



Inter-jurisdictional Regulatory Collaboration Committee

## **IRCC 14 Madrid**

### Minutes of Meeting

Madrid Spain 21 to 23 October 2002

### **Present**

Bob Bowen (BB)  
David Smith (DS)  
Javier Serra (JS)  
Olva Berge (OV)  
Brian Meacham (BM)  
Rick Okawa (RO)  
Denis Bergeron (DB)  
Tasman Twyman (TT)

Paul Everall (PE)  
Wataru Gojo (WG)  
Brian Cashin (BC)  
Doug Beller (DB)  
Takashi Nagasaki (TN)  
Richard Bukowski (RB)  
Jose Antonio Terorio (JT)

(Monday only )

Alfred Chung Building Dept Hong Kong  
Paul Pang Building Dept Hong Kong  
Francis Liv Fire service Dept Hong Kong  
Kc Tse Fire service Dept Hong Kong

### **Apologies**

Beth Tubbs  
Wayne Bretherton  
Jon Traw

Mike Balch  
Francoise Szigeti

### **Opening remarks**

**JS** welcomed the members of IRCC and visitors from Hong Kong to Madrid Spain.

Javier also gave a brief overview of the Ministry of Development and the history of the Palace in which the first two days of the meeting were held. He also outlined the social activities associated with the meeting and housekeeping and other services available to assist the meeting.

**BB** opened the meeting and welcomed the members and the visitors from Hong Kong. He also provided an overall outline on the way the meeting takes place and discussion around the agenda.

He also discussed IRCC aims to improve understanding of a performance based systems and the benefits that flow from having performance based codes and systems in place.

This was followed by a general introduction of new members.

### **Agenda Item 1 Additions to the agenda**

There were no additions or changes made to the agenda.

### **Agenda Item 2 Record of IRCC 13 meeting**

**BB** sought comments on the minutes of the last meeting.

No matters arising from the minutes of IRCC13.

The minutes were accepted.

### **Agenda Item 3 Country Updates**

(In additions to the notes below reference should also be made to the presentations by the country representatives)

**BB** suggested that the order of country updates be reversed and that Australia provide its update first.

#### **Australia**

TT spoke of a presentation that is to be sent to members following the meeting. The presentation was on the following subjects :- Energy efficiency, Access for people with disabilities, BCA / standards realignment, Administrative framework, Education strategy, Cooperative research centre (CRC) for construction innovation, ABCB Research and development program, Future building code, Protocol for preparation of BCA reference documents, Guideline documents and Acoustics/ noise insulation.

TT undertook the task of providing the scoping study on sustainability when completed.

PE spoke on the UK position on standards and the influence in the UK that EU and CE standards for Europe are having on UK.

A number of members made comments on reference standards and their relationship with building Acts, Regulations and codes. It was agreed that standards should be an agenda item for future IRCC meetings.

RO spoke on public access issues to buildings and the American Discrimination Act (ADA) which has recently resulted in a well publicised court case.

RO discussed sustainability and a number of members also made comments on this issue and following a wide-ranging discussion, it was agreed that sustainability should be an agenda item for future IRCC meetings.

RO also discussed BEMS method concerning sustainability and he undertook to inform the IRCC further on this method.

Future agenda items

- 1) The meeting decided that future IRCC meetings should have an agenda item on standards. The item should cover :-
  - Current developments on reference standards
  - the relationship between the building code administrations and the standards writing bodies
  - the system for reference or call up of standards for example the building code details “when and why” a standard is referenced and the standard details “the how” of the technical issue for which the standard is referenced.
  - reference standards are building code specific, or multi purpose standards?
  
- 2) The meeting also decided that future IRCC meetings should have an agenda item on Sustainability. The item should cover ;-
  - Current developments on sustainability
  - Societies expectations for sustainability and the potential to meet those expectations through building codes and regulations
  - Issues and implications for sustainability and if and how it is, should be, or could be regulated through building codes and regulations

Note

The meeting decided that future agenda items and parking lot items should have a short description of the issue associated with the item so that future discussion is focused. Similar to the descriptions above for standards and sustainability.

## USA

RB from NIST advised the meeting that building regulations are a State matter and the National Government does not have a direct role except where national interests are involved. He spoke on the World Trade Centre (WTC) where buildings 1, 2 and 7 collapsed and building 7 suffered progressive collapse. He advised that the following actions have commenced from the WTC :-

1. A fact (not fault) finding investigation with a budget of \$16 million commenced on 24 August, 2002 and will report in 24 months.
2. An R & D project with a budget of \$40 million with a range of issues to be looked at. Members may look at the work on the following site [www.wtc.nist.gov](http://www.wtc.nist.gov).

3. The WTC has highlighted the need for someone to take charge when such an event occurs. The National Government's response has been to introduce a National Construction Team Act (a building safety team Act) identifying who is in charge if such an incident were to occur again. NIST is to be the lead agency under the Act. One feature of the Act is that Construction Team Act reports can not be used in litigation cases, liability law actions (immunity is provided under the Act for team members). In the future this Act could be used for wildfire (bushfire) events.

Once these investigations have been completed, it is expected that what is learned will be used to make recommendations to change building codes and standards. This is a new role for NIST.

DB then spoke on the recent initiatives of the National Fire Protection Association International (NFPA) and stressed that future changes should be managed - evolution not revolution. He suggested that NFPA favoured a dual system, with performance provisions and prescription solutions retained as a base. The code producing process remained unchanged in the performance environment. He explained the code compliance process using the 101 life safety code and indicated that the new NFPA 5000 Building Code followed the same compliance process.

Under access for people with disabilities, he advised that the Americans with disability Act has precedence.

In explaining the way the NFPA 5000 is to be used, he advised that to satisfy the performance criteria, the code requires designers to consider scenarios, eight for fire, three for structural and two for building in use. The scenarios have the effect of forcing the performance design in that they must be addressed/satisfied.

