

CHAIRMAN'S ADDRESS CONTD.

details are available from members of the committee (listed hereunder).

In this our Centenary Year, the Institution will have its first ever female President, Sarah Buck. Hopefully the election of Sarah to the highest honour in our profession will be an incentive for more girls to enter this very exciting and rewarding profession. Sarah, together with our Chief Executive, Dr Keith Eaton, will attend the Annual Dinner of the Branch, which will be held in the Herbert Park Hotel, Ballsbridge, on Friday, 9 November. I strongly encourage members and friends to attend this very convivial event. This year's guest speaker will be Mr Fred Barry, Chief Executive of the National Roads Authority.

In conclusion, I would ask members to support our schedule of events, involving lectures, seminars, etc. The Branch gives significant thought to its events and they are organised for your benefit. In an ever demanding and ever changing profession it is vital that we are up to date in our knowledge. Accordingly the Branch would ask all members to maintain their professional competence through Continued Professional Development.

Martin P. Mannion, Chairman

COMMITTEE FOR THE 2007-2008 CENTENARY SESSION

Chairman	Martin Mannion
Vice Chairman	Pearse Sutton
Immediate Past Chairman	Declan Monaghan
Honorary Secretary	Peter Finnegan
Honorary Treasurer	John Dunny
ETRO	Joe Ryan
Committee Members	
	Paddy Butler (Website)
	Jim Caffrey (Engineering Practice Committee)
	Colin Caprani (Newsletter & Centenary)
	Gavin Hughes (Graduates and Students Rep.)
	Joe Kindregan (Centenary Chair)
	Paul Sexton (Session Programme)
IEI Liaison	Jim Caffrey
Corresponding Members	Eamonn Cannon Peter Anthony
Secretarial	Una Cribbin

For this centennial year, the IStructE 'year' session runs from September '07 to December '08. It is anticipated that all subsequent IStructE sessions will then run for the calendar year. This change may have implications for the timing of some of the yearly events. The committee will be

reviewing this change and will consult with members as appropriate.

For queries or comments, you can contact the committee at:

Dept. of Civil & Structural Engineering,
Dublin Institute of Technology,
Bolton Street,
Dublin 1.
Telephone: 01-402-3635
Email: info@istructeroi.org.uk

STUDENT PRIZE EVENING

On 9 October the Branch held an evening meeting at which the nominees from each college for the student prize presented their work. Those who presented were:

- Finian McCann & Colm Gannon, *Three-Dimensional Frame*, National University of Ireland, Galway;
- Diarmuid Healy, *Composite Construction*, Cork Institute of Technology;
- Colm Morrin, *Shear Strengthening of RC Beams Using HSFG Bolted Steel Plates*, Dublin Institute of Technology, Bolton St.;
- Martin Allen & Pok Man Tang, *Design a Bridge to Span 3 Kilometres*, University College Dublin.

The judges – Greg Daly, Fiona Purcell and Kevin Pepper – were very impressed by the standard of work presented, and found it extremely difficult to determine the winner of the Overall Branch Student Prize. However, Finian McCann and Colm Gannon of NUI Galway particularly impressed the judges with their work on the programming of the flexibility method and they win the prize this year. The others receive both a scroll from the Institution and a small gift from the Branch, in recognition of their achievement and work in nomination and presentation.

CHARTERED MEMBER EXAMINATION PREPARATION COURSE

The date for the next C.M. examination is Friday 16 April 2007 and a preparation course for engineers planning to sit the exam will be held in the Dublin Institute of Technology, Bolton Street, Dublin 1, between 6.30pm – 9.30pm on Mondays – 18, 25 February and 3, 10 March 2007.

The course covers the examination format, examiners' expectations, design concepts and short-cut analysis. Participants will be grouped and assigned a past paper question each week. A presentation of the solution will be presented by each group on the following week in order to facilitate open discussion by course participants and guest presenters.

The course fee will be €260 which will include hard copies of all previous past papers. Further information may be obtained from Joe Ryan at 01-2832967 or Ms Una Cribbin at 01-4023635.

Joe Ryan, Hanley Pepper

BRANCH WEBSITE

The Branch's website has much information on Structural Engineering in general, but also on the particular activities of our branch. Most significantly, the branch website holds a News Archive of articles appearing in the newsletter, going back many years. This repository should be of interest to members looking for similar projects, or to students researching projects.

Sections on current news, as well as links to important engineering websites also feature.

Members are encouraged to use the website, and any feedback is welcome. We hope for it to be a major conduit between the committee and members.

