

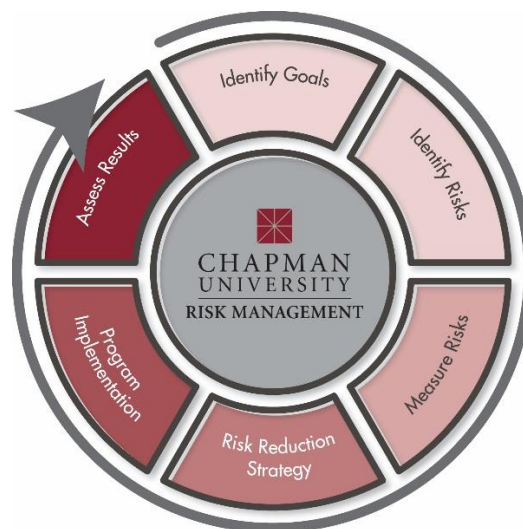


CHAPMAN UNIVERSITY

RISK MANAGEMENT

Environmental Health and Safety

Respiratory Protection Program



Chapman University Environmental Health & Safety – (714) 628-2888
Chapman University Risk Management – (714) 532-7794
Chapman University Fire Safety - (714) 744-7875
Chapman University Public Safety – (714) 997-6763

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Chapman University Respiratory Protection Program

1.0 PURPOSE

The purpose of the Respiratory Protection Program is to protect Chapman University personnel and students from inhaling hazardous contaminants such as dust particles, smoke, chemicals, mists, fumes, gases, fog, vapors, and sprays by using a respirator. Inhaling these hazardous contaminants can lead to respiratory issues. This program will outline the necessary steps to protect the respiratory system in accordance with regulatory requirements. Additionally, the Program will provide procedural guidelines for how to select, use, clean, and maintain a respirator.

2.0 APPLICABILITY AND SCOPE

This program applies to all Chapman University personnel and students who are or will be working in environments that contain hazardous atmospheres.

Prior to administering a respirator, engineering controls, such as increasing the ventilation of a room, is the initial step when preventing the release of hazardous contaminants. If engineering controls are not feasible, administrative controls, such as limiting the exposure time of the individual to the hazardous atmosphere, should be employed. If the protection of the individual is not attainable through these means, then a respirator is required to ensure the respiratory protection of the individual. After conducting an exposure assessment and after monitoring the physical health of the individual, an appropriate respirator shall be recommended through Chapman University's Risk Management and Environmental Health and Safety Office.

3.0 REGULATIONS AND STANDARDS

Federal: Title Respiratory Protection, CFR 1910. 134 Appendix 1, B-1, C, D, Personal Protective Equipment

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=12716

4.0 DEFINITIONS

Administrative controls: methods in which the exposure of a hazard is limited or reduced by modifying the process in which a certain task is performed. Implementing written safety policies, rules, supervision, schedules, and training will attain the goal of reducing the duration, frequency, and severity of exposure to hazardous chemicals or situations.

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.

Assigned protection factor (APF) : the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to individuals when they implement a continuing, effective respiratory protection program as specified by this section.

Atmosphere-supplying respirator: a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

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.

Demand respirator: an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation: any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee: a research staff member, technician, or student worker working with hazardous materials, employed by the University and in a position reporting to a designated supervisor.

Employee exposure: exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

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, that the sorbent is approaching saturation or is no longer effective.

Engineering controls: methods that are built into the design of a plant, equipment or process to minimize the hazard.

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 facepiece: 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.

Fit factor: a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit Test: the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

Helmet: a rigid respiratory inlet covering that also provides head protection against impact and penetration.

HEPA: Filters that remove 99.97% of 0.3 micrometer particles. Filters such as N100, R100, and P100 are HEPA filters.

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.

Hood: a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

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.

Interior structural firefighting: the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)

Loose-fitting facepiece: a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC): the maximum atmospheric concentration of a hazardous substance from which an individual can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.

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.

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

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.

Positive pressure respirator: a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

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

Pressure demand respirator: a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

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

Quantitative fit test (QNFT): an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering: the portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

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.

Student: a University student and is herein defined to include any person enrolled in a research or other university course, receiving academic credit for participation in laboratory operations, or otherwise providing support in a science lab environment, under the direction of the University, who is not otherwise remunerated in connection with such services.

