by Michael Currie

Fire Sprinklers and Fire Insurance Grades

Municipal officials may be unaware that Canadian insurance underwriters utilize fire insurance grades as part of the formula for determining insurance rates in Canadian communities. Every municipality and unincorporated community in Canada has fire insurance grades published in the Canadian Fire Insurance Grading Index. It is important for municipal decision makers to realize how their decisions will impact the fire insurance grades of the community, as well as the associated property insurance rates paid by their constituents.

Fire insurance grades are a comparative measure of fire risk against fire protection capacity. When the fire risk is high, then so too must be the fire protection capacity; otherwise, the fire insurance grades get worse, and property insurance rates go up. This article is written to shed light on the importance of managing public fire risk through decisions made at the municipal level of government. If municipal decision makers are careful with respect to controlling the level of fire risk that they allow to be built, they can do their constituents a favour by maintaining superior fire insurance grades at lower costs for fire protection.

The Fire Sprinkler Impact

Fire sprinklers have long been an issue of debate in municipal planning and insurance circles. The various building codes in use throughout Canada have requirements for sprinkler systems in certain high risk occupancies; however, many buildings are not required to have sprinkler systems within the building codes, as these represent minimum requirements for life safety only.

It is beyond the scope of those involved in the fire insurance grading system to debate whether or not sprinklers should or should not be required by municipalities. Those involved in making the decision as to whether or not to incorporate or keep sprinkler by-laws should read through the resource material at the National Fire Protection Association's Fire Sprinkler Initiative page <www.firesprinklerinitiative.org>, which advocates for sprinkler systems, and provides important information for those involved in making such decisions.

There are two fire insurance grade systems in use in Canada: the Public Fire Protection Classification (PFPC) system for commercial lines insurance and the Dwelling Protection Grade (DPG) system for personal lines insurance. Establishing by-law requirements for sprinkler systems in all buildings has a significant impact on the fire insurance grades of municipalities. Most importantly, the presence of a sprinkler systems mandate reduces the required fire flows that are calculated for buildings within the community. This has a cascading impact in all areas of the fire insurance grade, as the required fire flows are aggregated to form the benchmark against which fire protection capabilities are measured (the basic fire flow).

Typically in communities that have progressive sprinkler requirements, the required fire flows and the basic fire

flow of the community will continuously be lowered over time. This means that the community is better able to meet the benchmarks; therefore, the community can achieve better fire insurance grades. This lowering of the basic fire flow occurs over time and as the percentage of sprinklered buildings throughout the community increases.

Deciding What Is "Reasonable"

The 2010 National Building Code of Canada, in the appendicized Firefighting Assumptions states: "The responsibility for controlling the maximum size of building to be permitted in a municipality in relation to local firefighting capability rests with the municipality. If a proposed building is too large, either in terms of floor area or building height, to receive reasonable protection from the municipal fire department, fire protection requirements in addition to those prescribed in this code, may be necessary to compensate for this deficiency. Automatic sprinkler protection may be one option to be considered."

The problem with this part of the code is that no definitions are offered with respect to what a reasonable level of protection is, nor what a municipal fire department is. So, the municipality

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must make these decisions on its own and without much guidance from the National Building Code. The results of these decisions can have positive or adverse impacts on the fire insurance gradings of the community.

The fire insurance grading system promotes improving public fire protection through incentives. The incentives are improved fire insurance grades and the associated cost savings for property owners through reduced insurance premiums. For communities that wish to provide a reasonable standard of protection, possibly higher than the minimum required by code within their province, progressive sprinkler by-laws and/or conditions on new developments (such as noncombustible construction), are possibly the most cost effective and responsible forms of fire protection that exist.

Regardless of whether or not sprinkler by-laws are implemented, those involved in municipal planning and regulation should be aware that their decisions with respect to what they allow to be built will also directly influence the fire insurance grades of the community.

Through the fire insurance grading system, municipalities are encouraged to require developers to contribute to

the fire protection assets that will be required to protect the developments they create. The most effective way to achieve this is to require sprinkler protection for every building that a developer builds. This ensures that the developer is not creating a municipal cost burden that the remainder of the community will have to pay to protect in order to maintain their existing fire insurance grades and associated reduced insurance rates.

Still, the fire insurance grade survey process has revealed that some communities have difficulty in implementing fire sprinkler by-laws due to provincial regulations preventing such by-laws. These provincial regulations were introduced under the auspices of protecting developers and home buyers against increased building costs; however, this thinking is flawed. Allowing combustible unsprinklered buildings to be developed throughout a community continuously increases the need for firefighting response capacity. By preventing communities from implementing sprinkler by-laws, such authorities are actually increasing the municipal cost burden of fire protection and limiting its effectiveness at reducing property losses and saving lives.

International Experience

Worldwide, many communities have learned that reducing fire risk through eliminating combustible construction or requiring sprinkler protection in all buildings is the most effective approach to reducing fire protection costs while simultaneously reducing fire-related losses. The 2009 International Residential Code (IRC) requires fire sprinkler systems in all new one- and two-family homes and townhouses. In the U.S., 46 states use the IRC as the basis for regulating new home construction. Although this code is not in use in Canada, going forward, communities wanting to:

(a) have better control over public fire protection costs; and

(b) improve fire event related outcomes,

should move to a proactive approach to fire risk management and require sprinkler systems in all buildings.

Fire insurance grades are based on the comparative measure of fire risk against fire protection capacity. There are two ways to improve a community's fire insurance grade: improve fire protection capacity, or reduce fire risk. Automatic fire sprinkler systems are one of the most effective ways to reduce fire risk. *MW*