

**BY ORDER OF THE
SUPERINTENDENT**

**HQ UNITED STATES AIR FORCE ACADEMY
INSTRUCTION 48-137**

17 JUNE 2002

Aerospace Medicine

**USAF ACADEMY RESPIRATORY
PROTECTION PROGRAM**



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 48-1, *Aerospace Medical Program*, and establishes the procedures and responsibilities for the Air Force Occupational Safety and Health (AFOSH) Standard 48-137, *Respiratory Protection Program*. This instruction is required to be maintained by all organizations in which personnel wear respirators for protection against inhalation of toxic levels of hazardous materials or for emergency escape or rescue. It applies to all Air Force civilian and military personnel whether assigned as permanent party or in transition (TDY). See **Attachment 1** for references, abbreviations, acronyms, and terms. Units are responsible to maintain and dispose of electronic and paper records created as a result of prescribed processes in accordance with AFMAN 37-139, *Records Disposition Schedule* (will be AFMAN 33-322, V4

SUMMARY OF REVISIONS

Updated organizations and office symbols throughout and reorganized the material.

1. Responsibilities. Responsibilities are defined in AFOSH Standard 48-137. Additional responsibilities are as follows:

1.1. USAFA Bioenvironmental Engineering Element (710 MDOS/SGPB):

- 1.1.1. Manages the USAFA Respiratory Protection Program (RPP). Sole authority for respirator authorization and use by USAFA personnel. To include the MCU-2P protective mask, or equivalent, used during CONUS operations carried out or overseen by USAFA personnel.
- 1.1.2. USAFA authority on selection, use, limitations, and fit-testing of respirators for protection against harmful atmospheres.
- 1.1.3. Evaluates industrial workcenters during industrial hygiene surveys and identifies those centers requiring respiratory protection based on air sampling data or comparable evaluations.

- 1.1.4. Ensures all respirator users have the approval of the RPP consultant physician prior to performing fit-testing and training.
- 1.1.5. Conducts respirator fit-testing according to provisions in AFOSH Standard 48-137.
- 1.1.6. Educates and trains workers on the use, care, and maintenance of respirators during initial and annual respirator fit-testing. Educates and trains workplace supervisors upon assignment and annually to supervisory duties in a work area where respirators are worn.
- 1.1.7. Documents fit-testing and training on AF Form 2767, **Occupational Health Training and Protective Equipment Fit Testing**, and AF Form 2772, **Certificate of Respirator Fit Test**. Electronic equivalent forms may be substituted.
- 1.1.8. Provides a copy of the completed AF Form 2772 (or similar product) to workcenter supervisors for updating of employees' AF Form 55, **Employee Safety and Health Record**.
- 1.1.9. Provides guidance to shop supervisors in the preparation of the shop RPP operating instruction (OI).
- 1.1.10. Establishes a master respiratory inventory for USAFA.
- 1.1.11. Establishes review of the base RPP and reports findings to the Occupational Health Working Group (OHWG) and the Quality of Life Leadership Council (QLLC), the AFOSH council equivalent on the Air Force Academy. Program includes:
 - 1.1.11.1. Number of personnel on respiratory protection categorized by type of face piece (full, half, air purifying, supplied air, etc.).
 - 1.1.11.2. Areas where respirators are worn.
 - 1.1.11.3. Purpose for wearing a respirator (process).
 - 1.1.11.4. Status of shop RPP OI (i.e., current, none available, needs updating, etc).
- 1.1.12. Establishes procedures through Base Supply (10 ABW/LGL) to track issuance of respirators.
- 1.1.13. Provides a certified listing of personal protective equipment to workcenters requiring the use of respiratory protection. This listing will include specific information on the protective equipment, the hazardous operation or task requiring respiratory protection, any known limitations, and applicable standard requiring its use.
- 1.1.14. Evaluates the feasibility of other controls (e.g. product substitution, process changes, ventilation systems, etc) as a permanent method of controlling airborne hazards.

