

Wellesley College Respirator Program

Introduction

In the course of their work, employees of Wellesley College may be exposed to materials that pose a respiratory hazard. This document establishes Wellesley Colleges written program for respiratory protection, as required by the [Occupational Safety and Health Administration \(OSHA\) under Title 29 Code of Federal Regulations Part 1910.134.](#)

Feasible alternate methods to reduce respiratory hazards to safe levels should always be implemented first. Respiratory protective equipment shall be used when necessary to control respiratory hazards and may be used to supplement other hazard control methods. The Respirator Protection Program (RPP) establishes the procedures and administrative requirements necessary for use of respiratory protective equipment. It provides health and safety information and guidance to those persons falling within the jurisdiction of this program as described in the following section.

Applicability / Scope

The following departments are currently included in the Respirator Program:

- Studio Arts
- Grounds, Maintenance, Power Plant, Motor Pool in Facilities Management & Planning
- Campus Police
- Science Center - Animal Care Technicians and Engineering

Note: [Surgical Masks](#) and [Cloth Face Coverings](#) are not part of the Respirator Program.

Responsibilities

Various departments and employees have responsibilities under this program, including:

Environmental Health & Safety (EHS)

EHS is responsible for the development, documentation, and administration of the respirator program and shall:

- Develop a written standard operating procedure document.
- Evaluate respiratory hazards in the work environment.
- Provide guidance for the selection and purchase of approved respirators.
- Provide instruction to on the proper use, maintenance, and storage of respirator equipment.
- Provide a fit testing program for respirator wearers.
- Maintain fit testing, and medical surveillance records.
- Evaluate the overall effectiveness of the respirator program.

Supervisors

It is the responsibility of supervisors to ensure that workers are completely knowledgeable of the respiratory protection requirements for the areas in which they manage. Supervisors are responsible for ensuring that:

- Employees receive medical evaluation and respirator fit testing/training.
- Appropriate respirators and accessories are available.
- Employees have access to adequate storage facilities and respirators are maintained properly.
- Employees are aware of tasks requiring the use of respiratory protection.
- Employees always use the appropriate respirator.
- Problems are reported to EHS, i.e. changes in equipment or procedures that may affect employee exposure or respirator suitability.

Employees

- It is the responsibility of the employee to have an awareness of the respiratory protection requirements for their work areas.
- Employees are also responsible for wearing the appropriate respiratory protective equipment according to proper instructions and for maintaining the equipment in a clean and operable condition.

Medical Evaluations

Prior to assigning respirators to workers, a determination must be made to assure that employees are physically able to perform the work while wearing a respirator. The medical evaluation must be initiated by having each potential respirator wearer complete a confidential questionnaire.

The Wellesley College [Respirator Medical Evaluation Questionnaire](#) equivalent to [1910.134 App C - OSHA Respirator Medical Evaluation Questionnaire](#) will be provided to employees to complete. In order to maintain confidentiality all questionnaires will be returned directly to the health care provider for review. The initial medical evaluation and subsequent medical exams deemed necessary by the designated clinicians are provided at no cost to the employee.

The required written information to be provided by the PLCHP to EHS will only include:

- Whether or not the employee is medically able to use a respirator.
- Any limitations on respirator use in relation to the medical conditions (if any) of the employee or workplace conditions.
- Need for any follow-up medical evaluations.

- A statement that PLCHP provided the employee with written recommendation; in some cases, this recommendation may simply state that the applicator/person that will use the respirator is capable of wearing a respirator.

The OSHA video, [Medical Evaluations for Workers Who Use Respirators](#), provides a brief summary and general information about medical evaluations.

Exposure Assessments

Potential exposures to hazardous materials and conditions are routinely evaluated through regular workplace inspections and upon employee or supervisor request. EHS takes all practical efforts to ensure that engineering or other controls are available and implemented to eliminate the need for respiratory protection. Nevertheless, certain situations and operations continue to require the use of respirators where exposures cannot be otherwise managed below the applicable permissible exposure limit. Also, respirators may be required or desired because of the odor or irritation associated with chemical exposures, even though they may be well below all applicable exposure limits.

Where air sampling is needed, measurements will be made by trained safety and health personnel from, or under the direction of EHS.

Voluntary Use

Under some circumstances, employees may wish to use respiratory protection equipment for their own comfort or sense of well-being, even when there is no recognized hazard or overexposure. Employers are not required to include in the respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering facepieces (i.e. N95 dust masks). Those employees who wear filtering facepieces on a voluntary basis will be provided with the required information from [29CFR1910.134, Appendix D](#). (Appendix B)

Respirator Selection

Only respirators with approval from the National Institute of Occupational Safety and Health ([NIOSH](#)) may be used.

