



**Record of IRCC Meeting**  
**10-12 April 2008**  
**Wellington, New Zealand**

Location: Museum Hotel, Cable Street, Wellington, New Zealand

Time: 9:00am – 5:00pm Thursday, 10 April (IRCC Meeting)  
9:00am – 5:00pm Friday, 11 April (Carbon Workshop)  
9:00am – 1:00pm Saturday, 12 April (IRCC Meeting)

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**Present**

Brian Meacham	USA	(BM)	Chair
Mike Stannard	DBH, NZ	(MS)	Host and Secretariat
Suzanne Townsend	DBH, NZ	(ST)	
Rainer Mikulits	OIB, Austria	(RM)	
Bill Dodds	SBSA, Scotland	(BD)	
Denis Bergeron	NRC, Canada	(DB)	
Rick Okawa	ICC, USA	(RO)	
Mike Balch	ABCB, Australia	(MB)	
Lam Pham	ABCB, Australia	(LP)	
Cheng Zhijun	CABR, China	(CZ)	
Liu Wenli	CABR, China	(LW)	
Wataru Gojo	NILIM, Japan	(WG)	
Hiroki Sunohara	MLIT, Japan	(HS)	

**Guests**

Staffan Abrahamsson	Boverket, Sweden	(SA)	
IJsbrand van Straalen	TNO, The Netherlands	(IvS)	
Ong See Ho	BCA, Singapore	(OSH)	
Julia Liu	BCA, Singapore	(JL)	
Adam Thornton	Dunning Thornton, NZ	(AT)	Agenda item 5

**Apologies**

Olav Berge	NOBTH, Norway	(OB)	
Javier Serra	MH, Spain	(JS)	

**From DBH**

Katrina Bach	CE, DBH, NZ	Thursday	Welcome
Dave Kelly	DCE, DBH, NZ	Thursday	morning
Peter Thorby	DBH, NZ	(PT)	
Serge Sablyak	DBH, NZ	(SS)	Thursday
Rachel Collins	DBH, NZ	(RC)	Saturday

## **Agenda Item 1 Welcome, Opening Remarks**

Department of Building and Housing staff performed a mihi, a traditional New Zealand Maori welcome. BM then welcomed all the participants and thanked MS for organizing the meeting and the hospitality extended. Following introductions, the Chief Executive of the Department of Building and Housing, Katrina Bach, addressed the delegates and spoke about the building sector reforms in New Zealand.

Katrina reflected on the development of IRCC as an international forum for building regulators and expressed her hopes that the Wellington meeting would provide an opportunity for further constructive dialogue.

She then provided delegates with an overview of building sector developments in New Zealand, especially in light of building weathertightness problems in the early 2000s that led to major legislative reforms. Among the initiatives she mentioned were compulsory licensing of building practitioners, accreditation and registration of building consent authorities and the review of the New Zealand Building Code, which touched on the increasingly important issue of sustainability.

Finally, she referred to New Zealand's growing housing affordability problem, which the Department is working to tackle by simplifying consenting processes for affordable homes.

## **Agenda Item 2 Apologies**

Apologies were received as detailed above. . The meeting expressed sorrow and sympathy for the recent loss experienced by JS.

## **Agenda Item 3 Record/Actions from Vienna meeting**

The circulated draft minutes of the last meeting in Vienna in October 2007 were agreed as a true and accurate record of the meeting and approved for posting on the website.

<b>ID</b>	<b>Action</b>	<b>Action By</b>
1	Members were invited to support financially the development of the next edition of the IRCC document "Performance Based Building Regulation". Financial contributors would form the editorial group being lead by PS.	All
2	All members to contribute to the review of IRCC document by providing 250 words on each of the nine issues in 2c and 1000 words on Section 3, the story of the member organization – a simple description of why they are where they are	All
3	DB is to circulate an outline of the existing buildings paper for the SFPE conference in April 2008 by end October seeking further information from IRCC members.	Completed
4	RdV reported that Tas Twyman was consolidating the responses to the survey and the paper would be sent to members by early December.	Completed
5	ICC would be keen to hear from other jurisdictions if there are other similar programmes to their campaign to raise awareness of building code officials in existence.	Completed
6	SD will circulate to members the March scoping document on the building control system evolution in England & Wales	Completed
7	MS invited members to suggest names of international experts in the field of building whole-of-life carbon emissions to invite to the workshop in April.	Completed – refer agenda 7