1.2. Chief, Fire Department (10 CES/CEF):

- 1.2.1. Provides training on the use and maintenance of Self-Contained Breathing Apparatus (SCBA).
- 1.2.2. Tests compressed breathing air in accordance with AFOSH Std 48-137, Attachment 13, and provides 710 MDOS/SGPB with a copy of analysis results quarterly within 15 duty days of receipt.

1.2.3. Ensures required maintenance for regulating or admission valves, regulators, and alarms on SCBAs is performed by the respirator manufacturer or appointed individual who has been trained and certified by the manufacturer to conduct such maintenance.

1.3. Ground Safety Manager (HQ USAFA/SEG): The Ground Safety Manager, HQ USAFA/SEG, refers any suspected problems on respirator usage discovered during their inspections to 710 MDOS/SGPB.

1.4. Base Supply (10 ABW/LGLS):

1.4.1. Controls the issue of respirators by assigning an issue exception code nine (IEX R) to all respirators and respirator parts; coordinates with 710 MDOS/SGPB for approval of all respirator and respirator parts purchases.

1.4.2. Ensures an “unsuitable substitute” for a particular respirator or respirator part is not issued.

1.4.3. Will provide training to appropriate personnel to ensure respirators and respirator parts are not ordered or issued without the approval of 710 MDOS/SGPB.

1.5. USAFA Flight Medicine (710 MDOS/SGPF):

1.5.1. Ensures a Primary Licensed Health Care Provider (PLHCP) makes the determination that a worker is medically able to wear a respirator.

1.5.2. Ensures a medical evaluation questionnaire is completed and followup medical exam, if needed, is completed. The PLHCP will determine worker ability to use a respirator.

1.5.3. For confidentiality of the medical questionnaire, the PLHCP's recommendation will be documented on a separate form or memorandum and not on the questionnaire.

1.6. USAFA Occupational Health Working Group (OHWG): The OHWG establishes a medical evaluation protocol for respirator users.

1.7. USAFA Public Health Element (710 MDOS/SGPM): 710 MDOS/SGPM ensures all respirator users have been correctly coded to receive baseline and annual/periodic medical evaluations as appropriate.

1.8. USAFA Physical Examination Element (710 MDOS/SGPFP): 710 MDOS/SGPFP arranges and conducts initial and routine medical surveillance of respirator users as outlined by 710 MDOS/SGPM. The Cadet Clinic maintains the records of civilian employees.

1.9. USAFA Optometry Element (710 MDOS/SGPFE): At the written request of shop supervisors, 710 MDOS/SGPFE will obtain spectacle inserts for full-face respirator wearers. The cost of the inserts will be relayed to the organization responsible for the process, which requires the use of respiratory protection.

1.10. USAFA Medical Records Element (10 MDSS/SGOXO): 10 MDSS/SGOXO ensures the completed questionnaire is filed in the workers' medical records.

1.11. Supervisors:

1.11.1. Contact 710 MDOS/SGPB at 333-4825 for information and guidance regarding respiratory protection matters. In case of emergency after duty hours, a SGPB representative may be reached by dialing 911.

1.11.2. Contact SGPB whenever workplace operations change to ensure that appropriate evaluations are made when new chemicals are introduced, processes or procedures are changed, or engineering controls are modified or added.

1.11.3. In the workplace, maintain a copy of AFOSH Std 48-137, a copy of this instruction (USAFAI 48-137), and develop, maintain, and enforce a workplace Respirator OI approved and signed by the Chief, USAFA Bioenvironmental Engineering Element (BEE), or their designated RPP Manager. The workcenter supervisor and the base RPP Manager will review the workplace Respirator OI annually. The following information must be addressed in the workplace RPP OI. Modifications must be approved by the BEE.

1.11.3.1. Describe the situations or operations in which respiratory protection is required or recommended.

1.11.3.2. Include specific information regarding respirator selection. Include a reasonable estimate of employee exposure. The chemical or product name and physical form (gas, liquid, solid) must be specified.