Supervisors shall contact EHS prior to non-routine work which may expose workers to hazardous substances or oxygen-deficient atmospheres. Examples of work that may require the use of respirators may include, but are not limited to, the following:

- Certain painting applications, especially with epoxy organic solvent coatings.
- Use of solvents, thinners, or degreasers.
- Any work which generates large amounts of airborne dust and particulates.
- Work involving potential bio-aerosol exposure (e.g. pigeon feces).
- Long procedures involving the use of anesthetic gases in animals.

A review of the actual and/or potential exposures should be performed annually by the employee's supervisor, in conjunction with EHS to determine if respiratory protection continues to be required, and if so, whether the previously chosen respirator(s) still provide adequate protection. Chemical and physical properties of the contaminant, as well as the toxicity and concentration of the hazardous material and the amount of oxygen present must be considered in selecting the proper respirator. The nature and extent of the hazard, the work rate, the area to be covered, mobility, length of exposure time, work requirements and conditions, as well as the limitations and characteristics of the available respirators, also are selection factors that must be considered.

pressure mode.

Hazard Assessment and Area Identification

It is mandatory that employees wear the appropriate respirator when working where engineering controls are not feasible or cannot completely control the airborne concentrations of regulated substances below the OSHA permissible exposure limit (PEL).

The hazard evaluation will include:

- Identification and development of a list of hazardous substances used in the workplace, by department or work process;
- Review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors; and
- Exposure monitoring to quantify potential hazardous exposures. Monitoring will be coordinated and performed by EHS when needed

Only respirators that can provide protection in excess of the anticipated airborne concentration will be selected (i.e., the assigned protection factor times the permissible exposure limit must exceed the anticipated airborne concentration).

Ref: [NIOSH A Guide to Air-Purifying Respirators](#)

Fit Testing

Employees who are required to wear a respirator for protection against airborne contaminants must be fit-tested during initial equipment issuance and annually thereafter.

Qualitative fit-testing verifies an assigned protection factor (APF) of 10 for filtering facepiece respirators (dust masks) and half facepiece respirators.

The employee is exposed to either Bitrex (bitter taste) or Saccharin (sweet taste) while wearing a respirator equipped with particulate filters. If the wearer detects odor or taste, an adjustment to the respirator is necessary.

Respirator fit tests are documented and include the type of respirator, brand name and model, method of test, test date, and name of tester.

This fit testing is performed following the procedures mandated by [OSHA in Appendix A of 29CFR1910.134](#). Fit testing is repeated annually and must also be repeated if the user's health/physical characteristics significantly change (e.g., surgery, accident, change or loss of dentures).

Individuals with facial hair that interferes with the face-to-facepiece seal of tight-fitting respirator facepieces will not be fit tested and these individuals shall not wear a respirator. Employees **must** be clean-shaven in order to receive a fit test. Employees with noticeable beard growth (more than 24-hours) will be asked to shave before receiving a fit test. Facial hair that does not interfere with the seal or the valve function of the respirator may be allowed.

NIOSH published an illustrated [poster](#) to help determine acceptable facial hairstyles to use with filtering facepiece respirators.

In order to assure a proper fit, employees will be instructed in how to conduct a negative and positive fit check prior to testing.

Assignment

Each respirator permanently assigned to an individual shall be only for the use of that individual. Other employees shall not use a respirator assigned to one employee. Other employees wishing to use respiratory protection must obtain their own respirator. Respiratory equipment shared by employees shall be properly cleaned after each use

Training

Employees and supervisors required to wear respirators during employment at the college receive initial and annual training in the proper use, care, and limitations of the selected respirator. At a minimum, the following items will be covered during the training session:

- The nature of the respiratory hazard (i.e., what specific chemical substances or microbiological species are present; what areas, operations, or conditions involve potentially hazardous exposures; and what effects (symptoms) may result, if respirators are not used).
- A discussion and demonstration on how to properly don and doff the respirator.
- How to perform a respirator fit check.

- Instruction on the proper techniques and importance of cleaning, disinfection, inspection, maintenance, and storage of the respirator.
- A discussion of the capabilities and limitations of respirators (i.e., in what environments or under what circumstances (such as oxygen deficiency) the respirator does not offer adequate protection) and any warning signs (odor, etc.) that may indicate the respirator is not functioning properly.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- The general requirements of OSHA's respirator standard.

The [OSHA respirator training video](#) offers guidance on proper procedures for donning, doffing and conducting a user seal checks.

User Seal Checks

Prior to each use, a User Seal Check must be performed by the employee to ensure an adequate seal is achieved each time the respirator is worn. User Seal Checks are not substitutes for Fit Tests. User Seal Checks must be conducted as follows:

Elastomeric Respirators:

The respirator facepiece, straps, and headband must be adjusted and secured properly.

