



Respiratory Protection Program

Introduction and Purpose

It is the policy of Harvard University to eliminate potential inhalation exposures to hazardous materials whenever possible. In cases where the elimination of an inhalation hazard is not possible, appropriate engineering controls shall be used when available. Respirators shall be used as the principal means of control only in situations where neither hazard elimination, nor engineering controls are feasible.

The purpose of the Harvard University Respiratory Protection Program (RPP) is to meet all regulatory requirements of the Occupational Safety and Health Administration's (OSHA) Standard for Respiratory Protection [29 CFR 1910.134]. These requirements include medical evaluations, employee training and fit-testing, and procedures for selection, use, and care of respirators.

Scope

The requirements of the RPP apply to all Harvard personnel required to wear a respirator. A respirator is considered required if;

- A hazard assessment indicates that there exists an inhalation hazard that requires respiratory protection, or
- A job description or a standard or emergency operating procedure requires a respirator to be worn.

Any respirator use that does not meet either of these criteria is designated as voluntary use. Voluntary use of any filtering facepiece respirator does not need to meet any requirements of the RPP. However, it is recommended that any use of a respirator be reviewed by the Department of Environmental Health and Safety (EH&S). Additionally, voluntary users of tight-fitting, full or half face, respirators must be reviewed by EH&S; and meet program requirements for medical evaluations. Voluntary users of these respirators must also understand how to clean, store, and maintain the respirator to ensure it does not present a health hazard to the user. Voluntary use of any other type of respirator is not permitted.

The RPP also covers the emergency use of respirators.

The RPP does not apply to any contractors required to wear respirators as part of work performed on Harvard property, on behalf of Harvard-sponsored projects. The contractor's employees shall be enrolled in the contractor's own written respiratory protection program in accordance with OSHA standard 29 CFR 1910.134 or other applicable state or federal regulations.



Responsibilities

Department Of Environmental Health And Safety

The Associate Director of Laboratory Programs (ADLP) is responsible for both the daily administration and periodic evaluations of the RRP. The ADLP may, in consultation with the Associate Director of Laboratory Operations, delegate all or part of the responsibilities assigned to the Respiratory Protection Program Administrator, which include:

- Prepare and manage all necessary RPP program documentation including; the written program, all associated procedures, forms, training materials, etc.
- Conduct a comprehensive review of the Respiratory Protection Program at least annually to ensure program effectiveness.
- Inform supervisors, physicians or other licensed healthcare professionals (PLHCP), employees and other affected personnel of any changes to the Respiratory Protection Program.
- Conduct hazard assessments to determine the type of respirator required, if any; and the appropriate cartridges/ canisters, where applicable. Maintain any air-sampling results conducted as part of these assessments.
- Develop and provide required Respiratory Protection training; and maintain all training records associated with the RPP.
- Provide annual fit-testing to personnel required to wear any tight-fitting respirator, using OSHA-accepted protocols. Maintain all required fit-test records.
- Maintain/manage all equipment associated with respiratory fit-testing including instrument software. Provide fit-testing to voluntary users as requested.
- Maintain and provide Medical Questionnaire for use in the medical evaluations of personnel required to wear a respirator.
- Conduct monthly inspections on self-contained breathing apparatus used by emergency response teams.
- Provide information on the use and limitations of filtering-facepiece respirators (dust masks) including the information 29 CFR 1910.134 Appendix D to all voluntary users.
- Provide the PLHCP with a copy of 29 CFR 1910.134 and the current version of the RPP.
- Review respirator usage on a continual basis to ensure respirators are necessary and suitable for the purpose intended.



- Review and approve any written emergency procedures involving respirator use Harvard emergency response personnel.
- Provide additional technical support and regulatory guidance regarding respiratory protection to employees, researchers, students and supervisors, and managers, as required.

Physician or Licensed Health Care Provider (PLHCP)

- Conduct medical evaluations in accordance with 29CFR 1910.134(e) to determine the respirator user's fitness to wear a respirator.
- Provide a copy of the *Health Care Provider's Recommendation* supervisor of the respiratory user, including any limitations and special requirements for additional medical evaluations.
- Maintain medical records associated with the evaluation including the Medical Questionnaire and the results of any medical examinations and testing, if applicable.

Supervisors (Managers, PIs, Lab Managers etc.)

- Ensure that any personnel, who are required to wear a respirator, or decide to voluntarily wear a tight-fitting respirator, are enrolled in the RPP and are meeting all applicable program requirements.
- Accurately complete *Request for Medical Evaluation* section of the Respiratory Protection Program Medical Evaluation Form for Employees.
- Inform EH&S regarding any voluntary use of filtering face piece respirators.
- Provide appropriate respirators and medical evaluations to personnel required to wear a respirator at no cost the user.
- Request assistance from EH&S in evaluating new operations that may present health and safety hazards. Eliminate hazardous materials or use engineering controls when feasible.
- Contact EH&S RPP Administrator or designee at least 2 month in advance to arrange for fit- testing of large groups of respirator users.
- Ensure that the training profile for personnel required to use respirators includes requirement for respiratory protection training.
- Assist potential respirator user in filling out Sections of the Medical Evaluation Form as needed.



