



fire
underwriters
survey

A SERVICE TO INSURERS AND MUNICIPALITIES

Focus on **FUS**



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THE CANADIAN FIRE INSURANCE GRADING INDEX OF FIRE UNDERWRITERS SURVEY® (FUS)

Fire Underwriters Survey® (FUS) is an Opta Information Intelligence service. FUS produces **Fire Insurance Grades** for properties that have been in use by the Property and Casualty Insurance industry in Canada for over 100 years. FUS is the authority responsible for establishing fire insurance grades and publishing them through its Canadian Fire Insurance Grading Index.

Fire Underwriters Survey® has embraced the technological turn by integrating into its operations Geographical Information Data (GIS) and various related databases such as risk addresses, fire hydrants, fire halls, and territorial boundaries. The integration of GIS power into its operations has allowed FUS to produce fire insurance grades by “geocoded risk address” through our online platform, taking into account the servicing fire hall and the number of fire hydrants in proximity to the risk, instead of an overall grade for a municipality. This approach by fire hall assessment has allowed the Insurance industry to get a more accurate picture of each risk being analyzed for insurance purposes, while improving subscribers’ productivity, as there is no need any more to further adjust the municipal fire protection grades. It also reflects specific municipalities’ efforts to improve fire safety. Insurance companies and municipalities are thus getting the best leverage of FUS’ data intelligence, fire protection, and engineering analysis performed by its technical staff and field engineers across the country.

Fire Insurance Grades are established by FUS to reflect the ability of a community to prevent, control, and mitigate probable commercial, industrial, and residential fire risks. Specialists at Fire Underwriters Survey® perform detailed analysis of the overall fire protection by auditing four key areas: **fire department, water supplies, fire prevention, and emergency communications**. Those areas are essential components in establishing Fire Insurance Grades for the control of fires by taking into account various human and physical elements such as the adequacy of resources, distribution of fire stations, fire apparatus, combat and intervention strategies, capacity of water systems, testing and reliability of equipment, structures, building types and occupancy risk level in the community, future urban territorial expansion plans, fire prevention regulations, related municipal by-laws, training of fire fighters, construction and occupancy permits, and the adequacy of the emergency communications such as the 911 call centres, etc.





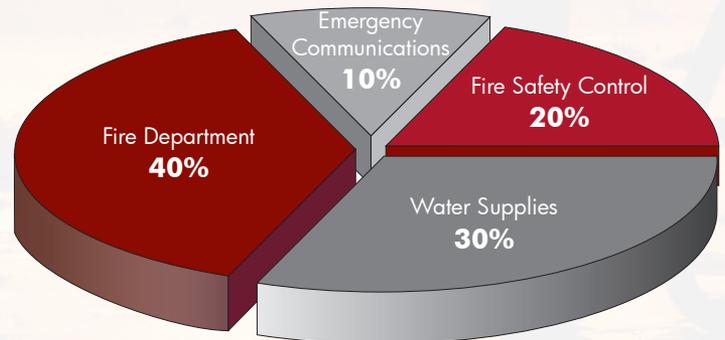
FUS produces two categories of Fire Insurance Grades:

- **Public Fire Protection Classification grades** (PFPC) for commercial and industrial risks: A scale of 1 to 10 (1 being the best).
- **Dwelling Protection Grades** (DPG): A scale of 1 to 5 (1 being the best).

Fire Insurance Grades established by Fire Underwriters Survey® reflect the analysis of more than 500 fire protection related key elements within a 5,000 assessed-point system. FUS staff analyzes and audits the overall fire protection organization of a community to determine its ability to prevent, control, and extinguish the majority of potential fires.

