



# Risk Tech

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## Fire Underwriters Survey (FUS) and the Importance of Insurance Gradings

### The Fire Problem

Every year, there are over 55,000 fires in Canada which cause several hundred deaths and thousands of injuries. Communities committed to saving lives require adequate resources in the form of properly trained firefighters, well designed fire apparatus and equipment, good water supplies, and enforcement of building and other fire safety codes.

### How the Insurance Industry is Helping

The insurance industry is continually striving to educate the public as to how insurance works and the important, positive role that it plays in our nation's economy.

The industry considers it good public policy to promote and encourage the efforts of communities to improve their public fire protection infrastructure.

A key example of an ongoing industry initiative which has been conducted since the early 1900's and which has helped guide the improvement of public water supplies, fire departments, and fire prevention programs in communities across Canada is "municipal fire defense reviews".

In carrying out this function, the industry funds the Fire Underwriters Survey (FUS) program which is managed by SCM Risk Management Services. FUS is the leading authority on public fire protection matters, and has a team of experienced technical specialists who routinely examine the level of public fire protection in communities. Subsequent to the review, recommendations are offered to help fire departments and other public officials to plan, budget and justify improvements.

### Historical Perspective

The evolution of the grading system dates back more than 100 years, a time when major fires destroyed city blocks of properties in Canada and the United-States.

Fires in Baltimore and Toronto in 1904 dramatically focussed attention on the vulnerability of cities to the threat of conflagrations.

During this era, water supplies and fire departments were in their infancy and were simply not sufficient to control large, devastating fires.

Insured fire losses were staggering and posed a serious threat to the financial stability of insurance companies. Faced with this enormous problem, the National Board of Fire Underwriters in the U.S. assembled an engineering team to carry out a detailed study of the fire conditions in major cities. In Canada, the Dominion Board of Insurance Underwriters carried out similar work.



**Toronto Fire Insurance Map showing extent of 1904 fire**

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## The Grading Schedule

### Improving Fire Protection

*Fire is still the leading cause of loss for personal and commercial property insurance policies, but there is a definite correlation between improved fire protection and reduced losses. Insurers have recognized that correlation for almost a hundred years.*

From this research, a “Standard Schedule for Grading Cities and Towns with Reference to their Fire Defenses” emerged and became the yardstick or model against which public fire defenses were measured. While the document has been modified over the years to keep pace with the changing character of communities and the advances in public fire protection, it continues to be used today to grade communities. In Canada, the document has evolved into the Classification Standard for Public Fire Protection, and considers the adequacy of water supplies, fire departments, fire service communications, fire safety codes and other aspects of a community’s fire defenses that have a significant influence on minimizing damage once a fire has occurred. The Classification standard incorporates nationally recognized standards such as those published by the National Fire Protection Association, and the American Water Works.

Using the Classification Standard, the experts at FUS assign two classifications to communities with organized fire protection:

1. Public Fire Protection Classification (PFPC), relating to larger commercial based risks.
2. Dwelling Protection Grade (DPG), relating to smaller, residential based risks.



### 1. Public Fire Protection Classifications (PFPC) or “Town Grades”

The PFPC is expressed on a 1 to 10 scale. Commercial underwriters and risk managers will more easily recognize these classifications as “town grades”. Class 1 represents the “ideal” or highest level of public fire protection while Class 10 reflects the absence of any effective public fire protection. Many insurers will subsequently group these “town grades” into Highly Protected, Semi Protected and Unprotected categories, to be used when calculating underwriting capacity. The gradings indicate how well communities are equipped to combat major fires that may be expected to occur in commercial, industrial, institutional and multi-family residential properties and are developed from a comprehensive review of all facets of the fire defense system.

There are four major features considered as tabled below along with their relative importance:

### MAJOR GRADING FEATURES

FEATURE	RELATIVE WEIGHT
Water Supply	30% of grading
Fire Department	40% of grading
Fire Safety Control	20% of grading
Fire Service Communications	10% of grading
TOTAL	100% of grading



## Water Supply

The analysis of the water supply system begins at the source and follows the water through the supply works and distribution system to the hydrants which deliver it to the fire department apparatus. Structural conditions in representative areas of the community are examined to establish fire flow requirements which are amounts of water deemed necessary to confine a major fire to a building or group of buildings, and ultimately extinguish the fire. Hydrant fire flow tests are carried out to establish the adequacy of supply. The condition, maintenance and spacing of hydrants and valves, the ability to maintain supply during pump and power outages are but some of the other items reviewed.