1.11.3.3. Specify respirators approved by BEE for the use in each situation or operation.

1.11.3.4. Describe specific procedures for the proper use of respirators. Include mandatory user seal check procedures.

1.11.3.5. Specify procedures and schedules for respirator inspecting, cleaning, disinfecting, storing, repairing, discarding, and otherwise maintaining respirators. Include the criteria that workers are to use in determining when filters, cassettes, or cartridges must be changed. Ensure respirators are cleaned and disinfected using procedures in Appendix B-2 of 29CFR 1910.134.139 or procedures recommended by the manufacturer if equivalent in effectiveness. Ensure all filters, cassettes, or cartridges in the workplace are labeled and color-coded with the National Institute for Occupational Safety and Health (NIOSH) approval labeling.

1.11.3.6. Where atmosphere-supplying respirators (air-line or self-contained breathing apparatus (SCBA) are used, specify procedures to ensure adequate quality, quantity, and flow of breathing air. Provide a copy of the quarterly breathing air analysis to 710 MDOS/SGPB. Ensure all air-line compressors are equipped with carbon monoxide monitors.

1.11.3.7. Include training requirements in the respiratory hazards to which personnel are potentially exposed during routine and emergency situations. A copy of the training outline or lesson plan must be attached to the workplace Respirator OI.

1.11.3.8. Include training requirements in the proper use of respirators, including donning and doffing procedures and respirator maintenance.

1.11.3.9. Establish procedures for regularly evaluating the effectiveness of the program.

1.11.3.10. Include requirements and procedures for verifying medical clearance and fit-testing including frequency of fit-testing and methods to ensure all personnel are current. A copy of the Medical Clearance Questionnaire can be obtained from Bioenvironmental Engineering Section.

1.11.4. Document initial and annual fit-testing and training for each respirator user on AF Form 55.

- 1.11.5. Ensure no respirator is used without BEE approval.
- 1.11.6. Filtering Face Piece Devices (FFPD) are considered “elective use” respirators except in the case of Tuberculosis protection. FFPD can only be used in a work center that is approved by the BEE. Training will be provided in accordance with AFOSH Standard 48-137, paragraph 2.5.2.4.
- 1.11.7. Respirators that meet the Center for Disease Control and Prevention Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis (TB) in Health Care Facilities should be worn for protection of TB. Respirators and filtering face piece devices with N, R, or P series filters at 95, 99, or 100% efficiencies, are authorized for use in Air Force medical treatment facilities for protection against TB. All filtering face piece devices must have two head straps. An exhalation valve may or may not be present.
 - 1.11.7.1. The letters (N, R, and P) in front of the respirator efficiency percentage are as follows: N stands for Not resistant to oil. R stands for Resistant to oil. P stands for oil Proof.
- 1.11.8. Ensure all workers have received the necessary examinations, training, and fit-testing prior to using respiratory protection.
- 1.11.9. Appoint an individual to be responsible for the maintenance, inspection, and care of common use, emergency and escape respirators, as appropriate.
- 1.11.10. Advise all respirator wearers that they may leave the area at any time for relief from respiratory usage in the event of equipment malfunction or physical, procedural or communications failure, significant deterioration of working conditions, or any other situation.
- 1.11.11. Examine the feasibility of engineering and/or administrative controls to reduce exposure so that respiratory protection is not required (e.g., product substitution, process changes, ventilation systems, etc). Provide a written justification to 710 MDOS/SGPB if recommended engineering controls are deemed unfeasible.
- 1.11.12. When spectacle inserts are required for full-face respirators:
 - 1.11.12.1. Procure for all individuals that are on the RPP and wear spectacles, at organizational expense, spectacle frames for the specific respirator from the respirator manufacturer.
 - 1.11.12.2. Forward a memorandum to the USAFA Optometry Element (710 MDOS/SGPFE-Optometry/3-5189) requesting that the inserts are fitted with lens specific for the employee. As a minimum, the Optometry section must receive the medical supply account for the organization, the employee name and social security number, and specific make and model of full-face respirator. The medical supply account will be used to purchase the lenses for the specific inserts.