Route distance to servicing fire halls and available required fire flows to adequately control a fire:

In order to be recognized for fire insurance grading purposes by Fire Underwriters Survey®, a responding fire hall must be located within a maximum of 5 km route distance of the insured commercial risk. For dwellings, the acceptable maximum distance goes up to 8 km. The rationale behind FUS' approach is related to the key element of time. Time has a direct impact on controlling

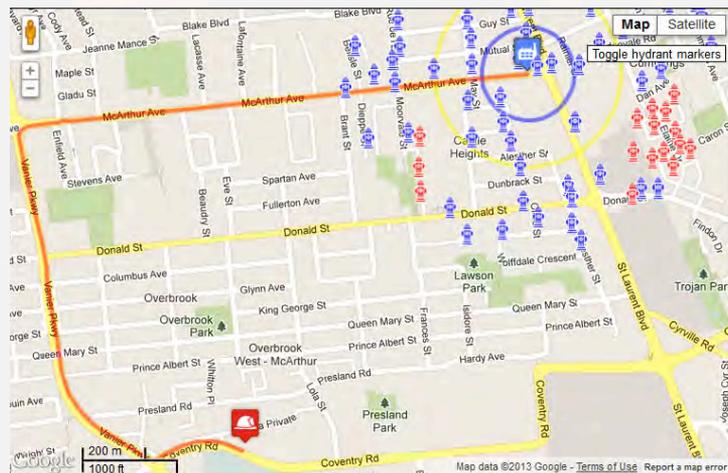


FUS Grading is based on a 5,000 assessed point system analyzing more than 500 fire protection elements

and limiting building damage due to the exponential progression of a fire. FUS classifies risks according to the occupancy type, size, and level of combustible within to determine “required extinguishing fire flows.” The latter requires adequate pressure levels and water supply.

Time adds up from the early stages of fire detection, communication to a monitoring central alarm station, relaying the information to the fire department, dispatching of the fire department, travel distance time and speed, road access, site set-up time, communications, and fire-fighting strategy. The shorter the time, the better the probabilities to coordinate interrelated elements to adequately fight fires, before reaching a flashover stage. At that stage, fire is out of control, forcing fire fighters to direct efforts towards protecting neighboring risks instead of saving the building.

Private fire hydrants are taken into account in the FUS analysis within its Canadian Fire Insurance Grading Index only when they are connected to a municipal water supply, and if the municipal fire department is responsible for the combat operations and has access to records such as maintenance and operational procedures.





COMMERCIAL FIRE INSURANCE GRADES (Public Fire Protection Classification - PFPC)

The Canadian Fire Insurance Grading Index of FUS consists of 10 grades, 1 being the best and a grade of 10 designating an unprotected risk.

FUS conducts its fire insurance grading assessment by **fire hall** rather than a global municipal grade. Furthermore, by integrating GIS data, FUS has been able to refine the process to provide more accurate fire insurance grades for every geocoded risk address.

FUS' algorithms take into account the analysis performed by its staff of all the fire halls located within a reasonable distance of a geocoded risk address to determine the **servicing fire hall**.

It may therefore be possible that the fire insurance **RISKSCOR™** grade of a risk be better with a fire hall located further away than other fire halls that are less prepared to control a fire at this specific address.

Commercial Fire Insurance Grades	FUS Credit Points	
	1	4,501
2	4,001	4,500
3	3,501	4,000
4	3,001	3,500
5	2,501	3,000
6	2,001	2,500
7	1,501	2,000
8	1,001	1,500
9	501	1,000
10	Less than 500 points	

The Commercial RISKSCOR™ Concept

Adjusted Risk Specific Commercial Property Response

Fire Underwriters Survey® introduced this concept to automatically adjust applicable fire insurance grades to every geocoded risk address. **RISKSCOR™** takes into account the servicing fire halls and the recognized fire hydrants located in the vicinity of the risk. Prior to GIS' data integration into FUS' algorithms, insurance companies had to manually apply penalties in conformity with the Property Rating Insurance tariff Manuals, to insure proper fire risk assessment and rating.

