Fire Safety Plan (FSP)

Development Guide for Industrial Occupancies

FIPI

Fire Inspection &
Prevention Initiative

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Acknowledgements

This guide was derived from a document originally prepared by Ontario's Office of the Fire Marshall.

It has been revised by the Fire Inspection and Prevention Initiative (FIPI) LAFC Inspection Working Group to reflect the *BC Fire Code* requirements.

The Office of the Fire Commissioner (OFC) is the senior fire authority in the province of British Columbia with respect to fire safety and prevention. The OFC has reviewed the guide and considers it to be a valuable tool for use in developing a Fire Safety Plan in industrial occupancies.

Notice

This document has no legal effect. It is intended to be a guide for preparing Fire Safety Plans for industrial occupancies. It does not replace any legislation pertaining to the industrial occupancy.

Abstract

BC Fire Code, Division C, Part 2 (Administrative Provisions), Sentence 2.2.1.1 (1) states "Unless otherwise specified, the **owner or the owner's authorized agent** shall be responsible for carrying out the provisions of this code.

One such provision is the preparation, implementation and maintenance of a Fire Safety Plan (FSP).

The three objectives of an FSP are:

1. Fire Prevention
2. Occupant Safety
3. Fire Control and Extinguishment

From a business perspective, these objectives are sensible. The cost of a fire will typically be higher than the cost to producing, implementing and maintaining a FSP. The building owner or owner's authorized agent is ultimately responsible for ensuring that the plan is correct, complete and implemented in order to achieve the above three objectives.

This guideline is intended to assist owners and operators of industrial operations who are required to develop and implement effective FSPs for their businesses. The guideline has been designed in an easy to use, step-by-step format, with some checklists and examples that can be useful for preparing a comprehensive FSP.

1.0 SCOPE

Fire safety is an important responsibility for everyone. The consequences of poor fire safety practices and a lack of emergency planning are especially serious in properties where processes or quantities of stored materials could pose a serious threat, not only to the business and its employees, but also to the community and environment in the event of an emergency.

In an effort to prevent fires and minimize the damage from fires when they occur, a properly developed and implemented Fire Safety Plan (FSP) is required. The FSP identifies the manner in which the building owner or operator will achieve three objectives:

1. Fire Prevention – To prevent the occurrence of fire through the control of fire hazards and the proper maintenance of the building safety systems and facilities.
2. Occupant Safety – To establish a systematic method for safe and orderly evacuation of the building in the case of fire or other emergency.
3. Fire Control and Extinguishment – To establish procedures that will maximize the probability of controlling and extinguishing a fire in the safest and most efficient manner.

The FSP not only reflects the unique characteristics of the building and any hazardous processes and operations it contains, but also considers the available firefighting infrastructure. For this reason, the FSP must be prepared by the owner or owner's authorized agent in cooperation with the local fire department and other applicable regulatory authorities, such as WorkSafeBC and the BC Safety Authority.

This guideline provides a simple ten step process and checklists that can help owners and operators put together a comprehensive FSP for their workplace.

2.0 DOCUMENTING YOUR FIRE SAFETY PLAN

This guide should assist you identify and develop, or gather, all the necessary information that needs to be included in an FSP. All that information can then be documented using any FSP template or format. **However**, before selecting a FSP template or format to document your plan, consult with your local fire department, as they may have a preferred document template/format.

It is to your operation's benefit to use their preferred format. Your local fire department use FSPs from all the public buildings within their jurisdiction. In an emergency, familiarity with the FSP format makes it easier and quicker for firefighters to find the information needed to respond appropriately to the emergency. If the emergency is at your facility, you will appreciate every minute not spent looking for critical information.

3.0 BACKGROUND

3.1 General Requirements for Fire Safety Planning

An FSP conforming to Division B – Part 2, Section 2.8 of the *BC Fire Code* is required for buildings or areas described in Division B – Part 2, Article 2.8.1.1.

Articles in other sections of Division B – Part 2 identify additional specific items that, if they exist in your operation, will require additional information in the FSP. They include but not limited to:

- Article 3.1.2.6 –additional information if dangerous goods (e.g., radioactive, explosives, compressed gases, reactive) are stored or handled;
- Article 3.2.2.5 – additional information if certain products (see section 3.2.1.1) are stored indoors;
- Article 3.3.2.9 – additional information if certain products (see section 3.3.1.1) are stored outdoors;
- Sentence 4.1.6.1.(4) – additional information for spill control and drainage systems if flammable and combustible liquids stored, handled, used, and/or processed in your operations;
- Article 4.3.14.5 – additional information for storage tanks containing flammable or combustible liquids;
- Article 5.1.5.1 - additional information if processes and operations involve a risk from explosion, high flammability or related conditions that create a hazard to life safety. Hot Works, Dust-Producing Processes, Special Processes involving Flammable and Combustible Liquids and Materials, and Laboratories are examples of processes and operations captured in this section;
- Article 5.6.1.3 - additional information, prior to commencement of construction, alteration or demolition, is required.

