Mandatory information

Ministry:

English footer:

English topic:

Contact us: [email address]

Firefighter’s cancer prevention checklist

Fire services can use this self-audit tool to determine measures to protect fire personnel from exposure to contaminants which may cause cancer or other occupational illnesses.

On this page

Introduction

Everyone – employers, supervisors and workers – play a key role in taking responsibility for health and safety in the workplace. Understanding your duties, responsibilities and rights under Ontario's *Occupational Health and Safety Act (OHSA)* is integral to ensuring all workers stay safe and healthy at work. The goal is to prevent workplace injuries, illnesses and deaths.

Purpose

The purpose of this checklist is to help Ontario's fire service employers and workers increase their knowledge about measures to prevent exposure to contaminants, including those which cause cancers and other occupational illnesses. Fire services can take steps to minimize or prevent exposures, to keep their workplaces healthy and safe.

How to use this checklist

Employers and workers of fire services are encouraged to work through this checklist together. Using this self-audit tool, you can identify opportunities to prevent or reduce exposure to cancer-causing contaminants and take steps to improve health and safety in the workplace.

The Firefighter guidance notes page can provide you with further information and materials.

Background

Routes of Entry

There are two major routes of entry of contaminants affecting firefighters – inhalation and skin absorption.

Inhalation

Some examples of how inhalation exposure may occur include:

- Not wearing a respiratory protection device during fire suppression, salvage or overhaul
- Handling or cleaning soiled PPE and other equipment without wearing a respirator
- Respirator leakage
  - Facepiece problems – distortion, valves, deterioration
  - Facepiece seal – user not clean shaven where facepiece meets the skin
  - Fit testing not conducted
- Overbreathing while wearing a respirator during high workload

Absorption

Some examples of how absorption exposure may occur include:

- Unprotected skin due to improperly wearing PPE
- Permeation through bunker gear, balaclava and gloves, resulting in contamination of neck, face, wrists, hands, groin
- Handling or cleaning soiled PPE or other equipment without rubber gloves
- Wearing soiled bunker clothes (wash them thoroughly and replace as needed)
- Insufficient personal hygiene (not thoroughly washing/showering after fire)

As you work through the checklist, consider the measures you can take to prevent the inhalation and absorption of contaminants.

Decontamination

Contaminants from fire suppression activities can be inhaled and absorbed through the skin. Soiled or contaminated ensembles and ensemble elements are a hazard to firefighters since soils and contaminants can be flammable, toxic, or carcinogenic. Additionally, soiled or contaminated ensemble elements can have reduced protective performance.

Firefighter bunker gear is designed for protection against heat at the fire scene. However, contaminants can still penetrate through the bunker gear. The balaclava (hood) and gloves are of different construction than the bunker gear, potentially resulting in skin contamination at the

face, neck, hands, and wrist. Contaminants detected in the groin area are assumed to have seeped through the bunker pants' zipper.

Routine cleaning of soiled equipment, apparatus and PPE items (such as bunker gear, balaclava, boots and gloves) is important to reduce the risk of further exposure.

Respirators must also be properly cleaned and sanitized. Filtering facepiece respirators (such as the N95 disposable mask) are not to be washed and must be disposed of after use.

Areas and where PPE is washed, equipment used for decontamination (such as extractors) and shower facilities for workers should be decontaminated after use, to remove any residual contaminants.

Checklist

Part A: Programs

Respiratory protection program

A respiratory protection program protects workers from airborne contaminants.

Refer to Regulation 833 – Control of Exposure to Biological or Chemical Agents for respiratory protection program requirements, including written measures and procedures.

Refer to CAN/CSA-Z94.4, Selection, use, and care of respirators for the administration of an effective respiratory protection program in the workplace.

