

BEST PRACTICES TO REDUCE CANCER IN THE FIRE SERVICE: AT THE STATION



This factsheet was developed by the International Association of Fire Fighters and the Firefighter Cancer Support Network.

All fire incidents produce toxic smoke and combustion byproducts that can have negative short and long-term health effects on fire fighters. Exposures can continue after a fire fighter leaves the fireground, as these contaminants remain on turnout gear and equipment until they are cleaned off.

This can result in continuous exposures through inhalation, ingestion, and absorption of toxicants. Contaminants can also be inadvertently transported when a leaving a shift to head home when failing to clean or decontaminate tools, equipment, and personnel after each fire incident.

To reduce continuous exposures back at the fire station, the overall design of fire stations should be done with the reduction of exposures and cross contamination of fire fighters in mind.

Dividing the fire station into three hazard zones can reduce exposure to cancer causing chemicals at the fire station.

The gold standard to reduce exposures at the fire station is to divide it into a hot zone, warm zone, and cold zone.

Hot Zone:

This is the area with the highest risk of exposure.

- This is the area of the station with the most contamination. You may treat the apparatus bay and adjacent areas as a hot zone because of diesel exhaust (a known carcinogen), traffic from contaminated PPE, tools, and equipment. Contaminated PPE and equipment include but are not limited to boots, gloves, helmets, turnout gear, SCBA, EMS equipment from medical calls, fire hoses, etc. This is where you will start the decontamination process.

Here is some additional guidance on the Hot Zone:

- Designated area for everything contaminated that needs to be decontaminated.
- Never use blowers or compressed air on apparatus floors (can make diesel soot particles airborne).
- Always use a direct source capture diesel exhaust handling systems for all vehicles and for every apparatus bay. This can be included in all new station designs and retrofitted into existing stations.
- When decontaminating, wear proper PPE, including EMS gloves to minimize exposure.
- Items that should never be located in the Hot Zone due to diesel exhaust and particulates include but not limited to:
 - Ice machines or refrigerators.
 - Workout equipment.
 - Recliners/loungers/couches or any porous furniture.

Warm/Transition Zone:

This area should be designed for cleaning contaminated equipment, including SCBA, EMS equipment from medical calls, fire hose, turnouts, etc. Transition from hot (contaminated) and cold (clean) zones:

- PPE storage should be stored in a separate area with its own ventilation system.
- Washer/extractors should be placed in this zone.
- Cleaning of contaminated PPE and equipment (SCBA, radio, gloves, etc.) should occur in this zone. When cleaning, wear proper PPE, including EMS gloves to minimize exposure.

Cold Zone:

Living areas and offices. “Keep it Clean in the Green”: contaminated EMS equipment, turnouts, etc., are never allowed in this zone.

- These are the living quarters of the fire station (e.g., kitchen, bathrooms, sleeping quarters, offices).
- Ventilation systems should not allow fireground contaminants or diesel exhaust to enter this area from the air, personnel, or equipment.
- Solid surface flooring should be installed as well. Carpet can act like a sponge for anything that may be on the feet.
- Furniture, countertops, etc., should all be solid surfaces for easy cleaning.
- No fireground contaminants or diesel exhaust should enter this area from the air, personnel, or equipment.
- Cleaned PPE should never enter cold zones.
- Do not prop open doors between living or office areas and the apparatus bay.
- The air pressure in the living quarters should be higher than that of the apparatus bay to prevent airborne contaminants from entering the living quarters or the Cold Zone in general.

Personal Best Practices

When it comes to reducing your exposure at the station, having a hot, warm, and cold zone is ideal, but if your station is not designed this way, then it is up to each fire fighter to advocate for themselves and make the personal choice to take steps to reduce and mitigate their exposures.

- Wash your hands after handling anything that could be contaminated (PPE, equipment, etc.) frequently, especially if you handled any equipment.
- Take a shower and change your clothes anytime you have been in a hazardous environment. Not just structure fires, but gas leaks, CO alarms, etc.
- Isolate hazard areas from living areas.
- Keep contaminated and cleaned gear/equipment out of the living areas (keep living areas clean).
- Keep doors closed between apparatus bay and living areas.
- Wash your hands after handling anything that could be contaminated (PPE, equipment, etc.) frequently, especially if you handled any equipment.

Personal Best Practices (cont.)

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- Isolate hazard areas from living areas.
- Keep contaminated and cleaned gear/equipment out of the living areas (keep living areas clean).
- Keep doors closed between apparatus bay and living areas.
- Keep workout areas out of the apparatus bay.
- Keep couches, recliners, and personal furniture out of the apparatus bay.
- Solid surfaces should be used for cleaning and ease of decontamination:
 - No carpet. Carpet in fire stations acts like a sponge, collecting contaminants and potentially infectious materials from response footwear worn by fire and EMS personnel. Removing carpet and installing hard-surface flooring, such as polished concrete, is one way to mitigate these exposures, as solid surfaces are easier to clean than carpet.
 - Station furniture should be a cleanable surface and not an absorbent material.

Modifiable Risk Factors

Modifiable risk factors are behaviors and exposures that can raise or lower a person's risk of cancer that, in theory, can be changed:

- Living a healthy lifestyle through diet and exercise contributes to decreasing the risk for certain cancers.
- Eat more of a variety of vegetables, fruits, and whole grains.
- Be physically active for at least 30–45 minutes a day.
- Limit consumption of energy-dense foods (particularly processed foods high in sugar, low in fiber, or high in fat). Limit consumption of red meats, such as beef, pork, and lamb; avoid processed meats and sugary drinks.
- If consumed at all, limit alcoholic drinks.
- Use sunscreen regularly.
- Stay up to date on vaccinations.
- Get an annual NFPA 1582 annual medical exam and any associated cancer screenings.