The FSP must meet all of the requirements of the applicable sections in the *BC Fire Code*. To that end, use of experienced and trained employees, contractors or other individuals who are familiar with the content and design of FSPs is highly recommended. Further, an individual with intimate knowledge of the workings and hazards associated with the individual facility or operation must be involved to ensure specific issues related to that business are addressed. In addition, a qualified professional or subject matter expert (Engineer, Architect, fire safety consultant, etc.), may be consulted to assist with development of the plan or portions of the plan. Finally, communications with the local fire department help ensure congruency with their expectations and operations, as well as providing them knowledge of the facility.

Developing and implementing a FSP demonstrates an interest in promoting fire safety. In return for resources used to develop a FSP, the incidence and impact of fire will be reduced. The FSP is crucial for worker and public safety; it is much more than a template document produced just to meet a regulatory requirement.

The completed FSP may be reviewed be the local fire department. A copy is to be retained on site in an accepted location. The owner is responsible for implementing all aspects of the FSP, for keeping it current and applicable at all times, and for ensuring employees are well trained in its expectations.

3.2 What is a Fire Safety Plan?

The FSP is a detailed document designed to deal with all aspects of fire safety relating to a **specific** building or property. The document is intended to be a reference manual outlining the fire safety

practices to be routinely used. It should be developed and updated as required to remain in conformance with all of the fire safety plan requirements of the most recent *BC Fire Code* edition.

(Review the following information now, and use this checklist as you prepare your FSP to be sure the plan addresses each of these issues. Refer to the actual BC Fire Code Requirements outlined in Division B – Part 2, Section 2.8 and BC's Office of the Fire Commissioner's Information Bulletins related to fire safety planning at www.embc.gov.bc.ca/ofc/services/bulletins/index.htm to ensure a complete and comprehensive FSP for the property. The BC Fire Code is available to be viewed online through Public Libraries at http://www.bccodes.ca/library-access.aspx?vid=QPLEGALEZE:bccodes_2012_view)

Each FSP should include the following information to achieve the three objectives – fire prevention, occupant safety, and fire control and extinguishment:

- Emergency procedures to be used in case of fire, including: sounding the alarm, notifying the fire department, provisions for access for fire fighting, instructing occupants on procedures to be followed when the fire alarm sounds, evacuating endangered persons, and confining, controlling and extinguishing the fire;
- The means to prevent fires and the methods to control fire hazards throughout the business;
- Instructions to ensure means, implemented to prevent fires and methods to control fire hazards throughout the business, are followed;
- Information about the appointment, organization and instruction of designated supervisory staff and other occupants, including their related fire safety duties and responsibilities;
- The method and frequency of conducting fire drills;
- Detailed maintenance procedures for fire protection systems and building facilities, systems, equipment and devices;
- The identification of alternate fire safety measures in the event of a temporary shutdown of fire protection equipment or systems, so that occupant safety can be assured;
- Instructions and schematic diagrams describing the type, location and operation of building fire emergency systems;
- In outdoor tire storage yards include procedures for notifying the fire department and assisting them in accessing the property for water tanker shuttle operations and fire fighting purposes.

3.3 Benefits of Implementing a Fire Safety Plan

- Reduces the incidence of fire;
- Promotes fire hazard identification and elimination;
- Promotes employee safety and awareness;
- Increases employee morale by allaying safety concerns;
- Coordinates business and fire department resources during a fire emergency;
- Reduces the potential impact of a fire on the business and community (injuries, dollar losses, liability, etc.);
- Assist with *BC Fire Code* compliance.

4.0 DEFINITIONS

The following definitions have been copied from Section 1.4 of the *BC Fire Code* to assist you in understanding the meaning of these words and phrases where they are used in this guideline and in the regulation. The definitions are intended to help people understand their meaning in the context of the regulation. Refer to the *BC Fire Code* for the full listing of definitions.

The words and terms in italics in this Code shall have the following meanings:

Authority Having Jurisdiction: means the fire commissioner, and local assistants to the fire commissioner (LAFC).

