



Respiratory Protection Program

GENERAL

The UNCW Environmental Health & Safety Department (EH&S) is authorized by [UNCW Policy 05.600](#) to develop and manage comprehensive environmental, health and safety programs. Additionally, they are tasked to identify and address regulatory requirements. In that spirit, this Respiratory Protection Program has been developed to protect employees by ensuring that all employees understand the Respiratory Protection Program before employees perform servicing, maintenance or daily duties. This policy is intended to meet the Occupational Safety and Health Requirements for General Industry outlined in 29 CFR 1910.134.

SCOPE

This policy applies to all university employees regardless of status or type of employment. It may be used as minimum guidelines for contractors and/or vendors that are expected to maintain their own safety program.

APPLICATION

This written policy outlines responsibilities, training and program requirements with regard to the Respiratory Protection Program.

RESPONSIBILITIES

Each Department shall be responsible for the implementation of the Respiratory Protection Program procedures. Employees shall have training in understanding the significance of implementing the procedures. Employees will use the Respiratory Protection Program when working in conditions where there is a danger of injury because of potential inhalation of hazardous substances.

TRAINING

The department shall provide training so employees understand the purpose and function of the program (knowledge, skills, application, use, removal)

Training shall include:

1. The Respiratory Protection Program Administrator shall insure that personnel required to use or to supervise other personnel using respiratory protective devices are provided training as outlined below:

2. Personnel that are required to use respirators will be trained concerning the reasons for the use of respiratory protective devices and instructions on proper selection, use and maintenance.

Supervisors and workers shall be instructed by competent persons knowledgeable in the area of respiratory protection, or by electronic means approved by the UNCW EH&S department. Training shall include:

- a) Why the respirator is necessary.
 - b) How improper fit, usage or maintenance can compromise the protective effect of the respirator.
 - c) Limitations and capacities of the respirator.
 - d) Emergency use of the respirator including times when the respirator malfunctions.
 - e) How to inspect, put on, and remove and check the seals of the respirator.
 - f) Proper procedures for maintenance and storage of the respirator.
 - g) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
 - h) The general requirements of 1910.134 and the UNCW Respiratory Protection Program.
3. Training will be conducted annually. Training will be conducted so it is understandable to the employee. The training will be provided prior to the utilization of respiratory protection in the workplace.
 4. Refresher training will be administered annually and in the following situations:
 - a) Change in the workplace conditions.
 - b) Change in the type of respirator used, rendering the previous training obsolete.
 - c) Indications that the respirator user did not retain the sufficient knowledge or skills necessarily to properly utilize a respirator.
 5. A written record of training shall be maintained at the employees' department and at the employee's worksite.
 6. Training for Respirator Use under Voluntary Use Conditions
 - a) Personnel that choose to use a respirator for comfort reasons, and when not required by the Hazard Assessment, will be provided with a copy of the Voluntary Respirator Use Form contained in (Appendix A). A signed copy of the form shall be retained at the work site for the duration of employment.