Supervisor: a University principal investigator, lab manager, senior researcher, administrative officer, or associate in charge of a laboratory, school unit, operation, or clinic where hazardous materials are used and/or stored.

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.

Tight-fitting facepiece: a respiratory inlet covering 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.

Volunteer: an individual that provides services related to hazardous materials use to the University without remuneration or compensation. This may include research assistants.

Reference: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=12716

5.0 RESPONSIBILITIES

5.1 Chapman University Responsibilities

It is the responsibility of Chapman University, through the Environmental Health and Safety office, to:

- Institute and maintain the Respiratory Protection Program
- Review the program annually and notify constituents of any changes
- Perform exposure and medical assessments
- Provide work-site specific respiratory protection training
- Select and advise users on the purchase of designated respirators
- Maintain records such as Fit test and medical clearance documents of wearers
- Train wearers on how to use, clean, maintain, and store respirators
- Audit performance of respirator users in implementing provisions of the program

5.2 Manager/Supervisor Responsibilities

It is the responsibility of the department manager and supervisor to:

- Become familiar with the Respiratory Protection Program
- Implement recommendations provided by EH&S Staff following an exposure and hazard assessment
- Minimize, or if can, eliminate hazardous exposures via engineering and administrative controls; this includes the use of personal protective equipment
- Assure that all respirator users are medically cleared and trained annually
- Monitor workplace conditions, exposure and physical stress to minimize detrimental conditions of the user

5.3 University Personnel Responsibilities

It is the responsibility of the university personnel to:

- Obtain and maintain training on respiratory protection annually; provided by Chapman University's Environmental Health and Safety Office
- Obtain and maintain Fit Testing on an annual basis, or when conditions in the workplace changes or if the respirator user is experiencing health issues
- Follow the guidelines outlined in the Respiratory Protection Program
- Follow respiratory protection recommendations given by EH&S

- Inspect respirators before and after use
- Advise user on how to properly maintain, clean, and store respirators accordingly
- Notify EH&S personnel when hazardous conditions in the workplace changes or when there is an issue with the respirator

6.0 ACCESS TO THE WRITTEN PROGRAM

This written Respiratory Protection Program is available to all employees and other users and their representatives. Copies of this program are available from EH&S.

7.0 TRAINING COMPONENTS

Training is mandatory for any university personnel who is working in an environment in which hazardous contaminants are present in the atmosphere and may require the use of a respirator. The Respiratory Protection Program includes, but is not limited to:

7.1 Hazard/Exposure Assessment and Evaluation

- A Hazard/ Exposure Assessment investigates the nature of the hazards for which respiratory protection is being required, and consequences that may occur from hazard exposure without adequate protection;
Note: Health hazard guidelines are contained in applicable Safety Data Sheets (SDS)
- The Hazard/ Exposure Assessment and Evaluation is conducted by Chapman University's Environmental Health and Safety Office.
- The evaluation includes a reasonable estimate of Chapman personnel exposures to respiratory hazard(s) and an identification of the contaminant(s).
- Performing an exposure assessment will determine if the use of a respirator is necessary.
- If the exposure assessment determines that the use of a respirator is not necessary, the Chapman personnel will still have the option to use respiratory protection, such as filtering facepieces, supplied-air (SCBA) or tight-fitting air-purifying respirators (APR).
- Individuals who volunteer to use filtering facepiece respirators do not have to be Fit Tested, however they do need to be medically able to use one. In addition, the user must still obtain and maintain proper training as well as sign a permit to use the filtering facepiece respirator. The **Respirator Voluntary Use Form** can be accessed online via Environmental Health and Safety homepage under Personal Protective Equipment.
- Individuals who volunteer to use a half-face or full-face respirator must obtain proper training, be medically cleared, as well as be Fit Tested.
- If the use of a respirator, either a filtering facepiece or an APR, is mandatory by an employer, then the individual must receive proper respiratory protection training, be medically cleared, and must also be Fit Tested to wear the correct respirator. Training and

Fit Testing is conducted through Chapman University's Environmental Health and Safety Office.

