



# Research & Development Highlights

## ISO 9000 and the Residential Construction Industry

### Introduction

ISO 9000 is a set of standards developed by the International Organization for Standardization for creating quality management systems. These standards set down the elements companies need for organizing and controlling operations to achieve high-quality products and services.

Because ISO 9000 is accepted internationally, the Canadian housing industry could improve the industry's profitability and expand the export potential of Canadian housing products by adopting these standards. Canadian companies, including architectural firms, construction engineering firms and manufacturers of housing components, are investigating the relevance of ISO 9000 certification for their business.

As part of its mandate to improve housing quality, Canada Mortgage and Housing Corporation commissioned a study of the potential impact of ISO 9000 on the housing industry. This study discusses the implications of these standards for the residential construction sector and identifies areas for follow up and the possible role of federal and provincial housing agencies. The report also describes the ISO 9000 registration process in Canada.

### The Standards in Brief

ISO 9000 defines quality as the ability of a product or service to satisfy the stated or implied needs of customers. Under ISO 9000:

- production is controlled to ensure reliability, consistency and timeliness;
- requirements and procedures are documented and followed; and
- each step of the production process must be defined, with quality checks built into each stage.

The ISO 9000 series provides three quality management models. The most comprehensive, ISO 9001, incorporates 20 quality elements and sets the standards for design and development, production, installation and servicing. ISO 9002 sets

the standards for quality assurance in production and installation and also includes the requirements of ISO 9003. ISO 9003 covers quality assurance in final inspection and testing.

### Quality in Housing

Canadian homes are well built and reflect some of the highest construction standards in the world. Builders usually wait until a project is well along, however, before making adjustments to ensure quality, which can significantly increase construction costs. ISO 9000 provides a means for controlling construction quality through prevention rather than correction.

Currently, builders must pass one or two quality assurance hurdles. On—site builders' projects must pass local, provincial or federal building codes, certified through physical inspection. In manufactured housing, such as mobile homes or modular homes, first-stage approval ensures that the design and engineering of the manufactured housing is acceptable and meets the appropriate building code requirements. The final product also has to be licensed and inspected by on—site inspectors.

### ISO 9000 in Practice

Over the next few years, companies could capitalize on ISO 9000 to gain a competitive advantage. A few companies in the residential products and related sectors are already on their way to ISO 9000 compliance.

The Canadian Construction Materials Centre (CCMC) has investigated the implications of adopting ISO 9000 as a standard. CCMC offers a national evaluation service for innovative materials, products, systems and services in all types of construction.

In addition, a Task Group appointed by the Council of Forest Industries concluded that adopting ISO 9000 could improve the industry's image by providing assurance of commitment to quality, and improve the safety and reliability of industry production.

## Implications for the Housing Industry

- ISO 9000 offers builders and manufacturers of housing products a recognized standard for quality – for example, consistency of performance, timeliness in delivery and adherence to appropriate building (or materials) standards – that can reduce their risk and liability. The ISO 9000 standards would complement rather than replace the standards of the *National Building Code*.
- ISO 9000 could be used as a competitive tool for the Canadian manufactured housing industry: it would assure international customers that Canadian products meet internationally recognized standards for quality. The Canadian manufactured housing industry is expanding its export markets in the United States, Japan and several European countries, all of which have officially adopted ISO 9000. More and more national and international contracts stipulate ISO 9000 quality assurance.
- ISO 9000 could be used to promote quality in the housing industry. ISO 9000 could be used:
  - to support new—home warranty programs;
  - to procure reliable contractors; and
  - to streamline relationships between suppliers, contractors and subcontractors in the industry.
- ISO 9000 could formalize supplier-contractor relationships within the industry. Builders could insist on ISO 9000 standards for the manufacture of each component and sub-

assembly they use in building.

- ISO 9000 standards in building construction could eliminate or significantly reduce the inspection process; that is, as long as a builder was ISO 9000 certified, the builder's construction or assembly could be accepted as meeting building codes. Reducing or eliminating inspections would speed up sales and possession, and cut municipalities' costs.
- By standardizing quality in individual housing construction, the standards could reduce the need for and overall cost of repairs.
- Mortgage, finance and insurance firms could consider companies involved in producing residential building products – and builders themselves much better customers if they had a proven quality management system in place.

## The Next Step

Market demand is the only viable way to bring ISO 9000 into acceptance.

Federal and provincial government agencies could begin to promote ISO 9000 by requiring compliance in their own contracting with developers and builders, in insured lending and in social program activities.

However, there are still some key questions to ask about ISO 9000 standards and their economic benefits – for example, their effect on labour productivity or production costs. The industry also needs to assess ISO 9000 against other models of quality management.

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*Research Report: ISO 9000 and the Residential Construction Industry*

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*A full report on this research project is available from the Canadian Housing Information Centre at the address below.*

***The Centre for Future Studies in Housing and Living Environments***

The objective of the Centre for Future Studies in Housing and Living Environments is to develop a broad-based understanding of the issues that will affect future housing and living conditions.

The research priorities for the Centre are:

the implications for housing of changes in demographic, social, and economic factors; the future relationship between housing and social policy; changing urban and rural conditions; and the impact of new technologies on housing and living environments.

The Centre's work focuses on anticipating and exploring factors and trends that will affect housing and its environment over the next decade. By raising awareness of these issues, the Centre for Future Studies contributes to the development of policy at international, national, provincial and local levels.

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