8	BM requested further information on acceptance criteria for fire in response to the VTT survey to include such things as smoke layer interface, temperature, heat flux, smoke density, CO concentration or any other criteria being used in the Code.	Refer Agenda 8
9	MS to revise the membership contact spreadsheet, removing the wider list.	Completed
10	MS to liaise with Gavin Kelleher from Australia to investigate setting up a stand alone IRCC website.	Refer Agenda 14

## **Agenda Item 4 Country Updates**

### **New Zealand**

ST, DK and MS provided a general overview of the building environment in New Zealand. The market has been at historic highs (up to 30,000 new housing starts a year). This led to unprecedented price increases (80% in real terms since 2002), as well as skill and land shortages. Since late 2007, the market has begun to turn, with a 14% drop in new starts in February 2008. The rapid price increases have created a legacy of housing affordability problems, especially for first home buyers. This has led for political pressure to improve affordability. The government is looking at a range of measures, including changes to rules for land, development and consenting. The Department is working on simplifying building consent processes for affordable homes, including publishing approved plans and compliance information for simple, starter homes.

The licensed building practitioner scheme has been established, but is not yet mandatory. The government is yet to make announcement on what kind of building work will require a licence and on whether certain do-it-yourself work will be exempt. Because of these uncertainties, uptake of licenses has been low. More than 20,000 industry professionals could eventually be licensed.

Progress has been made on the compulsory accreditation and registration of local councils as building consent authorities. For many, this has involved a significant investment in new systems and processes. Many are tightening building consent criteria and becoming more risk-averse as a result, leading to building consent delays. So far, 22 councils have become accredited, with 53 still to pass.

In response to worsening housing affordability, the government announced a range of measures to simplify consent processes for affordable homes. Measures being considered include a review of exemptions from consenting, on-line processing, encouraging building consent authorities to work together, self certification of certain work by licensed building practitioners and multi-use building consents.

As part of the measures, the Department is developing a Compliance Document for simple, starter homes. So far, Compliance Documents have been by Code Clause (fire, structure, etc.). This will be the first one for a whole building type. The features of the home will be restricted to the most common and the least risky for building performance. Consideration will be given to sustainability and to lifetime use, with provisions for expanding or altering the home as needs change. Approved specific designs will also be attached, which architectural firms have been commissioned to produce.

In later December 2007, New Zealand suffered the largest earthquake in 20 years in the North Island town of Gisborne. There was moderate building damage, but no casualties. The Department took part in the multi-agency response and used the opportunity to learn valuable

lessons about the performance of buildings in earthquake. Especially prominent was the danger to adequately strengthened buildings from less safe, neighbouring buildings.

Days before the meeting, a major cool store fire also occurred in the North Island, resulting in serious injuries to a fire crew and the death of one fire fighter. The building was unsprinklered, with sandwich panel construction. The cause is still uncertain.

From mid 2007, New Zealand houses will progressively need to meet more stringent energy efficiency standards, including a 30% drop in the energy required to achieve healthy indoor temperatures. Double glazing will also become compulsory in new houses throughout New Zealand. Other work on energy efficiency has included the development of a new Compliance Document for solar water heaters intended to simplify their installation, and changes to energy efficiency standards for domestic hot water systems and commercial HVAC systems.

A major new structural loadings Standard has been prepared for referencing in Compliance Documents. It significantly alters existing structural loads, including for earthquake and barriers in buildings.

The Department is also working to develop a new Compliance Document for backcountry huts. These provide basic facilities for users of the conservation estate, and are a traditional part of the New Zealand outdoors. The Compliance Document makes it clear that backcountry huts do not need to meet Building Code requirements that are inappropriate for their intended use (such as access for wheelchair users).

