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Canadian Building Digest

Division of Building Research, National Research Council Canada

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The Regulation of Building Construction

Please note

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A.T. Hansen

Abstract

Federal, provincial and municipal building construction regulations are summarized. Common terminology is defined. The relationship between model codes and regulations is discussed.

Introduction

Buildings are regulated by a variety of codes, standards, bylaws, regulations, and acts which can vary from province to province and from municipality to municipality. Because of the array of requirements, it is important that the designer be aware of which requirements must be satisfied at an early stage, so that later expensive changes can be avoided.

Under Canadian law, the regulation of building construction is the responsibility of provincial governments, who in turn can delegate this power to their municipalities. The federal government, however, can also become involved in building regulations in a secondary role when an act (such as the National Housing Act) requires that buildings be built to certain standards in order to qualify for the provisions of the Act. Another federal act, the Hazardous Products Act, regulates a number of building products to limit their risk in relation to fire, health or personal injury. These products include cellulose insulation, urea formaldehyde foam insulation, carpeting, furnishings, smoke alarms and glass used in doors. Regulations under this act take precedence over provincial acts, although provincial requirements can still apply if they are not in conflict.

Common Terminology

Acts are the legal statements passed by a legislature or parliament that empower the government to carry out particular objectives. These acts are often referred to as the enabling legislation. The terms of an act may give the government the authority to provide regulations to complement the act. In the case of building regulations, the administering authority may prepare these additional regulations utilizing existing published codes and standards to the extent that this is practical (and amend them as necessary). The National Building Code, the National Fire Code, the Canadian Plumbing Code, the Installation Code for Natural Gas Burning Appliances and Equipment and the Canadian Electrical Code are examples of such codes. The regulations in their altered form may then bear the name of the province (e.g. the Manitoba Fire Code). The provincial acts in some provinces may merely give the municipalities authority to adopt a code, or they may require the municipalities to adopt a particular code.

Code requirements often reference other codes and standards since it is not practical to include all of this material in the same code. The National Building Code (NBC),¹ for example, references over 190 different codes and standards published by seven different standards writing agencies. Some of these are as voluminous as the NBC itself, and may in turn reference additional documents.

The terms "codes" and "standards" are commonly used interchangeably. In general, a document is referred to as a code if its title proclaims it as such. Although there appears to be little philosophical difference between the two types of documents, the term "code" is generally restricted to larger and more complex documents. (Some U.S. reference documents proclaim themselves as "specifications". In Canada, however, this term is generally restricted to designers documents that supplement the information provided on plans and drawings.)

Laws passed by municipalities are bylaws. The authority that a municipality can exercise depends on the enabling legislation under which it operates. In provinces that have adopted provincial building regulations, for example, municipalities are usually not permitted to pass bylaws that contravene the spirit of the provincial act.

Building Codes

Building codes are generally concerned with matters affecting fire safety, structural sufficiency and health. They are intended to apply to the construction of new buildings and the demolition or relocation of existing buildings. They are also intended to apply when the use of a building changes or if the building is significantly renovated or altered.

The National Building Code was first published in the early 1940's to encourage reasonable and uniform standards for health and safety in buildings. It is a model, and has no legal status unless it is adopted by an authority having the power to regulate buildings.

Prior to the 1970's, provinces generally delegated the responsibility of regulating buildings to municipalities. During the last decade, however, provincial codes began to replace municipal building bylaws. Most provinces now have acts to regulate building construction, and the regulations under these acts are based in whole or in part on the NBC. In provinces without provincial building regulations, the NBC is usually the basis for municipal building bylaws either by choice of the municipality or as a condition under a provincial act.

Building codes are increasingly being used to achieve objectives beyond the traditional concerns of health and safety. Most building codes (including the NBC) now contain requirements designed to make buildings more accessible to the disabled. Some provincial building codes also contain requirements related to energy conservation, although these have not been included in the NBC. Instead model energy conservation requirements have been issued under separate cover.² (In Quebec, a separate act regulates energy conservation in buildings and the regulations under the act are based on these model requirements).