PROGRAM REQUIREMENTS

General Requirements

1. Respirators are considered an acceptable method of protecting the health of UNCW personnel only under the following circumstances:
 - a) When it has been determined, to the satisfaction of the EH&S Director or respiratory protection program administrator, that there are no feasible engineering or work practice controls that can be used to adequately control the hazard.
 - b) Where required during intermittent, non-routine operations (i.e., not exceeding 1 hour/day for 1 day/week, or 30 days per year).
 - c) During the interim periods when engineering controls are being designed and/or installed for a particular hazardous operation.
 - d) During emergencies (spills, pandemics, etc.)
 - e) Voluntary Use: Where the hazard assessment indicates that respiratory protection is not required UNCW personnel may utilize respiratory protection on a voluntary basis. All elements of paragraph C of this section shall be followed when respiratory use is voluntary.
2. The respiratory protection program administrator shall conduct a hazard assessment wherever it is believed respiratory protection may be required. The assessment shall evaluate respiratory hazards, identify locations or areas where respiratory protection is required and provide guidance in the conduct of the respiratory protection program. Measurement of air contaminant levels may be conducted as a part of the Hazard Assessment as required by the EH&S Director.
3. Managers and Supervisors will insure that personnel under their supervision are provided with appropriate respiratory protection (without cost to the worker) as indicated in the department respiratory selection inventory.
4. Individuals provided with respirators shall use them in accordance with instructions and training received.
5. The respiratory protection program administrator shall conduct regular inspections and evaluations to determine the continued effectiveness of the UNCW Respiratory Protection Program.
6. The respiratory protection program administrator shall re-evaluate respiratory hazards, as appropriate, to insure that the respiratory protection utilized provides an adequate level of protection. Provision of Acceptable Respiratory Protection Program
1. This Respiratory Protection Program requires close liaison among workers, managers, supervisors, safety and medical personnel to safeguard life and health through proper selection and use of respirators. It includes the following elements:

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- a) Proper selection of respirators for use in the work place.
- b) Medical evaluation of employees using respirators.
- c) Fit testing procedures for tight fitting respirators.
- d) Procedures for use of respirators in routine and reasonably foreseeable emergencies.
- e) Procedures and schedules for cleaning, disinfecting, sterilizing, inspecting, repairing, discarding, and otherwise maintaining respirators.
- f) Training of employees to recognize potential hazards during routine and emergency conditions.
- g) Training for employees to properly use respirators, limitations and maintenance of the respirators.

Voluntary Use of Respirators

1. Where UNCW personnel believe there is a need for respiratory protection that request shall be brought to the supervisor and a determination made by the respiratory protection program administrator on the proper respirator for the job. UNCW will supply the employee with a required or voluntary use respirator as detailed in this policy.
2. Voluntary use of respirators shall be used only under the following conditions:
 - a) Respirator use in itself will not create a hazard.
 - b) The respirator user is provided with the information found in (Appendix A) prior to respiratory use.
 - c) The respirator user is medically able to use the respirator (medical clearance, for voluntary use only, is not required for filtering facepiece respirators).
 - d) The respirator is cleaned, stored, and maintained properly to ensure that its use does not create a health hazard.

Classification and Description of Respirators

1. Respiratory protective devices are designed, tested, and approved for protection against specific exposures. These devices are conveniently grouped into two general classifications according to their mode of operation.
 - a) Air-purifying respirators:
 - (i) Chemical cartridge respirators (gases and vapors).
 - (ii) Particulate respirators (dusts, fog, fume, mist, smoke, and sprays).

(iii) Combination (gas, vapor, and particulate).

(iv) Powered, air purifying respirators (PAPR).

2. Air-supplied respirators:

a) Self-contained breathing apparatus (SCBA).

b) Supplied Air Respirators (SAR).

Selection and Limitation of Respirators

1. A Department Respiratory Protection program Inventory shall be completed for each department where respiratory protection is used. The inventory shall specify task requiring respiratory protection, the selected respirator, and the conditions of use.

2. The UNCW EH&S Department will assist in completion of the form following the Hazard Assessment. A copy of the Inventory shall be available in each Department where respirators are used

3. The following factors will be utilized in respirator selection:

a) The respirator selected will be based on the respiratory hazards of the task being performed, as identified in the hazard assessment and in accord with Assigned Protection Factors as published by OSHA.

b) All respirators will be NIOSH certified and used in compliance with this certification.

c) The Hazard Assessment will identify the name and location of the job, the respiratory hazards present and the proper respirator for performing the work.

d) If an estimate of the exposure to the contaminant cannot be made or is unknown, the atmosphere should be considered IDLH.

e) Selection of the respirator will be made from a sufficient number of respirator models and sizes so an acceptable user fit can be obtained.