Trips and falls which was a subject discussed earlier by the meeting, is under building in use scenarios.

Several jurisdictions are considering adoption of the NFPA 5000 since its May launch.

DB then spoke on the NFPA 1 Fire Code.

In August 2001 the proposal for this code was reported and in June 2002 the comments on the code were also reported to the NFPA membership.

In explaining this new code he discussed the differences first, then confirmed that the structure of the fire code was similar to the NFPA 5000. The code has combined goals and objectives and they are, fire, building use and hazardous materials. And similar to the NFPA 5000, users of the NFPA 1 Fire code will consider scenarios and assumptions to satisfy the performance criteria. The NFPA membership is to vote on the code in November 2002.

Future activities of NFPA include installation and material documents on flammable liquids and fuel gas. He talked to a table showing the stages of development of current documents and spoke on training and certification. NFPA provided free training for adopting jurisdictions and certification is being developed for levels 2 and 3 for plan reviewers and inspectors. Finally he advised that to follow up for more detail two web sites were available.

<http://www.nfpa.org/codes/Performance/Performance.asp> or  
<http://www.nfpa.org/BuildingCodes/index.asp> .

RO then spoke on the International Code Council (ICC). He discussed the recent consolidation of the two code writing bodies into ICC. The consolidated organisation will have 300 to 400 staff in 16 offices across the USA. He confirmed that ICC is to be incorporated in 2003.

He indicated that work began on a single independent code for USA in 1994 and on a performance code in 1996. These codes have taken six years to complete, finished in 2001, (the 2000 international building and plumbing codes). These codes are adopted in over 40 States across the country.

Currently, ICC is planning a new edition of each code each 3 years. Changes now occur on an annual cycle and consideration is for 18 month future cycles.

RO also discussed the Americans with Disability Act (ADA) (human rights legislation) in particular compliance issues for implementation of ADA – in code language to allow enforcement. He spoke of the process of the ADA and the BCMA report in code language. Rick to provide more information here.

Following a question, the meeting discussed egress for people with disabilities and “safe refuges”.

Secretaries Note

Egress for people with disabilities from buildings may also be a worthwhile item for the next IRCC meeting to consider.

He also advised of the International Accreditation Service (IAS) (an agency of ICC) for accreditation of laboratories.

## Hong Kong

Paul Pang, Chief Structural Engineer from Hong Kong (HK) Building Department made a presentation to the meeting. He spoke on the history of the Hong Kong system of building regulations, informing that since 1935 HK has had a prescriptive code. From 1935 to 1959 it was the Building Ordinance from UK. In 1959, there were prescriptive codes of practice, covering :

- Means of escape 1959 and current 1996
- Means of access for fire fighting and rescue - pre 1994 no particular guidance 1964 to 1989 Cop for Min FSI Building Lifts Reg 38c 1983 current 1995
- Fire resisting construction 1989 to 1995 and current 1996
- Minimum fire service installation and equipment 1994 and current 1998

In 1996, HK changed to a fire engineering approach for special buildings (ie: the new airport). In 1998 PNAP 204 was produced as a Guide to the Fire Engineering Approach. And the FS Committee was established to evaluate alternative solutions for the HK Building Department.

Hong Kong is looking to the future and is considering a performance-based code. It has engaged Arup Fire for a study on the Fire engineering approach and fire safety in buildings. The time table is 39 months commencing in February 2002 and finishing in May 2005. They

are expecting a technical basis for change and regulatory reform and continuous development of HK fire safety code system to suit economic and cultural conditions of the HK community.

The study brief was to include :-

- Design and management of fire safety in buildings
- Be flexible in approach
- Provide for consistency of outcomes for life safety and property protection
- Set the appropriate regulatory level, a level that the HK society will accept
- Outcomes suitably tailored to HK characteristics

The studies objectives are to :-

- Establish the purpose of fire safety
- Consider overseas practice
- Develop a performance based building code
- Update prescriptive guidance
- Include control systems for requirements
- Have available for users, a guideline or code of practice for the Fire Engineering Approach

The study is to consider :-

- Management of buildings
- Fire hazards in existing buildings
- Fire risks during construction and demolition
- Changes of use and alterations and additions for existing buildings
- Accreditation of practitioners
- Approval and enforcement
- Statutory responsibilities between authorities
- Implementation strategy
- International position, for example Asian countries mainly have prescriptive codes such as, China, Singapore Korea.
- Other countries already have or are moving to performance systems, USA, UK, Scandinavian countries, Japan, Australia and New Zealand.

He advises that Hong Kong officials are to visit USA, Canada, UK, and Sweden.

PP then changed the address slightly and advised on the current position in HK. Advising that fire hazards vary depending on the use of building, both occupant characteristics and building characteristics are important and in occupant characteristics human factors and storage and equipment both dominate. He showed a graph which showed the vast majority of fires were in residential properties followed by a much smaller number of fires in commercial and industrial buildings. He showed statistics of accidental and suspicious fires and showed a table of fire causes and briefly discussed selected case studies of fires which included a survey of 40 old buildings and discussed their compliance /non compliance with current building codes.

Turning back to the changes proposed to conclude the address, he advised of the program for the study that will be used as a catalyst for change. The study is a major complex task and requires co-ordination of may local and overseas team members and consultants. The study is spread over 39 months and includes a public consultation phase which has presentations and briefing / discussion sessions and there is also proposed a trial period of 13 months.

With the final submission proposed for May 2005.

Finally he invited questions and discussion and lastly he advised that the HK are considering joining IRCC.

## **New Zealand**

BC Advised the meeting that until the “leaky buildings” crisis the Authority had been concentrating on :-

- a review of the Building Act, with regulatory framework changes to support the New Zealand Building Code (NZBC).
- a policy item for introducing “conditional verification methods” to accommodate engineering judgement in design standards.
- a review of the Authorities internal administration of functions including, approval of building certifiers, auditing of certifiers and territorial authorities, systems for complaints against certifiers and determinations of compliance with the NZBC, over matters of doubt and dispute.