Respirator User

- Meet all the applicable requirements of RPP.
- Personnel required to wear a respirator, or voluntarily using a tight-fitting respirator, must accurately complete *Medical Questionnaire* section of the Respiratory Protection Medical Evaluation Form.
- Inform your supervisor of any change in materials, processes, or work environment that might affect the type or seriousness of potential inhalation hazards or any other aspect of respirator use.
- Inform your supervisor of any symptoms or other indications that exposure to an inhalation hazard may be occurring e.g. odors, tastes, irritation etc.
- Inform your supervisor, licensed physician or health care practitioner, or both of any personal health problems that could be aggravated by the use of respiratory equipment.
- Inform your supervisor of conditions such as sudden weight-loss or gain, extensive dental work etc. that may affect respirator fit.
- Inform your supervisor of any intended voluntary use of a tight-fitting respirator.

PREREQUISITES

Respirator selection, personnel training, medical evaluations and fit-test are prerequisites and must be successfully completed before any required respirator can be used.

Respirator Selection

The selection of any respiratory for required use must be based on a hazard assessments or written SOP or job description based on such an assessment. EH&S is responsible for making the final determination of what type of types of respirator are appropriate for the task or process evaluated, including appropriate cartridges, where applicable. These determinations may be based on assessments actually conducted by EH&S; or upon a review of assessments conducted by other qualified personnel such as Occupational Health Program staff or PLHCP. Such assessments shall be based upon the hazard of the material, its physical state, the amount of material used, the likelihood of aerosolization, the environmental conditions, the status of engineering controls, and PLHCP recommendations. Air-sampling may be conducted where required.

EH&S shall inform the supervisor what the acceptable type(s) of respirators are for each task or process. Respirator requirements for any new or revised processes shall be determined based upon an additional EH&S assessment.

Only NIOSH-approved respirators are to be selected.

Voluntary use of filtering face piece respirator (dust mask) does not require an EHS assessment. However, EH&S must be informed of the intended use in order to provide the information in the OSHA Standard on Respiratory Protection, 29 CFR 1910.134, Appendix D to the user.



Voluntary use of tight-fitting half and full-face respirators must be reviewed by EH&S to ensure proper use, including cartridge selection is made.

Training

All personnel required to use a respirator must successfully complete Initial Respiratory Training prior to using the respirator. The supervisor must assign the training on the respirator user's training profile. The training must be completed at least annually; or when operational changes or poor compliance with the requirements of the RPP indicate the need for additional training. The training includes information on the following topics:

- Pre-requisites for using a respirator including training, medical evaluations and fit-testing;
- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptom

EHS is responsible for the training development and recordkeeping associated with the RPP.

Medical Evaluations

Personnel whose duties require the use of a respirator must complete and submit a Respiratory Medical Evaluation Form to a physician or licensed health care provider (PLHCP). In addition to a medical questionnaire, this form includes questions regarding the type of respiratory and conditions of use. Consequently, respirator selection must occur prior to the medical evaluations. Supervisors must ensure that written physician approvals are received before an employee schedules a respirator fit-test.

Upon review, the PLHCP may require a medical examination and or pulmonary function or other test. Supervisors and users are responsible for setting up any appointments required by the PLHCP. The respirator user's department is responsible for all costs associated with these evaluations. Upon completion of the medical evaluation the PLHCP shall provide the respirator user and their supervisor with a copy of the *Health Care Provider's Recommendation* that will state if the person meets the physical qualifications to wear the type of respiratory under the conditions described. In some cases the statement may include restrictions, or conditions under which respirator use is required.

The PLHCP will determine the need and frequency of any additional medical evaluations. Emergency response team members using SCBA shall be medically evaluated annually.

Supervisors should inform the PLHCP if any changes to the process, environment, or other conditions of use. The respirator user should report to the PLHCP (or supervisor) any symptoms that may indicate need for a medical evaluation.

Medical records are retained by the PLHCP.



Copies of the Health Care Providers Recommendation must be provided to EH&S prior to fit-testing and will be retained by EH&S.

Medical evaluations must be provided at no cost to the respirator user. All costs are to be paid by the department where the respirator user works.

Those individuals who do not meet the physical qualifications cannot wear a respirator. These individuals cannot perform the specified task unless the inhalation hazard is eliminated by means of substitution or engineering controls, or the individual's health or work conditions change and the PLHCP provides written approval.

Respirator Fit-testing

Personnel required to wear any tight-fitting respirator must successfully complete a respiratory fit-test before initially using the respirator, and annually thereafter.

EH&S provides respiratory fit-testing for all personnel required to use a respirator, and upon request for voluntary respirator users. Quantitative testing is the standard method, but qualitative testing methods are also available when needed.

Individual respirator users can schedule a fit test through the EH&S training management systems. Supervisors must contact the RPP Administrator or designee to arrange for fit- testing of larger groups.