4. All oxygen-deficient atmospheres (less than 19.5% O₂) are considered IDLH. *Only Supplied Air Respirators shall be allowed in IDLH atmospheres.*

5. When equipped with a NIOSH certified end-of-service-life indicator (ELSI) or, in the absence of an ELSI, the canister or cartridges will be changed before the end of their service life based on objective information and data. When ELSI are not available the change schedules shall be determined by the EH&S department.

Medical Evaluation of Worker for Respirator Use

1. Workers shall not be assigned to tasks requiring the use of respirators unless it has been determined by medical evaluation that they are physically and psychologically able to perform

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their work while wearing the prescribed respiratory protection. The UNCW Respiratory Protection Program Administrator shall notify each prospective respirator user of the method to obtain Medical Clearance.

- a) Personnel on or in reasonable proximity to the UNCW campus shall obtain medical clearance as directed by the UNCW EH&S Department.
- b) Personnel without access to the UNCW campus shall obtain medical clearance from the designated occupational medical provider for the site.

2. Medical Evaluation Procedure

- a) The Physician or other licensed healthcare professional (PLHCP) will use the OSHA specified medical questionnaire obtain the required information. Based on questionnaire responses a clinical evaluation or other follow up may be required as directed by the PLHCP.
- b) The PLHCP will administer the medical questionnaire confidentially during the normal working hours or at other times and places convenient to the worker.
- c) The worker will be given the opportunity to discuss the medical questionnaire or the medical examination with the PLHCP to assure sufficient understanding of the content.
- d) The following information shall be provided to the PLHCP by the Respiratory Protection Program Administrator to assist in the medical clearance evaluation:
 - Type and weight of respirator to be used.
 - Duration and frequency of use (including rescue and escape use).
 - Expected physical work effort.
 - Additional PPE and clothing to be worn.
 - Temperature and humidity extremes to be encountered.
- e) A written copy of the UNCW Respiratory Protection Program will be provided to the PLHCP.

3. Medical Determination

- a) The respiratory protection program administrator will obtain a written report from the PLHCP regarding the employee's ability to use the respirator. The following information will be included in the medical clearance report:
 - Whether the employee can wear the respirator and do the work (are they medically fit to use the respirator).
 - Any limitation related to medical or workplace conditions.

- Documentation that a copy of the written recommendation has been provided to the employee by the PLHCP.
 - Notification that the employer will re-assign the employee to a job not requiring the use of a respirator if the use of a negative pressure respirator places the employee health at risk.
- b) The written medical clearance report shall not contain confidential medical information, or any other information not related to the ability to wear a respirator.
4. Additional medical evaluations for employees that are required to use a respirator are required whenever:
- a) Users report medical signs or symptoms that affect their use of a respirator.
 - b) The PLHCP, supervisor, or respiratory protection program administrator determines that the worker needs additional evaluation.
 - c) Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for reevaluation.
 - d) A change occurs in workplace conditions, which results in substantial increase in the psychological burden on the worker.

Respirator Fit Testing

1. All employees that are required to use a respirator with a negative or positive pressure tight-fitting facepiece will be fit tested. The same make, model, style and size respirator will be used to conduct the fit test. The program administrator or other designated personnel shall perform required fit tests following receipt of the medical clearance.
2. At a minimum all personnel must pass a qualitative respirator fit test (QLFT) before being allowed to use a tight-fitting facepiece respirator. At the discretion of the EH&S Director some personnel and or tasks may require a Quantitative Fit Test (QNFT)
3. Respirator users shall pass a fit test prior to initial use of the respirator, or whenever a different respirator (size, style model, or make) is used, and at least annually thereafter.
4. Respirator users shall pass an additional fit test whenever the PLHCP, supervisor, or respiratory protection program administrator observes changes in the employee's physical condition that could affect the fit of the respirator (facial scarring, dental changes, cosmetic surgery, or obvious body weight change).
5. Fit tests shall be administered using procedures specified by OSHA in 29 CFR 1910.134(f).