Leaking buildings – over recent years there has been reported leaking and rotting buildings similar to Vancouver a few years ago. The authority appointed a Weather tightness Overview Group in February 2002 to determine :-

- the extent, nature and effect of the failures and any contributory causes.
- if the failures can be attributable to deficiencies in Building Act and Regulations or the administration by the Authority or certifiers and
- other matters considered relevant to the inquiry.

In August 2002, the Authority advised the community by a nation wide warning in the press, of possible dangers from failures of balconies in certain timber framed houses and apartments known to be susceptible to rot as a result of leaks in their cladding systems.

The group reported in September 2002 and findings are on website [www.bia.govt.nz](http://www.bia.govt.nz).

Some items from the report are as follows :-

- mediterranean designs with flush plaster finishes
- no eaves overhang
- parapets and internal and external balconies
- cost cutting
- change in traditional close relationship between designers and builders.
- labour only subcontractors, poor planning, poor co-ordination and responsibility, resulting in collective system failure and leaks.
- a main issue was monolithic cladding with complex building forms, component assemblies, minimal use of flashings, failure to allow for expansion/movement.
- Moisture retention
- Lack of two good design fundamentals - lack of a second line of defence, lack or misuse of flashings. While reinstatement of these fundamentals added additional costs they were not significant in context of whole of life costs.

The Authority has agreed to act on all the groups recommendations.

A conference was held in October 2002 and this was followed by a summit meeting of industry leaders, some of the matters from that are :-

- registration of builders

- more accreditation of materials and systems.

There has been acrimony. Leaky buildings has become political with opposition attacking government and calls for sacking of Chair and Chief executive of the Authority.

The review of the Building Act is with the government and the Authority await its decision. New Zealand standards and joint Australian and New Zealand standards – As mentioned earlier a change to the Act is being considered for “conditional verification methods” to accommodate engineering judgement in design standards. In particular the AS/NZS 1170 series of structural loading standards.

#### Certifiers and territorial authorities

In New Zealand there are currently 27 certifiers with 18 actively working and competing with territorial authorities. One certifier has had 4 complaints made against him and a hearing is planned.

As a consequence of leaking building claims, building certifiers are having difficulty gaining insurance cover which is a requirement of the Act. One certifier has stopped work due to no insurance. Insurance is unlikely to be offered for leaky buildings and the Authority is considering allowing certification with exclusions.

In New Zealand there are currently 74 territorial authorities and the Authority has conducted 196 reviews of territorial authorities since Act commenced.

The authority receives income for a levy on building work collected by territorial authorities.

BC discussed recent legal proceedings and determinations by the authority.

A study on compliance schedule and building warranty fitness is underway and should be completed before end of 2002.

The authority has in progress the following reviews :-

- external moisture
- internal moisture
- validity of energy efficiency building performance index
- airborne impact and environmental sound
- lighting for energy
- minimum fire rating values
- earthquake risk buildings (particularly existing buildings)
- mechanical installations for access ( lifts, elevators and escalators).

In questions the following items were discussed

- access to buildings for people with disabilities is triggered when a building consent is required. There is no waver power for new buildings. An example was an air traffic control tower – should an air traffic control tower be required to be accessible, have a lift for access. The Authority decided No.
- essential services and maintenance of essential services.
- external noise and noise levels in schools.
- Leaking buildings and leaking buildings was suggested for a parking lot item.

Parking lot item

leaking buildings

Are design trends and installation practices resulting in weather tightness becoming a problem in some counties similar to New Zealand and the earlier Vancouver?

## Japan

TN spoken on three items

1. status of article No 38 transition
2. sick building issue counter measures
3. standards for building accessibility – improvement

**1)** Article No 38 of Building Standards Law of Japan had a two year transition period that expired in May 2002. Article No 38 covered approval of new or innovative building construction methods and materials etc. Approved each material, component, assembly or system.

Article No 38 system replaced by a new system Article no 68 - 26 and related provisions. New system covers approval of each element not conforming to example solutions or ordinary verification methods. Transition includes introducing new example solutions and ordinary verification methods. Also special approval under new articles system. Examples of transition include :-

- steel houses prescribed in the notification and F values designated for some steels
- specific lifts and elevators for wheelchairs, included in the notification and driving mechanism approved.

As part of the address he spoke to a charts which described the way systems materials and components were formerly approved and how they will be approved under the new system. Under the new system evaluation can now be done by evaluation bodies and there are two different types of evaluation bodies designated and recognised and he explained the differences.

**2)** Sick building issue. The Building standards Law of Japan was amended in July 2002 to include provisions for sick buildings which will come into effect in July 2003. The measure aims to control chlorpyrifos and formaldehyde. Habitable rooms in houses and buildings are not to contain materials that may emit chlorpyrifos. The measures also aim to limit the amount of formaldehyde in indoor air. The measures include deemed to satisfy solutions for air tightness of buildings, ventilation equipment, and grades of building materials. He explained the deemed to satisfy solutions relating to formaldehyde.

**3)** Also in July 2002 an amendment to the Building Accessibility Improvement Act was made and will also come into force in July 2003. The amendment seeks to create barrier free buildings. It places a wider obligation to make an effort to take measures to create barrier free buildings and also transfers authority for enforcement of the Act.

Mandatory requirements for the following buildings - buildings such as department stores theatres and hotels buildings mainly used by aged people and people with disabilities such as nursing homes, where the buildings have a floor area greater than 2000m<sup>2</sup> are now required to be barrier free.

Obligation to make an effort for the following buildings – buildings such as schools, factories, offices, common residential buildings etc are now to make an effort to be barrier free.

The technical standard has basic and recommended technical provisions for entrances, corridors, stairs and slope ways or ramps.

