



VCU Respiratory Protection Program

Revision Status

Contact(s)	Implementation Date	Revision Number	Comments
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1. Purpose: To ensure that appropriate respiratory protection is provided to faculty, staff and students who may be exposed to an atmosphere that is contaminated with harmful dusts, fibers, fumes, mists, gasses, vapors, smoke, or biological agents of which engineering controls are not feasible or adequate to control employee exposures.
2. Scope / Applicability: This program applies to all faculty, staff and students who need to use a respirator to perform assigned work tasks or projects because of a potential exposure risk or as directed by IACUC/IBC or departmental protocol.
3. Background: The Occupational Safety and Health Administration's (OSHA) Respiratory Protection Regulation, 29 CFR 1910.134, requires that employers provide a respirator to each employee at no cost when effective engineering controls are not feasible.

EHS-SRM is committed to assisting VCU faculty, staff and students with compliance with federal and state regulations and other applicable consensus standards regarding the use of respiratory protection.



4. Regulations, Consensus and Substance-Specific Respirator Standards:

a. Regulations

The following agencies have regulations applicable to the manufacturing or use of a respirator.

- The Occupational Safety and Health Administration (OSHA), Standard 29 CFR 1910.134
- The National Institute for Occupational Safety and Health (NIOSH), Standard 42 CFR 84
- The Environmental Protection Agency (EPA), Worker Protection Standard
- The Mine Safety and Health Administration (MSHA)
- The Food and Drug Administration (FDA)

b. Consensus Standards

Consensus standards are recommendations on the use or manufacture of respiratory protection devices that are written by participants of interest groups who have expertise in the subject of respiratory protection. The following are consensus organizations that write standards for respiratory protection:

- The American National Standards Institute/American Society of Safety Engineers (ANSI/ASSE Z88.2 - 2015)
- The National Fire Protection Association (NFPA 1981/1982, 2018)
- The American Society for Testing and Materials International (ASTM)

c. Substance-specific Standards

OSHA also has substance-specific standards (asbestos, lead, ethylene oxide, cadmium, formaldehyde, vinyl chloride, and others) that provide more detailed guidelines for respiratory protection and cartridge change-out schedules. These regulations should be reviewed as well to ensure full compliance with OSHA regulations.

Depending on the nature of the exposure of concern and the respirator that is being used, compliance with one or more of these regulations and consensus standards may be required.



5. Program Guidelines:

a. Assignment of Responsibilities

1. Respirator Program Administrator

The EHS-SRM Industrial Hygienist for the VCU Respiratory Protection Program is responsible for the following duties:

- Assisting supervisors/principal investigators with the completion of the Respiratory Hazard Assessment form through the [Industrial Hygiene Service Request](#) link and selection of the appropriate respirator and/or cartridge for the hazard. Existing hazard assessment forms can be accessed through google drive file folder "[VCU Respiratory Hazard Assessment Forms](#)".
- Review of RHA forms to identify work areas, processes, and tasks that may require the use of respirators.
- Conducting personal air monitoring in the workplace when necessary to determine the exposure potential.
- Coordinating the respirator medical evaluation process with the EHS-SRM Occupational Health Nurses or other designated PLHCP (physician or other licensed healthcare provider).
- Providing training at the fit test session.
- Assisting supervisors/principal investigators with coordinating training and fit testing.
- Maintaining applicable training (in the form of a fit test record), fit testing and exposure assessment records.
- Provide additional technical support and regulatory guidance as necessary.
- Updating the Respiratory Protection Program as necessary.

2. VCU Departments (Academic and Non-Academic)

Each department is responsible for providing respirators free of charge when they are required for protecting employees or students. Any expense associated with training, medical evaluations, and respiratory protection equipment will be at the cost of the department.



3. Supervisors

Supervisors and principal investigators are responsible for ensuring that the respiratory protection program is implemented in their particular work or research areas where respirators are being used. They should be knowledgeable of the program requirements, and provide this information to employees and students under their charge. Supervisor duties include:

- Serving as a liaison or designating a coordinator to communicate between their work group/department and the Respiratory Protection Program Administrator (EHS-SRM).
- Assist the Program Administrator with the development of a site-specific Respiratory Protection Plan based on the work conducted/Respiratory Hazard Assessment. The Plan is to be updated as respirator choices and changes in work operations and engineering controls occur, and should be available for review. A Site Specific Respiratory Protection Plan template can be found in Appendix E of the Respiratory Protection Program.
- Identifying potential exposure risks, (chemical, particulate, or biological) that may require respiratory protection; completing and submitting a RHA form to EHS-SRM for review.
- Ensure that all employees/students instructed to use respirators are enrolled in the VCU Respiratory Protection Program by contacting EHS-SRM to coordinate medical evaluations, training and fit testing of staff and students.
- Ensure the purchase and availability of appropriate respirators and accessories with support from EHS-SRM Industrial Hygienist.
- Being knowledgeable of the proper use of respiratory protection assigned to the users, and informing EHS-SRM of any symptoms of illness reported by employees that may be related to respirator use.
- Providing employees with informal training on the health hazards associated with the contaminants of concern and why respiratory protection is necessary.
- Enforcing the proper use of respiratory protection when necessary.
- Ensure that reusable respirators are properly cleaned, maintained, and stored in accordance with this program.



4. Respirator Users

Each user is responsible for wearing their respirator when and where required and in the manner in which they are trained.

The user must also:

- Complete the initial respirator medical evaluation questionnaire and annual updates as required.
- Use the respirator in accordance with the manufacturer's instructions and training guidelines.
- Care for the respirator as instructed, and in accordance with the manufacturer insert. Protect it from damage and store it in a clean, sanitary location.
- Immediately report any defects in the respirator and evacuate to a safe area when necessary.
- Promptly report to the supervisor any symptoms of illness that may be related to respirator usage or exposure to hazardous atmospheres.
- Report any health concerns related to respirator use and changes in health status to the occupational physician who conducts the medical evaluation for respirator use.
- Inform the supervisor or the Respirator Program Administrator of any respiratory hazards that the employee or student believes is not adequately addressed.



b. Respiratory Protection Program Enrollment Procedures

1. Respiratory Hazard Assessment and Respirator Selection

The Program Administrator will work with supervisors or principal investigators who have employees/students to complete a Respiratory Hazard Assessment. The selection of the respirator is dictated by the hazard assessment. This assessment is performed by EHS-SRM to identify and evaluate the potential respiratory hazards present and select the proper respirator for protection against those hazards.

Respirator and/or cartridge selection will be made based on the following factors:

- Frequency and duration of use.
- Anticipated airborne concentrations.
- Environmental conditions and workloads.
- Known toxicity of the agent(s) as noted in the Safety Data Sheet.
- Occupational exposure limits (OELs) and environments that may have the potential to have exposures that are immediately dangerous to life or health (IDLH).
- Assigned protection factors and maximum use concentrations.
- Chemical, physical, or biological properties of the agent.

2. Respirator Medical Evaluation

All users who are required or choose to use a respirator must have a medical evaluation to determine their ability to wear a respirator without it causing harm to their health. This evaluation is provided free of charge by the University Student and Employee Health Services departments.

The respiratory hazard assessment and the medical questionnaire will be used by the PLHCP to make the determination of the employee/student's ability to use a respirator.



The respirator medical questionnaire (Appendix C of OSHA Standard 1910.134) is hosted on RedCap, an online HIPAA-compliant platform that is administered and maintained by VCU. A link to the respirator questionnaire will be provided to the user after the respirator hazard assessment is completed.

A licensed medical provider of either EHS-SRM, Employee Health or Student Health Services will review the questionnaire in RedCap and determine if the user is medically fit to safely wear the respirator.

In addition, the following services may be provided by the PLHCP as necessary during the respirator evaluation process:

- Follow-up medical exams will be recommended to employees as deemed necessary by the evaluating PLHCP.
- Users will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
- A written recommendation will be issued by the PLHCP on the employee's ability to wear a respirator.
- The respirator user will be able to schedule and complete a respirator fit test once they have been medically cleared by a PLHCP.

3. Ongoing Medical Observation

If at any time while using a respirator, additional evaluations may be necessary under the following circumstances:

- The employee reports signs and/or symptoms related to their ability to use the respirator, such as shortness of breath, dizziness, chest pains or wheezing;
- The supervisor informs the Program Administrator that the employee needs to be re-evaluated based upon observation or;
- A change occurs in the hazards present in the workplace that may require additional assessment.

4. Record Retention

In accordance with OSHA regulations (29 CFR 1910.1020), the Respirator Evaluation records will be preserved for length of employment plus 30 years. The respirator fit-test record will be retained until the next fit test is administered.



Privacy and Information Security

All demographic and medical information is collected using RedCap, a HIPAA compliant platform administered and maintained by VCU C. Kenneth and Dianne Wright Center for Clinical and Translational Research.

