As I end my term as Chairman of our Regional Group I would like to take this opportunity to say how honoured and privileged I have been to hold this position. My role as chair has been made very easy by the incredible support provided by all of the committee members.

Over the year our committee have been very active organising events, competitions and evening papers all for the good of Structural Engineering.

Our 2013 year started with the annual dinner and whilst attendance was down on previous years, we had a relatively good turnout and an enjoyable evening was had by all. The 2014 dinner has seen a change of venue in order to reduce costs and encourage greater attendance. This event is for our members and is an excellent opportunity to socialise and network with colleagues, clients and friends.

February 2014 also sees the commencement of the CM examination course. We had 5 candidates prepare for the exam in 2013. In total 8 candidates sat the exam in April and we are pleased to report a pass rate of 62.5%, well above the worldwide average pass rate of 33.1%. I would like to take this opportunity to extend congratulations to those candidates who were successful in the exam. The exam remains one of the hardest professional body examinations worldwide and the Chartered status awarded to successful candidates is well sought after by Structural Engineers throughout the world. I would encourage all graduate engineers to focus on the CM exam and ultimately Charted status with the Institution of Structural Engineers. The 2014 exam date is Friday 25 April 2014 and this year specialist question nine will relate to glass structures and façade engineering. This question will run for two years, 2014 and 2015. The preparation course is currently ongoing.

Our committee has also seen change over the last year. Unfortunately we have lost some of our committee for various reasons. I would like to pay special mention to Dr Colin Caprani who was Hon Secretary for the last 6 years. Colin has taken up a post at the Dept. of Civil Engineering, Monash University, Australia and moved with family in 2013. Colin provided great support to the committee over the years and provided much valued guidance on many policies and decisions made over this time. I would like to take this opportunity to formally thank Colin for all his hard work and commitment over the years and to wish him and his family continued success in their new life.

We are also very fortunate to have Una Beagon as our new Hon Secretary. Already Una has been a key player in bringing...
Past Chairmans Adress continued from page 1.

Moving to Vancouver

by Victoria Janssens, EIT, BA BAI, PhD
Structural Engineer, Wicke Herfst Maver Consulting Inc., Canada

On January 16, 2012, I arrived in Vancouver for the first time. My boyfriend and I (both Structural Engineers) had made the decision to move abroad so that we could experience living and working in a different country. We considered moving to a number of different cities and countries, but in the end Vancouver proved to be the outright winner. Specifically, we were attracted to the outdoor lifestyle associated with the city: the North Shore Mountains are only a short drive from Vancouver’s city centre, which are host to skiing in winter and hiking in summer. This active lifestyle is complemented by Vancouver’s temperate climate which, due to its coastal location, lacks the extreme hot and cold weather observed elsewhere in Canada. In terms of work experience, Vancouver also offered the opportunity to gain experience in seismic design and to learn more about timber design.

Once the decision had been made to move to Vancouver, I applied for a visa under the International Experience Canada (IEC) which would allow me to work in Canada for one year. After this I would need to apply for a second (and final) one-year IEC visa which would allow me to continue living and working in Canada and give the time required to apply for permanent residency¹. In March 2011, I received the letter of acceptance for my initial Canadian visa and, in my spare time, started researching and planning for the big move. During this time, I started to look into potential employers as well as more mundane issues such as where to live, how to open a bank account, how to get a Canadian driving licence etc.

Before leaving Ireland, I did spend some time applying for engineering jobs in Vancouver but had little success. This was somewhat disheartening but I later learnt that applying for jobs from outside Vancouver is generally considered to be a pointless exercise. It is my belief that this may be largely attributed to the fact that employers do not want to get involved in the visa-related issues associated with hiring from overseas. Consequently, during the first few weeks in Vancouver, I spent a large amount of time

1 It is worth noting that the IEC program has undergone a number of changes in recent years and, since 2013, applicants receive a single two-year visa instead of two individual one-year visas.
in coffee shops filling out job applications, taking advantage of free public Wi-Fi. The Irish expats in Vancouver helped considerably during this time, bringing me up to speed on the local construction industry and offering invaluable advice on tailoring my resume to the Canadian market.