WG then spoke on the Japanese Building Regulations and Durability.

The structure of the Japanese building regulations changed in 1998 - 2000 reform, when the performance-based code was introduced. Unlike many other countries the whole structure was not changed into a performance based one. The structure remains as it was and “Performance based packages” have been introduced as many as possible being included. The system now contains “Functional/ performance requirements” and three ways to satisfy the performance with, “DTS solutions”, “Verification methods” and “Ministers approval”. He then discussed the examples of structural safety and fire safety and detailed the performance based package for each and the other prescriptive requirements for each of the structural and fire safety requirements.

WG then discussed durability and the Japanese building regulations; there is no general requirement like “a building shall have durability to perform all necessary functions over intended period of time”. There are some durability requirements in parts of the structural safety provisions. The structural safety part of the regulations as a whole now has a performance based structure, with some exceptions. He advised that Functional/performance requirements are not stated clearly, some requirements remain outside the performance-based structure and durability provisions are included in this outside parts. Also in this outside parts with durability are, quality of materials and workmanship etc. He discussed example provisions concerning durability: -

- Cabinet Order Article 37 (durability of structural members) where those principal parts necessary for structural strength which are particularly liable to corrosion, deterioration or abrasion, are provided with effective measures for preventing rust, deterioration, or abrasion.
- Cabinet Order Article 79 (depth of concrete cover for embedded bars) where the depth of concrete covers for embedded bars shall be 2 cm or more for walls other than bearing walls or floors, 6cm or more for foundations etc.

Mitigation of deterioration is one of the nine performance items to be indicated, only durability of structural safety is considered and this is aimed at slowing down deterioration of materials or anti deterioration measures.

It is described as Anti-deterioration grades.

And is focusing on materials used in posts, beams, main walls and other parts for structural frame the higher the ranking grade, the more effective the anti deterioration measures need to be, to extend the service life of the residential building concerned. The performance targets are in three ranking grades :-

- No1 to satisfy building regulations concerning durability
- No2 for design service life of two generations approx 50-60 years
- No3 for design service life of three generations approx 75-90 years

In principle service life ends, when repair work; including replacement can not be executed economically.

In practice for a steel building when loss of main structural members due to corrosion reaches 10% of the original section the service life is deemed to have come to an end.

Evaluation for anti deterioration grades is based on DTS or example solutions /criteria for each typical structural material, reinforced concrete, wood, steel, concrete block. Other structural materials evaluated by method approved by the Minister. For example, for wood, he discussed measures aimed at mitigating wood decay from water and moisture and termite attack

considerations include ventilation arrangements, choice of high durability timber processed or natural timber. Similar examples were discussed for steel and reinforced concrete.

WG then invited questions.

## **Norway**

OB advised that housing costs in Norway are considered too high. That 90% of Norwegian houses are owner occupied. And that currently the community is suggesting that the lack of affordable housings is related to the building regulatory system. In an effort to speed up the approval system provisions in the law are being considered to require local authorities to make approvals within 12 weeks. There are a large number of local authorities (430) and some of them are very small.

OB also requested the IRCC to consider how IRCC could improve and develop the network of contacts in other countries by using IRCC.

OB also discussed how to make the performance building code system able to be used more by industry, that is how to increase the use of performance by more people in the industry. He suggested that a small group of the best contractors and developers are now using performance, but the challenge is to have others also use it. The current users agreed that they would use performance for fire designs. Alternatively consultants in indoor climate, energy and sustainability had little knowledge and they advise that they do not use performance based codes when tendering. The industry is conservative and these consultants lack the competence to do performance designs and justifications.

OB then spoke on acoustics and advised “ home owners do not know the result until you try it”. In Norway they have developed 5 class of sound insulation. And for houses class C will satisfy the requirements, but the builders have advised for luxury housing they would always go up one class for problems that result from installation.

Also he advised that the EU energy directive comes into force. in Norway in November 2002.

OB Then invited questions

## **Spain**

JS spoke on new building Act introduced in 1999 and the Spanish CTE - Technical Building Code. He advised in the introduction to the talk that there are 17 States or Regions in Spain and that the existing code was 1800 pages and new code is 40 pages. Also he advised that architects are also engineers in Spain and that the building control system in Spain does not contain a site inspection system. And as the answer to a question, he advised that on the change of ownership of a building in Spain the current owner needs to provide the next owner

with a building book containing the building and construction history of the building, including any maintenance for the building.

He then proceeded to talk about building regulatory system and he advised that the legal framework was as follows: - the (LOE) the Building Act No 38 of 1999, recognises the importance of the sector, provides for social demands of the community for quality of buildings with basic requirements, it links guarantees and responsibilities with requirements and provides the legal mandate to the government to prepare a Building Code. That the Building Codes basic requirements are to safety and habitability. Safety being, structural safety, safety in use and safety in case of fire and habitability being, hygiene, health and environment protection, noise protection and energy and thermal insulation.

The structure of the Building Code, is made up of four levels: Objectives, Performance Requirements, Verification Methods and Acceptable Solutions. Part 1 of the Building Code (CTE) contains Objectives and Performance requirements which are mandatory, while Part 2 of the Building Code (DAC) contains the implementing documents the Verification Methods and Acceptable Solutions, which are non mandatory.

Part 1 also includes the general matters such as, definitions, aims, scope, building use classification, classification criteria and technical and administrative requirements to allow CTE fulfillment. Including, plans, details of the works, building maintenance and the role of the agent etc. And the Code contains specific objectives and performance requirements for each sub part of their basic requirements for example safety in use.

While Part 2 of the Code the (DCA) contains implementing documents, procedures, technical rules and example solutions, the right use of which guarantees the fulfillment of the performances.

