Building Regulations for Existing Buildings

Bill Dodds (IRCC Chair)

Workshop

Oslo Norway 20 May 2016

IRCC

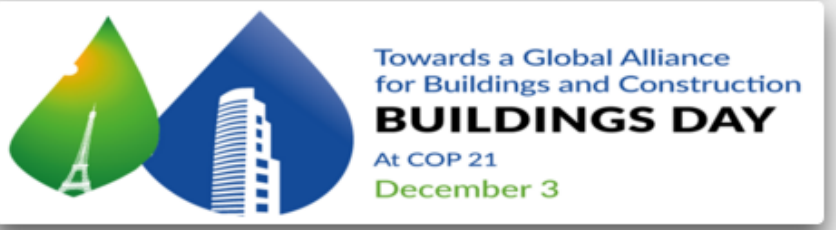
- IRCC is a collaborative of countries engaged in discussions, work and exchange on building regulatory policy issues with focus on the use of the performance based building code concepts
- Currently 14 countries represented
- Australia, Austria, Canada, China, Japan, New Zealand, Norway, Scotland, Singapore, Spain, Sweden, United States, England and Netherlands.
- For more information: www.ircc.info

Inter-Jurisdictional Regulatory Collaboration Committee

The purpose of the Inter-jurisdictional Regulatory Collaboration Committee (IRCC) is to promote effective international collaboration concerning performance-based building regulatory systems.

Specific goals of the IRCC include:

- Providing a forum for promoting a common understanding of, and a framework for, performance-based building regulatory system development;
- Fostering the exchange of ideas and the development of "Best Current Practice" documents and approaches;
- Providing guidance and support for members who develop, implement, and support performance-based building regulatory systems;
- Promoting the pooling of resources, on an international scale, to aid research and development of commonly-needed components of a performance-based building regulatory system;
- Providing benefit to countries embarking on performance-based building regulation development, by providing guidance and support materials, thus minimizing potential duplication; and,
- Encouraging investment in construction-related technology and innovation.



Latest News

News update coming soon...

Upcoming Events

The next IRCC meeting is to be held in Oslo, Norway, on 18 May 2016 to 20 May 2016.

Membership

Click here for IRCC Charter of Membership more info

IRCC Survey

- Previous survey in 2008
- Revisited that survey to see if anything has changed
- As well as asking original questions asked some additional new questions

New Building Codes and Existing Buildings

Do the building codes or regulations for new buildings also apply to existing buildings?

- If there is no building work carried out in existing buildings, the buildings are usually lawful if they continue to meet the code that applied when the building was constructed
- As a general rule, codes for new buildings will not apply retrospectively to existing buildings
- New codes normally apply when:
  - Change of building classification such as an office to commercial building (shop)
  - Change of use of a building/part of a building without change of a building classification
  - Alterations and additions to an existing building
  - major renovation work such as in the Energy Performance of Building Directive (EU)
- Most countries don't ask for upgrade of parts of existing building not affected by alterations
- Many countries have regard to cost and technical feasibility when assessing building regulation requirements for exiting buildings

New Building Codes and Existing Buildings

What relaxations or alternative measures are used for the application of building codes and regulations for new buildings to existing buildings?

- Discretion to apply a previous (usually less onerous) edition of a code for minor alterations and additions. Alternative solutions which meet the performance provisions may also be used.
- Generally much less restrictive than for new but targeting high risk issues. Existing buildings are provided more flexibility for compliance due to the cost and complexity of complying with the code.
- In principle the same rules are used as for new buildings, but only the level of the requirements differs from those for new buildings. Mostly lower or no requirements are set for existing building
- Where there are physical constraints in the existing building, the existing legislation has provisions that allow consideration of applications for waivers/modifications of any of the requirements of the building regulations, for example, on headroom, accessibility requirements.
- Consideration given to maintaining the building's character and architectural, historical, cultural, environmental and artistic values

New Building Codes and Existing Buildings

Is the performance (safety, health, energy, etc.) required of existing buildings similar or less than that for new buildings?