The Department has continued its active sector and consumer education programme, publishing guides on energy efficiency, weathertightness repair and access for people with disabilities.

Finally, MS highlighted the recent changes to the Building Code provisions for lighting in escape routes as an example of a switch from prescriptive to performance-based solutions. The Clause was changed to provide for visibility instead of illumination, with visibility able to be achieved in a variety of ways, for example modern way finding systems. A similar process is being applied to the Clause covering noise, with 80% of the population satisfied being used as a benchmark. This figure is based on research.

### **New Zealand Building Code review**

PT provided an update on the outcomes from the Building Code review, which concluded in November 2007. The Building Act 2004 required the Chief Executive of the Building and Housing Department to review the Code by that date, and to examine whether the Code met the requirements of the act, including the new requirement of sustainable development.

The review found that the Code largely met the Act's requirements, but that it could be stated in more details to help its users, and that it needed to provide better for sustainable development. Relatively minor amendments were recommended. The areas highlighted for further work included fire, space, indoor air quality, indoor temperature, connection to the outdoors and using carbon emissions as a measure of energy efficiency.

### **China**

CZ advised that China has created a new government agency responsible for building, the Ministry of Housing and Urban Construction. It replaces the old Ministry of Construction. It has a stronger emphasis on enforcing regulations and rural housing.

An outline was provided on the product certification scheme in China, which consists of compulsory and voluntary certification. The top body is the Certification and Accreditation Administration (CNCA). The Chinese Academy of Building Research has been designated by CNCA as a third party certification body (only voluntary certification at present). The main certification activities involve: initial testing of products, factory inspection, product assessment, issue of approval certificate and post-certification surveillance. The scope of CABR's certification approval includes structural components, thermal insulation, energy devices, and plastic pipes and fittings.

In January 2008, Southern China suffered unprecedented bad weather, with more than 100 deaths, 354,000 house collapses, and economic losses exceeding US\$1.5 billion. Lessons have been learned about infrastructure resilience and the need for building regulation to pay more attention to maintenance and usage. Discussions are progressing on revising loading standards.

The national earthquake code is being revised. A 7.3 magnitude earthquake hit Yutian County in Xinjiang Region in March 2008. Two thousand houses collapse, \$1.5 million economic loss, no casualty.

China is moving towards full mandatory performance-based standards. Work is in progress on a public building code. Major issues include the building classification, the definition of common requirements and the application to existing buildings.

Construction of 37 stadiums for competition and 56 training facilities for the 29<sup>th</sup> Olympic Games has been completed.

### **Australia**

MB reported that Australia recently elected a new government, which quickly moved to ratify the Kyoto Protocol. This signals that other initiatives in the areas of sustainability and energy efficiency may be given priority.

### **Austria**

RM advised that Austria is in the process of implementing new building regulations and the associated OIB guidelines. Two provinces (Tirol and Vorarlberg) implemented the new regulations on 1 January 2008. Other provinces will follow throughout 2008.

Another issue is the implementation of the EU Directive on the Energy Performance of Buildings (EPBD).

Austria recently suffered a major fire in a home for elderly people, the worst in 20 years. Such fires are relatively common and are often caused by cigarettes and candles. The building in question had 37 smoke detectors, but they were not connected. Despite the very rapid reaction by the fire service, smoke exposure killed 12 people.

The building complied with the relevant regulations. Nevertheless, the incident led to political discussion on introducing requirement to regularly upgrade fire safety levels. This ties in with IRCC's consideration of existing buildings.

### **Canada**

DB reported that the National Research Council's Institute for Research in Construction (NRC-IRC) is engaged in testing the fire performance of houses to determine the impact of innovative house construction products and systems on the overall safety of occupants. Concerns have been raised by fire-fighters that current codes for houses do not address firefighter safety and that new engineered floor joist products have a different failure pattern

than traditional solid wood joists. Final report on this issue is due for publication in Autumn 2008.

The Canadian Commission on Building and Fire Codes (CCBFC) is looking at spatial separation between small buildings of combustible construction following concerns from fire-fighters that exterior vinyl siding were key to conflagrations in new residential developments.