I naively expected it to be easy to find a job once I landed in Canada, but I soon learnt this was not going to be the case. The time taken to process job applications was frustratingly slow and it was very difficult to get any feedback on the applications I had submitted. When I did manage to get some feedback, the response from potential employers was very mixed and on one occasion I was shocked when an employer informed me that they were only interested in hiring Canadian applicants. Personally, this was difficult to take as I had what I believed was a very strong resume for a graduate engineer. After what seemed like forever (but was in fact only six weeks), I received and accepted a job offer from a local Structural Engineering Consultancy: Wicke Herfst Maver Consulting Inc. (WHM).

Soon after arriving in Vancouver, I also became involved in the Institution’s local Regional Group (acting as the Structural Engineering Association of British Columbia). This gave me an opportunity to expand my professional network in Vancouver and I have found it very rewarding to help organise technical and social events aimed at young structural engineers. The importance of networking in modern society cannot be emphasized enough, a fact that is particularly true for newcomers to a community; becoming involved in local professional, sporting or social groups is an excellent way to expand your network and meet new people.

Finally, in terms of lifestyle, Vancouver has lived up to our expectations. We spend winters skiing and snowboarding on the local mountains, while summers are jam-packed with hiking trips and weekend breaks to explore our new surroundings. On the downside, the cost of living in Vancouver is quite high and apartments tend to be very small (and expensive). However, that is a small price to pay for living in what is often voted as one of the best cities in the world.
In general it would be fair to say that the level of involvement for Structural Engineers in domestic construction has been limited, apart from high end one-off housing. Advice would be confined to foundations and roof structure design, inspection and stage payment certification and the design of isolated structural elements. In such cases, detailed calculations and documentation are rarely required; the time involved is generally limited and the level of fee is reflective of the effort.

Every now and then however and with increased frequency, domestic construction projects present the requirement for significant engineering input along with creative structural solutions. The following project is a recent example.

The proposal to construct two houses at Ladies Beach, Ballybunion, Co Kerry presented significant obstacles to planning approval and construction for which engineering solutions were required.

The proposed houses were to be located on the waterfront directly under steep glacial till natural cliffs on the site of a previously derelict two storey house. Planning approval had been previously granted for an apartment complex development and a subsequent application to change the development was refused by An Bord Pleanala. One specified condition was the prohibition of domestic residential developments. Apart from the change of use issue which was dealt with by the Architect, (Liston Architecture) and the Planning Consultant, (HRA Planning), development issues which required specific engineering input were undertaken by Malachy Walsh and Partners.

The key design issues were:

(i) flooding and tidal action,
(ii) solutions for stabilisation of the adjacent cliff structure,
(iii) civil services solutions
(iv) substructure and superstructure structural solutions associated with the architectural design.

In previous applications, some concern was raised by objectors in relation to the vulnerability of the site to coastal flooding, taking account of sea level rise from global warming. Malachy Walsh and Partners Coastal Engineering Division were required to carry out an analysis of the local aquatic environment with regard to the complexity of the local sea action given its location in the Shannon Estuary where the Shannon and
other local rivers meet the Atlantic ocean.

A review was carried out taking into account:
- Local Mean High Water Spring tide levels.
- Possible impact of tidal surges caused by meteorological conditions.
- Attendant beach levels
- Overtopping of defence structures.
- Acceptable climate change scenarios.
- Exposure to wave action
- Legislative literature and guidance on Flood Risk Management.

Embankment stability was a fundamental concern to An Bord Pleanala, in particular the overall impact of necessary engineering works on the existing embankment which is over a major beach public access road. Previous structures on the site were constructed on a narrow raised platform built at the foot of the embankment and above the beach which is also the site of the new development. A further complication was the requirement to carry out the works between a Natura 2000 Special Area of Conservation site and a designated Special Amenities area. Because of the very confined nature of the site footprint, the available width for the houses was restricted to 4.0m with 1.0m access to the rear between the houses and the adjacent bank. There was also a restriction with regard to working on, or disturbing, the adjacent bank to the rear, or damage or interference to the beach in front.