The CTE has provision for reference documents which are generally: - external and independent documents the use of which makes easier the fulfillment of certain requirements (these have no regulatory status but are officially recognized) and can be technical specifications, national or international standards, technical recommendations, model solutions, or codes of good practice for design, calculation, installation and maintenance. The CTE also has provision for Alternative Solutions that is any solution that differs (totally or partially) from the DCA.

He explained that fulfillment of the CTE can be by the following: -

- methods and solutions in the DCA, or
- alternative solutions compared with the DCA's, or
- alternative solutions made to satisfy the performance requirements, or
- combinations of them, or
- reference documents.

JS next spoke about the Web site of the Ministry - The Web site is gaining considerable use and is very popular in such a large country as Spain. The Web provides participation, transparency, allows cooperation with competent bodies, allows participation by independent experts, is a working tool for drafting teams or working groups, is used to coordinate drafts, disseminate final documents, on line publication, on line learning amendments and revisions. The Web is the focal point of the Spanish building regulatory system. Any one is able to access the official technical building code of Spain on the Web. And finally he provided web address: url [www.codigotecnico.org](http://www.codigotecnico.org) and email [codigotecnico@ietcc.csic.es](mailto:codigotecnico@ietcc.csic.es) . Also the draft code may be down loaded from the inter net in Spanish or English.

JS Then invited questions

Prior to the country updates JS also gave a short address concerning the Ministry of Development and the Infrastructures which explained the responsibilities of the Ministry in the Government including :- arrangement of policy matters in postal and telegraphic systems and support and direction of the States services related to astronomy, geodesy, cartography and metrology, with planning and programming of investments concerning these services. Also the proposal and execution of government policy in infrastructures and ground, air and marine transport systems and their administrative regulation. And in the area of our interest government policy for housing, building, urbanisation and architecture. The Ministry has a Director General of housing, Architecture and Urbanism. With responsibilities that include design of the state housing policy, economic and financial policies for the housing sector and management of aid systems and relationships with territorial and financial entities. Also the regulatory role for quality in buildings as well as coordination of quality control. All activities associated with works related to buildings and properties of the State. Catalogues and inventories of the States Architectural heritage. Also to lead and support the technical professions related to architecture and building. To set and defend in appeals the competence of building professions. And also to advise and lead the professional institutions of the sector.

## England and Wales

PE spoke on building regulations and control and current legislation and developments in England and Wales. The Building Act is now 20 years old and the Office has commenced a review of the Act. He discussed issues that are being considered for possible amendment to the Building Act including :-

- Charging for Local Authority building control
- Enforcement
- Monitoring of Approved Inspectors
- Membership of the Building Regulations Advisory Committee
- Scope of building regulations - Amendment to make it clear that environmental and security issues are included matters
- Consolidation of regulations affecting the construction industry – Industry what a holistic approach and the intent is to simplify as part of the review.

He advised that currently private certifiers do not need to show the charges for their customers, while Local Authorities are required to display/show proposed charges. Considering a change to make level competition.

Enforcement was raised and he advised that enforcement had a six month time limit after the building work was completed for an offence to be discovered. Considering changing to still time limited, but to six months after the discovery of the offence. Remedial work – time limited to one year after the building completed.

Considering including provision to monitor private certifiers not included in current Act.

He also spoke on technical changes being considered including :-

- Sound insulation – this proposed change is at public comment stage, experience would suggest that in new dwelling, to be sure construction is satisfactory, it should be field tested – poor workmanship requires testing to improve the performance and to deliver

better results – house builders have agreed to produce “robust details that will comply “ to alleviate the need for costly field testing.

- Fire safety (Europe considering using the EU standards in future)
- Electrical safety (now not in UK building regulations next year into building regulations)
- Access for disabled people (Disability Act civil rights legislation to come into effect in 2004 - building regulations would be deemed to comply)
- Structural safety (need to harmonise with EU design standards also Sept 11 effect on tall buildings)
- Conservatories (currently not subject to building control propose to make conservatories part of building control. )
- Site preparation and resistance to moisture (contaminated land (brown land) term used for reuse of earlier industrial land)
- Electronic communications services (considering making provision for broad band communications allow for ducting hard wiring in buildings regulations.)

Additionally he spoke on emerging issues for the future including :-

- Energy efficiency (some changes 1 April 2002 and further changes in near future).
- Fire safety (Sept 11 having an effect, discussion on sprinklers in houses, particularly boarding houses need a cheaper version of sprinkler standard (life safety sprinklers) for houses).  
BC advised that New Zealand has a domestic sprinkler standard.
- Ventilation

PE Then invited questions

DS gave a short address on the Consortium of European Building Control (CEBC) where he is chairman and advised that themes coming from their last meeting included :-

- timber framed construction,
- European technical approvals
- Durability is of concern as there are reports of some material systems failing
- 30% of materials delivered to building sites finish up as waste
- and u value for walls is generally 3.5 for energy efficiency

Also he advised that CEBC have a 38-page document on building control in EU countries, which David can provide on request.

Further he advised that CEBC give liaison and contact to member countries.

Additionally that ECCREDC has direct links to European Commission.

Finally that recently British Standards has produced a standard that advises how to use fire safety engineering, the standards is BSL PD7974 - 2002. It provides application of fire engineering to building design.

DS Then invited questions

## Canada



- through out the draft code the functional statements are referenced in various parts of the code and it is intended that these references should remain in the final code. This show that each provision relates back to a particular functional statement or two or more particular functional statements.
- Similarly where a standard is referenced in the code the referencing provisions will include the appropriate functional statement that the standard is referenced to satisfy. By referencing the functional statements in the reference clause for standards, NRCC hope that users will see that the code intends to limit the reference standard. This has the effect of limiting the extent of the standard contents that is referenced - in that it is only the contents of the standard that satisfy the functional statement that is referenced in the building code.

See Clause 4.2.3.2 where three standards are referenced and two functional statements are also referenced.

