Revision to the Fire Suppression Rating Schedule (FSRS)

Applicable Lines of Business

This filing applies to the following lines of business:

- Commercial Property
- Businessowners
- Homeowners
- Dwelling Property
- Farm
- Personal Inland Marine

About This Filing

ISO evaluates municipal fire protection efforts in communities throughout the United States through the application of the Fire Suppression Rating Schedule (FSRS). The FSRS evaluates the key elements of a community's fire suppression system, which include:

- fire department,
- emergency communications, and
- water supply capabilities.

Over time, changes in technology, methods of operation and advanced fire suppression techniques have been incorporated into modern day fire suppression operations. Further, the fire service community has placed greater emphasis on nationally recognized fire protection standards. This filing updates and modernizes the FSRS to:

- reflect the current recognized and accepted standards developed by national standards organizations;
- recognize utilization of advanced technology and best practices in fire mitigation; and
- confirm the predictive capability of the evaluation process and classification structure.
Background

To survey a given community, ISO applies the Fire Suppression Rating Schedule which produces Public Protection Classifications (PPCs). The PPC program evaluates the importance of critical areas of fire protection:

- Fire department - adequacy of equipment, staffing levels, evaluation of training, existence of automatic aid, and geographic distribution of fire companies.
- Emergency communications - 911 telephone systems, adequacy of telephone lines, operator supervision and staffing, and the dispatching hardware and software systems.
- Water supply - condition and maintenance of hydrants, existence of alternative water sources, and an evaluation of the amount of available water - in volume and pressure - compared with the amount needed to suppress fires.

Based on the total number of points accumulated under the FSRS, the program assigns an advisory PPC classification from 1 to 10. Class 1 generally represents exemplary fire protection and Class 10 indicates that the community's fire protection program does not meet ISO’s minimum criteria.

ISO's property insurance programs incorporate PPC classifications as a rating element. These PPC classifications are also available for insurers to use in their own ways to reflect differing levels of public fire suppression capabilities.

Introduction

Through the application of the FSRS, ISO has gained valuable experience over years of field work conducting countrywide PPC gradings. In addition, ISO has received input on the program from a variety of sources, which include various fire, water and emergency communication associations. ISO's outreach extended to over 50 national, state and local associations involved in fire protection, including, for example, the National Fire Protection Association (NFPA), International Association of Firefighters (IAFC), American Water Works Association (AWWA) and National Academies of Emergency Dispatch (NAED).

As a result of this experience and feedback, ISO is revising the FSRS to update and modernize the Schedule. ISO conducted actuarial and statistical analyses to assure that the FSRS continues to meet its goal as an objective insurance rating tool that is predictive of property losses.
Overview

The existing structure of the FSRS has been revised to:

- update existing provisions;
- incorporate references to recognized national standards, such as those adopted by the NFPA, AWWA and Association of Public-Safety Communications Officials-International (APCO);
- include changes to the weighting of existing sections; and
- add new sections that recognize community efforts to reduce losses through Fire Prevention, Public Fire Safety Education and Fire Investigation.

The core categories in the revised FSRS and the total credit points assigned to each of the major categories remain unchanged:

- Fire Alarm (Now "Emergency Communications"): 10 points
- Fire Department: 50 points
- Water Supply: 40 points

Within these categories, the content and focus of individual 'Items' (now referred to as 'Sections') has been revised, and the point weights adjusted.

A new category, "Community Risk Reduction", has been added to provide up to 5.5 extra credit points. The new category includes:

- Fire Prevention Codes and Enforcement
- Public Fire Safety Education
- Fire Investigation

Rate Level Effect

The application of the revised FSRS, which incorporates nationally recognized consensus standards, data analysis and decades of practical engineering experience, will be implemented on a community-by-community basis throughout the country. There will be no change in ISO loss costs as a result of this revision to the FSRS.
Attachments

- Section A - High-Level Description By Section of Significant Changes to the FSRS
- Section B - Change in Weights/Points Assignment
- Section C - Actuarial Support

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Section A: High Level Description by Section of Significant Changes to the FSRS

Each section of the FSRS has been revised to update existing provisions, to delete obsolete items and to include reference, where applicable, to nationally recognized standards developed by expert organizations. Further, based on extensive actuarial research, changes were made to the points assigned where actuarial analysis indicated such points should be increased or decreased. A chart indicating the changes in points for each item is included as Section B.