Previous planning applications had proposed invasive bank stabilisation with one suggestion to reduce the height of the embankment by a number of meters and also extensive soil nailing and terracing proposals. These proposals in the main would have required fundamental changes to the bank structure and major disturbance to the existing ecosystem. There was also a limited budget to carry out siteworks and construct the houses and extensive expensive stabilisation works may have rendered the project uneconomic.

Malachy Walsh and Partners approach therefore was to avoid interfering with the bank in any way while providing protection for the new development from perceived future threats from cliff stability. The relatively straightforward solution was to provide a new concrete retaining wall outside but immediate to the cliff face and to a height that would provide protection from any future cliff mutations without compromising the vulnerability of the ecosystem or interfere with development on the base platform beyond. The lower section of the wall was designed to retain the existing adjacent bank while the extended top of the wall (the level of which was dictated by a possible future slippage at a conservative 35 degree line) shall contain any future slippage material.

There were restrictions on the design of the retaining wall, which include salt soil conditions, severe exposure conditions and the exclusion of a retaining wall heel and toe. The design also needed to retain a height of 5.20m above proposed finished floor level bearing on a sand founding material subject to tidal water influences. The lack of a toe and heel meant that depth would be required. To minimise excavation and risk during construction, the wall was therefore designed as a series of tied cantilevered piers with wall panels spanning between. The ties in the form of individual soil anchors into the embankment were designed to help resist overturning. The number of piers and the centres of the piers were informed by the capacity and cost of the anchors which were the most expensive element of the structure.

The design of the civil services involved standard domestic design connected to existing local council services. The project used the principle of SuDS, (Sustainable Urban Drainage Systems) analysis along with the requirement to take a holistic view of the wastewater treatment, which was all treated on site.

Overall the solutions proposed were acceptable to all stakeholders; the planning authorities, environmental parties, the client with regard to cost and the architect with regard to the minimal visual obtrusions of the structures.

The construction of the retaining wall has recently started on site and the Client is hoping to occupy the houses in the June 2014.
1. Introduction

From 1st March, 2014 the major changes in the building control system will come into effect. It is important to appreciate this for design work that is being carried out now for building work with a commencement notice being submitted after 1st March this year.

The building control system is amended by:

1. Building Control (Amendment) Regulations 2013 S.I. 80 of 2013 and
2. Code of Practice for Inspecting and Certifying Building Works (Draft)

An overview of the building control system showing the new additions is shown below.

The changes to the system of building control are substantial. There are essentially three key elements that are added under the new amended building control regulations:

1) Statutory Certification and Undertakings
2) Lodgement of Plans
3) Inspection during construction

The Code of Practice for Inspecting and Certifying Building Works is a statutory code. Compliance with Code is prima facie evidence of compliance with the relevant building control regulations. It provides guidance on certification, lodgement of plans, inspections and other matters.
An overview of the requirements at commencement stage, during construction and on completion are set out below.

2. Commencement Stage

From the 1st March the following must be submitted with a commencement notice.

a) Plans, calculations, specifications etc
b) Certificate of Compliance (Design)
c) Notice of Assignment of person to inspect and certify works - signed by building owner
d) Certificate of Undertaking from the “assigned certifier” to inspect and certify works
e) Notice of Assignment of builder
f) Certificate of Undertaking from the builder
g) Fee

It is planned to have a national e-lodgement system in place before March so that all lodgements are made electronically. Fingal County Council is undertaking the task of putting this system in place.

The key changes are the requirement to lodge plans and to lodge a Design Certificate. The Design Certificate will normally be signed by the principal designer and ancillary certificates from other members of the design team may be attached.

The key wording is the Design Certificate is:

“I confirm that the plans … and ancillary certificates … have been prepared with reasonable skill, care and diligence by me, and other members of the owner’s design team … to demonstrate compliance with requirements of the Second Schedule of the Building Regulations …”

“I certify that … the proposed design for the works or building is in compliance with the requirements of the Second Schedule of the Building Regulations insofar as they apply to the building works concerned."

Only certain persons may sign a Design Certificate; and as Assigned Certifier the completion certificate and undertaking certificate. They are

(1) Architects on register pursuant to Part 3 of the Building Control Act 2007 or
(2) Building Surveyors on register pursuant to Part 3 of the Building Control Act 2007 or
(3) Chartered Engineers on register pursuant to Section 7 of the Institution of Civil Engineers of Ireland (Charter Amendment) Act 1969.