Building: means any structure used or intended for supporting or sheltering any use or occupancy.

Industrial occupancy (Group F): means the occupancy or use of a building or part thereof for the assembling, fabricating, manufacturing, processing, repairing or storing of goods and materials.

High-hazard industrial occupancy (Group F, Division 1): means an industrial occupancy containing sufficient quantities of highly combustible and flammable or explosive materials which, because of their inherent characteristics, constitute a special fire hazard.

Medium-hazard industrial occupancy (Group F, Division 2): means an industrial occupancy in which the combustible content is more than 50 kg/m^2 o r1,200 MJ/m^2 of floor area and not classified as a high-hazard industrial occupancy.

Low-hazard industrial occupancy (Group F, Division 3): means an industrial occupancy in which the combustible content is not more than 50 kg/m2 or 1 200 MJ/m2 of floor area.

Supervisory staff: means those occupants of a building who have some delegated responsibility for the fire safety of other occupants under the FSP.

5.0 THE TEN STEP PROCESS

The following synopsis outlines the Ten Step Process to developing an FSP.

Step 1	CONDUCT SAFETY AUDIT	*Identify all fire risks and employee resources*
Step 2	APPOINTMENT AND ORGANIZAION OF EMERGENCY SUPERVISORY STAFF	*Establish supervisory staff structure and related responsibilities*
Step 3	DEVELOP EMERGENCY PROCEDURES	*Establish procedures for what to do in case of fire*
Step 4	FIRE DRILL PROCEDURES AND TRAINING	*Train for effective response*
Step 5	MAINTENANCE OF BUILDING FACILITIES AND FIRE PROTECTION EQUIPMENT	*Check, inspect, test and maintain*
Step 6	ALTERNATE MEASURES FOR TEMPORARY SHUTDOWN OF FIRE PROTECTION EQUIPMENT OR SYSTEM	*What to do when emergency warning or suppression systems are down*
Step7	CONTROL OF FIRE HAZARDS	*Avoid, prevent, reduce and control all fire hazards*
Step 8	FIRE DEPARTMENT ACCESS FOR FIRE FIGHTING AND RELATED FIRE SUPPRESSION INFORMATION	*Meet the needs of your Fire Department*
Step 9	PREPARING SCHEMATIC DIAGRAMS AND SITE PLAN	*Know your property; be prepared*
Step 10	POSTING OF EMERGENCY PROCEDURES AND EMERGENCY PHONE NUMBERS	*Post the Fire Safety Plan, Emergency Procedures and phone numbers in key locations*

5.1 Step 1 – Conduct a Fire Safety Audit

The development of an FSP is intended to take into consideration:

- The special nature of the business;
- The availability of human resources; and
- The fire safety features provided within each building or premise; and processes or operations which may create a fire hazard.

Before preparing an FSP, a fire safety audit of the property should be conducted using the following checklists. The audit will help identify those factors affecting fire safety within the property. While conducting the audit, make notes of pertinent information relating to fire safety issues where applicable. This information is needed to develop a useful FSP designed to address a specific property and its special needs and characteristics. It will ensure the optimum use of employees and all safety features provided.

Auditing the Property

If the business involves outdoor storage or processes materials outdoors, begin the audit by examining the exterior of the property first.

Start by preparing a site drawing. This will help provide a better overall view of the fire safety issues affecting the property. The site drawing may become a key element of the FSP. The drawing should be made to scale, if possible, and identify the following:

- drawing orientation (north, south, east, west);
- property lines;
- security fences;
- use or occupancy of adjoining properties, i.e., residential, industrial, etc., and the approximate distances to closest neighboring buildings and yard storage;
- points of entry for fire fighting vehicles;
- other points of entry;
- vehicle roadways and fire department access routes suitable for heavy equipment;
- buildings on site;
- water supplies, private hydrants, public hydrants, ponds, or reservoirs;
- outdoor storage areas listing the types and quantities of materials stored at each location;
- hazardous yard applications (i.e., compressed gas storage area, fuel dispensing station, etc.);
- waterways, dikes, drains, sewer and manholes;
- gas shut off valves or other important isolation valves;
- electrical facilities including, power lines, transformers, transformer vaults, etc.