Before a fit test can be performed the following conditions must be met;

- A training certificate or other verification of training completion must be presented by the user or supervisor to EH&S prior to the test;
- A copy of the Physician's Statement must be provided by the user or supervisor to EH&S prior to the test;
- The user must have no clothing or facial hair that may interfere with the respirator seal or valves (if present) at the time of the fit test.
- The user must demonstrate proper inspection, donning, fit checks and doffing techniques for the particular respirator at the fit-testing.

In most cases, it is the responsibility of the supervisor or user to provide the respirator for the fit testing. Supervisors or users should contact EH&S before purchasing tight-fitting respirators. Fit-testing this type of respirator requires special adapter kits provided by the manufacturer. EH&S can make recommendations based upon those respirators for which kits are available.

Since there are various manufacturers' and sizes available, it is recommended that more than one respirator manufacturer's and size be available, if feasible. This will reduce the potential for a return visit, if an acceptable fit is not obtained with a specific respirator and size.

Upon successfully completing a fit-test the user will be provided with a Respirator Fit-test Card that includes the test date, the manufacturer, respiratory type, model and size. EH&S also retains electronic records of all individuals who have successfully completed a fit-test.

Individuals who are unable to successfully complete a fit-test of any tight-fitting respirator may use a hooded or helmeted powered-air-purifying respirator (PAPR), if it is determined by EH&S that they provide adequate protection for the intended use, and the PLHCP has not



restricted there use. These users will be provided with a PAPR card stipulating that they must use a PAPR.

USE AND CARE OF RESPIRATORS

Respirator Use

Respirator users should inspect, test, and fit-check their respirator each time they it on. They shall use the appropriate procedures for the type of respirator they are wearing, as instructed in the Respiratory Protection training.

Respirator users should inspect their respirator and test alarms (SCBA) before each use.

Respirator users should conduct a successful fit check of any tight-fitting respirator before each use.

Personnel required to wear a respirator shall only use respirator listed on their Fit Test Card including the type, manufacturer, model and size.

No modifications such as decorating or painting can be made to any respirator.

If a respirator user experiences physical symptoms such difficulty in breathing, dizziness, nausea etc., they shall immediately leave the potentially hazardous atmosphere and notify their supervisor.

Supervisors shall inform EHS of any changes in materials, process or environmental conditions wear respirators are required that could potentially increase either inhalation hazard or potential stress of respirator use.

If spectacles, goggles, a face shield, or a welding helmet must be worn with a respirator, it shall be worn in a manner that won't interfere with the face-to-facepiece seal.

Disposable respirators shall not be shared.

Disposable respirators shall not be used for more than one shift.

Cartridges shall be changed out at the frequency established during the hazard assessment, an end-of-service life indicator is activated or chemical warning properties, such as smell or taste indicate breakthrough. In the absence of a specific change out schedule, cartridges shall be changed at the end of each shift requiring respirator use.

Remove any damaged respirators from the work area and mark them as not for use or damaged.

Use of SCBA for emergency response requires written emergency procedures reviewed and approved by EH&S. These procedures shall include procedures for the use, maintenance and care of emergency respiratory equipment.

Entry into IDLH or oxygen-deficient atmospheres is not permitted for any Harvard personnel, including emergency response teams, unless written procedures, reviewed and approved by EHS, have been developed.



Respirator Maintenance and Storage

For required use, only respirators designated as re-usable by the manufacturer shall be cleaned and stored after use. Disposable respirators shall be disposed of at the end of each shift, or after each use as deemed appropriate during the hazard assessment.

Reusable rubber facepiece respirators shall be inspected after each use and cleaned as needed. Shared respirators shall be inspected, cleaned and sanitized after each use following manufacturer's instructions or RPP guidelines. Shared respirators should also be sanitized prior to each use.

Anyone cleaning or sanitizing a respirator must follow manufacturer's guidelines and ensure that any cleaners and sanitizers are not expired, and do not degrade respirator parts and materials.

Replacement parts shall be those specified by the manufacturer. Where required by the manufacturer, only certified individuals are to perform maintenance and repairs.

Cleaned respirators shall be stored in a clean, dry, and sanitary environment away direct sunlight or heat source, extreme cold, and damaging chemicals. The storage area shall be clean and sanitary. When completely dry, store respirators in a closable container or bag to minimize contamination. Store respirators so that the face piece, straps and valves are not distorted or damaged.

Respirators for emergency use shall be inspected monthly. Monthly inspections of SCBAs for emergency use shall be documented as required.

SCBA used for shall be recharged when the pressure falls to 90 percent of the manufacturer's recommended pressure level. Only certified Grade D breathing air shall be used to fill SCBAs. Only cylinders with a current hydrostatic test date and no signs of damage shall be filled.

PROGRAM EVALUATION

The RPP Administrator or designee will conduct evaluations of the RPP as needed. These evaluations shall address employee training, hazard assessment and respirator selection, medical evaluations, fit testing, and respiratory use, maintenance and storage.

Evaluation methods will include observation of behavior associated with respirator use; interviews with supervisors, respirator users, PLHCPs, EH&S staff; review of records and program documentation; and targeted inspections/audits.

Any deficiencies noted during these evaluations shall be corrected, by responsible parties. Any changes in the program will be communicated to all affected employees.