A new objective is to be added to the Code for water-use efficiency (essentially to consider requirements for low-flush (6-liter) toilets. typical toilets in Canada use 13.2 liters of water per flush.) A task group has been formed to develop a protocol on how to add a new objective to the code.

The 1997 Model National Energy Code for Buildings is to be updated in a collaboration between National Research Council Canada and Natural Resources Canada. The approach is to limit the code to energy-use efficiency and to remove all economic considerations, such as life-cycle costing.

Consultation to change from a 5-year to a 3-year code publication cycle has been postponed. The 5-year publication cycle is to continue

### **Japan**

Following the Aneha scandal (the falsification of structural calculations), HS advised that an amendment of the Building Standard Law was promulgated in June 2006 (and enforced from June 2007) that requires third party checking of structural calculations for certain buildings. The review has to be based on guidelines provided by the government. The amendment led to a considerable drop in housing starts between June and September 2007, down 44% percent from previous September. The drop was probably attributable to a lack of information and uncertainty on when re-application was necessary. In response, seminars and lectures have been held to help explain the amendment. Other measures have included technical support for stakeholders, financial support for small and medium enterprises, streamlining of building confirmation procedures and communication among stakeholders.

As at February 2008, housing starts had recovered to within 10% of previous levels.

### **Scotland**

BD reported that Scotland has a new government that is active on building issues. The Scottish Building Standards Agency has been disestablished and will be incorporated into the Scottish Government as part of the Department of the Built Environment.

Changes have been made to building standards to increase focus on sustainability. There is evidence of a spike in applications from the industry to beat the new sustainability requirements. Research is ongoing in the area of low carbon building standards. However, the cost of sustainability can be as much as £30,000 per building, raising the issue of housing affordability.

Climate change is affecting Scotland. Flooding risk, in particular, has increased. The Agency has been tasked with looking at reducing the impact of floods on buildings.

In the area of fire, sprinklers have been made mandatory in care homes. There has also been a particular problem with fires in schools. Sprinklers there are primarily for property protection. There is the potential for mandatory sprinklers in homes and hospitals in the future.

Noise standards have not been examined in 20 years and are in need of updating because of changing lifestyle habits, such as loud stereos and the removal of carpets.

## **USA**

RO reported there is increasing focus on green building initiatives. Debate is ongoing about whether to focus on greenhouse gas reductions or whether to prioritise mitigating the damage that buildings sustain from climate change.

There are also joint efforts with Mexico on producing affordable and sustainable buildings.

## **The Netherlands**

IvS reported on the governance of building in the Netherlands. The Ministry of Housing, Spatial Planning and the Environment works for the permanent quality of the living environment.

TNO, the Netherlands Organisation of Applied Scientific Research, applies scientific knowledge to strengthen the innovative power of industry and government, including in the building area. TNO is involved in technical issues – fire safety, reduction of energy consumption, health-related reduction of energy consumption, structural safety and durability.

The Netherlands was one of the first countries to introduce performance-based building regulation. It is interested in joining the IRCC because of its long history of experience. TNO has knowledge to share and is looking for further information, especially on fire.

Current issues for TNO include the new topic of dangerous substances within CPD, road tunnel safety, the revision of the building decree, development of risk-based methods for building control and Eurocode issues.

## **Singapore**

JL provided a presentation on behalf of the Singapore Building and Construction Authority, which is tasked with regulating building and promoting building quality. Singapore is small – effectively a city-state. The agency is a policy body, as well as a decision maker.

The building consent process contains three steps: planning; building control; and technical department clearances.

The BCA Green Mark Scheme was introduced in 2005. It intends to minimise the impact of buildings on the environment. The scheme provides incentives for developers to make their building ‘green’ and provides research funding. Singapore is looking at making the Scheme mandatory, whereby buildings would have to meet certain minimum scores before getting sign-off.

Research is also looking at building a Zero Energy building. Further issues include reducing reliance on imported sand and granite, exploring the use of alternative materials and using more recycled materials.

Singapore has an e-submission system for building approvals. The system helps reduce the number of agencies people have to visit. Work is ongoing on developing a plan checking system, which would allow all aspects of code compliance to be verified online. There are issues with 2d/3d presentation of designs.