Auditing the Building(s)

Next, prepare a separate detailed audit for each building on site. Features to examine and identify are (where applicable):

- the nature of building construction (combustible or non combustible);
- building size by area, (area of each storey and total area);
- number of storeys, including basements;

- use and occupancy of the building;
- fire walls, required fire separations;
- explosion relief vents;
- fire department access points, including the principal entrance for fire department response;
- portable fire extinguishers;
- fire alarm system;
- sprinkler system;
- fire standpipe (hose) system;
- fire department pumper connections;
- water supply control valves and fire pumps;
- exits;
- emergency power and lighting equipment;
- hazardous processing areas (identifying the nature of the process);
- storage areas (identifying type and quantities of materials stored);
- gas shut off valves or other important isolation valves;
- electrical facilities including, transformers, transformer vaults, etc.

Auditing Human Resources

Compile information about the employees on site. This will ensure that the emergency procedures developed will be consistent with the available employee resources and be accounted for in the plan.

- Identify the number of full time and part time employees who work on site;
- Identify the people who work on each shift, where applicable;
- Identify accommodation needs of employees (i.e., physical disabilities, language requirements);
- Identify security personnel if provided;
- Compile a list of telephone numbers for use during an emergency, including the building owner, the manager, supervisor, and other employees giving consideration to:
  - Availability during and after normal operating hours;
  - Ability for these individuals to respond in a timely fashion (i.e., what is their estimated response time?);
- Identify personnel assigned to critical tasks during emergency.

Auditing Materials Stored, Handled or Processed

Depending upon the nature of the business, a wide variety of materials may be stored, handled or processed on site. Many materials typically processed in industrial occupancies are stable and inert and don't pose a problem unless they become exposed to a fire.

Materials that pose a hazard in the event of fire include, but are not limited to:

- compressed gases – flammable, inert, corrosive, or poisonous;
- flammable/combustible liquids;
- liquid/solid chemicals, organic oils/solvents;
- reactive substances;
- oxidizing substances;
- radioactive materials and explosives;
- plastics, any type;

- rubber, including tires, whole or shredded;
- combustible metals or metals treated with preservatives or oils;
- wood products (chemically treated or not);
- paper, cardboard;
- aerosol cans.

Refer to the following Sections of the *BC Fire Code* to determine if activities, equipment or processes involved in the business are regulated:

Division B – Part 3: Indoor And Outdoor Storage

- Section 3.1 – Dangerous goods / Industrial Trucks
- Section 3.2 – Indoor Storage
- Section 3.3 – Outdoor Storage

Division B – Part 4: Flammable and Combustible Liquids

- Section 4.2 – Container storage and handling
- Section 4.3 – Tank storage
- Section 4.4 – Leak detection of storage tanks and piping systems
- Section 4.5 – piping and transfer systems
- Section 4.6 – Fuel dispensing stations
- Section 4.7 – Bulk plants
- Section 4.8 – Piers and wharves
- Section 4.9 – Process plants
- Section 4.10 – Distilleries
- Section 4.11 – Tank vehicles

Division B – Part 5: Hazardous Processes and Operations

- Section 5.2 – Hot works
- Section 5.3 – Dust-producing processes
- Section 5.4 – Special processes involving flammable & combustible liquids & materials
- Section 5.5 – Laboratories
- Section 5.6 – Construction and Demolition Sites

The local fire department may be consulted about questions or problems that arise during this analysis.

Audit for Fire Hazards

One of the goals of fire safety planning is to reduce the frequency of fire. In order to achieve this goal, preventative measures must be put in place to mitigate fire hazards.

For example, ask the following questions:

- Are aerosols used or significant quantities stored on site?
- Are combustible dusts, combustible fibres or combustible metals present or produced on site?

- Are compressed gases used or stored on site?

- Are flammable or combustible liquids handled, stored or used on site?
- Are oxidizing or reactive substances stored or used on site?
- Are substances present that would be prone to spontaneous combustion?
- Are products or materials stored or warehoused on site?
- Are battery-charging operations for industrial truck and lift equipment conducted on site?
- Are industrial trucks and lift equipment used on site, including lift trucks or forklifts, clamp trucks, tractors, sweepers and motorized hand trucks or automatic guided vehicles?
- Are there refueling operations taking place on site? (vehicles or machinery)
- Are electrical installations, temporary wiring, electrical equipment or machinery present on site that could be a potential source of ignition?
- Is heating, ventilating and/or air conditioning equipment on site?
- Are hot works activities carried out on site, including but not limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying or thawing pipes?
- Is smoking permitted and not controlled?

