter delegates get political and meet Ontario Progressive Conservative leader Tim Hudak, MPP, at the PEO annual general meeting and public policy conference at the Hilton Toronto on May 7, 2010. From left to right: Willowdale/Thornhill vice-chair Nanda Lwin, P.Eng.; Hudak; chair Changiz Sadr, P.Eng.



Willowdale/Thornhill PEO chapter vice chair Nanda Lwin, P.Eng. (centre) with Transport Minister Kathleen Wynne, MPP (left) and Willowdale MPP David Zimmer (right), at a fundraiser for Zimmer, held at the University Club on May 7, 2010.



The Willowdale/Thornhill PEO chapter visited Downsview Park on April 30, 2010. The park is presently being developed for recreational, commercial, and residential uses. During the tour, Downsview Park president Tony Genco (left) points out some points of interest to Bogdan Damjanovic, P.Eng. (centre), owner of Express Employment Professionals, and chair Changiz Sadr, P.Eng (right).

Education Committee Set to Inspire Students to Pursue Engineering

By Ramona Mirtorabi, P.Eng.

Education Committee Chair, Willowdale/Thornhill PEO chapter

The Willowdale/Thornhill PEO chapter's education committee has planned several activities for the 2010-2011 term. There are several volunteering positions available; we require help organizing and attending these events to support our community. Work on the committee requires a few hours each month contacting different organizations, writing proper documents, organizing meetings and attending events.

Scholarship Program

Scholarships are available for Grade 12 students who have already been accepted to an engineering university program in Ontario. At press time, Willowdale/Thornhill Chapter is working with the two school boards to identify successful candidates for the scholarships.

Mentorship Program

The committee plans to hold meetings with organizations such as COSTI, Skills for Change, and ACCES. We hope to provide help to their clients who hope to receive their engineering license and to work as a professional engineer in Ontario.

Mathletics Competition

The Mathletics Competition is an education-related event for elementary school students up to Grade 8. Parents and teachers who watch the show may find it educational too! This event focuses on exposing the practical use of mathematics in day-to-day life of science and technology.

This event has been hosted by the Scarborough PEO chapter for several years. Wil-

lowdale/Thornhill will welcome this competition in our chapter in October 2010 with help from our friends in the Scarborough chapter. Prizes will be awarded groups of students who have the most corrected answers.

Bridge Building Contest

Another exciting PEO event to challenge the minds and creativity of young students is bridge building competitions. Willowdale/Thornhill Chapter will host its own Bridge Building Contest, open to Grades 3 to 8 students, in February 2011 during Engineering Month. Students are invited to design, build and test a bridge made of Popsicle sticks that weigh less than 250 grams. Participants are free to create their own designs while meeting span and width requirements. They will have an opportunity to display a wide variety of designs for examination by professional bridge designers and builders, who will act as judges for the competition. These judges will also assess the ability of their technical knowledge and presentation skills. At the end of the day the bridges will be tested to find their maximum load-bearing capacity.

How to Contact the Education Committee

Willowdale/Thornhill PEO chapter's education committee will be very active during 2010-2011.

E-mail: education@wtpeo.org OR ramona.mirtorabi@wtpeo.org.

Web: www.willowdalethornhill.peo.on.ca



Willowdale-Thornhill PEO member Mohsen Monfared, P.Eng., poses for a picture with author Tapan Das, P.Eng. Das spoke to the chapter about his book *Why Astrology is a Science* on March 31, 2010, at Fairview Library.



Politicians and engineering big-wigs took over the show at the Willowdale/Thornhill PEO chapter's annual general meeting and certificate presentation on March 7, 2010 at Holiday Inn Markham. Left to right: PEO councilor and Markham city council candidate Thomas Chong, P.Eng., Willowdale/Thornhill PEO chapter chair Changiz Sadr, P.Eng., PEO then president-elect Diane Freeman, P.Eng., and Willowdale MPP David Zimmer.

Parting Shots...



Willowdale/Thornhill PEO chapter executives at the Engineering Internship Training (EIT) Networking Night, held at Pleasant View Library on May 25, 2010. From left to right: secretary/EIT chair Vimbai Munyukwi, P. Eng.; Ramona Mirtorabi, P.Eng.; Hamid Tabrizi, EIT.

On March 6th, 135 people were in attendance for the **certificate presentation** held at the Holiday Inn at Steeles and Woodbine Avenues. A total of 46 new professional engineers were granted their licenses. Guest speakers included Willowdale MPP **David Zimmer**, University of Waterloo Provost & VP Academic **Feridun Hamdullahpur, P.Eng.**, and PEO president **Diane Freeman, P.Eng.** A dance disc jockeyed by “**DJ Wild Bill**” **Wilson** followed the ceremonies.

An exclusive tour for Willowdale/Thornhill PEO members of **Downsview Park** was held on April 29th offering a look at the giant urban park’s present development program. A presentation was held at the head office of the park’s corporation, followed by an outdoor tour of the park. The presentation and tour was hosted by Downsview Park president **Tony Genco**.

Engineering Internship Training (EIT) Networking Night was held at Pleasant View Library on May 25th. The aim of the meeting was to discuss the various programs that the Willowdale/Thornhill PEO chapter and the PEO’s EIT program offer. The evening included summaries from various chapter committees and remarks by Willowdale/Thornhill PEO chapter EIT chair **Vimbai Munyukwi, P.Eng.**, and chair **Changiz Sadr, P.Eng.**

Tapan Das, P.Eng., author of *Why Astrology is a Science*, spoke with members of the Willowdale/Thornhill PEO chapter on March 31st at Fairview Library. Almost 50 people came out to hear Das speak of the link between the stars and scientific principles.

Another seminar of note came from former Willowdale/Thornhill PEO chapter executive **Bogdan Damanjovic, P.Eng.**, who talked about the high cost of employee turnover. Held on April 28th at Fairview Library, Damanjovic’s seminar, “Love’em or Lose’em: Retention Strategies for Engineering Managers,” provided tips and strategies for developing an employee retention program and to become a favoured employer in the eyes of jobseekers.