- The performance required of existing buildings such as structural safety, fire safety, health (sanitation), etc. is somewhat less than that for new buildings.
- When building codes for new buildings also applies to existing buildings, the performance requirement of existing buildings will generally be similar to new buildings. When the performance level for existing building is to be different from new buildings, this is usually done with a separate code for existing buildings
- It is generally expected that fire safety provisions for existing buildings should be enhanced to the level that is required for new buildings as far as possible within reasonable means, whenever the existing building carries out fire safety works.
- The building regulations for new buildings … apply in full with no relaxations (but as the regulations are functional there is great opportunity for alternative solutions to be proposed). In the case of historic buildings specific additional guidance is published.
- Similar but less. An example is the allowance of reduced seismic forces for design. Part of the logic in general is for the encouragement of the reuse of building versus discouragement and along those lines getting improvements albeit not to the standards of new construction.

New Building Codes and Existing Buildings

Does your country have Building Codes or regulations that specifically apply to existing buildings? In other words, do you have separate codes or regulations for existing buildings?

- In **Austria** there is a specific guideline for structural stability
- In **Singapore** they have regulations for existing buildings such as window retrofitting, periodic structural inspection of existing buildings, annual maintenance of lifts, orders for dangerous buildings and closure of buildings, building maintenance, also
- Minimum environmental sustainability standard (Green Mark Standard) for existing buildings, periodic energy audits of building cooling systems and Annual mandatory submission of building information and energy consumption data
- In **USA** the NFPA Life Safety Code (LSC) is not a complete building code but is widely adopted, and it contains separate requirements (by occupancy) for existing buildings. In addition, the ICC publishes the International Existing Buildings Code (IEBC).
- In **Sweden** there are requirements for alterations included in the Swedish building regulations. They apply to all buildings. Normally the requirements apply to the section of the building being altered. If a building is to have a different use, requirements can be set on the part to be changed. If a building is to undergo major alterations the requirements apply to the whole building unless this is unreasonable

Building Design Working Life (New Questions)

Question: Every building has a certain design life span. There are building codes which give guidance on building design working life.

a) Is there any regulatory framework in your country to design buildings to a certain life span?

b)If yes, what are the codes, standards that you specify?

c)How do you address buildings that have exceeded their specified design life?

d)Is there a periodic inspection/maintenance regime for existing buildings, especially when they have exceeded their design life span? If yes, how and when do you require such inspections?

e) Who is responsible to ensure that the existing building remains safe for occupation?

Building Design Working Life

- In **China** they have a code GB 50352-2005 Code for design of civil buildings. There are 4 types. Type 1, temporary building, design life is 5 years. Type 2, 25 years. Type 3, ordinary building, 50 years. Type 4, 100 years. The inspection (including method and frequency) should follow the Standard for Reliability Evaluation of Civil Buildings and is undertaken by Qualified Engineer Inspection/Testing Company.
- In **Singapore** there are no specific regulations to address buildings exceeding design life. However, periodic structural inspection is conducted every 5 or 10 years (depending on type of building) so that there are regular inspections and maintenance carried out by building owners to ensure that buildings continue to be safe for occupation.
- In **Japan** after June 2016, buildings such as hospitals, department stores which are important from the viewpoint of safety, fire prevention and sanitation will be subject to periodical report uniformly
- In many **European** countries in the case of structural safety the reference period mentioned by Eurocodes (mostly 50 years) is followed.
- In almost all countries it is the responsibility of the owner to ensure the necessary maintenance is in order to keep the building in good shape
- In many countries periodic fire inspections are also required and are the responsibility of the owner

Safety of equipment in existing buildings, e.g. lifts and escalators

Question: The life expectancy of a lift/escalator can outlive revisions/upgrades in codes on safety of these equipment. Are there any requirements for lifts/escalators to be modernized or retrofitted to meet prevailing code requirement on safety features?