The address, through the main IStructE website, is:

www.istructeroi.org.uk

STRUCTURAL INFORMATION SURVEY

The challenges facing Structural Engineers have changed. New techniques and new materials are being used in many situations and our increased ability to analyse structures in more detail means that our understanding of their basic properties and performance also needs to be more detailed. The structures we design also have to make their contribution to the low carbon, sustainable solutions that are required today.

The Institution's Research Panel would like to establish whether or not a lack of information is affecting our ability to provide the best answer for our clients. In order to do this we have set up a simple web-based survey in which members can identify topics where they have had problems.

Responses will be collected up until 31 January 2008, but we would urge you to respond sooner rather than later. The results will be analysed and a strategy put in place to begin to resolve the issues that emerge.

The survey can be accessed at: www.istructe.org/news/.

TECHNICIAN MEMBERSHIP (TStructE)

The IStructE launched the technician grade of membership earlier this year, and has now elected its first Technician members.

Technician Membership of the Institution of Structural Engineers (TStructE) is the gold standard for anyone working as a structural engineering technician. It will recognise and support the thousands of engineering professionals such as CAD operators, structural detailers, site supervisors, estimators and risk assessors, and acknowledge their valuable contribution to the art and science of structural engineering.

IStructE's first two Technician members, Phil Lightfoot and Glenn Miles have now completed all of the Institution's requirements and were recently elected. "It's recognition of all the years of hard graft. It's recognition from my peers that I've achieved something," sums up Phil

Lightfoot, senior structural technician at Scott Wilson, who was the first to submit his application. "I want people to come into this industry and have the goal of being a Technician member. In my opinion, it is as much of a critical role as becoming a Chartered engineer," says Glenn Miles, associate director at HSP Consulting, Glenn sees Technician membership as a pinnacle for this side of the profession.

Sarah Buck, President for IStructE's Centenary session (2007/08), chaired the membership committee during the new grade's development process. She remarked: "The Technician grade of membership is something I'm really keen to promote during my time as president. At long last we can enable everyone involved in structural engineering to belong to IStructE." As a director of BSW Consulting, Sarah is also an employer of technician engineers. "The grade will provide increased credibility with clients, attract the best recruits and provide a structured staff training framework."

The IStructE is holding roadshows to promote the new membership grade and encourage applications. The Technician grade roadshows will be a great opportunity to find out more about the grade and network with key people from the structural engineering community. Employers, consultants and contractors and IStructE will explain the benefits of Technician membership and who should apply.

Details of the roadshow in Ireland will be circulated to members when the date and venue is confirmed.

GRAND CANAL SQUARE HOTEL

The complex steel superstructure of the luxurious Manuel Aires Mateus designed hotel, in the heart of Dublin's Docklands, is currently nearing completion. "The building was originally designed as a concrete trapezoidal bridge structure, but due to a number of programme advantages afforded by steel, the decision was made to change to a steel frame," explains Denis McNelis, Engineering Director of Andrew Mannion Structural Engineers (AMSE) – structural steel contractors on the project.

AMSE together with ARUP have since undertaken to deliver a highly complex alternative and one of the most innovative steel designs ever seen in Ireland. The hotel features an eye-catching and dramatic column-free lobby, which required a storey-deep transfer structure consisting of primary and secondary trusses, supporting a six-storey beam and column frame. This open plan lobby area is only interrupted by the three main cores, which will house lifts and staircases.

The lobby will be one of the hotel's main architectural features, says Ray O'Connor, Senior Project Engineer for ARUP. "The ultimate design aim is to give the impression that one is looking through a large hewn opening in solid rock. The lobby interior will eventually be clad around the cores to resemble rock and a clear view from street level will be afforded straight through the structure."

The transfer structure consists of four primary trusses or girders, each measuring 11m long x 3.5m high and each weighing 40t. The loads from the building are transferred to the primary trusses through 12 secondary trusses that run along the length of the building at the same plain. Further complicating the design a cantilever of 4.5m out from the secondary trusses extends around two sides of the structure.

At AMSE's fabrication yard full penetration butt welds were required at every joint on the transfer structure, with 3.5m long bolted splices to connect the secondary trusses to the primary trusses. "The welding alone took three months," says Mark Hayes, Production Manager at AMSE. The most heavily loaded connection between the 65m multi-span secondary truss to the primary truss is transferring a huge 3,000t force through 100-bolt connections. Furthermore, every connection on the transfer structure was individually

designed. "There is no repetition, they are all unique," adds Mr. McNelis.



The huge loads being transferred between the trusses, and the large number of boltholes that had to be aligned, meant that tolerances available for erection were extremely tight. Careful planning in terms of connection design, detailing and fabrication was therefore required, to allow the structure to be lifted into position smoothly.