In discussion over this initiative, it was advised that in UK and EU each standard which is referenced in legislation has an appendix, which advises which legislation references the standard.

A further example was advised on Page 42 Clause 6.2.1.1 where general reference is made to good engineering practice standards (where a large number of standards are referenced ) and a large number of functional statements are also referenced.

DB discussed the proposed contents and time table as follows :-

- Objective based code to have 3 months public consultation from January 2003.
- Both the objective based code and the changes to the old code are to be condensed into one single code in 2004
- The new code to be completed and in place in 2005.

#### **Agenda Item 4 Global Policy Summit**

The Members of IRCC had a wide-ranging discussion on the planned Policy Summit.

The following comments are some of the points discussed during that discussion :-

- Research outcomes are important, but are not the only outcomes sought
- Advice to Governments and code developers on policy are important outcomes
- Targeting Ministry people from each Country to show benefits of Performance-based regulations, this is one target. Countries are considering going to Performance
- Targeting decision makers from Countries that now have performance to consider emerging strategic issues such as climate change, hazards and threats.
- Target the European Commission as they are European policy makers them selves (write to Vicence tLeos EU )
- Target decision makers wider than building regulatory, there may be others that are players in an outcome - energy for example.
- Topics - discussing issues such as sophistication of personnel required behind the performance system - qualifications and experience of professions and trades

- Presentations are needed to provide an appreciation of the issues followed by interactive workshops/ sessions
- Association with NRC is very worthwhile as NRC is a branch of National Academy of Science research to support the USA national government - not a Federal institute - reports often go to Congress - a very high level of research IRCC is privileged by their support.
- In Washington large number for USA could be expected and they may know little about Performance Building Code systems. Program needs to accommodate this. Members from USA suggested that they have some core knowledge of PB systems.
- IRCC Members could make up or be part of the panel of experts required
- Changing current regulations only affects 1% for building stock - how are we going to address/ influence existing building stock.
- Without workshops the attendance could go over 150 delegates and the budget would need to be reworked.

BB led the discussion with an address that was to focus Members to the background and events leading up to the Madrid meeting and in that address he touched on the following :-

- IRCC has some difficulty with what the role of IRCC is in the Summit
- Previously IRCC considered that they should be hosting an event on policy for regulation
- This did not crystallize and more discussion occurred on how to organize such an event
- Prefer an event that is open
- Association with NRC on the Summit has raised the status/awareness of IRCC.
- Not only regulatory tools, but other tools to achieve the outcome
- IRCC have discussed, who we want to attend
- IRCC have discussed, what do we want to accomplish
- IRCC have discussed, what are the intended outcomes
- Performance building systems are intrinsically better able to meet challenges and changes.

After discussion of the policy summit the following emerged as matters with a high agreement from Members :-

- All agreed that IRCC need to promote IRCC at the Summit and from the Summit
- The format would be two and half days of presentations :-

**Day 1** emerging issues

**Day 2** performance - will it meet the challenge

With panel discussion of experts and facilitator / conveyor to provide a summary paper

**Day 3** conclusions half day

Date for the Summit was decided as 3 to 5 November 2003

Location for the Summit Washington DC USA

Discussion then centered on appropriate speakers and BM was provided with suggested speakers.

It was acknowledge that IRCC could not meet again before the details of the

Summit need to be completed and consequently the meeting gave the Summit committee authority to complete the summit details.

Funding was discussed (budget/sponsorship) and the following emerged :-

NSC to contribute \$25,000

NRCC to contribute \$10,000

ICC to contribute \$10,000

Ideally to have 50%/50% support for cost of registration, this means that an additional \$15,000

is need. It was suggested that a request for funds could be made to EU.

The question was asked does ABCB wish to contribute. And a suggestion was made that for example ABCB could consider paying for cost of air fares for Australian speakers, this would help. Similarly this could apply for other IRCC members.

If it is appropriate it for the venue, It was decided that IRCC material should be available at the summit. A display/stand.

Social events/ evenings

Welcome reception

Social receptions nights 1 and 2 to facilitate interaction

No dinner delegates on their own

Optional afternoon of day three visit to NIST suggested.

#### **Deadline for IRCC Members**

IRCC Members need to provide any additional suggested speakers to BB or BM by Jan. 30

**ACTION**  
All IRCC  
members

IRCC Members need to provide an approximate number of paying delegates that we might expect from their country to BB or BM by Jan. 30. Numbers discussed at the meeting were for example Spain 5, UK 5.

**ACTION**  
All IRCC  
members

### **Agenda Item 5 IRCC Document Development**

The Members of IRCC had a wide-ranging discussion on the IRCC Document Development led by RO.

The following comments are some of the key points discussed during that discussion :-

- It is a learning curve when considering the document, as a novice, why I would like to know about a performance system. Put yourself in a position of a person who wants a performance system. Suggest we need to look at the document as a multi layer system. One layer for first users and a second layer for experience users.
- The document need the Scope expanded to explain more clearly what it is

about. Needs a better glossary of terms.

- Needs to have benefits of performance over prescriptive argued and explained
- Needs an awareness of the system, basic philosophy of performance building regulatory system. From policy/ principles up.
- How the parts of the system work together
- Public policy - need to create an awareness of performance code system and public policy place in that system.
- Need to discuss the framework, need to use example show uses and savings, from performance code system.
- Country experiences - should be taken out to a separate document or part of the document. As a support document to the primary document.
- The challenge is how do IRCC produce a uniform document.

BB as chairman then summed up and touched on the following:-

Aim the document at the first time user - it should provide a clearer message  
Country experiences separate  
All agree that it is a vital and important (only one of its kind) document.  
Updating has not progressed as far as IRCC would like, needs some way or resources to update the document.

Parking lot item: need a document that covers “what it means” and another document or Guideline that establishes how to do it, how to take prescriptive system and create a performance system. The Canadian bottom up analysis and experience may guide or help.