In addition to numerous references to other codes and standards, the NBC makes frequent references to its supplement³ which contains climatic and seismic information for various municipalities across the country, enabling the code to be applied in these areas. It also contains information on the calculation of fire resistance, various measures for achieving fire safety in high buildings, and explanatory material relating to structural design requirements. Additional explanatory material on fire safety is available in a separate publication.⁴

Specialized structures such as farm buildings and mobile homes may be regulated under building code provisions or through separate acts that may utilize codes or standards specifically written for such structures.

While the application of building codes to new buildings is fairly straightforward, their application to existing buildings (in the case of change of use, rehabilitation or repairs) may not be.⁵ It is for this reason that some provinces have special provisions in their regulations to deal specifically with existing buildings. These provisions generally permit a relaxation of the requirements that would otherwise apply, while maintaining an acceptable level of safety.

Fire Codes

Fire codes generally apply to buildings already in use. They regulate the conduct of activities that cause fire hazards. They regulate the maintenance of fire safety equipment and egress facilities, the combustibility of furnishings, and the storage of flammable and combustible materials (and other dangerous products). They require the establishment of fire safety plans in the event of emergencies. Some also provide for the upgrading of existing buildings. The objectives of the requirements are to prevent fires, particularly those that may present a hazard to the community, and to limit damage should fire occur.

Fire codes and building codes have a number of common objectives, and are usually developed cooperatively to ensure compatibility. Unlike building codes, however, fire codes may contain certain retroactive requirements. That is to say, certain requirements are intended to be applied to all buildings, regardless of when they were built. Since the designs of these buildings vary widely, the enforcing authority must exercise judgement to apply the requirements judiciously.

The National Fire Code (NFC), now in its fifth edition,⁶ was first published in 1963 to encourage uniformity in fire prevention bylaws. It is used in most provinces either as the basis for regulations under the various fire prevention acts or as guidelines for authorities who administer these acts. Where provincial fire codes have not been adopted, the NFC forms the basis of many municipal fire prevention bylaws.

While building codes are generally administered by building departments, fire codes in most provinces are administered by the fire services. Each province has a fire marshal or fire commissioner (or the equivalent) whose office is generally responsible for administering fire prevention acts. (In Quebec, the role of the Directeur général de la prévention des incendies is somewhat different.) The municipal fire service normally acts on behalf of the fire commissioner or fire marshal to enforce fire prevention regulations. The specific roles of the building and fire departments vary from province to province, but generally both cooperate in areas of common interest.

Residential Standards

The Residential Standards is used as the minimum standard for housing constructed under the National Housing Act. The Canada Mortgage and Housing Corporation (CMHC), who administers the Act, uses the Standards to help achieve its objective of improved housing and to protect its financial interest. The current Residential Standards⁷ therefore protect the resale value of the building. In addition to requiring compliance to the NBC, the Standards regulate such things as kitchen cabinets, closets, storage areas, landscaping and painting. Participants under the National Housing Act are required to conform to the Standards as well as to the applicable provincial or municipal requirements. From time to time CMHC amends or adds to the Standards requirements, usually through its "Builders' Bulletins".

Each province also maintains "housing corporations" to administer provincial housing programs and provide input into joint federal-provincial programs. They may also own and administer public housing constructed to fill particular provincial objectives. Provincial housing corporations may have additional construction requirements aimed at providing greater durability or lower maintenance and operating costs. Municipalities may also have their own housing maintenance bylaws that apply to existing residential buildings.

Zoning Laws

Municipalities are generally permitted by provincial acts to enact municipal zoning bylaws. Generally administered by planning departments, the bylaws control the appearance, use and character of neighbourhoods within a municipality. They regulate such things as building size, land use (including type of occupancy), front and side yard clearances, population density and sometimes even landscaping and the exterior appearance of buildings.

Other Codes and Standards

While the bulk of requirements that regulate building construction are contained in building and fire codes, buildings may also be subject to other acts targeted for specific building types or occupancies. Other acts may regulate particular services or equipment in buildings that are not directly regulated by provincial building codes.