## **Sweden**

SA reported that Sweden is working to develop energy effective buildings, which ties in with the European Energy Performance Directive.

Another issue is accessibility in new and existing public buildings. With increased numbers of people in buildings, evacuation is a problem because lifts cannot be used. This raises the question of how to evacuate people with disabilities in a fire. Sprinklers are also an issue in revising the fire safety code.

Sweden is performing a study on indoor air quality and energy. This is a follow-up on a ten year old study.

## **Agenda Item 5 – Moving the Museum Hotel – structural aspects**

Adam Thornton, Principal of Dunning Thornton, Structural Engineers, gave IRCC members a very interesting presentation on the design and construction aspects of relocating the 5 storey, 3500 tonne Museum Hotel, where the IRCC meeting was being held. The hotel was moved 120-metre on railway tracks as it was facing demolition to make way for the new Museum of New Zealand, Te Papa. Four months were required for the separation of the hotel from its foundation. The move itself took 2 days and the hotel reopened five months after the project started.

## **Agenda Item 6 – Review of IRCC Document “Performance-Based Building Regulation”**

BM reported on progress on the project to review and update the IRCC Guidelines. A timeline of one year was set previously. Financial support has been received to make progress but there is an opportunity for further member contribution. **(Action 1)** About half of the members have provided updates from their countries regarding their position and legal issues. BM now has more time and the timeline can be shortened to six months. He will have a draft ready in time for the Madrid meeting in November and a more complete document ready in time for the April 2009 meeting. Some countries are yet to contribute, but with the shift in timeline, there is an opportunity now for additional comment. **(Action 2)**

Publication was to be discussed at this forum once draft was complete. An editor is required to collate the whole document– either BM or another member. Electronic version will be definitive, but also a bound hard copy would need to be made for distribution. Production has not yet been discussed. Some estimates for costs are available, but no one has yet been chosen to do final layout presentation and printing. Each country would need to have some hard copies as well as access to the electronic version. The documents would be made available as an IRCC resource. Our 1998 publication reflected member experiences at that time regarding performance based-regulations and was distributed to other countries as well as to members. Could be around 25,000 words, as so far the draft is up to 80 pages, with some additions yet to be made. A steering committee could be formed to take the process through once more is known about the document contents and size.

## **Agenda Item 7 - CO2 Emissions Workshop (see separate report)**

## **Agenda Item 8 - Fire Performance Workshop Update**

This workshop was held at the Vienna meeting. BM is behind schedule, but 50% of the report is now drafted. He will complete it over the summer period and will have draft to send to Rainer for review and comment by the end of May. Key outcomes have been summarised, appendices of presentations are complete, and the introduction is ready. BM is currently summarising the presentations. **(Action 3)**

## **Agenda Item 9 - SB08**

BM is working on issues around this sustainability conference. IRCC have agreed to do a session. Mike Balch is coordinating the building regulators workshop. Organisers of SB08 will do the mechanics of organising and we will provide speakers for session. Representatives from IRCC are required.

BM circulated a draft agenda and potential speakers. The agenda consists of two half-day sessions led by IRCC.

Session 1 – Global policy and practice: Confirmed speakers are Nils Larsson, Executive Director of iiSBE, Dr. Peter Graham, UNEP SBCI, and Dr. John Keung, Chief Executive of BCA, Singapore. Two invites have gone out to a leading corporation in Australia and also to the Secretary for Environmental Affairs, Massachusetts.

Session 2 – IRCC members, including Javier Serra from Spain, Tomoko Hirano from Japan, and Prof. Lin Haiyan from CABR.

This represents a good selection of people gathered to give a global view of building regulatory issues. Mike Balch has coordinated a workshop. The facilitator only wants 30 representatives to be invited – regulators from around the world. A post-workshop report will be made available publicly. ABCB has seconded a staff member to the Victorian administration, and she will organise the IRCC session. Mike Balch will take suggestions on invites, but numbers are tight. The session will be IRCC members plus Australian regulators and the ABCB board.