Elements in a respiratory protection program		
No.	Respiratory protection program element	Is this element included in your program?
1	Program Administration - the program is administered by a competent person	Yes/No Comments:
2	Roles and Responsibilities - the roles and responsibilities of the workplace parties are established	Yes/No Comments:
3	Hazard Situations - situations where respirators are required to be worn are identified	Yes/No

Elements in a respiratory protection program		
No.	Respiratory protection program element	Is this element included in your program?
		Comments:
4	Hazard Assessment - potential airborne contaminants have been identified	Yes/No Comments:
5	Respirator Selection - appropriate respirators have been chosen based on the hazard assessment and requirements of Reg. 833	Yes/No Comments:
6	Fit Testing - worker fit testing occurs at least every 2 years	Yes/No Comments:
7	Training - workers are trained on the use, care, storage, inspection, maintenance, cleaning, proper fitting, and limitations of the respirator, before first use	Yes/No Comments:
8	Use, Maintenance, Storage - procedures are in place for the proper use, maintenance and storage of the respirators	Yes/No Comments:
9	User Screening – workers are screened to determine whether they are medically eligible to use a respirator	Yes/No Comments:
10	Records and Program Evaluation - records are retained and the program is regularly evaluated to ensure it remains effective	Yes/No Comments:

Air management program

An air management program ensures workers using SCBAs are provided with an adequate volume of safe air to breathe, from safe cylinders. Additionally, the cylinders are stored and transported safely.

Refer to CSA Z180.1-13 (R2018) Compressed breathing air and systems, for guidance on the design, construction, commissioning, calibration, testing, operation, and maintenance of components for compressed breathing air systems.

Elements in an air management program		
No.	Air management program element (CSA Z180.1)	Is this element included in your program?
11	Monitoring of air levels during SCBA use – procedures are in place to ensure workers regularly monitor their air levels while using SCBA, to prevent an out-of-air situation	Yes/No Comments:
12	Filling of cylinders - procedures are in place to fill cylinders safely with clean air which meets the purity requirements in CSA Z180.1-13 (R2018)	Yes/No Comments:
13	Cylinder replacement - procedures are in place to ensure cylinders are replaced as recommended by the manufacturer	Yes/No Comments:
14	Secure transportation of cylinders - when transported in vehicles, cylinders are secured against tipping, falling or damage	Yes/No Comments:
15	Secure storage of cylinders – cylinders are stored securely to prevent tipping, falling or damage	Yes/No Comments:
16	Hydrostatic testing of cylinders - procedures are in place to ensure cylinders receive hydrostatic testing every 5 years	Yes/No Comments:

Part B: Work Practices – Scene

On the fireground, PPE protects firefighters from contaminants. In order to be effective, PPE must be worn properly and at all times when exposure can occur.

Some best practices for using and decontaminating PPE at the scene are listed below. The goal is to decrease worker exposure to contaminants – first by using appropriate PPE, and then by limiting the spread of contaminants through a combination of personal hygiene practices, gross decontamination on scene and isolation of contaminated PPE.

One example of gross decontamination would be using water from a hose to remove visible contaminants from bunker gear and other equipment.

Bagging soiled gear at the scene is a good practice to reduce exposure to firefighters during transportation from the fire scene to the assigned fire hall for cleaning. Bagging soiled bunker gear at the scene will also prevent unnecessary contamination of the interior crew compartment of the apparatus and personal vehicles.

ALARA

The ‘As Low As Reasonably Achievable’ (ALARA) principle should apply to all activities. The ALARA principle recognizes that although it may not be possible to reduce exposures to zero, efforts should be made to reduce workplace exposures as much as necessary to limit harm.

Best practices for work on scene			
No.	Work practice	Does this work practice take place on scene?	Is there an SOP[1]?
17	Apparatus windows and doors are kept shut	Yes/No Comments:	Yes/No Comments:
18	All PPE is properly worn at all times on the fireground	Yes/No Comments:	Yes/No Comments:
19	All PPE, including appropriate respiratory protection, is	Yes/No	Yes/No

[1] Standard operating procedure

Best practices for work on scene			
No.	Work practice	Does this work practice take place on scene?	Is there an SOP[1]?
	properly worn at all times during salvage and overhaul	Comments:	Comments:
20	Hood is exchanged when air cylinder exchanged	Yes/No Comments:	Yes/No Comments:
21	No person enters the hot zone without full PPE	Yes/No Comments:	Yes/No Comments:
22	Pump operators wear PPE, including SCBA, if smoke present	Yes/No Comments:	Yes/No Comments:
23	Gross decontamination of PPE is done before removing face piece	Yes/No Comments:	Yes/No Comments:
24	PPE is removed before entering rehab area, where weather permits	Yes/No Comments:	Yes/No Comments:
25	Air quality is monitored in rehab area	Yes/No Comments:	Yes/No Comments:
26	Hands and face are cleaned before eating	Yes/No Comments:	Yes/No Comments:
27	PPE is not removed until gross decontamination occurs – see above for note on ALARA principle	Yes/No Comments:	Yes/No Comments:

Best practices for work on scene			
No.	Work practice	Does this work practice take place on scene?	Is there an SOP[1]?
28	Post-fire wipes are used for head and neck	Yes/No Comments:	Yes/No Comments:
29	Contaminated crew do not enter truck	Yes/No Comments:	Yes/No Comments:
30	Contaminated gear is allowed to off-gas for 30 minutes before bagging, if possible	Yes/No Comments:	Yes/No Comments:
31	Contaminated gear is bagged at scene	Yes/No Comments:	Yes/No Comments:
32	Contaminated gear is transported from scene outside crew compartment	Yes/No Comments:	Yes/No Comments:
33	Where weather does not allow gear removal, disposable coveralls are worn over dirty PPE in apparatus to reduce cross-contamination	Yes/No Comments:	Yes/No Comments:
34	Contaminated gear is taken to fire hall for cleaning (not home)	Yes/No Comments:	Yes/No Comments:
35	Where crew compartment seats have integrated SCBA brackets: • clean SCBA is placed in seats, or	Yes/No Comments:	Yes/No Comments:

Best practices for work on scene			
No.	Work practice	Does this work practice take place on scene?	Is there an SOP[1]?
	• dirty SCBA has undergone gross decontamination and is bagged before placing in seat		
36	Gross decontamination of hose and equipment is done at scene, as much as possible	Yes/No Comments:	Yes/No Comments:
37	Contaminated gear which is carried in personal vehicles is in a closed container	Yes/No Comments:	Yes/No Comments:
38	Crew returns directly to fire hall for further decontamination	Yes/No Comments:	Yes/No Comments:
39	Fire inspectors: • wear SCBA, or • wear PAPR with air monitoring per NFPA 1500, or • wear respiratory protection as determined by an assessment per CSA Z94.4	Yes/No Comments:	Yes/No Comments:

Part C: Work Practices – Fire Hall

Laundry rooms and laundry areas

If a ventilated laundry room is available, the laundry room should be kept under slight negative pressure, at more than 1 cfm/square foot to prevent the spread of contaminants from soiled gear to the rest of the workplace. If there is no laundry room, the laundry area should be located away from bunker gear air dryers, clean bunker gear storage areas and other occupied areas, so as not to expose workers nearby or contaminate clean gear.

Laundering and drying bunker gear

To prevent damage to bunker gear, the manufacturer's recommendations should be followed.

Refer to NFPA 1851 Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting for guidance on laundering bunker gear.

Wash/dry temperatures should be less than 40 °C. Detergent within a pH range between 6 to 10.5 should be used.

Extractors are commonly used for routine cleaning of bunker gear outer shell, bunker gear inner lining, balaclava and gloves. The g-force of extractors should not exceed 100 g for all elements.

Gear air dryers are commonly used for drying clean bunker gear.

Showering

Taking a shower with soap and water is encouraged as soon as possible after a fire call to remove contaminants on the skin which can be absorbed into the body. If a shower is not available, washing of any potentially exposed skin (such as the face, neck, wrists and hands) is encouraged after a fire call.

Clean vs dirty areas

Bunker gear should be kept in restricted areas of the fire hall and should never enter the living areas. A combination of signage and markings on the floor can help separate clean areas from dirty areas.

Storing clean bunker gear on the apparatus floor

If the apparatus floor is not equipped with a direct local exhaust system from the tailpipes of vehicles, then exhaust emissions from the apparatus can be captured by general mechanical ventilation at 20,000 cfm (or more) per operating truck and 100 cfm/horsepower for diesel-fueled vehicles. If the apparatus floor has only natural ventilation, then clean bunker gear should **not** be stored on the apparatus floor to prevent contamination of clean gear with diesel soot.

