Risk Assessment Form

Compliant to NFPA 1851 (2014 edition)

NFPA 1250, Recommended Practice in Fire and Emergency Service Organization Risk Management for Fire Departments, advises in Chapters 4 and 5 that Fire Departments have a risk management plan. As part of the fire department's risk management plan, appropriate persons should conduct a risk assessment related to workplace safety.

NFPA 1851 Chapter 5, states that prior to starting the selection process of structural firefighting ensembles and ensemble elements and proximity firefighting ensemble and ensemble elements, the organization shall perform a risk assessment. The NFPA 1851 risk assessment for structural firefighting PPE should be part of the overall risk management plan of the fire department, and therefore approved by the fire department through a formal, documented approval process. The 1851 risk assessment should be conducted by appropriately trained persons, for example the safety officer and safety committee, or other appropriate personnel.

In determining risk, the organization should consider the frequency or likelihood of exposure to the hazard along with its potential severity (consequence) if exposure occurs.

In performing the risk assessment, the organization should consider all of its responsibilities. In some departments there might be different stations or units that require different types of ensembles

This form provides the required NFPA 1851 categories of information to be assessed as part of performing the risk assessment.

1. Types of duties performed

2. Frequency of use of ensemble elements

3. Organization's experiences

4. Incident operations

5. Geographic location and climate

6. Specific physical area of operation

7. Likelihood of or response to CBRN terrorism incident

In addition, as suggested in NFPA 1851 A.5.1.1., this form also provides the recommended form for assessing the fire department's current specification and possible areas of improvement.

1. Fire Department Demographic Information

a. Type of Department
   i. ___ Volunteer
   ii. ___Professional
   iii. ___Combination Volunteer and Professional
b. Size of Population Served_____
c. Area of service in square miles:_____
d. Total Number of Firefighters in Fire Departments_____
e. Comments:_____

2. Climate. Indicate the frequency of different climates in your area of operation that could affect your selection of PPE.

Hot/Humid

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

Hot/Dry

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

Moderate Temperatures Humid

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

Moderate Temperatures Dry

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

Cold/Humid

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

Cold/Dry

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

High Winds

1. Never
2. Rarely
3. Sometimes
4. Often
5. Always

Other_____

6. Never
7. Rarely
8. Sometimes
9. Often
10. Always

Based on the above, what are the primary climate factors that impact PPE selection?

_____

3. Geography. Indicate the different types of Geographic Areas in your Departments response area:

1. Mountains/Steep Terrain
2. Grasslands/Farmland
3. Urban
4. Suburban
5. Forests
6. Water and Shoreline

How do the unique features of your area's geography affect PPE selection: (example: mountain terrain creates exposure to high angle recue)

_____

4. Engineered Features. Indicate the type of structures located in your fire department's response area

1. ___Highways
2. ___Bridges
3. ___Airport
4. ___Railroad
5. ___Multi-story High-rise buildings
6. ___Single family Residential and Low rise buildings
7. ___Dam and reservoirs
8. ___Industrial/Large Warehouse
9. ___Commercial/retail
10. ___Petrochemical
11. ___Port
12. Military or government installation

How do the engineered features in your area affect PPE selection: (Example: multi-story high rise leads to high risk of emergency escape situations

_____

5. Type of Duties and Incident Operations. Check all of the types of duties that apply to your fire department:

◯ Maintain Equipment

◯ Layout hoses

◯ Technical Search/Rescue

◯ Direct Traffic and Place barriers

◯ Clean and Repair Ensembles

◯ Operate equipment

◯ Vehicle Extrication and Operating power tools

◯ Forcible Entry into a Structure/Remove barriers using power tools

◯ Airport Rescue Firefighting

◯ Monitor Calls

◯ Attack and suppress interior structure fire

◯ Emergency Medical Services

◯ Industrial Fire Response

◯ Housekeeping

◯ Attack and suppress Passenger Vehicle Fire

◯ Place/Climb Ladders

◯ Hazardous Materials Response

◯ Water Rescue

◯ Recordkeeping Reporting

◯ Perform Horizontal Ventilation on Structure

◯ Wildland firefighting

◯ High Angle Rescue

◯ Salvage Overhaul

◯ CBRN Response

◯ Confined Space/Trench Rescue

◯ Search and Rescue in a structure

◯ Exterior Fire Attack and suppression

6. Organization's Experiences and the Frequency of use of Ensemble Elements

Using Fire Department Records, indicate the frequency of responses to these leading types of incidents and the types of ensembles used during those incidents.

Use the following types of ensembles to enter in column 3 below: 1. Turnout Gear Ensemble; 2. Proximity Ensemble; 3. Hazmat ensemble; 4. EMS Ensemble; 5. CBRN Ensemble; 6. Wildlands Ensemble; 7. Tech rescue/Extrication ensemble

	Total Number of Incidents	Percent of Total	Type of Ensemble Elements Used (Use numbers from list)
1. Carbon Monoxide Incident			
2. Structural Fire			
3. Gas Leak			
4. Haz Mat			
5. Water Rescue			
6. Medical			
7. Non-Emergency			
8. High Angle Rescue			
9. Vehicle Fire			
10. Vehicle Incident			
11. Water problem			
12. Wires Down			
13. Proximity Industrial Fires			
14. Proximity Aviation Fires			
15. Wildlands/brush fires			
TOTALS			

From the above data, calculate the frequency of use of Protective Ensembles by adding up the total number of incidents using each type of protective ensemble:

Type of Gear	Frequency of Use (Add up the # of Incidents)
1. Turnout Gear Ensemble	
2. Proximity Ensemble	
3. Hazmat ensemble	
4. EMS Ensemble	
5. CBRN Ensemble	
6. Wildlands Ensemble	
7. Tech Rescue/Extrication ensemble	

Comments on Current availability of appropriate PPE

_____

7. Types of Injuries by Nature of Injury

Using the fire department's data, indicate the top areas of injury to firefighters in the past year.