5.2 Step 2 – Appointment and Organization of Supervisory Staff

The FSP must also include the appointment and organization of designated "**supervisory staff**" (refer to definitions) and alternates who are required to be trained to respond to a fire emergency in a predetermined manner. Supervisory staff duties and responsibilities must be outlined in the FSP. Person(s) designated as supervisory staff must be qualified and willing to take on the added duties and responsibilities. Person(s) designated as "supervisory staff", do not have to be from management or be a supervisor from the company. They will need authority consistent with their assigned duties.

Employee and emergency supervisory staff responses must be well planned in order to reduce the risks from fire. It is essential that supervisory staffs understand their responsibilities and are trained to respond to a fire emergency in a prompt, positive and intelligent manner.

Supervisory Staff/Employee Responsibilities for Fire Safety

In order for the emergency response portion of the FSP to be effectively implemented, all employees must understand the important role they play in promoting fire safety in the workplace. Everyone must adhere to the workplace fire safety practices and procedures. Orientation training for all employees should include fire safety instructions on:

- What to do upon discovery of fire.
- What to do upon hearing an alarm of fire.
- How to prevent or minimize fire hazards in the workplace.

Depending upon various factors, the FSP may only involve the designation of one or two emergency response supervisory staff. In larger operations, a more structured emergency response by designated supervisory staff may be required including fire wardens who are trained to coordinate the evacuation of specific areas, others who provide firefighters access and assistance and/or a fire brigade trained and equipped to confine and extinguish a fire.

Owner/Manager Responsibilities for Fire Safety

- Ensure the FSP is developed, accepted and fully implemented.
- Appoint, organize and train emergency supervisory staff to carry out fire safety duties and emergency procedures.

- Ensure a sufficient number of assistants are designated and trained to act in a supervisory capacity in the event that the appointed emergency supervisory staff are absent from the building/site.
- Ensure that fire drills involving all supervisory staff are held at least once a year.
- Ensure that fire hazards are identified and eliminated or controlled.
- Ensure methods to control fire hazards, that cannot be eliminated, are effectively operated and maintained and employees are properly training to operate those controls.
- Provide alternate measures for fire safety during the temporary shutdown of fire protection equipment or systems.
- Have the necessary checks, tests, inspections and maintenance of fire protection equipment completed as required by the *BC Fire Code*.
- Keep permanent records of all tests and corrective measures for a period of at least two years.
- Keep adequate records of training and fire drills for a period of at least one-year.

5.3 Step 3 – Develop Emergency Procedures

The FSP must include emergency procedures to be used in case of fire. This includes:

- Sounding the fire alarm;
- Notifying the fire department;
- Provisions for access for firefighting including:
  - Assigned personnel to meet the fire department upon arrival and give information, such as the location of the fire or injury.
- Instructing occupants on procedures to be followed when the fire alarm sounds including:
  - Following established exit routes, which are clearly visible within the site and on all floors;
  - Following the instructions of assigned fire wardens;
  - Evacuating to pre-determined muster point(s);
- Instructing trained persons assigned, ensuring various trades are represented, as site fire wardens on their duties including:
  - Evacuating endangered occupants;
  - Accounting for everybody on site using an up to date list of on-site personnel and visitors; and
- Instructing trained persons assigned to confining, controlling and extinguishing the fire.

The procedures for outdoor operations will differ from those to be followed by occupants within buildings.

Sample of Typical Emergency Procedures for all Employees

Upon discovery of fire

- Leave the fire area immediately and assist anyone in immediate danger to evacuate. Close all doors behind you to confine the fire.
- Activate the fire alarm and/or alert other employees and supervisory staff.
- Notify the fire department. (All telephones on site should have the emergency phone number of the fire department listed and the address of the property conspicuously posted close by for reference in an emergency.)
- Use exit stairwells where appropriate to leave the building.
- Proceed to the muster point and remained there until directed otherwise.

Upon Hearing an Alarm of Fire

- Shutdown process equipment in a preplanned manner where applicable. Leave the building immediately.
- Close all doors behind you to confine the fire.
- Use exit stairwells where applicable to leave the building.
- Proceed to the muster point and remained there until directed otherwise.
- If designated with fire emergency duties (e.g., fire warden, fire brigade), carry out pre-planned procedures.

NOTE:

- Do not use the elevator(s).
- Do not re-enter the building.

Sample of Minimum Supervisory Staff Duties to be Followed in Event of Fire

- Call the Fire Department.
- Provide access to the fire fighters, (provide entry, master keys, etc.).
- Meet arriving fire fighters:
  - provide them with relevant information about the quantities and nature of materials stored or processed on site;
  - provide them with a copy of the FSP and related drawings;
  - provide other assistance as required including access keys and codes, etc.
- Do not silence the fire alarm system or shut off the sprinklers until instructed to do so by the fire department.