Safety of equipment in existing buildings, e.g. lifts and escalators

- In **USA** the IFC references the elevator code for existing elevators A17.3. Also sometimes certain features must be retroactively installed such as emergency recall and emergency operation
- **China** have Special Equipment Safety Law, Regulations on Safety Supervision over Special Equipment, and some standards, i.e. Specification for discard of the main parts of lifts.
- In **Singapore** if the lifts/escalators are to undergo major alterations or modifications, they will require the lifts and escalators to meet prevailing code requirement on safety features. Similar in **Japan** and **Sweden** also have requirements
- In **Norway** there is no requirement for lifts/escalators to be modernized or retrofitted. However, an annual safety control is required, and may result in requirements on upgrading in order to ensure the safety. Formally, the local building authorities give such requirements.
- The requirements as given by the **Dutch** Lift Decree have to be fulfilled. This is guaranteed by an inspection protocol
- In **UK** the responsibility for lift/escalator safety is not contained in the building regulations but is the domain of the Health and Safety Executive – similar in **Australia** and **Austria**

Accessibility

Question: As the population ages, there is an existing stockpile of buildings that do not comply with existing regulations on accessibility.

a) Does your country have requirements on barrier-free accessibility/universal design for existing buildings?

b) If yes, what type of buildings and requirements are applicable

c) Is there any event (e.g. alteration works, etc.) that will trigger the need for an existing building to comply with the prevailing requirements?

d)If no, are there any plans or intention to require existing buildings to be retrofitted?

Accessibility

- Most countries have disability discrimination legislation
- In many countries the requirements relate to public buildings of a certain size
- The trigger for applying standards is often when major renovation work is undertaken
- **Australia** has state and federal disability discrimination legislation. It applies to buildings to which the public or employees may enter. This effectively covers all buildings other than housing and the private parts of apartment buildings. However, only some suites of a hotel, etc. need be accessible. Only in the event of a successful complaint under disability discrimination legislation.
- The **UK** Disability Discrimination Act 1995 (the DDA) is an Act of the Parliament of the United Kingdom which has now been repealed and replaced by the Equality Act 2010 (http://www.equalityhumanrights.com/legal-and-policy/legislation/equality-act-2010, except in Northern Ireland where the Act still applies. Formerly, it made it unlawful to discriminate against people in respect of their disabilities in relation to employment, the provision of goods and services, education and transport.
- In Spain In general, there are local or state grants/subsidies to remove barriers in buildings.

Energy Efficiency

Question:

While there are many energy efficiency initiatives for new buildings, there is still an existing stockpile of buildings that are not designed to be energy efficient.

a) Are there any plans or intention to require existing buildings to be retrofitted?

b) What are the initiatives in your country to make your existing buildings more energy efficient?

Energy Efficiency

- In **Scotland**, although not a building regulation requirement, the Climate Change (Scotland) Act 2009 has introduced a duty to make regulations to tackle the energy performance of existing non-domestic buildings and make an assessment of energy performance and emissions of living accommodation.
- Regulations for existing non-domestic building will come into force in late 2016 and a consultation is planned for domestic buildings in the next parliamentary session
- In **Singapore** 2012, new legislation was passed which requires building owners of existing buildings to comply to a minimum environmental sustainability standard when building owners change their chillers (with effect from 2 Jan 2014); To carry out a periodic energy audit of the building cooling system (with effect from 2 Jan 2014); and to submit building information and energy consumption data to BCA annual (with effect from 1 July 2013)
- There are a number of initiatives in the **Netherlands**. One of the most important one's is the Agreement on Energy for Sustainable Growth (2013) between 40 stakeholders. All relevant information can be found on the website www.energieakkoord/doen/engels.aspx
- In **Japan** there is a national subsidy system called Energy Efficiency Renovation on Buildings Promotion Program to assist renovation of existing buildings

Earthquake and effects from climate change (e.g. increase in wind speed, temperature, etc.)

Question:

The stock of older buildings built before 1980's is believed to be many times more than the number of newer buildings in most urban cities.

a) Does your country have requirements for existing buildings to be seismic retrofit? If yes, what type of buildings and requirements are applicable, and under what circumstances will they need to be complied with?