**ACTION**

## **Agenda Item 6 Durability**

The chairman requested each country provide a brief explanation of the durability position in their respective counties. Around the Table and again Australia went first.

### **Australia**

TT advised that the drivers for the current Australia position were as follows:-

Consultation with Government regulators and industry suggested that they preferred ABCB not to put durability information directly into BCA and regulations. Currently durability inferred in referenced standards and material design standards. Consequently Australia chose to produce an ABCB guideline document on durability. Intended to be used by technical committees when writing material and material design standards. Such as steel, reinforced concrete and timber. Members were sent prior to the meeting the latest draft of the guideline document.

### **New Zealand**

BC advised that NZ have gone with the same information as ISO and EU. They

have durability requirements in the NZ Building Code. This is considered necessary to satisfy the Performance Requirements of the NZBC. NZ has set the maximum at 50 years, this was arbitrary, should have described it as service life. Normal building life indefinite, absurd to suggest only 50 years life. Generally meeting public expectations - public expect 50 years  
Again NZ provided information on durability to Member prior to the meeting.

## **Spain**

**JS** advised that Spain intends to use the ISO and EU document, that is the EU constructions products document. And Spain also sent information on durability to Member prior to the meeting.

Dr Carmen Andade Perdix, Director of the Spain Instituto de Ciencias de la Construction, Eduardo Torroja who was present for the discussion made the following comment - durability currently considered by perception, while to ensure higher uniformity/ compliance/ reliability need to quantify what to measure durability against.

## **Japan**

**WG** advised that his earlier presentation, in the country updates covered durability. See Japan country update for this information. Papers already provided to members.

As discussed in the country updates paper the building regulations are only concerned with durability for structural elements of buildings, while durability generally is considered in Japan to be a matter for consumer affairs or insurance rather than building regulations.

## **Canada**

**DB** advised durability considered in the context of a primary objective of the code. Some in Canada consider it to be a market / consumer issue. Currently implied in the requirements. Absence of durability in the proposed objective based code raises questions. Litigation / liability issues have raised the matter. In the case of wood framed construction durability can be done by prescriptive information. In the country update you will remember that there is a proposed appendix note to the proposed objective based code. Some Provincial Governments not supportive of the advice approach would prefer a more mandatory approach.

**BB** advised during one of the discussions that occurred over durability that, leaking buildings is not a durability question, leaking buildings is a failure to comply with the code where the code states that, the building should not let water into the building.

## **USA**

**RB** advised that ASTM 2136 covers durability. Provides citations to a broad range of properties for materials and treatments. He then advised on accessible / inaccessible items, he discussed examples including plumbing water pipes and mentioned plastic pipes some had failed after 20 years and mentioned pin hole corrosion in copper water pipes as other failures.

**RO** also spoke about durability in USA. The performance code contains a chapter on durability titled Reliability and Durability.

### **UK and Wales**

**PE** spoke and advised that there were no particular requirements considered as a market issue rather than a regulatory issue. Notwithstanding that comment the Regulations do say “fit for purpose” and products need to be reasonable. At the end of the day products and systems need to satisfy the performance requirement. And he also spoke about materials and certificates.

**DS** spoke about the CEN workshop recommendations concerning durability, he advised that the CEN construction sector Network Workshop, having reviewed the issues concerning durability in harmonized construction standards, recommends establishment of a task group to address the issues of durability in harmonized product standards, the Task Group will provide short term guidance on the inclusion of durability requirements in the first generation of standards still being drafted, And where durability requirements have not yet been agreed.

### **Norway**

**OB** spoke about leaking buildings and service life and discussed as an example service life of oil rigs in North Sea compared to an oil rig in Australia. Durability provisions need to accommodate different climatic regions/conditions. On the west coast of Norway they have building where 3 - 4 panels at the bottom of walls need to be replaced each 15 years, as they rot out. Norway is having a discussion on whether buildings should last 50 years. Sustainability must consider how long a building is to last and it is considered that durability is part of that sustain ability. Norway have a requirement that pipes should be designed to ensure that if there is a leak in a pipe it can be discovered.

### **Netherlands**

**Dr N. P M Scholten** of TNO who was present for the joint meeting on the third day between IRCC and CIB TG37, advised that they use a graph to consider durability, on one axis is levels 1 to 6 with new building being high on the axis and existing buildings being in the middle of the same axis and on the other axis is time. He spoke at length on this issue and explained the system behind the graph. He also advised that in their regulations it is necessary to define how you are intending to address certain issues regarding durability - it will be necessary to show by maintenance how a building is to be maintained in the future.

### **General discussion**

The meeting discussed the various advice from respective countries and the theme emerged, where to from here for IRCC And finally OB and BC agreed to work on the topic.

### **Summary by BB chairman**

OB and BC agreed to work together to provide a paper on durability. And when requested, each country to provide a one page paper on durability.

**ACTION**  
OB and  
BC

## **Agenda Item 7 Norway's Electronic approvals system**

OB spoke on the Norway electronic approval system (an internet or web based system)

Norway has 5 million people 430 local authorities.

Aim of the system is to give the public a 24 hour service.

Another aim is to have local authorities process each application on the web.

Norwegian people are high PC and internet users. Department has been using internet for 12 years.

The 430 local authorities have and many have different procedures. Some require too much information some require too little information. Department decided to standardize the system.

The new system uses a property register for all Norway and the standardized approval system is for all Norway.

Payments can be made over the web for approval/application fees.

Applicants may monitor progress of application on the web.

Principles of the system :- Put the building control process at the center  
Only use an open system XML is an open system.  
Not data expert (IT or computer experts) driven, if data expert driven cost goes up particularly to local authorities.

For example all local authorities and all builders have access to all information necessary to make application and approve an application. All information available on the net. Local government and central government information on the internet. In Norway the building Act and regulations are available from the central Government. Local authorities have local by-laws procedures and information. Register of builders and architects (designers and contractors), Information on neighbors also on the net.