5.4 Step 4 – Fire Drill Procedures and Training

Training and practicing fire drills must become an integral part of each facility's preparedness. A fire emergency often generates anxiety and excitement, which may create a stressful environment for responders and decision makers. Persons with little training or experience may have difficulty dealing effectively with the emergency.

The first step in ensuring employees and visitors respond effectively in an emergency is to provide each with a proper site orientation. Second, reinforce the need for fire safety with periodic fire safety topics during regular safety meetings.

Third, conduct fire drill procedures, which were prepared in consultation with the fire department and be outlined in the FSP. The fire drill must involve the response of supervisory but should take into consideration the response of other employees and people on site or present in the building. Having all employees participating in the fire drill will derive significant benefit.

Supervisory staff must be instructed in the fire emergency procedures that are described in the FSP before they are given any responsibility for fire safety. A copy of the fire emergency procedures and other duties outlined in the FSP must be given to all supervisory staff.

Employees should receive training in the safe use of portable fire extinguishers and other fire safety equipment. This would include instructions on how to activate and reset the fire alarm system where appropriate.

Employees must be instructed to react quickly to a fire emergency. At the same time, personal safety must be promoted.

Fire drills must be conducted at least once each year (Subsection 2.8.3. of the *BC Fire Code*). The date and time of all fire drills, as well as the names of participating employees, must be recorded and be retained for at least one year after the drill.

Other Factors to Consider When Organizing and Conducting Fire Drills

- Does the local fire department have to be notified of the fire drill?
- Do all employees understand the procedures they are expected to follow in an emergency (are there language barriers, etc.)?
- Are there people who require assistance in evacuating (mobility/hearing disabilities)?
- Are the fire drills pre-announced or a surprise?
- Are employees trained to safely shut down critical systems or equipment they are using during an emergency in order to prevent further hazards?
- Are fire drills conducted at different times to train employees and supervisory staff on all shifts?
- Are measures in place to respond to the safety needs of guests or contractors during an emergency?
- Will employees practice using fire fighting and related safety equipment to enhance their personal safety and response to a fire emergency?
- Is a procedure established to evaluate the fire drill once it has been completed and to correct for any deficiencies noted?

5.5 Step 5 – Maintenance of Building Facilities and Fire Protection Equipment

The FSP must contain a detailed schedule identifying the required checks, inspections and tests of all fire safety systems and features provided.

The building owner/manager must:

- Ensure that all fire protection features provided in each building are **checked, inspected, tested and maintained** in accordance with the frequencies specified in the *BC Fire Code*, Division B, Parts 2 and 6, and all applicable referenced standards;
- When using in-house personnel to conduct some of the checks, inspections and tests, ensure they are fully trained and qualified to carry out the activity;

- Keep permanent records of all tests and corrective measures taken for a period of two years after they are made. If time intervals between tests exceed two years, the records shall be retained for the period of the test interval plus one year. The records are to be made available upon request to the local fire department, supervisory staff and other personnel.

5.6 Step 6 – Alternate Measures for Temporary Shutdown of Fire Protection Equipment or Systems

Alternative measures must be included in the FSP. The following information outlines some examples of alternative measures. Where possible, all employees should be made aware of temporary shutdowns.

The following practices and procedures are provided as a guide:

Temporary Shutdown of Fire Alarm System (example)

Notify all supervisory staff that the fire alarm system is temporarily shut down. A fire watch shall be appointed to conduct a sequential tour of the building in areas normally served by fire detection devices (i.e., rooms or spaces protected by sprinklers, heat detectors, smoke detectors or some other form of fire detection devices). Persons conducting the fire watch would record their patrols and be provided some means of communication to notify the fire department in the event of a fire. In the event of fire, efforts must be taken to notify persons in the building that a fire emergency exists.

Temporary Shutdown of Standpipe System (example)

Notify all supervisory staff and the fire department that the standpipe system is temporarily shut down.

Temporary Shutdown of Sprinkler System

BC Fire Code, Division B, sentence 6.1.1.4 (1) – Protection during Shutdown – states:

> "When any portion of a fire protection system is temporarily shut down, alternative measures shall be taken to ensure that protection is maintained."