While the entire Schedule has been rewritten and updated, many of the changes are editorial in nature. The following is a brief description of the substantive changes to the FSRS:

Chapter I Public Fire Prevention and Suppression

Section 100 - Introduction

Section 103 – Fire Protection Area

The word "City" was replaced with the more generic term "Fire Protection Area" to reflect the rapidly evolving and expanding civil subdivisions that are consolidating fire suppression services.

Section 105 – Calculations

This Section was clarified to indicate that credit is limited to 75% of the points possible when only partial documentation of an item exists. When no documentation of an item exists to substantiate an item being reviewed, no credit will be given unless otherwise stated.

Section 106 – Reference Standards

This Section was added to specify that whenever it is necessary to refer to a reference document (e.g. National Fire Protection Association Standards), it is referring to the latest edition of the reference document.

Section 200 – Schedule Application

Section 201 - Application:

- Section 201A1 was changed to increase the minimum pump capacity from 250 gpm to 750 gpm for Class 1-8.
- Section 201B1 was changed to increase the minimum pump capacity from 250 gpm to 750 gpm for Class 8B.
- Section 201C1 was changed to increase the minimum pump capacity from 50 gpm to 250 gpm for Class 9.
- Section 201C1 was changed to reduce the minimum size of the water tank from 300 gallons to 200 gallons on the frontline pumper used for Class 9.
- Section 201C3 was added to increase the minimum amount of water from 300 gallons to 500 gallons that needs to be delivered for Class 9.

Overall, the revisions to minimum criteria in Section 201 are expected to have a minimal effect on community classifications, as they reflect current standards in place in most communities.

**Section 300 - Needed Fire Flow**

**Section 301 - Automatic Fire Sprinkler Systems**

Section 301 was added to provide the method to calculate Needed Fire Flow (NFF) - the amount of water that should be available to provide fire protection for a selected location - for commercial buildings recognized by ISO as sprinklered, as well as other buildings not recognized as sprinklered but for which evidence exists that a sprinkler system is installed and maintained.

**Section 310 - Construction Factor:**
- A definition of Effective Area has been added.
- This Section was revised to indicate that buildings constructed in two or more Construction Classes shall be defined as a single Construction Class as determined by the ISO Specific Commercial Property Evaluation Schedule (SCOPES) “Classification Of Mixed Construction”.

**NOTE:** SCOPES is used by ISO to establish hazard relativities and advisory loss costs for specific eligible properties. It provides the underlying factors that ISO uses to evaluate building construction, occupancy hazard relativities, protection credits and exposure for these specific risks.

**Section 320 - Occupancy Factor**

This Section now specifies that buildings that contain multiple occupancies shall have their occupancy expressed as a single occupancy classification as determined by SCOPES “Combustibility Classification Applicable to Buildings”.

**Section 330 - Exposure and Communications:**
- Section 330 was amended to modify the formula related to exposure with adjacent buildings.
- Tables 330A and 330 B have been modified to be consistent with SCOPES.
Section 340 - Calculation of Needed Fire Flow:

- This Section was revised to add automatic sprinkler system recognition for dwelling and residential occupancies.
- The fire flow duration for single family dwellings has been reduced to one hour.
- An exception was added to allow the NFF formula to be applied for large one- and two-family dwellings.

Section 400 - Emergency Communications

Section 400 - General (Formerly Receiving and Handling Fire Alarms)

We have renamed “Receiving and Handling Fire Alarms” to “Emergency Communications”. There is a shift in emphasis to a performance-based standard.