- **Positive pressure check**—Close off the exhalation valve and exhale gently into the facepiece. If a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the facepiece seal, the seal is satisfactory.
- **Negative pressure check**—Close off the inlet opening of the cartridge(s) by covering with the palm of the hand(s), inhale gently so that the facepiece collapses slightly and hold the breath for ten seconds. If the facepiece remains collapsed with no inward leakage of air, the seal is satisfactory.
If leakage is detected, adjust facepiece and repeat seal checks.

Filtering Facepiece Respirators (dust masks):

The respirator and straps must be adjusted and secured properly.

- For masks without exhalation valves, place both hands completely over mask and exhale. The respirator should bulge slightly. Check for leaks around seal.
- For masks with exhalation valves, place both hands over respirator and inhale. The respirator should collapse slightly. Check for leaks around seal.

Respirator Use

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When donning a respirator, hair must be pulled back and away from the seal area, and negative and/or positive pressure seal checks conducted to evaluate the facial fit and unit integrity. If an air-tight seal cannot be made by adjusting the tightening straps, then the respirator must be inspected for damage and either repaired or replaced.

When using a respirator, employees must immediately stop work and leave the area if they:

- Detect vapor or gas breakthrough, changes in breathing resistance, or notice leakage into the facepiece.
- Develop any signs or symptoms of over-exposure.
- Need to wash their face and respirator facepiece as necessary to prevent eye or skin irritation associated with respirator use, or
- Need to replace the respirator or the filter, cartridge, or canister elements.

In the event that an exposure occurs while wearing the respirator, leave the area. Remove the respirator and inspect it for damage. If the cause cannot be identified and corrected, contact Environmental Health & Safety for guidance.

Respirator Inspection

Employees must inspect their respirator before and after each use. If any parts are damaged, the unit must be immediately taken out of service and the supervisor notified so that a suitable replacement or repair can be made. (Appendix A)

Employees should inspect the following:

- Tightness of connections.
- Condition of facepiece, straps, cartridges, and/or filters.
- Condition of exhalation and inhalation valves. If the sides of the exhalation valve gap even slightly, a new valve shall be furnished.
- Pliability and flexibility of facepiece. Deteriorated respirators shall be replaced.

Respirator Maintenance and Care

Cleaning and Disinfecting

1. Each employee must be provided with a respirator that is clean, sanitary, and in good operating condition.
2. Respirators (except dust masks) must be cleaned and disinfected as follows:
 - As often as necessary when issued for the exclusive use of one employee.
 - Before being worn by different individuals.
 - After each use for emergency use respirators.
 - After each use for respirators used for fit testing and training.

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Respirators must be cleaned using the following procedures, or as recommended by the manufacturer:

1. Remove filters or cartridges. Disassemble facepieces by removing components as recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm (110°F max.) water with a disinfecting cleaner recommended by the manufacturer. Use a nylon brush, if needed, to help remove dirt.
3. Rinse components thoroughly in clean, warm, preferably running water.
4. Drain.
5. Hand dry components with a clean lint-free cloth or air dry.
6. Reassemble facepiece, replacing filters and cartridges where necessary.
7. Test the respirator to ensure that all components work properly.

Filtering Facepiece Respirators

Filtering facepiece respirators (dust masks) must be stored in a clean plastic bag. Each employee who has finished wearing a disposable respirator or a respirator that is to be used only once shall place the respirator in the appropriate trash or disposal container. It shall not be taken from the premises for additional use or used a second time under any circumstances.

Users of N95 filtering face pieces must make sure they use the units prior to their expiration date. Methods to maintain storage of non-expired filtering face pieces may include:

- Rotate Stock
- Contact and follow manufacturer shelf life recommendations

DOCUMENTATION AND RECORD-KEEPING

A written copy of this program and the OSHA standard are kept with EHS and available to all employees. Additionally, employees may access the written program through the EHS website.

- Training and fit test records are maintained in EHS. These records will be updated as new employees are trained, as existing employees receive refresher training, and as fit tests are conducted.
- Confidential medical records will be retained by the administering clinic for the duration of the employee's employment plus 30 years.
- The PLHCP's written medical opinions will be maintained by EHS for the duration of the employee's employment plus 30 years.
- EHS will retain a record of the fit test of each employee required to wear a respirator for the duration of the employee's employment, plus 30 years.

APPLICABLE REGULATIONS

U.S. Department of Labor Occupational Safety and Health Administration Federal Register. (1998). 29 CFR parts 1910 and 1926, Respiratory protection; Final rule (Docket No. H-049, RIN 1218-AA05). Washington, DC: U.S. Government Printing Office.

Filter Facepiece Storage (EHS)

Filtering Facepiece Respirators (N95 dust mask) that have been purchased and stockpiled for public health emergencies shall be stored per the manufactures' recommendations and be used prior to the filtering face piece expiration date. Due to the degradation of the electrostatic filters, manufactures have established a 5-year shelf-life when respirators are stored in their original packaging within climate-controlled conditions ranging from -4°F (-20°C) to +86°F (+30°C) and not exceeding 80% RH.