Best practices for work at the fire hall			
No.	Work practice	Does this work practice take place at the fire hall?	Is there an SOP?
40	Fire hall has a laundry room (a separate laundry room is considered best practice)	Yes/No Comments:	N/A

Best practices for work at the fire hall			
No.	Work practice	Does this work practice take place at the fire hall?	Is there an SOP?
41	Laundry room has ventilation	Yes/No Comments:	N/A
42	Laundry room ventilation is under slight negative pressure	Yes/No Comments:	N/A
43	Laundry room is decontaminated after use	Yes/No Comments:	Yes/No Comments:
44	Fire hall has a laundry area (a reasonable precaution when there is no separate laundry room)	Yes/No Comments:	N/A
45	Laundry area is away from other work spaces	Yes/No Comments:	N/A
46	Laundry area is away from unprotected workers	Yes/No Comments:	N/A
47	Laundry area is away from clean PPE storage	Yes/No Comments:	N/A
48	Laundry area is away from gear air dryer	Yes/No Comments:	N/A
49	Extractor used for soft gear	Yes/No	N/A

Best practices for work at the fire hall			
No.	Work practice	Does this work practice take place at the fire hall?	Is there an SOP?
		Comments:	
50	Extractor instructions are posted	Yes/No Comments:	Yes/No Comments:
51	Extractor maintenance program in place	Yes/No Comments:	Yes/No Comments:
52	Correct pH level soap available for extractor	Yes/No Comments:	N/A
53	Extractor is decontaminated after use	Yes/No Comments:	Yes/No Comments:
54	Gear air dryer available	Yes/No Comments:	N/A
55	Uniforms are washed separately from regular laundry	Yes/No Comments:	Yes/No Comments:
56	Crews have spare clean clothing at the station to wear after showering	Yes/No Comments:	Yes/No Comments:
57	Truck bay / apparatus floor ventilation is adequate for storing clean bunker gear on the apparatus floor (see introductory paragraph on	Yes/No Comments:	N/A

Best practices for work at the fire hall			
No.	Work practice	Does this work practice take place at the fire hall?	Is there an SOP?
	"Storing clean bunker gear on the apparatus floor")		
58	Apparatus is washed inside and out after every fire call	Yes/No Comments:	Yes/No Comments:
59	Apparatus air filter inspected after every fire call and replaced as needed	Yes/No Comments:	Yes/No Comments:
60	Apparatus air filtration system is cleaned quarterly	Yes/No Comments:	Yes/No Comments:
61	Apparatus deep clean schedule followed, with the cab cleaned regularly	Yes/No Comments:	Yes/No Comments:
62	Shower facilities with soap and water are available at the fire hall, or where no showers are available, facilities to wash potentially exposed skin (neck, face, wrists, hands) are available	Yes/No Comments:	N/A
63	Shower or washing occurs as soon as possible upon return to fire hall	Yes/No Comments:	Yes/No Comments:
64	Dirty areas versus clean areas of the fire hall are indicated	Yes/No Comments:	N/A

Best practices for work at the fire hall			
No.	Work practice	Does this work practice take place at the fire hall?	Is there an SOP?
65	"No Bunker Gear Beyond This Point" signage posted	Yes/No Comments:	N/A
66	Dirty areas have surfaces which are easy to clean (not carpet)	Yes/No Comments:	N/A

Part D: Inspection of PPE

PPE protects workers from contaminants. PPE needs to be maintained in good condition in order to provide protection. Regular inspection of the various PPE elements should be conducted to ensure it is in good condition. Where PPE is found to require repair or cleaning, it should be removed from service and clearly identified as being out of service.

Refer to CAN/CSA-Z94.4, Selection, use, and care of respirators for guidance on respirator inspections.

Refer to NFPA 1851 Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting for guidance on inspecting these items.

Personal protective equipment (PPE) inspections				
No.	PPE item	Does routine inspection occur after each use?	Does advanced inspection occur annually?	Is there an SOP on inspection?
67	Respirator - SCBA[2]	Yes/No Comments:	Yes/No Comments:	Yes/No

[2] Self-contained breathing apparatus

Personal protective equipment (PPE) inspections				
No.	PPE item	Does routine inspection occur after each use?	Does advanced inspection occur annually?	Is there an SOP on inspection?
				Comments:
68	Respirator - PAPR[3]	Yes/No Comments:	N/A	Yes/No Comments:
69	Respirator - APR[4]	Yes/No Comments:	N/A	Yes/No Comments:
70	Mask flow test equipment (ie. PosiChek)	N/A	Yes/No Comments:	Yes/No Comments:
71	Helmet	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:
72	Boots	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:
73	Bunker coats: outer shell	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:
74	Bunker coats: inner lining	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:

