



Discussion Paper

on

The Regulation of Farm Buildings



OFFICE OF THE FIRE COMMISSIONER

MESSAGE FROM THE GOVERNMENT OF MANITOBA

The successful design and construction of a modern farm building is crucial for efficient production, human safety, and financial viability. Currently, there is no legislation requiring that farm buildings be designed or constructed in accordance with any building code. Fires on farms pose a special threat because they are widely dispersed geographically and difficult to respond to in the event of an emergency. Building collapse due to poor designs, that do not take into account environmental factors such as wind and snow loads, are also problematic.

In the past several years, the government has listened to various concerns from key stakeholders in the agricultural industry. The common thread to these concerns has been the fact that the non-regulation of farm buildings creates risk to the lives and safety of the building occupants and emergency services personnel. Also, the lack of any regulation causes significant financial loss for those who own or insure the buildings, as well as for those whose jobs and incomes are lost following the loss of the building. As a result, the government is proposing that all farm buildings over 600m² be required to be built according to the building code.

Over the next few months, we will be consulting with key stakeholders for their feedback on this proposal. We look forward to receiving your input by way of written submissions. We hope you will find this information to be useful as you prepare to share your thoughts and concerns. We thank you for your attention to this important matter and look forward to hearing your response.

Douglas M. Popowich
Fire Commissioner

Table of Contents

1.0	Introduction	3
2.0	Background	4
3.0	Current Standards	5
3.1	<i>The Buildings and Mobile Homes Act</i>	5
3.2	Manitoba Building Code	5
3.3	Manitoba Fire Code	5
4.0	The Current Status of Farm Buildings	6
5.0	Approaches by Other Jurisdictions	7
6.0	Why do we need a Farm Building Code	8
7.0	Farm Building Code Recommendations and Options	9
8.0	Financial Impact	10
9.0	Conclusion	11

1.0 Introduction

The purpose of this paper is to solicit your thoughts and comments on a proposal to require that the construction of farm buildings in excess of 6,458 ft² (600 m²) comply with building code requirements

The discussion paper has been structured in a way that:

1. Identifies and provides background information on the major issues and concerns relative to the construction of farm buildings;
2. Identifies a government proposal with respect to the regulation of farm building construction; and
3. Elicits stakeholder feedback on the proposal as well as any additional comments you may have with regards to the scope and nature of farm building construction standards.

This discussion paper will be distributed to a variety of organizations and associations of interested stakeholders. These include:

- Farm Organizations
- Municipalities
- Designers
- Insurance Organizations
- Financial Institutions

It must be acknowledged that the size, diversity, and importance of the agricultural sector in Manitoba creates many issues and results in many challenges. These include, but are not limited to, concerns regarding farm building construction, the environment, labour standards, animal welfare, and zoning. All of these concerns need to be addressed in their proper forum. This discussion paper focuses only on the issues directly related to farm building construction.



2.0 Background

The agricultural sector in Manitoba is continuously adopting new technologies and production methods in order to grow and compete in world food markets. Manitoba farmers have invested heavily in keeping their production systems current, especially in buildings and equipment. These buildings include livestock barns, processing facilities, crop storage structures, machine shops, structures for storing field equipment, greenhouses and many other specialized structures. Each year Manitoba farmers spend millions on building construction, repairs and maintenance.

Farm buildings have changed dramatically from small hip-roofed barns and chicken coops, to large structures that can house 6,000 breeding sows or 150,000 laying hens. These new structures have computerized controls to feed the animals and monitor interior conditions and operate the heating and ventilation systems. Automated systems collect eggs, milk cows in special milking parlours and store and process grain. Also, the number of farm workers and the amount of time spent inside these facilities has also changed. A large livestock operation, such as a swine furrowing unit, may employ from 10 to 15 full-time employees.

Farm buildings have a variety of uses, from shops used to repair and maintain tractors and combines and storage facilities for grain operations, to wide span buildings used to manufacture or repair equipment. Barn size has also increased over the years as some barns are now more than 120,000 ft² in size (11,000 m²).

In order to expand production and add value to the current status of farm operations, farmers are increasing their investments in farmstead buildings. To remain competitive with other parts of the world where growing seasons are longer and more diverse or

livestock markets are more competitive, Manitoba farmers are exploring new building designs and materials. The construction of better and more cost-effective structures creates several challenges. These new buildings must provide a safe working environment for the day-to-day workers as well as emergency response personnel. Dust, chemicals, gases and fires pose health threats to people and animals if appropriate safety standards and operating procedures are not followed. Special operating requirements within some of these buildings pose additional challenges.

Due to the increase in size and use of these buildings, some farms are using professional engineering firms to oversee the design, construction and initial operation of their facilities. Recent fires illustrate the advantage of incorporating these design components into farm building construction. There is a demand for uniform design standards so that farmers can properly compare potential costs of new projects. Poor design or selection of building materials can have a large effect on how profitable a new farm facility can be over the life of the building. Therefore, other parties that have a stake in the investment, such as credit agencies, insurance companies and municipalities now play a larger role in the building of new and larger facilities. They are demanding standards to protect the security of their community and to minimize the risk to their investment.

