

Safe Use of Self-Contained Breathing Apparatus (SCBA) for Firefighters

Understand Risks and Ensure Readiness

Firefighters rely on self-contained breathing apparatus (SCBA) for a dependable air supply while operating in Immediately Dangerous to Life or Health (IDLH) environments. However, SCBA use places significant demands on the body. Understanding these demands allows firefighters to recognize early warning signs and address issues quickly. This can reduce the likelihood of serious or permanent injury.



Photo by NVFC

Safe SCBA use depends on two key factors: understanding the physical demands and preparing for them through medical clearance, fit testing, and training.

How SCBA Use Affects Your Body

The effects of SCBA use stem from two primary stressors:

1. Added Weight (up to 40 lbs)

The added weight of an SCBA makes your body work harder, generating more body heat, and altering your balance. This can result in:

- Heat-related illnesses, which may be compounded by encapsulating PPE, dehydration, and rhabdomyolysis
- Reduced physical endurance
- Musculoskeletal injuries (like back, shoulder, or neck pain), which could become chronic with long-term use
- Reduced mobility and an increased risk of slips, trips, or falls

2. Increased Respiratory Resistance

SCBA regulators supply air but make you work harder to breathe than normal. This can result in:

- Faster fatigue, shortness of breath, and hyperventilation
- Feelings of claustrophobia from limited visibility and/or desire for fresh air
- Increased air consumption

Combined Impact: Cardiovascular Strain

When your body is carrying extra weight and working harder to breathe, it increases the workload on the heart and lungs. This can increase the risk of heart attack especially in individuals with pre-existing cardiovascular conditions.

Fortunately, these risks can be managed with proper preparation before use.



NIOSH

U.S. Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

SCBA Use Preparation Steps

These critical steps include medical clearance, fit testing, and training.

Medical Clearance

Medical clearance ensures firefighters do not have pre-existing medical conditions that could place them at increased risk during SCBA use. Providers evaluate the health of the heart, lungs, and muscles, as well as mental fitness and factors that could affect proper respirator seal.

OSHA requires this evaluation before fit testing (29 CFR 1910.134).

Fit Testing

Fit testing confirms that respirators form a tight, protective seal to your face. This test must be performed by a qualified professional who is trained to conduct OSHA-accepted tests, understand the equipment, and identify respirator fit issues.

- Conduct fit tests annually as required by OSHA.
- Conduct a new fit test after any physical change that could affect the seal, such as significant weight changes or facial surgery.
- Maintain clean shave: facial hair interferes with the seal where the facepiece contacts the skin and can prevent a proper fit (29 CFR 1910.134(g)(1)(ii)).
- View the [NIOSH visual guide of facial hairstyles](#) that may work with tight-fitting respirators.

Training

Training firefighters on the same make and model of SCBA that they will use during emergency operations will help ensure effective use.

- NFPA standards (1400, 1580) recommend annual training on respirator protection.
- This training should include how to perform seal checks.
- Air management techniques, often taught in consumption courses, are also highly beneficial. Firefighters should be trained to exit the IDLH before the consumption of their reserve air supply (NFPA 1550 and NFPA 1400).

Key Steps to Take

Both fire departments and firefighters can take steps to ensure the safe and effective use of SCBAs.

For Fire Departments

- **Ensure Compliance:** Complete required pre-fit testing medical clearance evaluations and maintain documentation.
- **Promote Open Reporting of Medical Conditions:** Encourage firefighters to self-report any new medical conditions that might affect their health, respirator seal integrity, or ability to use the respirator safely and properly.
- **Enhance Training:** Inform firefighters of the potential health effects in SCBA training and emphasize the need for medical evaluation if signs or symptoms occur.
- **Maintain Proficiency:** Promote continuous training to ensure firefighters are competent with every component of their SCBA equipment, as part of a respiratory protection program outlined in NFPA 1400.

For Firefighters

- **Be Proactive:** Report new medical conditions and seek medical evaluation for any symptoms during or after SCBA use.
- **Ensure a Proper Seal:** Be clean-shaven where the facepiece seals to your skin.
- **Commit to Training:** Actively participate in all training to stay proficient with your equipment.
- **Use Equipment as Intended:** Adhere to manufacturer instructions for donning, fit testing, and operation of the SCBA.



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