Madrid IRCC meeting will go ahead as scheduled, but some members may be attending SB08 as well. All IRCC members are invited to participate, but not everyone will be able to go because of the timing.

Mike Stannard confirmed that notes on the New Zealand CO<sub>2</sub> workshop from this IRCC meeting will be written up and may be useful for the session at SB08. They will be made available to attendees.

## **Agenda Item 10**

Australia raised two issues for discussion.

### **Control of software**

The issue of controlling software was discussed. The Japanese experience is pertinent, with a recent standards and better policing, but other countries also have requirements in place. For fire in the UK, designers have to disclose the method used as part of the application process. Authorities are also asking for input files. In Hong Kong, there is licensing of both the user and the writer.

### **Adaptation to climate change and impact on buildings**

Issues related to climate change and impact on buildings was discussed. BM noted that the US National Science Foundation has launched new funding for research on sustainable and resilient infrastructure, which may yield new information and approaches regarding climate change impact of buildings.. There are no studies yet, but some should be coming forward over the next few years. There is little other research on this issue. Several countries have looked at snow and wind loads in response to recent climactic events. This issue will gain prominence with time as the effects of climate change become more prominent.

## **Agenda Item 11 - Protocol to add new objectives to the National Building Code of Canada**

Canada sought comment on the development of a protocol to add new objectives to the NBCC. Current objectives include safety, health, property, and accessibility. An intent analysis (bottom up) has been done and they are considering adding water use efficiency to the objectives. They are looking to develop a process for how to create a new objective, how to get proper language in the code for a new policy from a top-down perspective -define, scope, etc.. Looking for documents / contacts as guidance. **(Action 4)**.

## **Agenda Item 12 - Emergency egress using lifts**

The paper from Richard Bukowski was distributed before the meeting. Discussion will be deferred to Madrid and will be a working item covering lift evacuation for the disabled, as well as the wider population. This also ties in with the issue of lift access for fire fighters. Heritage buildings are a special problem. Richard Bukowski is to be invited to the Madrid meeting. **(Action 5)**

## **Agenda Item 13 - Future IRCC workshops**

A workshop will be held in Madrid on heritage buildings. This is a large topic, which includes access, fire, etc. Members should email Brian with any issues that particularly need to be addressed.

Targeted workshops work well and we will aim for more in the future, although not necessarily at every meeting. Members are welcome to provide topic suggestions. Ideas include existing buildings, beyond heritage, climate change regulation versus standards, egress by lifts, calculation software and how we regulate.

## **Agenda Item 14 - Website**

The website will continue in present form until Madrid. Feedback and suggestions are welcome on what shape the website should take. **(Action 6)**

## **Agenda Item 16 - New members**

CABR was welcomed as a new member. Netherlands, Singapore and Sweden have indicated interest and attended this meeting. They need to let us know through the secretariat whether they would like to participate further. We will then issue a formal invitation prior to the next meeting.

Guest policy – host countries can invite participants as necessary. Member countries can invite guests, but we need to have control, so guests must be approved through the chair who will liaise with the host country. All requests are to go through Brian. Refer Item 12 from Vienna meeting record.

## **Agenda Item 19 - Future meetings**

- Madrid, Spain 10-12 November 2008
- Heritage Building Workshop, Madrid 13 November 2008
- Scotland May 2009
- Canada October 2009
- Japan April/May 2010.

## Actions from IRCC Vienna Meeting

ID	Action	Action By
1	Members were invited to support financially the development of the next edition of the IRCC document “Performance Based Building Regulation”. Financial contributors would form the editorial group.	All
2	Some members yet to contribute to the review of IRCC document by providing 250 words on each of the nine issues in 2c and 1000 words on Section 3, the story of the member organization – a simple description of why they are where they are.	All
3	BM and RM to finalise the Fire Performance Workshop report	BM, RM
4	Provide any guidance, documentation to DB for use as protocol for adding new objective for the Canadian Code	All
5	Dick Bukowski to be invited to Madrid meeting particularly for emergency egress using lifts	BM/MS
6	Feedback invited on IRCC website	All