The regulations specifically require the Assigned Certifier to be competent to inspect and certify the works.

The Code outlines the types of plans and specifications that should be lodged at commencement. Where certain design work has not been completed before work commences provision is made for lodgement of plans during construction.

Structural calculations and site investigations reports do not have to be submitted with the commencement notice. However, they should be available on request from the building control authority.

3. During Construction

The builder is required to construct in accordance with the drawings and specifications; and to construct in accordance with the requirements of the building regulations.

The Assigned Certifier inspects and co-ordinates the inspections by other members of the design team. They implement the “Inspection Plan” that has been prepared. This plan is developed taking into account the building works concerned. Relevant factors should be assessed at the outset and regularly reviewed so that effective control is maintained for the duration of each project. Part of the Inspection Plan is an “Inspection Notification Framework”. This sets out when the builder is required to notify when certain works are ready or will be ready for inspection.

Adequate site inspections should be carried out and inspection records kept so as to demonstrate the application of reasonable skill and care.

Also, during construction, plans should be lodged as required for elements of work that had not been lodged at commencement stage.

4. Completion Stage

The following is submitted by the Assigned Certifier to the building control authority on completion:

a) A Completion Certificate signed by the Assigned Certifier and the Builder.

b) Plans, specifications and particulars for any amendments from those submitted at commencement.

c) The Inspection Plan as implemented.

NB: The completion certificate must be submitted before a building may be opened, used or occupied. If rejected by Building Control Authority within 3 weeks, it is not valid.

Validation and Registration of Certificate

On receiving the completion document the Building Control Authority shall consider whether the certificate is compliant and:

1) Where compliant, the certificate is to be placed on the register,
2) Where not compliant, the Building Control Authority may, within 3 weeks, reject the certificate giving reasons why and require the person to submit a revised certificate and documentation,
3) Where a Building Control Authority rejects a notice it shall return the certificate and documentation.
5. Matters for immediate consideration

The most immediate issue is to be aware that the amended building control regulations apply where a commencement notice is lodged on or after the 1st March, 2014. There are projects that are now being planned and designed that will come under the new regime.

In the first instance it is important to note that plans have to be lodged at commencement along with a Design Certificate.

Where you are advising a client you should make them aware of the new system. The owner is specifically responsible to

1) Appoint a competent builder to undertake the works and certify on completion
2) Appoint a competent registered professional (assigned certifier) to inspect and certify on completion

The owner should also appoint a competent design team and ensure that the person signing the Design Certificate is an appropriately registered architect, engineer or building surveyor.

Members of the design team will need to ensure that they are in a position to provide the adequate certification at design and completion stages. They will also be involved in carrying out the appropriate inspections during construction in accordance with the Inspection Plan.

For those who take on the role of Assigned Certifier there are very significant responsibilities during construction and on completion. Builders will be taking on new responsibilities including the signing of a certificate of undertaking and a completion certificate.

Building Control Authorities are also taking on new responsibilities and it is important that they discharge their duties in an efficient manner. It is also critical that they use their oversight, inspection and enforcement powers to enhance a culture of compliance. It is expected that there will be regional and national systems of building control put in place.

*Note: The above is an overview of the new system and does not cover the detailed aspects. It is important to familiarise yourself with the regulations and the code. In addition to these it is expected that the professional institutions and the construction industry will develop specific guidance documents.*


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**The Regional Group are also pleased to announce the Prizewinners for 2013.**

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<td>REGIONAL GROUP PRIZE</td>
<td>Michael Shaw, Barry Mc Allister, Paul Mc Gettigan of RPS Consulting Engineers</td>
<td>Titanic Belfast-Designing an Icon</td>
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<tr>
<td>STUDENT PRIZE</td>
<td>James Barry of Cork Institute of Technology</td>
<td>Stressing Geometry Control of Cable Stayed Bridges</td>
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<tr>
<td>TECHNICIAN PRIZE</td>
<td>Alan Rowan of Dublin Institute of Technology</td>
<td>Simple Steel Connection Design</td>
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