Type of Injury	Frequency
1. Strain/Sprain	
2. Wound/cut/bleeding/bruises	
3. Dislocation, Fracture	
4. Smoke, Gas inhalation or respiratory distress	
5. Burns from fire or chemicals	
6. Heart Attack, Stroke	
7. Thermal Stress	

Comments regarding adequacy of PPE or areas of need based on injury pattern:

_____

8. Likelihood and Severity of possible CBRN terrorism incident. Use the matrix below to create an estimate of likelihood and severity to produce a risk rating by multiplying the values together.

Likelihood (Points)

1. __Not at all likely
2. __Slightly likely
3. __Moderately likely
4. __Very likely
5. __Completely likely

Severity (points)

___Low (1 point)

___Medium (5 points)

___High (7 points)

CBRN Risk Rating Score = Likelihood x Severity= _____

< 15 is low risk

9. **Hazard Risk Matrix for Firefighter PPE Evaluation.** Use this table to identify key hazards in firefighting arising from the operations, environment and duties identified in the previous sections.

Severity Rating: Negligible-2; Minor-4; Serious-6; Critical-8; Extreme-10;

Probability Rating: Improbable-2; Slightly probable-4 moderately probable-6; very probable-8; Completely probable-10

Anticipated Hazards	**Severity (rate 2-10)**	**Probability (rate 2-10)**	**Risk Factor (Severity x Probability)**
Radiant Heat			
Convective Heat			
Compression against Hot surfaces			
Direct Flame Exposure			
Flashover/Explosion			
Steam			
Heat Stress			
Cold Stress			
Molten Metals			
Slips and Fall Hazards			
Hot liquids			
Struck by falling objects			
Cuts			
Penetration			
Abrasion/rough surfaces			
Falls from high elevations			

10. Needs Evaluation

Based on climate, geography, engineered structures, size and type of department, previous experience, duties and risk of CBRN incidents, identify the most important needs for your personal protective clothing:

a. NFPA 1971 Turnout Gear

Hazard Protection/Performance Element	Departmental Need (Rate 1-5)	Rating of Current PPE (Rate 1-5)	Gap
Mobility features			
Fit for a range of body types			
Ease of Donning and Doffing			
Providing a wide range of motion/reach			
High Thermal Protection			
High level of Cut Resistance			
High Abrasion protection			
Steam protection/ability to allow heated moisture to ventilate out			
Hot Liquid protection when crawling and kneeling			
High levels of Reflectivity/Visibility			
High Breathability of composite			
Stress Reduction			
Durability of Fireground chemical resistance (battery acid, chlorine, AFFF, hydraulic fluid)			
CBRN protection features			
Liquid integrity- protection against hose water			
Ease of Deploying DRD			
Effectiveness of Safety harnesses, ladder belt or escape belts for emergency situations			
Effective overlap between coat and pant when reaching overhead			
Durability of Fasteners			
Seam strength and durability			
Bloodborne pathogen protection			
Resistance to compressive heat transfer in the knees and shoulders (CCHR)			
Effective Inspection, Cleaning and Repair Services to keep PPE in clean safe operating condition			
Warranty to ensure that defective gear is prevented from getting into service			
Delivery time for new and replacement gear and Dealer Services (Service Component)			

b. NFPA 1971 Helmets

Hazard Protection/Performance Element	Departmental Need (Rate 1-5)	Rating of Current PPE (Rate 1-5)	Gap
Comfortable weight/avoidance of neck strain			
Fit			
Ease of Donning and Doffing			
Interface with SCBA			
Penetration resistance			
Hot Liquid protection			
Reflectivity/Visibility			
Effective Inspection, Cleaning and Repair Program			
CBRN protection			
Impact protection			
Visual acuity of Faceshield or goggles			
Performance in extreme cold conditions			
Heat resistance of materials			
Delivery Time			
Warranty			
Resistance to electrical conduction			

c. NFPA 1971 Hoods

Hazard Protection/Performance Element	Departmental Need (Rate 1-5)	Rating of Current PPE (Rate 1-5)	Gap
Comfortable weight/avoidance of neck strain			
Fit			
Ease of Donning and Doffing			
Interface with SCBA facemask			
Liquid protection			
CBRN protection			
Performance in extreme cold conditions			
Heat resistance of materials			
Delivery Time			
Warranty			
Resistance to electrical conduction			
Effective Inspection, Cleaning and Repair Program			

d. NFPA 1971 Gloves

Hazard Protection/Performance Element	Departmental Need (Rate 1-5)	Rating of Current PPE (Rate 1-5)	Gap
Dexterity			
Comfort			
Fit			
Range of motion			
Wrist protection			
Ease of Donning and Doffing			
Liquid absorption protection			
Breathability			
CBRN protection			
Performance in extreme cold conditions			
Heat resistance of materials			
Delivery Time			
Warranty			
Resistance to electrical conduction			
Effective Inspection, Cleaning and Repair Program			

e. NFPA 1971 Structural Firefighting Footwear

Hazard Protection/Performance Element	Departmental Need (Rate 1-5)	Rating of Current PPE (Rate 1-5)	Gap
Light weight			
Comfortable fit			
Ankle support			
Abrasion protection			
Crush protection			
Penetration Protection			
Ease of Donning and Doffing			
Liquid absorption protection			
Interface with turnout gear			
Breathability			
CBRN protection			
Performance in extreme cold conditions			
Heat resistance of materials			
Delivery Time			
Warranty			
Resistance to electrical conduction			
Effective Inspection, Cleaning and Repair Program			