

Risk analysis

Canadian communities given insurance grades based on their ability to protect buildings, residents

Written by Michael R. Currie

Editor's note: Part 1 in our occasional series on insurance grading in Canada ran in the February issue of Fire Fighting in Canada and can be found on our website – www.firefightingincanada.com. Click on past issues, then February 2010.

Why would insurers charge different amounts for insurance for two identical properties in different regions of Canada? This question is particularly vexing for operators of franchises that build and operate almost identical properties and acquire their insurance through a single carrier, but startlingly find that the cost of insurance can be dramatically different in one location compared to another. The reason for this might just be the Public Fire Protection Classification (PFPC) of the communities in question.

The Public Fire Protection Classification is the fire insurance grading system that is published in the fire insurance grading index for commercial lines property and casualty insurers in Canada. On behalf of the Canadian insurers, Fire Underwriters Survey uses the PFPC calculation to quantitatively determine the level of fire protection capacity that a community has relative to the level of fire risk in the community. Once the PFPC of a community is calculated, this information is conveyed to the insurance community through the fire insurance grading index. Insurers colloquially refer to the classifications as town grades.

The entire fire insurance grading process has been going on for more than 100 years and almost all Canadian insurers use the fire insurance grades in one way or another.

■ How is a PFPC calculated?

The first step in determining the PFPC is to determine the fire risk level. This is accomplished by reviewing the geographical distribution of risk and calculating the required fire flows for the structures that the community protects. There are numerous ways to calculate required fire flows. Some of these methods are geared toward life safety and others are aimed at property protection. The method used to calculate required fire flows for the PFPC is described in layman's terms in the document Water Supply for Public Fire Protection (a Google search for the title will produce a PDF and printable version of the document) and is specifically aimed at providing adequate resources for property protection.

Once the level of risk has been established for the community, this risk level then becomes the benchmark against which fire protection capacities are measured.

The fire protection capacities are measured in four areas: fire department; water supplies; fire safety control (including prevention and education); and emergency communications. Each of these areas is further broken down into multiple subcategories for further analysis.

Each sub-category of the grading is analyzed with a credit/deficiency system. The maximum amount of credit that can be granted in each sub-area is determined by the relative risk in the community or sub-district. Each of the four major categories is measured against the benchmark and assigned a relative classification on a one-to-10 scale, where one represents the maximum credit received and 10 represents no credit received.

Once the four major categories have been assigned relative classifications, they are adjusted for weight within the final PFPC calculation and a final PFPC of one to 10 is determined and assigned to the community in the fire insurance grading index.

Using this method, communities are given credit for fire protection programs and systems in a standardized way that is directly related to the level of fire risk (and distribution of risk) within the community.

For example, a community that protects very limited risks (for example, small stores) would be measured against its capacity to protect those risks specifically, whereas a community that protects significant risks (multi-family residential, industrial) would be measured against its ability to protect those specific risks.

The system is a bit complex but the benefit is that each community is measured fairly against the level of risk. In this way, communities of varying make ups are not all held against a single benchmark or standard that may be completely inappropriate for the level of risk.

■ Standards of response

Throughout the calculation of the PFPC, numerous measurements are made of the community's capacity to provide an effective response with respect to preventing property losses. For the fire department, one of the main tools used is the table of effective response, which includes risk benchmarks and a series of benchmark standards of response. Each of the standards in the table stipulates the maximum credit that can be received in one or more areas of the grading calculation. Typical standards indicate a number of pumper and/or ladder apparatus for first and second alarms as well as total concentration of companies. Correlating response times are also indicated for each response category.

It is important to remember that the standards of response are benchmarks against which the community is measured. They can also be thought of as the maximum creditable response characteristics for the community or sub-district.

For example, consider a community or sub-district with a benchmark risk level of 19,000 litres per minute. The associated maximum creditable response within the PFPC calculation would be two pumper companies and one ladder company within 3.5 minutes with a total concentration of five pumper companies and one ladder company within seven minutes.

Note that this is not a prescriptive requirement for service delivery. This standard of response represents the benchmark against which the community is measured for the PFPC calculation and can be thought of as the maximum amount of credit that can be received. Communities are measured against the benchmark in multiple areas with a number of methods including single-point analysis as well as area average analysis.

Although it may be an oversimplification, one could say that the degree to which the community can meet the benchmark standard of response would be a strong indicator of the relative classification of the fire department.

■ **How communities can improve their fire insurance grades**

Communities generally can improve the PFPC in one of two ways:

1. Reduce risk;
2. Increase capacity of fire protection services.

The system encourages communities to be proactive in managing fire risk to keep calculated required fire flows down, and thereby keeping the benchmark against which the community is measured to the lowest possible value. Common methods of controlling fire risk through legislation include development of bylaws to control the size and type of buildings, exposures and requirements for sprinkler systems, which all reduce required fire flows and the associated benchmarks.

Many communities do not realize that the responsibility for limiting the types of buildings that the community allows to be built lies with the municipality and its appointed authority having jurisdiction.

The more obvious method for improving the PFPC is to invest in fire protection facilities. However, these decisions should be made strategically as arbitrary investments in fire protection facilities may not have any effect on the PFPC calculation. That said, the most common area in which investment has the largest impact is in the available fire force sub-category.

■ **How do communities benefit?**

Strategic investment in fire protection in conjunction with careful community planning and implementation of building controls typically results in optimized PFPC, which is to say that the best possible PFPC calculation is received for the degree of investment the community is making. As the PFPC in a community improves, so does the access to the insurance market. This

has a significant impact for business owners and can be an attractive feature of a community with respect to business development.

For businesses in communities with poor PFPCs, it can be difficult to acquire insurance. In some cases, business owners may have to acquire their insurance through multiple providers as insurer capacities for the area prevent them from insuring the entire risk value. In these situations, the cost of insurance is typically very high as with any market when there is a disparity between demand and supply, the prices are impacted.

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