## Fire Department

An overall analysis of the fire department's operational capability is carried out to determine whether the community has sufficient resources to effectively extinguish fires in all areas of the community. The FUS analysis of the fire department's fire fighting capability includes an examination of the administration, apparatus and equipment, fire station locations, response times, manpower, training programs and records.



## Fire Service Communications

Under this feature, we consider all aspects of the communications system due to its direct impact on fire department response including the communications centre, telephone system, telephone lines, dispatching system, radio communications, and staffing.

## Fire Safety Control

Fire Safety Control forms an integral part of a community's fire defense system since the threat of fire is a community problem. Everyone has a role to play when it comes to fire prevention. FUS reviews the various fire safety programs, the number of personnel committed to this important function, and the adequacy of records.

## 2. Dwelling Protection Grades (DPG)

The DPG is a measure of the ability of a community to handle fires in small buildings such as homes. Under this five-class system, Grade 1 is the best while Grade 5 indicates that the community has very little if any fire protection. Basic factors considered when arriving at the DPGs include water supply, number of firefighters and whether they are career or volunteer, fire apparatus, response distances and method of alarm dispatch.

## Summary/Conclusions

The gradings developed by FUS have been used by the insurance industry for almost one hundred years to in part, calculate premiums charged on both commercial and residential properties. In general, the price of fire insurance in a community with a good PFPC is substantially lower than in a community with a poor PFPC, assuming other factors are equal. The PFPC also influences the amount of risk that insurance companies are willing to assume in a given community, block, or property. The grading systems do not consider past fire loss records to determine suppression needs but rather the resources needed to control fires, based on the structural conditions in the community being assessed. Enhancing the fire protection infrastructure by improving training programs, public education activities and fire prevention initiatives can lead to a betterment in class; conversely, a deterioration in protection such as closing fire stations, cutting back on manpower and equipment can result in a retrogression in class.



By offering economic benefits for communities that improve and maintain their public protection facilities, the grading system provides a real incentive. As a first step, communities planning to make significant changes to their public protection facilities should contact FUS, who can assist by providing advice that enables them to direct their public protection expenditures in those areas most in need of improvement. Past experience has shown that fire chiefs and civic officials use the advise of FUS for planning and making improvements, justifying expenses for improvements, building fire stations, upgrading fire apparatus and increasing staff and training.

## SCM Risk Management Services (RMS)



RMS is Canada's leading edge provider of risk information, loss prevention and control services, commercial inspections, actuarial and other specialized risk management, insurance and engineering consulting services.

Risk Management Services, formerly the Insurers' Advisory Organization, is an independent private company that is contracted by all levels of government, the insurance industry, private industry and others, to provide loss control engineering services, rate making analysis, risk management consultation of fire protection and water supply services, municipal fire protection assessments, the Fire Underwriters Survey program, municipal water supply analysis, testing and various other consulting services.

RMS Municipal Consulting Services employs an expert team of Professional Engineers, Engineering Technologists, NFPA Certified Fire Protection Specialists and Fire Underwriters Survey Specialists to conduct municipal consulting services.

To find out more about fire insurance grading in Canada and how it can benefit your community, please contact the appropriate regional Fire Underwriters Survey Call Centre.

Western Canada	Quebec	Ontario	Atlantic Canada
Risk Management Services Fire Underwriters Survey 3999 Henning Drive Burnaby, BC V5C 6P9 1-800-665-5661	Risk Management Services Fire Underwriters Survey 1611 Crémazie Blvd. East Montreal, Quebec H2M 2P2 1-800-263-5361	Risk Management Services Fire Underwriters Survey 150 Commerce Valley Drive, West Markham, Ontario L3T 7Z3 1-800-387-4356	Risk Management Services Fire Underwriters Survey 238 Brownlow Avenue, Suite 300 Dartmouth, Nova Scotia B3B 1Y2 1-800-639-4528