Appendix A

Respirator Inspection record and checklist

1. Respirator Wearer: _____

2. Type of Respirator: _____ Model No.: _____

3. Defects Found:

A. Face-piece: _____

B. Inhalation Valve: _____

C. Exhalation Valve: _____

D. Headbands: _____

E. Cartridge Holder: _____

F. Cartridge/ Canister: _____

G. Filter: _____

H. Harness Assembly: _____

I. Gaskets: _____

Other defects: _____

Inspection Schedules: All respiratory equipment must be inspected before and after each use and during cleaning.

Appendix B
Voluntary Respirator Form D

Taken from [Appendix D, Sec. 29 CFR 1910.134](#) (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard:

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. Understand all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, 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. I have read and received a copy of the above information regarding voluntary use of respirators. I also understand Wellesley College does not require me to wear a respirator and that there are no known hazards in my work area or occupational tasks that would require the wearing of a respirator. I have been provided a copy, or the location, of the Wellesley College Respiratory Protection Program.

Printed Name _____ **Date** _____

Signature _____

Appendix C

Cartridge Change Out Schedules

A cartridge change schedule determines how often cartridges should be replaced and what information was relied upon to make this judgment. A cartridge's useful service life is how long it provides adequate protection from harmful chemicals in the air. The service life of a cartridge depends upon many, factors including environmental conditions, breathing rate, cartridge filtering capacity, and the amount of contaminants in the air.

Experience and professional judgment should be used along with existing information and data to establish cartridge or canister change schedules. If further information is needed in establishing a change-out schedule then the program administrator can consult the [OSHA website](#) or the manufacturer's website.

- Employees wearing air purifying respirators with organic vapor cartridges shall change the cartridges on their respirators if they detect breakthrough, i.e., odor or irritation.
- The following chemicals have substance-specific standards under OSHA and cartridges must be changed accordingly:
 - Acrylonitrile – End of Service life (ESLI) or end of shift, whichever occurs first.
 - Benzene - ESLI or beginning of shift, whichever occurs first.
 - Butadiene - Every 1, 2, or 4 hours dependent on concentration and at beginning of shift.
 - Formaldehyde - Every three hours or end of shift, whichever occurs first.
 - Vinyl chloride - ESLI or end of shift in which they are first used, whichever occurs first.
 - Methylene chloride – Must use an atmosphere-supplying respirator in accordance with OSHA 29 CFR 1910.1052(g)(3)
 - Employees wearing air purifying respirators with P100 filters for protection against dust and other particulates shall change the cartridges on their respirators when they first begin to experience resistance in breathing while wearing their respirator.

The following guidelines will be utilized for determining change out schedules for canisters and cartridges:

Cartridge Change Out Schedules, continued

Availability of objective data: Determine if respirator manufacturers, industry organizations, trade associations, professional societies, chemical manufacturers, or academic institutions can provide objective data for the particular make and model of the respirator canisters/cartridges and if this data is sufficient to develop change out schedules.

Use of inappropriate respirator cartridge/canister:

- Determine if air purifying respirators are appropriate for the conditions in the workplace.
- Some chemicals break through canisters and cartridges so quickly that canisters and cartridges may not be appropriate for the workplace. In this case, employers should consult with EHS.
- Change schedule for mixtures: Chemical mixtures can present a difficult task when developing change schedules. This is best determined by experimental methods, not predictive mathematical models. Schedules should be calculated by assuming the mixture stream behaves as a pure system of the most rapidly migrating component or compound with the shortest breakthrough time, i.e., sum up the concentration of the components. A margin of safety for the user should be included.
- Chemical contaminant migration: When organic materials with a boiling point below 65 degrees Centigrade are imbedded in a carbon filter, some may have a tendency to migrate through the sorbent material during periods of storage or when not in use. This can rapidly increase breakthrough and could present an additional exposure to the user. Whenever migration is possible, canisters and cartridges should be changed after every work shift

Appendix D

Preparatory Instructions for Respirator Fit Testing

1. Complete and submit the Wellesley College Medical Evaluation Questionnaire to the college health care provider.
2. Obtain a Written Approval to wear a respirator from the health care provider.
3. Come prepared for respirator fit testing:
 - Bring a copy of the written medical approval.
 - Bring your respirator and HEPA filters.
 - Arrive clean shaven on the day of fit testing. OSHA considers more than one day's growth of stubble as unacceptable. Small beards and/or moustaches may be permitted if they do not interfere with the facial seal or functioning of valves in the respirator.
 - Refrain from eating, drinking or smoking 15 minutes before the scheduled fit test.

Notes:

If newly assigned, a half face elastomeric respirator, EHS will provide a respirator for use during fit testing. A respirator will not be assigned until a size is determined.