For further information see [Safety and Risk Management Privacy Statement](#).

c. Training

Supervisors, principal investigators, employees, and students who are required to wear a respirator must receive initial training in the proper use, care, and limitations of the respirator assigned for their protection. This training will be required on an annual basis as long as the user has the potential to use the respirator. Training may be scheduled on an individual basis or for large workgroups. As a minimum, the following subject matter will be covered during the training:

- Written procedures and a list of who's responsible for what parts of the program.
- Respiratory hazards specific to the workplace.
- Respirator use in emergency situations.
- Limitations and capabilities of the respirator type.
- Recognition of medical signs and symptoms of exposure to the workplace hazard.
- Recognition of signs that limit or prevent the effective use of the respirator.
- Properly donning and doffing the respirator.
- Hands-on practice.
- How to inspect the respirator for defects.
- How to perform user seal checks which is addressed in OSHA's Respiratory Protection Standard 1910.134 [Appendix B-1 User Seal Check Procedures](#).
- Procedures for cleaning addressed in OSHA's Respiratory Protection Standard 1910.134 [Appendix B-2 Respirator Cleaning Procedures](#), as well as maintenance and storage.
- Why the respirator was assigned and how improper fit, use, or maintenance can compromise the protective effect of the respirator.
- General requirements of the OSHA respirator standard.



d. Fit Testing

There are several different brands and models of respirators, and one type and size does not fit every user. For this reason, no one should share their respirator with another person unless they have been fit tested with the same make, model and size respirator, and a cleaning and disinfection process is in place for shared use.

Fit tests are an annual requirement for all users in the program except those who use Powered Air Purifying Respirators. A fit test must be conducted before an employee/student can wear a respirator, when there is a change in the users' physical condition that may affect the fit of the respirator, and annually thereafter.

Respirator fit tests at VCU are conducted using either qualitative or quantitative fit testing (particle number inside the mask versus particles outside of the mask) techniques as outlined in OSHA's Respiratory Protection Standard 1910.134 [Appendix A Fit Testing Procedures](#). Once the fit test is successfully completed, the user will receive a fit test record with the size, make and model of the respirator to be used.

e. NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. All filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

f. Voluntary Respirator Use

Employees or students may wish to use respirators for their own comfort or well-being even when an exposure hazard does not exist. This would be considered voluntary use, and many elements of the OSHA respirator standard would not apply. The Program Administrator will authorize voluntary use of respirators as requested on a case-by-case basis, depending on specific workplace conditions and the results of respirator questionnaire evaluations.



Voluntary users of filtering facepiece respirators (N95, N100) require one-time completion of the respirator medical clearance questionnaire, but do not require fit testing. Voluntary users are also required to review and comply with OSHA Standard 1910.134 Appendix D Information for Employees Using Respirators When not Required Under the Standard, which covers the requirements for voluntary use of respirators for employees. They must read and understand the Appendix D Respirator Voluntary Use Agreement form that is provided by the Respirator Program Administrator (VCU's Industrial Hygienist).

g. Respirator Use and Care

Respirator users should take the time to read the manufacturer insert of the respirator they are assigned to wear. This insert has information on use limitations, putting on and taking off the facepiece, user seal checks, proper disinfection, cleaning and storage, replacement parts, etc. Although much of this will generally be covered in a respirator training class, details specific to the use of your assigned respirator may prove to be invaluable in emergency situations. The following precautions should be considered for the use of all respirators:

- Inspect the respirator, straps, and valves for cracks, tears, holes, or distortions that may interfere with the face to mask seal of the respirator.
- Perform a user seal check every time the respirator is put on and before you enter into a potentially hazardous work area.
- Users should only wear tight-fitting respirators that have been successfully fit tested.
- Supervisors who have PAPRs or other elastomeric respirators that are approved for multiple users must establish a cleaning and disinfection program to ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user. Review of the respirator insert will have information on disinfection products and solutions recommended for assigned respirators.



Alternatively, mandatory cleaning and disinfection procedures are established in the OSHA's Respiratory Protection Standard 1910.134 [Appendix B-2 Respirator Cleaning Procedures](#).