DWELLING PROTECTION GRADES

The Canadian Fire Insurance Grading Index applying to detached dwellings calls for less water, resources and equipment than for commercial risks, mainly because fires are more likely to be smaller in nature. For comparison purposes, to achieve a Dwelling Protection Grade (DPG) of 1 (the best) on a scale of 5, a Public Fire Protection Class (PFPC) 5 or better is required. Here is a brief overview of some FUS minimum requirements for Dwelling Protection Grades:

Grade	Fire Department type	Water Supply	Personnel	Other requirements
1	Career	Recognized* Municipal Water Supply with Hydrants (Class 5 or better)	On duty response (24/7) of 3 career fire fighters + 1 chief officer	Less than 8 km route distance to fire hall. Less than 300m hose lay distance to fire hydrant. Fire Department Class 5 or better.
2	Composite	Recognized* Municipal Water Supply with Hydrants (Class 6 or better)	On duty response (24/7) of 1 career fire fighter + 1 chief officer + roster with minimum 15 auxiliary fire fighters	Less than 8 km route distance to fire hall. Less than 300m hose lay distance to fire hydrant. Fire Department Class 6 or better.
3A	Auxiliary	Recognized* Municipal Water Supply with Hydrants	Roster with minimum 15 auxiliary fire fighters (trained and equipped)	Less than 8 km route distance to fire hall. Less than 300m hose lay distance to fire hydrant.
3B (S)	Career/ Composite/ Auxiliary	Accredited by FUS to deliver Superior Tanker Shuttle Service (STSS)	Roster with minimum 15 auxiliary fire fighters (trained and equipped) + mobile water supply op's	All requirements for DPG 3B must be met or exceeded. Less than 8 km route distance to fire hall. Less than 5 km route distance to recognized water supply point.
3B	Career/ Composite/ Auxiliary	Combined Apparatus water capacity minimum of 1,500 imp. gal.	Roster with minimum 15 auxiliary fire fighters (trained and equipped)	Less than 8 km route distance to fire hall.
4	Career/ Composite/ Auxiliary	Same as DPG 3B with one allowable deficiency (within limit)	Same as DPG 3B with one allowable deficiency (within limit)	Less than 8 km route distance to fire hall. Must have some ability to deliver water during a fire.
5	Unrecognized public fire protection service by FUS.			

*Water supply system designed in accordance with Fire Underwriters Survey standard "Water Supply for Public Fire Protection".