Section 410 - Emergency Reporting (formerly Telephone Service):

- This Section includes wire line or wireless telephone and other electronic reporting means. The emphasis was changed to an evaluation of the type of Basic or Enhanced 9-1-1 system used to take emergency calls and the level of sophistication of the system in regard to its ability to handle differing types of calls.
- The criteria for the number of needed emergency and business lines, call progression, telephone directory listing and the recording device was eliminated.

Section 420 - Telecommunicators (formerly Number of Needed Operators)

This Section evaluates the primary responsibilities of receiving, processing and disseminating public safety information via telecommunications devices. Added emphasis was put on telecommunicator training and certification including continuing education and quality assurance. Additional credit is applied if the dispatch center has adopted the use of standard emergency dispatch protocols including pre-arrival instructions for fire.

Section 430 - Dispatch Circuits:

- Credit has been added for an Uninterruptible Power Supply (UPS) when used in combination with an automatically-started or manually-started emergency generator.
- The credit for dispatch recording facilities at the communications center has been eliminated.
Section 500 - Fire Department

Section 507 - Automatic Aid:

- This Section was added to clarify that Automatic Aid is a consideration throughout the Fire Department evaluation rather than, as under the current schedule, addressed separately under each section. In addition, a description of the requirements for application of Automatic Aid was included.
- The calculation of an Automatic Aid factor has been changed to increase the maximum credit allowable.

Section 510 - Engine Companies:

- The determination of additional needed engine company locations has been eliminated.
- Weighting has been decreased from 10 points to 6 points to reflect a shift in emphasis from the number of apparatus and the equipment carried, to the placement of those apparatus (performance-based standards).

Section 511 - Number of Existing Engine Companies

Minimum pump capacity has been increased from 250 gpm to 750 gpm for at least one in-service pumper in accordance with the applicable NFPA standard.

Section 512 - Equipment on Existing Engine Companies:

This Section has been revised as follows:

- Pump capacity and hose capacity minimums for individual pumper credit have been revised to bring the requirements closer to those specified by the applicable NFPA standard while retaining the relationship with the hydrant distance required by the FSRS.
- The equipment tables have been re-formulated, to reflect only equipment that is outlined in the current edition of NFPA 1901.
- The equipment tables have been moved to Appendix A.

Section 523 - Credit for Reserve Pumpers

The analysis for reserve pumpers has been changed to credit actual reserve apparatus, in the same manner that is applied to in-service apparatus.

Section 540 - Ladder/Service Companies:

- The determination of additional needed ladder/service company locations has been eliminated.
- Weighting has been decreased from 5 points to 3 points to reflect a shift in emphasis from the number of apparatus and the equipment carried, to the placement of those apparatus (performance-based standards).
Section 542 – Equipment on Existing Ladder, Engine-Ladder, Service, Engine-Service Companies

- The equipment tables have been re-formulated, to reflect only equipment that is outlined in the current edition of NFPA 1901.
- The equipment tables have been moved to Appendix A.

Section 553 - Credit for Reserve Ladder and Service Trucks

The analysis for reserve ladder and service trucks has been changed to credit actual reserve apparatus, in the same manner that is applied to in-service apparatus.

Section 560 - Deployment Analysis (formerly Distribution of Companies):

- This section now considers the placement of engine and ladder/service companies with respect to their ability to protect the area they serve.
- This section now states that an alternative to a road mile distribution study is permitted. A deployment analysis based upon the results of a systematic performance evaluation can be used if it meets the appropriate criteria. This is expected to result in an increase in credit for those communities which can demonstrate response performance in accordance with national standards.
- Weighting has been increased from 4 points to 10 points to reflect a shift in emphasis from the number of apparatus and the equipment carried, to the placement of those apparatus (performance-based standards).

Section 570 - Existing Company Personnel:

- Section 570A - On-Duty Firefighters at Fire Stations (formerly On-Duty Strength):

This section was revised to clarify the definition regarding who and when firefighters are to be considered as On-Duty. Also included are Chief Officers and administrative personnel and the situations in which they may be included.