Interruption of normal operation of a fire protection system for any purpose constitutes a "temporary shutdown." Types of interruptions include, but are not limited to, periodic inspection or testing, maintenance, and repairs. During a shutdown, alternative measures are necessary to ensure that the level of safety intended by the *Code* is maintained.

In the shutdown of a fire alarm system, alternative measures should be worked out in cooperation with the fire department to ensure that all persons in the building can be promptly informed, and the fire department notified, should a fire occur while the alarm system is out of service.

When a sprinkler system is shut down, measures that can be taken include the provision of emergency hose lines and portable extinguishers, extra fire watch service and, where practicable, temporary water connections to the sprinkler system.

(Example)

Notify the Fire Department (phone #: _____) and all supervisory staff that the sprinkler system is temporarily shut down. The work conducted on the sprinkler system shall be scheduled by the contractor to enable the system to be operational as quickly as is possible in the circumstances. Full sprinkler protection shall be restored when work on the system is discontinued.

While the sprinklers are shut down, a fire watch shall patrol the area until the sprinkler system has been restored. "Hot works" such as welding or cutting should be prohibited in the area where the sprinkler protection is impaired or be limited to areas where precautions have been put into place.

Temporary Shutdown of Special Extinguishing Systems (example)

Everyone working in an area where a special extinguishing system is shutdown and all supervisory staffs must be notified of the temporary shutdown. The fire department should also be notified.

5.7 Step 7 – Control of Fire Hazards

The owner and/or managers must take the lead role in identifying potential fire and explosion hazards and establishing fire prevention practices to eliminate or control the hazard(s) safely. All employees must understand that every precaution is to be taken to minimize accidents and prevent injuries. Employees must be fully trained to recognize fire and explosions hazards and in the established fire prevention practices. These practices must be adopted by everyone and be fully enforced.

The information collected while preparing the Audit of Materials Stored, Handled or Processed (Step 1) may reveal a number of potentially hazardous activities that should be carefully monitored and controlled. The FSP must contain detailed procedures/practices for monitoring and controlling each of the activities. The fire prevention practices should take into account the requirements of applicable regulations and practical fire safety precautions.

Employees working in these areas must be trained to carry out the established procedures in order to reduce the risk of fire.

Procedures and training that require consideration include, but are not limited to:

✓ Applicable		✓ Needs Improvement
❒	Storage and handling of aerosols	❒
❒	Battery charging operations	❒
❒	The presence of combustible dusts, combustible fibres or combustible metals on site	❒
❒	Storage and handling of compressed gases	❒
❒	Electrical installations, temporary wiring, electrical equipment or machinery	❒
❒	Storage and handling of flammable or combustible liquids	❒
❒	Maintenance of heating, ventilating and/or air conditioning equipment	❒
❒	Hot work activities carried out on site involving open flames or producing heat or sparks, including without being limited to cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes	❒
❒	The use of industrial trucks and lift equipment including lift trucks or forklifts, clamp trucks, tractors, sweepers and motorized hand trucks or automatic guided vehicles	❒

✓ Applicable		✓ Needs Improvement
❒	The storage and handling of oxidizing or reactive substances	❒
❒	Refueling operations (vehicles or machinery)	❒
❒	Controlling the hazards associated with smoking	❒
❒	The storage and handling of substances that are prone to spontaneous combustion	❒
❒	Storage and warehousing practices	❒
❒	Other hazardous activities	❒

5.8 Step 8 – Fire Department Access For Firefighting and Related Fire Suppression Information

Once a fire begins, it spreads rapidly. For this reason, it is essential that the fire department obtain access to the property as quickly as possible. A designated employee (supervisory staff) must be trained to respond to an emergency to ensure that the fire department can enter the property without delay to initiate fire suppression activities. The designated employee must be knowledgeable about the property and associated processes that take place in it.

Fire emergencies occurring after regular business hours can also lead to a delay in the fire departments' ability to locate the fire and initiate fire suppression activities. Some businesses and fire departments utilize a security "lock box" arrangement to reduce this type of delay. In the absence of on-site personnel, the fire department can obtain prompt access to keys to permit prompt entry and to other important information.

In addition to providing access for fire fighting, the fire department may also request other important information about the property and its contents when they arrive, including the provision of the FSP, keys, access codes, etc.

For example, the fire department may request a current inventory of materials that are stored and/or processed on site to be retained for reference during an emergency. Many materials stored or processed on site are stable and inert, however if they become involved in a fire, they can pose serious risks to emergency responders and to the surrounding community. The inventory would identify the location, type and quantities of materials present. It could also contain information about the properties of the materials, and identify the combustion by-products, fire fighting techniques, and other relevant factors. This type of information can often be obtained by referring to Material Safety Data Sheets (MSDS) or from other sources.