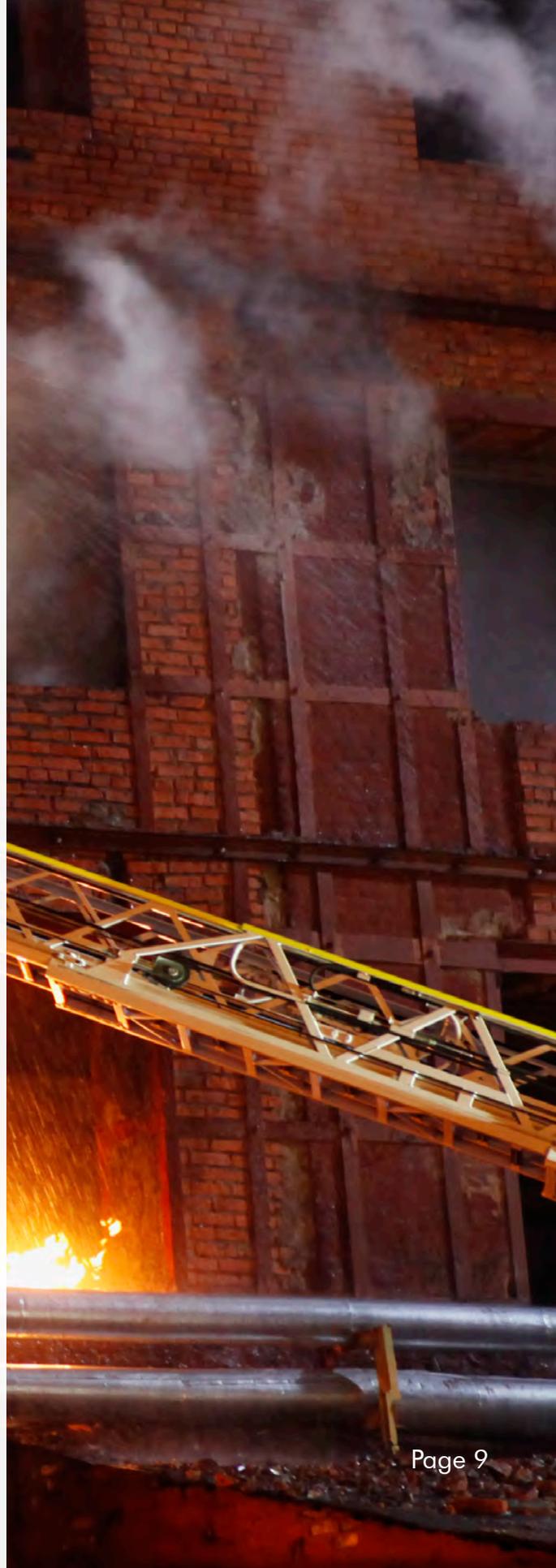


BENEFITS OF FUS FIRE INSURANCE GRADES TO MUNICIPALITIES:

- Fire Underwriters Survey® does not charge municipalities to analyze, visit, audit, update, produce, and publish fire insurance grades to the Insurance Industry;
- FUS assists municipalities with best practices relating to the overall fire protection they provide to their community, with the purpose of recognition of their efforts by the Property and Casualty Insurance Industry. FUS' engineers and field specialists insure that fire insurance grades provide municipalities and the insurance industry with a clear picture of the global fire protection in a community;
- FUS transmits up-to-date data to decision-makers. Transparency and accuracy of data in circulation favours fire insurance premiums in reflecting the reality of municipal fire control efficiency in a community. It also allows fire insurance premiums to reflect the investments made by municipalities towards fire protection;
- The integration by FUS of GIS data in its Canadian Fire Insurance Grading Index, such as fire halls and hydrants distance to risks, contributes largely in reducing the number of telephone calls and inquiries received by municipalities from insureds, who are often requested to provide this information to their brokers and insurance companies;
- Alternatively, with this information being centralized through FUS and available online through its Website to insurance companies, municipal fire departments receive less requests from the insurance industry to update the municipal fire protection information they possess to properly underwrite risks.

FIRE UNDERWRITERS SURVEY® GRADE UPDATE FREQUENCY POLICY

- Fire Underwriters Survey® has traditionally updated communities' fire insurance grades on a predetermined time period basis, varying from 10 to 25 years. It also included in its program additional updates when requested by subscribers;
- For the past several years, FUS has further increased the frequency of updates by the addition of staff and by integrating a communication program with municipalities to visit/audit whenever improvements and updates are received by FUS;
- The move of FUS a few years back to establish fire insurance grades by fire hall instead of producing an overall assessment of a municipality has largely contributed in producing more grades relating to municipal sectors;
- With GIS integration of fire data into FUS, a further closer communication era with municipalities has allowed reducing once again the frequency of updates. When updates are received and analyzed by FUS specialists, grade updates are published as deemed necessary;
- With the imminent introduction of the FUS Municipal Fire Portal, we will get closer to our goal of 5 years frequency grade update for every community in Canada. The Portal will allow municipalities to access FUS' data of their community on-line and forward updates. Such data could relate to new fire apparatus replacements, new fire halls, new construction, hydrants in new sectors, etc. This data will allow FUS to update grades rapidly and publish them to subscribers, as deemed necessary.