Use of Respirators

1. The following procedures shall be followed by all personnel to assure the proper use of respirators:
 - a) Employees who have facial hair that comes between the sealing surface of the facepiece and the face or that interferes with the valve function of the respirator will not be fit tested or allowed to use respirators with tight-fitting face pieces.
 - b) Corrective glasses, goggles or other PPE will not be worn in a manner that interferes with the seal of the facepiece to the users face.
 - c) The user of a tight-fitting respirator will perform a user's seal check each time they put on a respirator.
2. Continuing surveillance of work area conditions and degree of employee exposure or stress will be conducted by the UNCW EH&S department or supervisor. Whenever there is a significant change in work area conditions, the degree of employee exposure changes, or other factors occur that impact the effectiveness of respirator use, these shall be reported to the UNCW EH&S department and the hazard assessment updated as necessary.
3. The respirator user shall leave the respirator use area whenever a vapor or gas breakthrough, change in breathing resistance, or facepiece leakage is detected. The respirator or filters will be replaced before returning to the work area whenever the user detects vapor or gas breakthrough, change in breathing resistance or facepiece leakage.
4. The following procedures shall be used for all atmosphere supplying respirators (SCBA, SAR).
 - a) Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.
 - b) Oxygen concentrations greater than 23.5% shall be used only in equipment designed for oxygen service or distribution.
 - c) Compressed air cylinders shall have a current DOT hydrostatic test and inspection.
 - d) Compressors used to supply breathing air to respirators shall be constructed and situated so as to:
 - (i) Prevent entry of contaminated air into the system.
 - (ii) Have suitable in-line air-purifying sorbent beds and filters to ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions. A tag containing the most recent change date and the signature of the person performing the change shall be maintained at the compressor.

- (iii) For compressors that are not oil-lubricated, carbon monoxide levels in the breathing air shall be monitored to insure levels do not exceed 10 ppm. Contact the UNCW EH&S Department for assistance with this requirement.
- (iv) For oil-lubricated compressors, a high-temperature or carbon monoxide alarm, or both, shall be used to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
- (v) Breathing air couplings shall be incompatible with outlets for non-respirable worksite air or other gas systems.

Maintenance and Care of Respirators

1. Each respirator will be maintained in a clean, sanitary condition and good working order.
2. Respirators will be cleaned at least daily or after each shift. Respirators used by more than one person shall be cleaned and disinfected before being worn by different individuals. Disposable respirators shall be disposed when no longer fit for use and at a minimum daily.
3. Respirators used for fit testing and training will be cleaned after each use.
4. All respirators will be stored to protect the respirator and prevent damage, contamination, dust accumulation, sunlight, temperature extremes, excessive moisture, and chemicals from damaging the respirator. Respirators will be stored so as to prevent damage due to deformation of the facepiece and exhalation valve. In addition, respirators will:
 - a) Be accessible to the work area at all times.
 - b) Stored in accordance with manufacturers recommendations.
5. Respirators will be inspected before each use and during cleaning. The respirator inspection will include:
 - a) A check of function, tightness of connection, and condition of parts such as the facepiece, head strap, valves, and filters.
 - b) The elastomeric parts will be checked for pliability and signs of deterioration.
6. Replacement:
 - a) Respirators that fail inspection or are otherwise found to be defective will be removed from service and repaired or disposed.

- b) Respirator cartridges and filters shall be changed after 8 hours of use or 2 weeks after opening, whichever occurs first. Employees shall mark, on each cartridge with permanent marker, the date opened and the amount of hours used after each use.

Identification of Filters, Cartridges, and Canisters

1. Only filters, cartridges and canisters labeled and color coded with a NIOSH approved label shall be used. If the NIOSH approved label is no longer legible the filter, cartridge or canister shall be removed and replaced with a NIOSH approved filter, cartridge or canister.