When a large farm building is destroyed by fire, the financial loss can be quite large. In addition to direct financial costs, disasters such as fire and their resulting clean-up operations can have a major environmental impact.

Additionally, large numbers of animals and poultry can perish in these fires.

3.0 Current Standards

The construction and use of buildings are regulated by a variety of acts, regulations, codes, standards and by-laws. Building codes are mostly concerned with matters related to fire safety, exiting, structural design and the health of human occupants. Most provinces have adopted acts and regulations to standardize building construction. In most cases, provinces have placed the responsibility for the administration of building codes and standards on the municipalities.

3.1 *The Buildings and Mobile Homes Act*

In Manitoba, *The Buildings and Mobile Homes Act* (the Act) provides that the only enforceable building construction standards are those that are adopted or established by the Act. Accordingly, Regulation 127/2006 under the Act, commonly referred to as The Manitoba Building Code (MBC), sets out building construction standards for the province. The MBC adopts the model National Building Code (NBC). The MBC also contains a number of amendments specific to Manitoba.

3.2 Manitoba Building Code

The MBC is designed to ensure that buildings are structurally sound, safe from fire, free of human health hazards and are accessible. It applies to the new construction, renovation, alteration, or

change in occupancy of buildings. More specifically, the MBC sets out minimum requirements for fire protection, structural design, heating, ventilating, air conditioning, plumbing, construction site safety, housing and small building construction. The classification of Medium Industrial hazard occupancies (F2) or Low Industrial hazard occupancies (F3) accurately describe most of the new large farm buildings. A more detailed description on the F2 and F3 classifications as outlined in the MBC is provided later in this document.

3.3 Manitoba Fire Code

The Manitoba Fire Code (MFC) is a regulation under *The Fires Prevention and Emergency Response Act*. It establishes fire safety requirements in existing buildings for both occupants and emergency responders. Provisions in the MFC relate to the control of fire hazards caused by activities in the building and in the operation of building equipment. These provisions also place restrictions on building content and storage arrangements, the installation of certain processing equipment, the installation, maintenance, and operation of certain fire safety systems and measures, and the development of fire safety plans. Accordingly, both the MFC and the MBC must be considered when you are constructing, renovating or maintaining a building.



4.0 The Current Status of Farm Buildings

The Buildings and Mobile Homes Act currently exempts farm buildings from any requirement to be built according to the MBC. The Act defines a farm building as:

“a building, or structure, other than a dwelling, situated on a farm and used or to be used in the farming operation.”

There are, however, a number of buildings located on farmland that currently must be built according to code. Examples include, but are not limited to, dwellings (homes), motor vehicle repair shops, public riding arenas and custom manufacturing and processing facilities.

In Manitoba, local municipalities are normally responsible for classifying buildings, land use planning, zoning and building permits. All municipalities are required to issue building permits for the construction of residential buildings and commercial and industrial buildings smaller

than 600m². Some Municipalities are able to permit buildings over 600m², but in many areas of the province this is done by the Office of the Fire Commissioner. Some municipalities may also have individual requirements for new or expanding livestock operations.

This does not mean that farm buildings in Manitoba are unregulated. All electrical work must conform to The Manitoba Electrical Code. Electrical installations require a permit from Manitoba Hydro and are inspected prior to the connection of electrical service. All electrical equipment and components must bear a Canadian Standards Association (CSA) label for use in a particular application. *The Gas and Oil Burner Act* has similar requirements for the installation and operation of propane, natural gas and oil heating equipment.



5.0 Approaches by Other Jurisdictions

Some Canadian provinces require farm buildings to be constructed in accordance with a building code. Table 1 indicates the various provincial approaches to the requirement for farm building standards and

to the administration of the standards. Other jurisdictions are presently contemplating introducing farm building code requirements.

**Table 1:
Cross-Jurisdictional Comparison of Provincial Farm Building Standards**

Jurisdiction	Farm Building Standard	Responsibility for Administration
British Columbia	National Farm Building Code	Ministry of Community, Aboriginal & Women's Issues, Bldg Policy Branch
Alberta	n/a	n/a
Saskatchewan	Uniform Building and Accessibility Act	Ministry of Safety, Corrections and Policing
Manitoba	n/a	n/a
Ontario	National Farm Building Code	Ministry of Municipal Affairs, Bldg Development Branch
Quebec	n/a	n/a
New Brunswick	n/a	n/a
Nova Scotia	National Farm Building Code	Nova Scotia Environment, Labour and Public Safety
Newfoundland	n/a	n/a
Prince Edward Island	n/a	n/a
Yukon	National Farm Building Code	Community and Transportation Services, Public Safety Branch

6.0 Why do we Need a Farm Building Code?

Over the past few years there has been a notable increase in large losses of farm buildings that are used specifically for the production of agricultural commodities. These include, but are not limited to, hog production, dairy product production, poultry production, vegetable production, etc. It is important to note that production is

significantly different than processing. Processing and manufacturing plants involving agricultural products are required to comply with current code provisions.