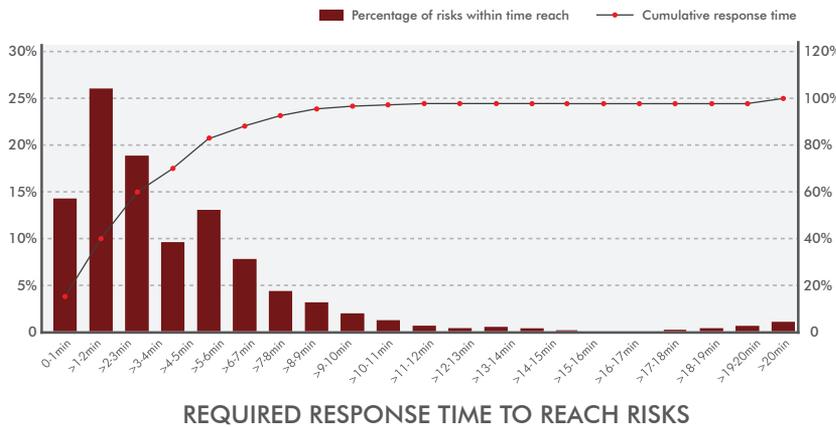


CONSULTING SERVICES AVAILABLE TO MUNICIPALITIES

With more than 100 years of experience within the Property and Casualty Insurance Industry, and its expertise in the analysis of public fire protection, Fire Underwriters Survey® offers also additional services to municipalities, as follows

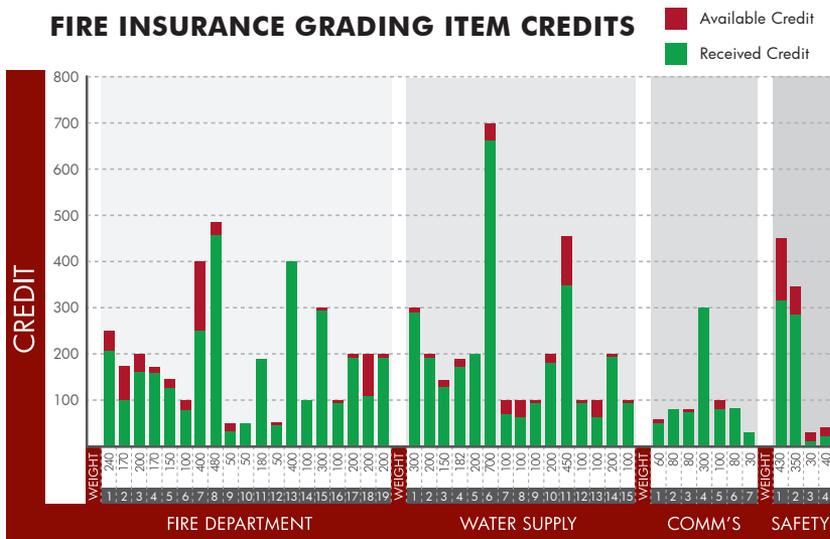
- Fire halls optimization study to analyse relocation of fire halls. This type of work assists municipalities in their strategic municipal urban development projects. It allows municipalities in their planning while promoting optimum fire insurance premiums to a larger proportion of their population;