Earthquake and effects from climate change (e.g. increase in wind speed, temperature, etc.)

- Most countries do not have requirements for existing buildings to have seismic retrofits
- In **Australia** this is only likely to occur after an earthquake where a state or territory government believe that it is necessary
- In **Japan** the owner of specific existing buildings is obligated by the Act for Promotion of Seismic Retrofitting of Buildings to make seismic assessment and disclose its result to the public. The target buildings are: Large buildings used by the general public, such as hospitals, department stores, and hotels Large buildings used by people who need special consideration for evacuation, such as elementary and junior-high schools, and homes for the aged. Also tall buildings along the designated emergency roads as well as Buildings used as a disaster prevention center
- In the **USA** this is found in the IEBC based upon level of alteration and change of occupancy. Repairs will trigger upgrades if the damage is a result of seismic or wind. IEBC does allow reduced seismic provisions for repairs
- In the **Netherlands** new rules are under development for the case of man induced earth quakes in the Northern part of the country.

Need for continued compliance

Question:.

There could be some alterations in buildings which do not require approval from the regulators. These may affect the continued compliance with requirements which were approved earlier, for example, when accessible toilets are locked, obstructions place on accessible routes, etc. Do you have requirements that provides for anything done during the usage of the existing building shall not temporarily or permanently affect the continued compliance of the building, service or fitting with requirements relating to structure, fire or access to (and use of) the buildings. If yes, how do you enforce and check them?

Need for continued compliance

- In **Norway** it is the owners' responsibility to ensure that the building at least complies with the regulations at the time of erection during the whole lifespan of the building. Regarding fire safety this is for some types of buildings (large and complex) checked by the local fire authorities (surveillance).
- in **Scotland** on completion of the building the owner takes responsibility for the building in use. The fire authority, the local authority and the Health and Safety Executive all have a role to play in ensuring that the building remains fit for purpose throughout its life.
- In **Sweden** you shall always continue compliance with requirements according to the Building Regulations. This is supervised by the municipalities. A building must be kept in condition nurtured and maintained so that its design and technical features such as accessibility and usability for people with reduced mobility or orientation essentially preserved, but we have no system for enforce and check.

Definition of ‘major repair’ or ‘major alterations’

Question:.

The building codes or regulations for new buildings will sometimes apply to existing buildings whenever there is a major renovation involving ‘major repair’ or ‘major alterations’ to the existing building.

a) How do you define ‘major repair’ or ‘major alterations’ to an existing building?

b) Are there any guidance notes to define what is to be considered major and substantial to apply prevailing requirements to existing buildings?

c) Are there instances when only a part of an existing building is undergoing certain ‘major repair’ or ‘major alterations’, it is required that the entire building has to comply fully with the prevailing regulations?

d) Are there any law(s) in your country to actively require existing buildings to retrofit to certain new requirements?

Definition of ‘major repair’ or ‘major alterations’

- In **Australia** what constitutes major repairs or alterations is described in jurisdictional regulations.
- In **Austria** Such a definition exists only for energy efficiency (> 25 % of building envelop and of the value of the building)
- In **Japan** It is defined as follows in article 2, Building Standard Law

- Major repair: Repair of a building to one or more of the principal building parts thereof exceeding 50% of all the parts of the same building.
- Major remodelling: Remodelling of a building to one or more of the principal building parts thereof exceeding 50% of all the parts of the same building.

- There is no exact definition in **Norway**, but described as a building project which is so extensive that the entire edifice is substantially renewed.
- In **Sweden** `Major Alteration´ is defined in the Planning and Building Act and elaborated in Boverkets Building Regulations

Challenges with existing buildings

Please rank in order of importance what is the biggest challenge with existing buildings in your country?
(i.e. 1 = most important/critical, 2 = the next most important/critical and so on).

Result

- Energy Efficiency
- Aging Population
- Fire
- Natural Disasters
- Climate Change Resiliency

Thank you for listening.
Questions?

The Scottish Government
Riaghaltas na h-Alba