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Residential Standards, 1965: Supplement no. 5 to the National Building Code

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Publisher's version / Version de l'éditeur:

<https://doi.org/10.4224/20359243>

Technical Note (National Research Council of Canada. Division of Building Research), 1967-02-01

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NATIONAL RESEARCH COUNCIL OF CANADA

DIVISION OF BUILDING RESEARCH

No.

480

TECHNICAL NOTE

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DATE February 1967

PREPARED FOR

Presentation to the Building Science Seminar on
the National Building Code of Canada - November 29, 1966

SUBJECT

RESIDENTIAL STANDARDS, 1965:
SUPPLEMENT NO. 5 TO THE NATIONAL BUILDING CODE

The publication of Residential Standards, Canada, 1965, as Supplement No. 5 to the National Building Code was a milestone in the development of national housing standards in Canada. For the first time, regulations for the control of residential construction are combined in one book.

HISTORY

This culminates many years of effort and a brief review of the history may be of interest. The first Housing Standards were prepared in 1935 by the National Housing Administration, then newly formed within the Department of Finance. These later became the nucleus of the "Building Standards" used by Central Mortgage and Housing Corporation when it was established in 1946 to administer the Government's housing legislation.

Meanwhile minimum requirements for housing had been included in the National Building Code, first published in 1941. In 1948, the Code became the responsibility of the Division of Building Research.

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After that date the Division kept in close contact with CMHC in an attempt to maintain a degree of uniformity between the two documents. Although some success was achieved, it was recognized that complete uniformity could only be attained with the two Standards under the control of one organization. Ultimately, it was agreed that the best of both documents should be combined within the framework of the National Building Code. This was begun in 1958 when a special Housing Committee chaired by Richard E. Bolton, an architect from Montreal, was appointed by the Associate Committee on the National Building Code to prepare a single Housing Code for Canada.

One of the problems faced by that Committee was the objection of building officials to the inclusion in the combined document of subjects other than safety requirements. These have no place in a building by-law. As a result, the basic legal requirements were separated from the more detailed building practice clauses. The "requirements for safety" were retained in the legal Code, to be published as Part 9 of the National Building Code, and the clauses "deemed to satisfy" these requirements comprised a separate document issued as Supplement No. 5 to the Code.

The first such supplement, entitled "Housing Standards," was published in 1962 and dealt only with regulations for houses. In 1965, this supplement was extended to include apartment buildings and its name was changed to "Residential Standards".

FORMAT AND CONTENTS OF RESIDENTIAL STANDARDS

The current edition of the Standards provides all regulations necessary for the control of residential construction in Canada. Certain key aspects of the format and content of this document should be kept clearly in mind. They are outlined in the Foreword and summarized below. This foreword should be studied carefully as it is vital to an understanding of the contents.

Basically, Supplement No. 5 is divided into two parts: the first is a reprint of Part 9 of the National Building Code, which is a performance code for housing, and is quite short. All detailed technical material has been placed in the second part of the document, which forms the Residential Standards proper.

The Standards serve a dual purpose. By providing detailed technical requirements to supplement the performance provisions of Part 9, they serve as a guide to construction practices that satisfy the legal requirements of the Code. These technical requirements are shown in heavy type. To form a further link between the two parts, every article in Part 9 that relates directly to items in the Standards is marked with a double asterisk. The Standards also contain requirements on subjects not referenced in the National Building Code. These requirements are necessary for its other role, that of providing regulations of the type used by CMHC to control the quality of building for mortgage purposes. These are shown in light type.

The difference between the requirements in heavy and light type should be noted carefully. Those in heavy type are concerned with public safety and relate directly to subjects covered by municipal building by-laws. Those in light type involve questions of quality for mortgage purposes and include subjects not normally covered in building code legislation. One example is the thermal insulation provisions in Section 20. These establish maximum thermal transmission values for the building enclosure, based on considerations of climate and cost of fuel. They are in light type since they do not contain questions of safety, and are, therefore, non-code items.

The document is essentially a set of minimum requirements for good and safe practice in residential construction and is used as such by CMHC for all construction under the National Housing Act. The requirements are in no way intended to prevent construction to higher standards when this is deemed desirable. Correspondingly, although the document describes building systems in common use, there is nothing to impede the introduction of new materials and methods that can be shown to offer equivalent performance. Clause 9.1.6 of Part 9 of the Code specifically empowers the authority having jurisdiction to accept such new ideas if their suitability has been established by test or performance, or is in accordance with recognized engineering principles.

The body of Residential Standards is subdivided into 37 sections covering all aspects of building from initial planning to site improvement. These sections are based

on the former Housing Standards, with information added from CMHC's Apartment Standards and from appropriate sections of the National Building Code relating to the design of apartments. The basic technical provisions of the Standards apply to all apartments and houses and the detailed structural requirements to buildings of plain masonry or wood frame construction up to three storeys above their foundations. For buildings more than three storeys and for buildings of steel or reinforced concrete where structural design is involved, the requirements of Part 4 of the National Building Code apply.

The main contents of the Standards are augmented by supplementary tables, which have wide practical application. One of the more important of these appendices (Appendix B) contains tables of allowable spans for joists, rafters and beams. The tables are based on material prepared by the Forest Products Laboratory of the Department of Forestry and establish permissible maximum spans for commonly used species and grades of softwood lumber under various loading conditions. These tables are used in combination with Appendix D, which illustrates grade marks used in Canada for softwood lumber species.

Appendix A, about the fire and sound resistance of wall and floor constructions, is also important to the user of the Standards. The fire ratings listed are expressed in terms of the hourly fire resistance for a complete wall or floor assembly and apply only to constructions that conform in all essential details to the assembly as tested. In this respect they differ from the approach taken in Supplement No. 2, which provides a method of computing the fire rating of an assembly by assigning values to its individual parts as outlined in that Supplement. Constructions listed in Appendix A are also rated for control of airborne sound as Type I (STC 50 or more), Type II (STC 45 to 50) and Type III (STC less than 45). Type II constructions would be required to satisfy the sound control provisions in the Standards. These are a non-code item and appear in light type. Information on impact noise transmission through floor-ceiling combinations is also given in these tables, although the Standards do not yet contain a minimum requirement for control of impact noise. The final tables (Appendix C) contain nailing and stapling requirements for various applications in which wood is used.

Considerable effort has gone into the preparation of Supplement No. 5, but those directly concerned recognize its imperfections. As with other parts of the Code, the material is subject to regular and critical review. The Standards are reviewed annually by the Standing Committee on Residential Standards under the authority of the Associate Committee on the National Building Code. Comments from interested users are carefully considered and prove useful in keeping the Standards up-to-date. The deadline for such comments is 1 September each year so that they can be reviewed and revision slips issued early in the new year. Frequently the Division is asked to provide background technical information to assist the Committee in making informed judgements.

Over the years this has resulted in significant changes in the Standards, reflecting both advancements in knowledge and improvements in building techniques. A few of the major changes that have taken place include reduction in thickness of foundation walls, the development of performance criteria for wood roof trusses, reduction in design snow loads, more liberal requirements for wall sheathing, wider stud spacings, and elimination of cross-bridging in timber floors. It is expected that the supplement will continue to develop, benefiting from this careful annual review. In the meantime, Supplement No. 5 offers Canadians a comprehensive and up-to-date set of standards for residential construction and is a useful reference manual of contemporary building practice in this country.

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