7.2 Medical Clearance and Surveillance

- A medical questionnaire is administered confidentially to the prospective respirator user by a Physician or Licensed Health Care Professional (PLHCP). The medical questionnaire is not discussed with the individual's employer.
- An exposure assessment is conducted prior to performing a medical evaluation via our Licensed Health Care Provider.
- Medical clearance is mandatory in order to be issued a respirator.
- Once medically cleared to wear a respirator, reevaluation is not mandatory thereafter unless the PLHCP determines otherwise. A medical reevaluation will occur if: an employee reports signs or symptoms related to the ability to wear a respirator; the PLHCP, administrator or supervisor determine it is necessary; information from the respiratory protection program indicates a need for reevaluation; or a change in workplace conditions substantially increases the physiological burden placed on the employee.
- The medical condition of the wearer may affect the ability to work with a respirator, thus medical surveillance of the user is mandatory.

7.3 Respiratory Protection Training

- After medical clearance, Chapman respirator users are required to take a comprehensive Respirator Fit-Test and training course, which is provided by EH&S. The Chapman personnel is required to complete the training prior to using a respirator.
- Chapman users, after completing respiratory protection training, shall be able to identify respiratory hazards/ contaminants and assess hazardous environments that they will be working in.
- Respiratory protection training also includes, but is not limited to: informing the wearer of the importance of using a respirator, the various types of respirators and cartridges/filters/canisters that are available, how to use a respirator, maintenance/storage of respirators, limitations of respirators, and the medical signs and symptoms that may limit or prevent the effective use of respirators.
- Annual training and Fit Testing is mandatory. However, if conditions in the work place changes or if the user is experiencing health issues, than training and Fit Testing is required.

Note: New Chapman personnel who have received Respiratory Protection Training within the last 12 months are not required to repeat the training if he/she can provide proof of medical clearance and documentation showing that the individual has completed the same or a similar course.

7.4 Fit-Testing for Appropriate Respirator

- Qualitative Fit Testing is conducted by EH&S Personnel.

- Initial Fit Testing is performed to check the seal of the respirator mask; conducted annually thereafter or when conditions in the workplace changes, or if the wearer is experiencing health problems/issues. If you notice an odor, feel ill, or think that there is a leak in your respirator while you are wearing it, leave work area and notify your manager and EH&S personnel immediately.
- The Fit Test will help determine which respirator mask best suits the Chapman personnel respirator user.
- Qualitative versus quantitative fit testing is dependent on the type of respirator needed.
- The fit of a respirator may change due to one's physical condition (weight loss, dental work, facial surgery, scarring in the area of the seal, etc.).

7.5 Selection of Respirator Type

- Selection of a specific respirator type is dependent on the user's fit-testing results.
- Selection of a respirator is also dependent on the environment in which the wearer will be working in, specifically what atmospheric hazards are present.
- All filters, cartridges and canisters used in the workplace shall be labeled and color-coded with the NIOSH approval label.
- Respirator capabilities, limitations, and the function and possible malfunction of each part of the respirator is a part of the program training.

7.6 Procedures for Use, Maintenance, and Storage

- Chapman respirator users are required to routinely inspect, clean, and disinfect their respirator before and after use.
- Inspection of a respirator includes checking the respirator function, tightness of connections, deterioration, condition of the valves/facepiece/straps and the expiration of the canisters/filters/cartridges used.
- Mild soap and water or respirator wipes are required for disinfection.
- Respirators should be stored in a clean, well-ventilated area where there will be protection from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. Additionally, the respirator shall be packed or stored to prevent deformation of the facepiece and exhalation valve.
- Do not store or leave your respirator in your work area unprotected.
- Follow manufacturer's recommendations for specific care and handling.

7.7 Record Keeping

Record keeping will be monitored and managed closely by Risk Management/ EH&S staff. This includes:

- Respirator Protection Program
- Exposure assessments
- Medical clearance documents and questionnaires
- Fit Testing records

- Respiratory Protection Training records
- Inventory of users
- Medical surveillance

EH&S conducts evaluations of the workplace as necessary to ensure that the provisions of the current written program are being implemented and that it continues to be effective to ensure the respiratory safety of the current and future users.

8.0 PROGRAM APPROVAL AND REVIEW

EH&S approves and reviews the Plan on an annual basis, and the most recent review and modification was completed as on **March 6, 2019**.