Another complex issue that had to be overcome was the fact that the corners of the cantilever are actually trying to twist the building. To stop the twist more than 100t of bracing was used to tie back the cantilever corners. Providing extra stability, the transfer structure is held in position by a number of rock anchors buried 2.5m deep into the concrete walls with 100mm thick base plates.



Phased steelwork erection of the upper stories poses further challenges, as the architectural chequerboard pattern design is actually part of the frame, rather than just a style gesture. The steel columns had to be offset relative to the floor below at alternate levels to accommodate the position of the building's glazed panels, and to achieve a thin continuous vertical joint. "Basically the cladding dictates this part of the project," explains Mr. McNelis.

Summing up a unique steel project Managing Director of AMSE, Andrew Mannion, says "In terms of design this project is the most complex and challenging project we have ever undertaken. The job also presented significant fabrication, erection and design challenges, to match the architectural vision."

Pierse Contracting are the main contractors on the project and completion is scheduled for Summer 2008.

Ross Kane, Andrew Mannion Structural Engineers



This newsletter is sponsored by AMSE

The Institution of Structural Engineers

Republic of Ireland Branch

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Edited by Colin Caprani: colin.caprani@dit.ie

CHAIRMAN'S ADDRESS

At the outset I would like to take this opportunity to express a sincere thank you to the outgoing Chairman, Declan Monaghan; Hon. Secretary, Peter Finnegan; Hon. Treasurer, John Dunny, and the other members of the committee, for their very professional management and organisation of the Branch over the past two years. They organised and ran several very successful events during their tenure, culminating in a recent seminar, "Deep Basements," that attracted close to 100 people. Most of the events were held in the capital city but two very well attended evening lectures were held in Cork. It is my intention to continue the trend of holding some lectures and seminars outside of Dublin, not only in Cork, but also in other regions. To this end I would welcome suggestions from members as regards topics and locations.

Our candidates have once again performed very well in the Institution Examinations - my sincerest congratulations to all. The Branch continues to have one of the highest pass rates of all Institution Branches. I would ask members to continue to encourage graduates to take the Membership Examinations.

Our third level institutes continue to produce very well qualified civil and structural engineering graduates. There have been some innovative developments in some of these institutes as, for example, the architectural/structural engineering degree in UCD. It is also important to note that a four year dedicated BEng (Honours) Structural engineer degree at CIT has received full accreditation from IStructE.

We have seen an unprecedented boom in the Construction Industry here in Ireland over approximately the past 10 years. Naturally this has resulted in exceptional employment prospects for our members. Not only were there plenty of job opportunities but also the complexity, quality and time scale of projects placed great demands on our members. I am happy to say that we rose to the challenge and that many of our projects will be a lasting tribute to the profession. We now appear to be entering more subdued times but I am



confident that the demand for the professional services of our members will continue – in fact there is worldwide shortage of professionally qualified Structural engineers. Here at home we must continue to improve our physical infrastructure and I earnestly hope that the Government will press forward with Transport 21. Not to do so would be a major retrograde step, both socially and economically. As never before we have the engineering expertise here at home to design and construct the most complex, economical and aesthetic structures. It is paramount that we convince the Government to make use of this expertise and to press forward with the plans proposed prior to the general election.

I should also like to refer to the matter of Safety. In 2006 there were 12 fatalities in the Construction Industry with a further 13 to date in 2007. Considering the numbers working there compared to the numbers using our roads, this makes the area a rather unsafe one indeed. There are very good criteria laid down for the industry and the construction firms adhering to these have excellent safety records. Regrettably there are some who place a low priority on safety and in many cases turn a blind eye to the regulations. The Branch is naturally very concerned with safety and the protection of its members. Accordingly we are presenting a lecture on the topic on 20 November in DIT, Bolton Street and we have plans to hold a seminar some time later.

Members will be aware that the Institution was founded in 1908 - as the Concrete Institute - and will thus be celebrating its Centenary this coming year. The Institution received its Royal Charter in 1934 and now has over 20 000 members worldwide, located in over 100 countries - the Republic of Ireland Branch has some 700 members (some of whom are students). The Institution continues to promote excellence in the field of structural engineering and the Centenary provides us with a special opportunity to highlight the technical and professional competence of our members. The ROI Branch is preparing a special publication to mark the Centenary. One of the most important Centenary events is the Centenary Conference, "Turning ideas into reality," which will be held in Hong Kong from 24 to 26 January 2008. The Branch encourages its members to attend and