- Section 570B - Public Safety Officers (PSO):
  - A separate credit is established under Company Personnel for Public Safety Officers (PSOs), such as law enforcement officers or water department employees.
  - Qualifying criteria were added to cover basic guidelines for recognizing PSOs on the basis of the average number of members responding on the initial alarm (first alarm) to structure fires. PSOs are credited on a 2:1 ratio.
- Section 570C - On-Call and Off-Duty Firefighters (formerly Call and Volunteer Members):

A clarification was added to indicate that volunteer firefighters may be considered as On-Duty when assigned to a station according to a pre-set schedule.

- Section 570D - Automatic Aid Response:

The available credit was expanded for firefighters responding from qualifying automatic aid departments not credited as existing companies, when they respond on the initial alarm to structure fires.

**Section 580 - Training**

This Section was revised to:

- Add reference to the national standards to provide direction and guidance to the fire service on what constitutes adequate records.
- Qualify that credit for training is for structure fire-related subjects only.
- Reduce the number of hours of company training from 20 to 16 hours per member per month.
- Separate the evaluation and credit for training that is conducted at a training facility from that conducted at a fire station or when using streets, buildings and open areas.
- Reduce the required frequency of pre-fire planning from semi-annual to annual.

**Section 600 - Water Supply**

**Section 613 - Main Capacity**

This Section was amended to add the option to credit the results of a properly balanced and tested hydraulic water system model in lieu of actual fire hydrant flow test results.

**Section 614 - Hydrant Distribution:**

This Section was revised to:

- Increase the maximum credit for each standard hydrant within 1000 feet of the NFF from 1,000 gpm to 1,500 gpm in accordance with national standards.
- Eliminate the crediting of different hydrant distribution values based on the hydrant’s distance from the NFF building for simplification and uniformity.
These changes are expected to result in no change in credit for most communities, and a minimal increase in credit for those communities where hydrant distribution is currently deficient.

**Section 620 - Hydrants - Size, Type and Installation**

Deductions were eliminated, due to a lack of measurable impact on fire suppression capability, for different direction of operation; different hose threads and different operating nuts.

**Section 630 - Inspection and Fire Flow Testing of Hydrants (formerly Inspection and Condition of Hydrants):**

- Section 630A - Inspection:
  - Points for inspection frequency and completeness were modified.
  - The deduction for lack of inspection records was revised to allow for no credit for inspections that are not recorded.
  - The minimum credit for inspections that are completed with a frequency of 5 years or more was eliminated.

- Section 630B - Fire-Flow Testing:
  - The credit for evaluation of a Fire-Flow Testing program is new and follows the guidance of the AWWA and NFPA standards. This item is intended to incent good fire protection policy by allowing credit for a periodic fire-flow testing program.
  - The ability to credit the flow prediction results of a properly installed and calibrated hydraulic water system model, in lieu of a comprehensive fire-flow testing program, was added.
  - Credit for a hydrant marking program was included.

**Section 700 - OPERATIONAL CONSIDERATIONS**

**Section 700 - General**

This new section reviews fire department Standard Operating Procedures (SOP) and Incident Management Systems for emergency operations involving structure fires.

**Section 710 - Credit For Standard Operating Procedures:**

- This section provides credit for the establishment of SOP's for fire department structure fire operations.
- The reviewed items are limited to SOP’s having a direct relationship with the Fire Suppression Rating Schedule.
Section 720 - Credit For Incident Management System

This section provides credit for the establishment of an Incident Management System.

Section 1000 - Community Risk Reduction (Newly Added Section)

Section 1020 - Fire Prevention Code Adoption and Enforcement:

This section assesses the Fire Prevention Code adoption and enforcement capabilities of a community. Fire Prevention Code and Enforcement is based on:

- Adoption and maintenance of one of the model codes.
- The number and qualifications of fire prevention personnel, including certification and continuing education.
- Activities of the Fire Prevention Programs, including: plan review, certificate of occupancy inspections, quality control, code compliance, inspection of private fire protection equipment, fire prevention ordinances, and coordination with fire department training and pre-incident planning activities.