Program Evaluation

1. The respirator program will be evaluated by the respiratory protection program administrator at least annually or more frequently if necessary, based on changes in workplace conditions, changes in potential exposures, or notifications from respirator users.
2. The evaluation will be conducted to ensure that the program provisions are effectively implemented.
3. It is the responsibility of the manager and/or supervisor to observe respirator users to assure they are wearing and using the respirators properly.
4. Respirator users will be consulted to determine program effectiveness and identify problem areas. Issues to be reviewed include but are not limited to the following:
 - a) Respirator fit;
 - b) Appropriate respirator selection based on the hazard to which the employee is exposed;
 - c) Proper respirator use under workplace condition;
 - d) Proper respirator maintenance;

Recordkeeping

1. The following written records will be maintained:
 - a) Medical Clearance: The medical evaluation records will be retained by the UNCW EH&S Department and made available according to § 29 CFR 1910.1020.
 - b) Fit testing: The quantitative and/or qualitative fit test record will be maintained by the UNCW EH&S Department and include the following information.
 - (i) Name or Banner ID Number of employee tested.
 - (ii) Type of fit test performed.

- (iii) Specific make, model, style and size of respirator tested;
 - (iv) Date of test.
 - (v) Pass/fail results of QLFT fit factor and strip chart record of the QNFT.
- c) The fit test record will be maintained until a subsequent fit test is performed.
 - d) UNCW Respiratory Protection Program: The Respiratory Protection Program will be administered by the UNCW EH&S Department, under the direction of the Program Administrator. A written copy or electronic access to the written program shall be readily available to all respirator users.
 - e) Annual Respiratory Program Evaluation: A written copy of the annual Respiratory Program Evaluation shall be maintained in the UNCW EH&S Department.



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Respirators - Voluntary Use

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning, care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, The National Institute for Occupational Safety and Health, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.
5. Contact UNCW EH&S with question or concerns before voluntary use of respirator.

I (print name), _____, certify that I have read and understand the above statements in regards to voluntary use of respirators.

Signature: _____

Date: _____

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Appendix B

Definitions

For the purpose of this procedure, the following definitions apply:

Air-purifying respirator: a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Approved: tested and listed as satisfactory by the National Institute for Occupational Safety and Health (NIOSH).

Canister or cartridge: a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Emergency: an unplanned event, when a hazardous atmosphere of unknown chemical or particulate concentration suddenly occurs, requiring immediate use of a respirator for escape from, or entry into, the hazardous atmosphere to carry out maintenance or some other task.

Note - May or may not include cleanup, maintenance, or repair in unknown contaminant concentrations or oxygen deficiency.

End-of-service-life indicator (ESLI): a system that warns the respirator user of the approach of the end of adequate respiratory protection; for example, the sorbent is approaching saturation or is no longer effective.

Escape-only respirator: a respirator intended to be used only for emergency exit.

Filter or air purifying element: a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering face piece (dust mask): a negative pressure particulate respirator with a filter as an integral part of the facepiece, or with the entire facepiece composed of the filtering medium.

Hazard Assessment: An evaluation of a specific task or activity to identify potential risks to which personnel might be exposed, including, but not limited to, the designation of required respiratory protective equipment when performing the activity or task.

High efficiency particulate air (HEPA) filter: a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Immediately dangerous to life or health (IDLH): an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Negative pressure respirator (tight fitting): a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

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Oxygen deficient atmosphere: an atmosphere with oxygen content below 19.5% by volume.

Powered air-purifying respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Physician or other licensed health care professional (PLHCP): an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide some, or all of the health care services required by paragraph (e) of this section.

Qualitative fit test (QLFT): a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to a challenge test agent.

Quantitative Fit Test (QNFT): An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respirator: an approved device designed to provide the wearer with protection against inhalation of airborne contaminants and for some devices, protection against oxygen-deficient atmospheres.

Self-Contained Breathing Apparatus (SCBA): An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life: the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator: An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user. Air is supplied through a compressor and dedicated air lines

Tight-fitting face piece: a respirator that forms a complete seal with the face.

User seal check: an action conducted by the respirator user to determine if the respirator is properly seated to the face.