- All cleaned reusable elastomeric respirators should be dry before storage, and shall be stored in a clean, dry, and sanitary environment away from direct sunlight or sources of extreme, cold, heat, or damaging chemicals.
- Respirators should be stored in a closable container or bag to minimize contamination. Store respirators so that the face piece, straps and valves are not distorted or damaged.
- If eye glasses must be worn by the user, spectacle inserts that require the user's prescription must be purchased to ensure there will be no vision impairment to the user. EHS-SRM can assist with contacting a vendor to provide these services.
- All damaged and unusable respirators that cannot be repaired should be removed from the work area and labeled as "damaged", "not for use", or any such label that will deem the respirator out of service.
- Supervisors/principal investigators shall inform EHS-SRM of any changes in chemical usage, processes, or environmental conditions that may increase the inhalation hazard or physiological stress of the respirator user.
- Cartridges or canisters that are used with reusable respirators shall be changed out in the following manner:
 - o In accordance with established OSHA standards that are specific to the chemical use.
 - o An end of service life indicator that can be found on some cartridges with low warning properties.
 - o A frequency as determined by objective data, work conditions, known chemical or particulate concentrations in the workplace.

In the absence of a specific change-out schedule for chemical exposures, cartridges should be changed at the end of each shift. All High Efficiency Particulate Air (HEPA) cartridges should be changed when the user notices an appreciable resistance to breathing through the respirator.



h. Program Evaluation

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented by supervisors, principal investigators, lab managers, or their designated respirator program coordinators. The evaluations may include periodic consultations, site visits, air monitoring, training records review, respirator maintenance evaluations, and validation of the worksite-specific respiratory protection plans. The contents of this respiratory protection program will be reviewed on an annual basis and updated as necessary.



SITE SPECIFIC RESPIRATORY PROTECTION PLAN TEMPLATE

Purpose:

This worksite-specific procedure describes the process for compliance with the Virginia Commonwealth University's (VCU) Respiratory Protection Program. This program applies to _____ (laboratory, department, division, etc.).

Scope and Respirator Selection:

This program applies to all employees who are required to wear respirators to limit exposure to airborne impurities which may include particulate dusts or fumes, biological, chemical, or allergen contaminants. This program does not cover the use of air supplying respirators in oxygen-deficient atmospheres.

Work with EHS-SRM and use the [Respiratory Hazard Assessment form](#) to identify the work process, location, and type of respirator(s) used for operations requiring the use of a tight-fitting respirator. Once this form is reviewed by EHS-SRM, include it as an appendix to your worksite respiratory protection plan.

For additional information on respirator selection for chemical, biological or particulate exposures, contact the Industrial Hygiene Section of EHS-SRM.

Designated Respiratory Program Coordinator:

_____ (insert name of responsible individual e.g., principal investigator, laboratory supervisor, post-doctoral fellow, etc.) will be responsible for the administration of this worksite respiratory protection program and thus is called the Respiratory Program Coordinator (RPC). The RPC will be responsible for updating this program as changes develop for the use of respiratory protection within this worksite.



SITE SPECIFIC RESPIRATORY PROTECTION PLAN TEMPLATE

C. Respiratory Protection Training:

Training will be provided by EHS-SRM annually as requested on a case-by-case basis. Elements associated with respiratory protection training can be referenced in VCU's Respiratory Protection Program. Training documents are provided to the respirator user when they receive their fit test record through Redcap.

D. Fit testing:

EHS-SRM will conduct all fit testing and training after all prerequisites have been satisfied, (completed RHA and completed respirator medical evaluation). Fit testing must be completed annually for all users of tight-fitting respirators including NIOSH-approved disposable respirators. If the respirator user experiences a change in their physical condition that may interfere with a mask to face seal, they must be re-evaluated by PLHCP and re-tested before the use of the respirator. A fit test record will be given to all users and should be maintained with this written program.

E. Respirator Storage, Cleaning and Maintenance:

Review Section g. (Respirator Use and Care) of VCU's Respiratory Protection Program for guidelines on the care of your respirator. In addition, you should always consult with the user insert from the manufacturer of your respirator for more specific details on the care of your respirator. Please fill in the required elements below:

1. Non-disposable respirators are stored in the following clean locations:
 - (a) _____
 - (b) _____
 - (c) _____

2. Non-disposable respirators will be cleaned and sanitized every (____) days or whenever they are visibly dirty.



SITE SPECIFIC RESPIRATORY PROTECTION PLAN TEMPLATE

3. Repairs and adjustments to respirators are conducted by _____.

F. Records and Documentation:

1. A complete copy of the respiratory protection plan is stored here: _____.

2. The employees' latest fit test results are stored here: _____.

3. Employee training records are stored here: _____.

4. Written recommendations from the medical provider are stored here: _____.