Community Risk Reduction will reference NFPA 1, *Fire Code* and ICC International Fire Code as appropriate model codes. Full credit for adoption of codes will be available if the community has adopted the latest edition. Lesser credit will be available for earlier versions.

This Section specifies that sufficient Fire Prevention Inspectors are needed to perform fire prevention inspections on all nonresidential structures at least once a year. State or county fire prevention inspectors, as well as fire suppression personnel who perform in-service fire prevention inspections, may be considered as Fire Prevention Inspectors. Certification and training of Fire Prevention Inspectors are evaluated in this Section.

Activities of the fire prevention programs will be reviewed, including: plan review, certificate of occupancy inspections, quality control, code compliance, inspection of private fire protection equipment, fire prevention ordinances, and coordination with fire department training and pre-incident planning activities.

Section 1030 - Public Fire Safety Education:

This section appraises the Public Fire Safety Education capabilities of a community. Public Fire Safety Education is based on:

- The existence of a fire safety education program.
- Qualifications and training/certifications of public fire safety educators.
- Activities of the various Public Fire Safety Education Programs, including: residential fire safety programs, fire safety education in schools,
juvenile firesetter education programs and fire safety education in occupancies with large loss potential or hazardous conditions.

Section 1040 - Fire Investigation:

This section examines the Fire Investigation activities of a community and is based on:

- Establishment of authority to conduct and enforce fire investigations.
- The number and qualifications of fire investigators.
- Activities of the fire investigation staff.
- Use of the National Fire Incident Reporting System.

The number of fire investigators for full credit must be sufficient to investigate all structure fires and may include fire investigators with authority from the state fire marshal’s office or the county or other civil jurisdiction.

Credit for use of the National Fire Incident Reporting System is based on satisfactory reporting for the three years before an evaluation.

Section 1100 - Total Credit And Classification

Section 1101 - Public Protection Classification

The Public Protection Classification formula was adjusted to reflect the revised FSRS.

Section 1200 - Class 8B Protection

Section 1201 - Class 8B Protection Criteria:

- Section 1201A - Emergency Communications:
  The minimum number of points for Emergency Communications needed to qualify for Class 8B has been reduced.

- Section 1201B - Fire Department:
  Emphasis was changed from a relative class 6 fire department grading to having adequate equipment to respond.

- Section 1201C - Water Supply:
  The scope of areas covered by the minimum fire flow was revised to require that the fire department must deliver the minimum water supply to the entire buildable area within 5 miles of the responding fire station in order to qualify for Class 8B.
Section 1300- Class 9 Protection

Section 1310 - Class 9 Protection Criteria

Section 1310A - Personal Protective Clothing is a new Section, included to encourage safe firefighting practices. Each person credited must have available to them, while on the fireground, a protective clothing ensemble meeting the general criteria as referenced in the national standards.

Section 1312 - Class 9 Classification

Several changes were made to the equipment list, to reflect equipment items outlined in NFPA 1901, *Chapter 6-Initial Attack Fire Apparatus*.

Chapter II Individual Property Fire Suppression

Section 2102 - Evaluation of Fire Department Companies

In Section 2102B the maximum potential credit for automatic aid engine and ladder companies and automatic aid engine-ladder companies was increased.

Section 2311 - Public Protection Classification for an Individual Property

The revised Schedule clarifies that the Public Protection Classification for an individual property located in an area classified as Class 8B shall be Class 9, due to water supply limitations.
## Section B - Change in Weights/Point Assignment

### CURRENT FSRS

#### RECEIVING AND HANDLING FIRE ALARMS

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### REVISED FSRS

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<td>621</td>
<td>Hydrant Size, Type and Installation</td>
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**TOTAL POINTS-CURRENT SCHEDULE**: 100+

**TOTAL POINTS-REVISED SCHEDULE**: 105.5+