1.12. Individual Respirator Users:

- 1.12.1. Use respiratory protection according to the instructions and training received.
- 1.12.2. Inspect, clean, and maintain any respirator issued to them for their individual use.
- 1.12.3. Wear only those respirators for which they have received fit-testing and training, and only for the tasks specified.
- 1.12.4. Only wear spectacles acquired from the respirator manufacturer.

1.12.5. At the user's expense, may procure soft or gas permeable contact lenses for use with respirators.

2. Selection, Use, and Limitations:

2.1. Selection:

2.1.1. Selection of respirators will only be done by 710 MDOS/SGPB.

2.2. Use. Respiratory protection should be a last resort. Substitution of less hazardous materials, elimination of the hazard through engineering controls, isolating hazardous operations, or providing administrative controls will be considered before the decision is made to protect workers with respirators. USAFA employees will wear no respirator unless authorized by the USAFA BEE. Use on the MCU-2P protective mask or equivalent will only be used during COUNS contingency operation as authorized by 710 MDOS/SGPB.

2.3. Limitations. Facial Hair. The only type of respirator permitted to be worn with facial hair is a supplied air, positive pressure type or a powered air-purifying respirator (PAPR) with a hood. Facial hair shall not be allowed with any respirator that requires a face-to-face piece seal to include SCBA.

3. Training:

3.1. Supervisor training will be accomplished annually. Training includes the areas listed under section 7 of AFOSH Standard 48-137 and is documented on AF Forms 55 and 2767.

3.2. Initial and annual worker training will be accomplished by the work center supervisor. All training will be documented accordingly.

4. Fit-testing:

4.1. Fit-testing will only be accomplished after Flight Medicine has determined the individual is medically qualified to wear a respirator.

4.2. All fit-testing to include quantitative and qualitative will be accomplished by 710 MDOS/SGPB.

4.3. A new fit-test will be accomplished when a worker experiences a change in physical condition that could affect respirator fit (e.g., weight change of more than 20 pounds, facial scarring, dental changes, cosmetic surgery, disfigurement, etc).

4.4. The specific type and size of respirator used during fit-testing will be the same as used for protection (i.e., if an individual is fit-tested with a medium half-face 3M respirator, then only a medium half-face 3M respirator may be used by the individual). Personnel bring their respirator to the 710 MDOS/SGPB for fit-testing. Each individual must bring any spectacle inserts that will be worn with the respirator for the fit-test.

5. Care, Inspection, and Maintenance:

5.1. Respirators issued to one individual will be cleaned and sanitized (warm soap and water and rinsed in 50 part per million hypochlorite solution) at the end of each day in which the respirator was used. (Note: 50 ppm solution is approximately 1 tablespoon of bleach to 1 gallon of water.)

5.2. Respirators will not be used by more than one person.

5.3. Respirators will be stored in a manner that will protect them from chemical contamination, temperature extremes, moisture, vibration, or sunlight. Respirators shall not be stored in such places as lockers and toolboxes unless they are protected from contamination, distortion, and damage.

5.4. Each respirator will be inspected after cleaning and sanitizing and will be checked for strap elasticity, parts accountability and replacement, and rubber deterioration.

5.5. Inspection of emergency or rescue respirators shall be done after each use or at least monthly and documented on AF Form 1071, **Inspection/Maintenance Record**.

5.6. Air-purifying respirator cartridges, filters, or canisters will be changed as defined in the sections OI scheduled change-out procedures.

6. Medical Surveillance:

6.1. All respirator users will complete a screening medical questionnaire prior to being certified for respiratory usage. Additional medical surveillance may be deemed necessary by the Flight Medicine. Each employee has the right to discuss the results of the medical questionnaire and exam with the provider.