Provincial liquor licensing acts, for example, may contain certain building requirements that have to be met before a licence is granted. Other acts may be aimed at providing a minimum level of fire safety in certain classes of buildings (such as hospitals, theatres, schools, or apartments), when it is considered that they are not adequately covered in existing provincial fire prevention acts.

Plumbing may also be regulated by a separate act. The Canadian Plumbing Code contains model plumbing requirements,⁸ which are used by a number of provinces and municipalities as the basis for their plumbing regulations or bylaws.

Electrical installations are often administered by a separate department. In some provinces the provincial electrical utilities administer the requirements on behalf of the government.

The Canadian Electrical Code, Part 1, is used by all provinces as the basis for their provincial electrical regulations. Like other model codes, it has no legal status unless adopted by an authority having the power to regulate electrical installations. First published in 1927, the CEC is now in its 14th edition.⁹

Separate provincial acts may control the installation and maintenance of other building services and equipment, such as gas installations, elevators, escalators, moving walkways, pressure vessels and, in Nova Scotia, sprinkler systems. The regulations under most of these acts rely on codes and standards published by standards writing agencies.

Since different acts may have different objectives, the requirements contained in their regulations differ and in some cases may even conflict with one another. Where more than one act regulates the same building, however, the general principle is that each must be satisfied. (There is an ongoing program in most provinces to minimize overlapping regulations and remove conflicts.)

Codes and Standards Writing Agencies

The National Research Council of Canada, through its Associate Committee on the National Building Code, is responsible for producing the National Building Code, the Canadian Plumbing Code, the Canadian Farm Building Code, the Measures for Energy Conservation in New Buildings, the Residential Standards and other code-related documents. Another NRCC committee, the Associate Committee on the National Fire Code, is responsible for the National Fire Code. Unlike other codes and standards writing organizations, NRCC is essentially a federally funded research agency. It does not operate a general standards writing organization, nor does it provide a certification and listing service for building products.

The Canadian Standards Association produces most of the codes and standards referenced in the National Building Code including the Canadian Electrical Code. CSA is a non-profit, non-government agency that not only prepares standards but maintains a testing, certifying and listing service for various products including electrical products.

The Underwriters' Laboratory of Canada is also a non-profit, non-government standards writing agency providing a testing, certification and listing service. ULC standards generally apply to products or systems related to fire safety.

The Canadian General Standards Board is a government-sponsored agency operating under Supply and Services Canada. Originally conceived to prepare specifications for government purchasing requirements, it currently operates as a national standards writing body preparing standards for general use in a variety of fields.

Gas appliances and installation standards are prepared by the Canadian Gas Association who also test, certify and list gas-associated products.

Standards produced by the American Society for Testing and Materials and the National Fire Protection Association are also referenced in regulations or codes where there is no acceptable Canadian equivalent. NFPA produces many standards in the fire protection field and, like ASTM, has an international reputation for excellence. Both NFPA and ASTM are non-profit agencies operating in the private sector.

Concluding Remarks

Since buildings are subject to a variety of regulations that can influence their design, it is important to know as early as possible those which must be accommodated. It can be useful, therefore, for the designer to consult with appropriate administrative officials early in the design stage. The more complex the design, the more important these consultations become. Although officials cannot assume design responsibilities, their advice can provide valuable assistance to the designer in appreciating the various regulations that apply.

References

1. National Building Code of Canada. 1955, NRCC 23174.*
2. Measures for Energy Conservation in New Buildings, 1983, NRCC 22432.*
3. Supplement to the National Building Code of Canada, 1985, NRCC 23178.*
4. Commentary on Part 3 (Use and Occupancy) of the National Building Code of Canada, 1985, NRCC 23981.*
5. Hansen, A.T. "Applying Building Codes to Existing Buildings", [Canadian Building Digest 230](#), 1984.*
6. National Fire Code of Canada, 1985, NRCC 23175.*
7. Residential Standards, 1980, NRCC 17304.* [Corrected 2004-10-06]
8. Canadian plumbing Code, 1985, NRCC 23176.*
9. Canadian Electrical Code, Part 1, CSA C22.1-1982, Canadian Standards Association, Rexdale, Ontario.

* National Research Council of Canada, Ottawa, Ontario.