The following chart shows the impact of large farm losses due to fire over the last ten years.

YEAR	Number of Farm Fires	Financial Loss (\$)	Estimated Number of Animals Lost
1998	48	5,015,241	8,962
1999	87	16,040,507	48,235
2000	67	7,940,458	17,626
2001	82	15,341,123	29,083
2002	82	7,789,892	2,086
2003	94	9,943,292	23,449
2004	73	7,586,204	6,835
2005	54	6,951,044	4,042
2006	79	11,716,822	7,577
2007	89	10,453,411	3,843

There has been a societal demand for some type of regulation for farm buildings in this province. To assist in achieving this goal,

the following recommendations and options are being proposed.

7.0 Farm Building Code Recommendations and Options

The Province of Manitoba is proposing that all farm buildings over 600m² be classified as either an F2 – Medium Industrial or F3

Light Industrial occupancy. Below is a chart that outlines the requirements of each type of classification.

F2 Requirements - Medium Industrial hazard classification	F3 Requirements - Low Industrial hazard classification
<ul style="list-style-type: none"> - maximum floor area for combustible construction, without sprinkler system, is 1,000m² - firewall separating buildings is 4 hour, with 3 hour doors in any openings - attic spaces to be fire stopped every 300m², if combustible construction - fire alarm system not required if less than 75 employees - flame spread rating of walls/ceiling not to exceed 150 - maximum travel distance to exit is 30 m - need structural, electrical, and mechanical plans signed by a professional engineer registered in the Province of Manitoba - total combustible content is more than 50kg/sq m - emergency plan required 	<ul style="list-style-type: none"> - maximum floor area for combustible construction, without sprinkler system, is 1600m² - firewall separating buildings is 2 hour, with 1.5 hour doors in any openings - attic spaces to be fire stopped every 300m², if combustible construction - fire alarm system not required if less than 75 employees - flame spread of walls/ceiling not to exceed 150 - maximum travel distance to exit is 30 m - need structural, electrical, and mechanical plans signed by a professional engineer registered in the Province of Manitoba - total combustible content is less than 50 kg/sqm - emergency plan required

Although F2 and F3 classifications are similar in nature, the governing factor is the use of the building and the level of risk associated with each building. When classifying a building, the following

categories can be used as an example of what would be included in the code and what types of buildings would be excluded by the code.

Examples of Buildings to be Regulated or Not.

Buildings that would be regulated	Buildings that would not be regulated
<ul style="list-style-type: none"> - over 600m² in main floor area - buildings used for manufacturing or processing of any products - buildings used to store or repair farm machinery over 600m² in main floor area - any building used in the production of livestock or poultry over 600 sq m. 	<ul style="list-style-type: none"> - buildings less than 600m² in main floor area - pole sheds used for forage storage purposes without closed in walls - rain storage bins - cattle shelters that are not barns - “loose” housing units

8.0 Financial Impact

Over the last number of years, farm buildings have been undergoing a significant change in the manner in which they are constructed. Farm buildings have changed in scope from relatively small, self-constructed buildings, to very large structures requiring engineer involvement. There has also been a requirement by the insurance industry to ensure that

buildings are approved by an engineer prior to construction.

The following information provides a comparison of the major changes that would be required to be undertaken from existing engineered facilities to facilities that are classified as meeting the F2 or F3 requirements of the current MBC.

Current Engineered Facility (based on 1717 m ² or 18480 ft ²)	F2/F3 (based on 1700 M2 or 18480 ft2)	Cost/ft²
Current Requirements	Additional Requirements	
- travel distance calculations	- fire separations	\$1. - \$3.
- structural, electrical and mechanical plans	- flame spread rating of materials	\$.80
	- fire alarm for buildings containing over 75 staff	\$1.
Current Cost of Construction	Proposed Cost of Construction	
\$100.00/ft ²	\$102.80 - \$104.80/ ft ²	

As indicated above, the cost increase over today's conventional construction is 2% to 4%.

9.0 Conclusion

The Manitoba government believes that requiring minimum construction standards for certain farm buildings is in the best interest of the many and varied stakeholders in the agricultural economy. It would also provide greater consistency of building standards throughout the province and would create a more level playing field for the design and construction industry.

Moving forward, the government is most interested in hearing your response to this proposal. We welcome your comments and

ask that you reply in writing to any issue in this paper or for clarification on the information you may have heard during the stakeholder session. A series of public meetings will be held over the next couple of months, please watch for these in your area if you wish to have clarification on any issues you may have. With respect to written comments, please submit these by June 15, 2009 to:

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