[3] Powered air-purifying respirator
[4] Air-purifying respirator

Personal protective equipment (PPE) inspections				
No.	PPE item	Does routine inspection occur after each use?	Does advanced inspection occur annually?	Is there an SOP on inspection?
75	Bunker pants: outer shell	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:
76	Bunker pants: inner lining	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:
77	Balaclava/hood	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:
78	Gloves	Yes/No Comments:	Yes/No Comments:	Yes/No Comments:

Best practices for PPE use		
No.	PPE practice	Yes/No
79	Workers receive training on use, removal, disposal, cleaning, inspection and limitations of PPE	Yes/No Comments:
80	Bunker gear is replaced after 10 years	Yes/No Comments:
81	Retired PPE is identified as retired	Yes/No

Best practices for PPE use		
No.	PPE practice	Yes/No
		Comments:
82	Retired bunker gear is NOT used for live fire training	Yes/No Comments:

Part E: Use of PPE during decontamination activities

Proper PPE should be worn to protect workers from contaminants while they are handling soiled equipment or decontaminating surfaces.

When in the laundry room/area, handling soiled bunker gear should be done while wearing PPE such as disposable coveralls, safety glasses, rubber gloves, and N95 masks to prevent exposure via inhalation and skin absorption during laundering activities.

After laundering soiled gear, appropriate PPE should be worn while decontaminating the surfaces of the laundry room/area and extractor.

Some examples of PPE that could be used for various tasks are included in the checklist below – this list is not exhaustive and there may be other tasks in your fire hall which require PPE.

PPE use during decontamination activities			
No.	Activity	During this activity, do workers wear: • N95 respirator* • safety glasses • rubber gloves • coveralls	Is there an SOP?
83	Handling / decontamination of soiled soft / hard gear	Yes/No Comments:	Yes/No Comments:
84	Decontamination of laundry area / room	Yes/No Comments:	Yes/No Comments:
85	Decontamination of shower facilities	Yes/No	Yes/No

PPE use during decontamination activities			
No.	Activity	During this activity, do workers wear: • N95 respirator* • safety glasses • rubber gloves • coveralls	Is there an SOP?
		Comments:	Comments:
86	Decontamination of apparatus - crew compartment and exterior	Yes/No Comments:	Yes/No Comments:
87	Decontamination of hose at station	Yes/No Comments:	Yes/No Comments:

*elastomeric or filtering facepiece

Further Information

Purchasing equipment

When purchasing new apparatus, hose or other equipment, consider ease of cleaning. For example, non-porous crew compartment seats are easier to clean than fabric.

Healthy Behaviours

There are many ways to reduce the risk of cancer, both on and off the job. Here are some ideas to consider:

- Engage in regular physical activity
- Eat a healthy diet
- Maintain a healthy body weight
- Talk to your doctor about screening for preventable illnesses
- Quit smoking
- Reduce alcohol consumption

Help educate the new recruits in your workplace – share what you know and encourage healthy habits from the start.

Visit Ontario's Ministry of Health website for more cancer prevention information and resources at http://www.health.gov.on.ca/en/public/publications/cancer/prevention.aspx

Related

Read WSIB Document Number 23-02-01 Cancers in Firefighters and Fire Investigators, effective July 4, 2018 to learn about the prescribed cancers and the circumstances under which they will be presumed to be work-related occupational diseases, as set out in *O. Reg. 253/07 Firefighters*, under the *Workplace Safety and Insurance Act, 1997, S.O. 1997, c. 16, Sched. A*.

Read Regulation 833 – Control of Exposure to Biological or Chemical Agents for respiratory protection program requirements and respirator use and selection.

Read O. Reg. 714/94 – Firefighters - Protective Equipment for structural firefighting protective garment requirements.

Read CSA Z180.1-13 (R2018) Compressed breathing air and systems for guidance on the purity of compressed breathing air supplied to service outlets and for breathing air systems required to produce, store and distribute such air.

Read NFPA 1851 Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting for guidance on the selection, care, and maintenance of fire fighting protective ensembles to reduce health and safety risks associated with improper maintenance, contamination, or damage.

Read NFPA 1500 Standard on Fire Department Occupational Safety, Health and Wellness Program for guidance on occupational safety and health programs for fire departments.

Read about how and when to report an occupational illness to the Ministry of Labour.

Connect with the Firefighter Cancer Support Network.