7. Forms Adopted. AF Form 55, **Employee Safety and Health Record**; AF Form 1071, **Inspection/Maintenance Record**; AF Form 2767, **Occupational Health Training and Protective Equipment Fit Testing**; and AF Form 2772, **Certificate of Respirator Fit Test**.

DAVID G. SCHALL, Col, USAF, MC, CFS
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Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

29 CFR 1910.132, *Personal Protective Equipment*

29 CFR 1910.134, *Respiratory Protection*

AFOSH Standard 48-137, *Respiratory Protection Program*

AFOSH Standard 48-8, *Controlling Exposures to Hazardous Materials*

AFOSH Standard 91-31, *Personal Protective Equipment*

Abbreviations and Acronyms

ACGIH —American Conference of Government Industrial Hygienists

AFOSH —Air Force Occupational Safety and Health

HEPA —High Efficiency Particulate Air

IEX —Issue Exception Code

NIOSH —National Institute for Occupational Safety and Health

OEL —Occupational Exposure Limit

OHWG —Occupational Health Working Group

OSHA —Occupational Safety and Health Administration

PAPR —Powered Air Purifying Respirator

PLHCP —Primary Licensed Health Care Provider

RPP —Respiratory Protection Program

SCBA —Self Contained Breathing Apparatus

Terms

Air Purifying Respirator —A respirator that removes contaminants from the ambient air.

Air Respirator (Supplied) —A respirator, which provides air from a source other than the surrounding atmosphere.

End-of-Service Life Indicators —A system that warns the user of the approach of the end of adequate protection provided by the respirator. It is normally used when an air-purifying respirator is worn for protection against a gas or vapor with poor warning properties.

Facial Hair —Any hair on the face of an individual that interferes with a normal face-to-respirator seal. This includes beards, sideburns, mustache, goatees, stubble, or more than 1 day's growth of facial hair.

Filtering Face Piece Device —A device, which has a face piece, made entirely of filtering or adsorbing material. These devices do not have changeable filters or cartridges or an inhalation valve; it must have an exhalation valve and two headbands. These devices will not be recommended or required by the 710

MDOS/SGPB for use in industrial workcenters where air contaminants exceed occupational exposure limits or action levels.

High Efficiency Particulate Air (HEPA) Filter —A filter that is 99.7 percent efficient for particulates with an aerodynamic diameter of 0.3 micrometers.

Negative Pressure Respirator —A respirator in which the air pressure inside the respirator inlet cover is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Occupational Exposure Limit (OEL) —The maximum concentration of a specified substance to which an employee may routinely be exposed without personal protection. OELs are established according to AFOSH Standard 48-8 and represent the most stringent standard of the standards published by the Occupational Safety and Health Administration (OSHA) and the American Conference of Governmental Industrial Hygienists (ACGIH).

Positive Pressure Respirator —A respirator in which the air pressure inside the respirator inlet cover is positive in relation to the air pressure of the outside atmosphere during exhalation and inhalation.

Qualitative Fit-test —A pass or fail fit-test that relies on the individual's sensory response to detect the challenge agent when wearing the respirator.

Quantitative Fit-test —A fit-test that numerically measures the effectiveness of respirator face-to-face piece by measuring a challenge agent inside and outside the respirator, then calculating the appropriate level of protection.

Attachment 2

USE AND LIMITATIONS OF FILTERING FACE PIECES DEVICES

Shop Name
Location
Phone

- > **Filtering face piece devices are NOT considered respirators.**
- > **May be used if authorized by Bioenvironmental Engineering, at employee discretion, strictly for comfort purposes.**
- > **Not recommended for use during any operation involving chemicals; i.e., paints and solvents.**
- > **Should follow manufacturer's recommendations for use of filtering face piece.**
- > **May not adequately protect workers from gases, vapors, or particulates because a negative or positive fit check cannot be accomplished to ensure proper seal.**
- > **Without a proper seal, the potential for an exposure is inevitable.**

**PLEASE READ THE ABOVE, THEN PRINT, AND
SIGN YOUR NAME BELOW.**

NAME , RANK

SIGNATURE

DATE