Planning charts for central agency and planning charts from some local authorities can be expensive.

No signature required by the applicant, on the building application. Only signature required on the final certificate.

Benefits include:-

- Easy of use

- The possibility of a common server

- The local authority can work on the application on the PC server

- Integrated system

- Electronic building permit

- Common standards

- Develop a common prototype

- Disclose and propose necessary regulation changes using system

- Standardizing electronic data exchange (XML) including drawings

Standardizing necessary information required  
Standardizing client information  
Standardizing building details provided drawings etc  
Standardizing planning details (siting etc)

OB invited questions

BB suggested that Members should submit to IRCC information on this subject to share with members.

parking lot item - The extend of electronic or web based system in building approval.  
All Members are requested to report their countries involvement in web and electronic approval systems for next meeting.

**ACTION**  
All IRCC  
members

### **Agenda Item Joint meeting with IRCC and CIB TG37**

On 23 October 2002 at Instituto de Ciencias de la Construction, Eduardo Torroja  
These minutes were prepared by Doug Beller (acknowledgement and thanks)

#### **Agenda Item 2.1 Conference**

Discussion provided to inform TG37 members of plans for the IRCC Global Policy Summit. A description of the format and subjects to be presented on each day of the summit and the expected outcome(s) of the summit were discussed. It was decided that the "Performance (Building Regulatory) System Model", developed jointly by IRCC and TG37, should be presented on Day 2.

#### **Agenda Item 3.1 Final Report Review**

IRCC will review the final TG37 report: draft sections of final report to be available for review at MAY03 meeting.

#### **Agenda Item 3.2 Case Study**

IRCC will review the results of the case study.

The case study is intended to gather information regarding how a "regulatory system affect the way in which a design is undertaken."

Contact person for the case study will be Denis Bergeron.

A format for reporting the results back to TG37 is needed. These results will include:

- the regulatory requirements (i.e., objectives of the provisions)
- where the requirements come from (e.g., decree, act, code, standard...)
- different solutions (including drawings if provided)
- assumptions regarding why specific choices were made

- references being used (i.e., what established documents are employed)
- country specific comments

Schedule:

- 1DEC02 – finalise case study specification
- 31MAR03 – Receive completed responses
- MAY03 – Begin analysis of case study results at next TG37 meeting
- 1SEP03 – Finish analysis of responses and prepare summary:  
send to IRCC for review
- MAY04 – Finish TG37 final report, including case study discussion

**Agenda Item 4. Links with Other Groups/Activities**

**4.1 CIB W60**

This is a group with a broader perspective than TG37, that appears to have relatively little to do with performance-based regulatory systems.

**4.2 PeBBu**

An update of the first PeBBu Domain 7, Performance-Based Regulatory Systems was provided and a distinction was made between the activities of TG37 and Domain 7. Domain 7's purpose is to gather information on the status of performance-based regulations in various countries and what research may be underway in those countries. TG37 has specific tasks that it was formed to complete.

**4.3 Others**

Two suggestions were offered:

1. establish a link with CIB TG50, Tall Buildings
2. establish a "global research initiative" similar to that of W14, Fire structural fire resistance effort.

**Agenda Item 10 Other Business**

JS advised that the IRCC book has been translated into Spanish: Performance based Building Regulations May 1998. The meeting endorsed the action by Spain..

BB suggested an Action Item for the spring meeting on Moisture management

**ACTION**  
Secretary

**ACTION**  
TT

Canada has a web site on the issue at [www.nrcc/irc/bes/mews](http://www.nrcc/irc/bes/mews).

Carry over items for next meeting solutions

- Fire code development in Norway
- BM Items
- JT guidance document on fire engineering
  
- Copyright with CIB to be carried over (Patrice Godonou to follow up)

Format and conduct of the meeting was considered and there was a high level of agreement for the following :-

- Country updates considered very important and valuable.
- Visual presentation in country updates aids transfer of information and understanding.
- Best if updates provided before meeting to members.
- Updates should try to concentrate on trends and issues rather than historical information.

The meeting agreed that they were satisfied with the format and flow of the meeting and similar format should be used for next meeting.

Emerging issues were briefly discussed and the following was noted :-

- Awaiting the TC 14 report
- WTC report showing weaknesses
- Sustainability and collaboration with TC59 of ISO may show benefits, from significant issues of international interest.
- Global collaboration from the Paris meeting
- It is a world first, to pool research, including how buildings react (structural ability) in an explosion/ extreme event. Whole world need to be working to prevent another WTC.

### **Agenda Item 11 Next meeting**

The location proposed for the next meeting was Hong Kong. The location in Hong Kong is yet to be decided. BM suggested Arup office Hong Kong. Also mentioned was the Hong Kong Building Department. The meeting left the decision for venue to the Chairman to decide. Date proposed was 12 and 13 May 2003. It was suggested that the Chairman write to the HK Building Department to invite them to attend the meeting. This date was proposed to fit with the CIB conference to be held in Kuala Lumpur on 8,9 and 10 May 2003 where it was expected that CIB TG s and working groups would meet 5,6 and 7 May 2003 in Kuala Lumpur.

Subsequent meeting, it was proposed that IRCC should have a meeting in Washington around the Summit in November 2003. RB offered NIST as a venue for this meeting. Which is a train ride out of Washington centre of approximately 20 minutes. To be finalised at the Hong Kong meeting. Dates considered were 6 November for IRCC and 7 November of CIB TG37 meeting.

Spring 2004 Ottawa Canada

**ACTION**  
BB

Autumn 2004 London England

**Conclusion Appreciation**

The meeting thanked Javier and Ministry of Development and Jose Antonio and Spain Instituto de Ciencias de la Construction, Eduardo Torroja for their hospitality and for the manner in which all matters associated with conducting a successful meeting were arranged for the IRCC Members.