This information should be kept readily available for fire department reference along with the instructions and schematic diagrams described in Step 9. Ask the local fire department what information would be useful to them during an emergency.

Other factors to take into consideration may include but not be limited to:

- Establish procedures for fire department notification of supervisory staff after regular business hours;
- Identify fire department access problems that could be created due to seasonal climatic conditions;
- Establish procedures to prevent obstructions to fire fighting created by site machinery or due to temporary obstructions created by materials placed in aisles or roadways; and

- Establish procedures to gain access to other critical areas in a building or to fire equipment in a shared industrial complex (i.e., gas shut off, fire protection control valves, etc.).

5.9 Step 9 – Preparing Schematic Diagrams and Site Plans

Where the property is large, or there are outdoor activities that may pose a fire or access problem, a site drawing should also be prepared and incorporated in the FSP. (Use the checklist provided in Step one – Auditing your property and building.) When preparing the schematic diagrams and site plan, ensure that the information is useful and simple.

In addition to the schematic diagrams, an inventory of materials and a site drawing would be extremely useful for firefighters to refer to in the event of a fire. In some instances, municipalities may have a by-law that requires the owner to compile and provide this type of information to the fire department. Consult with the local fire department to determine the amount of detail needed in the drawings that are incorporated into the FSP.

5.10 Step 10 – Posting Emergency Procedures and Emergency Phone Numbers

- Every telephone should have the fire department telephone number and the business' name and address prominently posted close by for reference during an emergency.
- The emergency procedures must be clearly posted in each storey of every building.
- A copy of the FSP must be kept in a location accepted by the Local Fire Department.
- The schematic diagrams, instructions and related information about the property should be readily accessible to responding fire department personnel in an emergency.
- In outdoor tire storage yards, the telephone number of the fire department and location of the nearest telephone must be prominently posted and maintained at the storage yard.
- A current list of emergency phone numbers should also be prepared and be appended to the FSP for ease of reference during or after an emergency.

The emergency phone number list should include but not be limited to:

- fire department;
- ambulance;
- police department;
- owner;
- manager;
- fire alarm service company; and
- sprinkler service company.

In addition, if the business contains materials or substances that would pose a risk to the environment or community in the event of fire, the following phone numbers should also be kept readily available for reference during an emergency.

- The Ministry of the Environment, Environmental Emergencies 1-800-663-3456
- CANUTEC (Canadian Transport Emergency Centre) 613-996-6666 (emergency)

6.0 IMPLEMENTATION / UPDATING THE FIRE SAFETY PLAN

To derive the full benefit of the FSP:

- Implement all aspects of the FSP.
- Ensure that any changes in the facility or the operation are reflected in the FSP and that the FSP is reviewed by the Local Fire Department.
- Ensure that all employees are trained in the procedures to take upon discovery of fire or upon hearing an alarm of fire.
- Ensure that all employees are trained in the precautions and procedures required to be taken to control and eliminate fire hazards.
- Conduct the required fire drills and train the designated supervisory staff to respond to a fire or an alarm of fire in a prompt and safe manner.
- Schedule and perform the required maintenance of the fire safety features provided in the building as required.
- Routinely update relevant information pertaining to changes in the inventory of site materials for the fire fighters reference during an emergency.
- At least once a year, review the contents of FSP to ensure that it remains current.
- Consult with the Local Fire Department before making any changes to the FSP.

7.0 SUMMARY

The preparation and implementation of a FSP, helps to ensure effective use of people and resources to control and mitigate fire hazards in the workplace and to respond effectively to a fire emergency. This will reduce the incidence of fire, protect life safety and reduce the impact of fire should one occur.

8.0 FIRE INSPECTION AND PREVENTION INITIATIVE

In November 2012 the Attorney General and the Minister Responsible for Labour asked WorkSafeBC, the Office of the Fire Commissioner and the BC Safety Authority to address challenges related to fire inspections in BC, with emphasis high hazard industrial occupancies. This led to the creation of the Fire Inspection and Prevention Initiative (FIPI). The initiative would be funded by WorkSafeBC with a two year timeframe to achieve its mandate, including assisting owners and employers understand their responsibilities for fire safety.

The FIPI LAFC Inspection Working Group worked with relevant stakeholders to produce this document.

Appendix A – Sample Symbols for Diagrams and Drawings