COMPLETE FIRE PROTECTION RESPONSE TIME - RISK DISTRIBUTION WITHIN A COMMUNITY - ROAD TRAVEL TIME TO CLOSEST FIRE HALL



REQUIRED RESPONSE TIME TO REACH RISKS

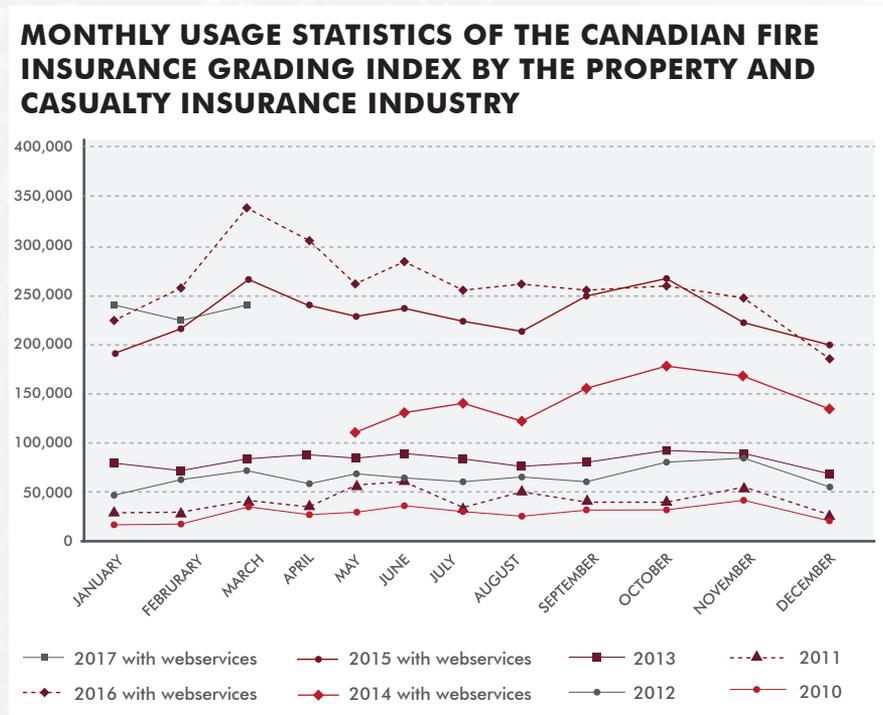
FIRE INSURANCE GRADING ITEM CREDITS



- Optimization study of allocated municipal budgets and investments towards fire protection, to get optimum benefits of the Canadian Fire Insurance Grading Index;
- Risk Mitigation: the chart constitutes the basis of FUS analysis of response time, distance and fire halls' optimum positioning to maximize municipal fire protection coverage
- Hydraulic water tests and analysis: This service is designed to determine available fire protection water flows at hydrants in various areas of the municipality, in accordance with NFPA Standard 291, for proper assessment of global fire protection within the Community;
- Analysis and Accreditation of Alternative Water Supplies for Public Fire Protection, such as a Superior Tanker Shuttle Service (STSS™). This service allows to provide recognition in fire insurance grades for eligible sectors of municipalities that do not have hydrants. FUS procedures comply with the Superior Tanker Shuttle Service Accreditation Protocol, recognized by Provincial and Canadian Fire Chiefs Associations;

- Impact and harmonization study of municipal fire departments' mergers: This service promotes optimal fire insurance grades recognition of fire services within the community;
- Analysis of resource deployment and territorial coverage of fire halls and distribution in a municipality and best fire combat strategy implementation.

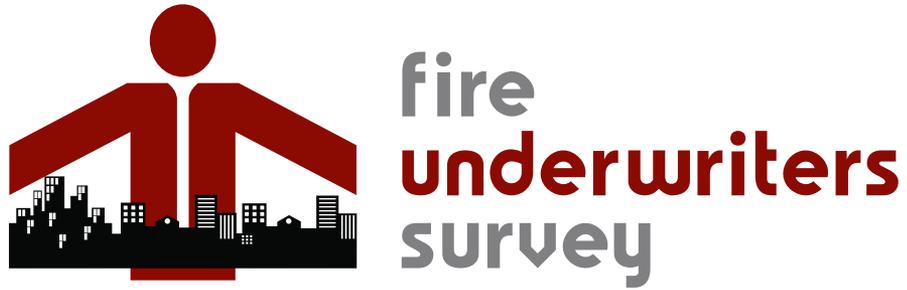
With over 200 000 FUS grading inquiries a month by the insurance industry, the graph below shows usage evolution in recent years.



FUS grading is a key component of individual fire premiums and assists municipalities in directing their fire protection investment efforts to optimize fire insurance premiums.

FIRE UNDERWRITERS SURVEY® IS COMMITTED TO BOTH THE INSURANCE INDUSTRY AND MUNICIPALITIES. FUS IS INVOLVED WITH THE PROVINCIAL AND THE CANADIAN FIRE CHIEFS ASSOCIATIONS TO SET FIRE PROTECTION BEST PRACTICES FOR ALL STAKEHOLDERS.





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