

Respiratory Protection Guidelines

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1. Purpose and Scope

- 1.1 This document defines procedures for the proper selection, fitting, use, and care of respirators, in accordance with manufacturers' recommendations and in compliance with OSHA regulations (29 CFR 1910.134)
- 1.2 Where engineering controls are not feasible, only partly effective, or being instituted, respiratory protection shall be used to reduce employee/student exposure to safe levels. In addition, it may be appropriate, in some cases, to use respiratory protection as an added safety measure in the event of an unexpected spill/release of hazardous materials.
- 1.3 Respiratory protection does not replace the requirements to control contamination of breathing air by harmful dusts, mists, fogs, fumes, gases, smokes, sprays, or vapors with appropriately designed engineering controls.

2. Responsibilities

2.1 Employees/Students:

- Maintain awareness of all operations or procedures which require the use of respiratory protection.
- Consult with area supervisor or EHS before conducting work where respiratory protection may be needed.
- Wear the appropriate respiratory protection as required in, standard operating procedures, personal protective equipment hazard assessment forms, or any other document referred to or relied upon to perform a job/task.
- Properly use, inspect, maintain, clean, and store respirators.
- Diligently follow the 8hr cartridge change-out schedule established by EHS.
- Report damaged respirators to supervisors immediately and do not use.
- Only wear approved respiratory protection when annual training, fit testing (for specific respirator), and medical clearance have been completed and documented.
- Check fit and seal before each use of tight fitting respirators.
- Where tight fitting respirators are assigned, maintain a hair/beard free seal with the skin and sealing surface at all times.
- Communicate to the Health provider any change in health status which may impact the ability to wear assigned respiratory protection.
- Communicate to area supervisor and EHS any problems or abnormal occurrences associated with the use of assigned respiratory protection.
- Inform area supervisor or EHS when there is any question as to proper respirator use.
- Maintain annual certification training.

2.2 EHS (Environmental Health and Safety):

- Oversee implementation and operation of this Respiratory Protection Program throughout Florida International University and act as the Program Administrator.
- Conduct Personal Protective Equipment (PPE) Hazard Evaluations which define respiratory protection requirements.
- Clearly define and document all situations that require respiratory protection. Documented information should include:
 - Type of respirator required
 - Type of cartridge
 - Cartridge change-out schedules
 - Specific operations requiring the use of respirators
- Provide technical support.
- Coordinate/conduct annual employee training.
- Review the program annually and update/revise as necessary.
- Coordinate fit testing and training when requested.
- Maintain the list of fit tested personnel.
- Provide training records when requested.

2.3 OHN (Occupational Health Nurse) or HCP (Health Care Provider):

- Provide initial and any required follow-up medical evaluations to ensure that employees in this Respiratory Protection Program are medically qualified to wear respirators.
- Communicate to area supervision and EHS any changes in health status which may limit an employee's use of respiratory protection.
- Maintain records in accordance with record-keeping requirements.

2.4 Supervisor/ Area Management:

- Implement and enforce respiratory protection program which is compliant with all aspects of this Respiratory Protection Program.
- Have a clear understanding of which tasks require the use of respiratory protection and ensure that the appropriate respirators are worn by all employees conducting activities when necessary.
- Ensure that respirator users are medically cleared, trained, and fit-tested
- Contact EHS and coordinate evaluations of potential airborne hazards.
- Contact EHS whenever changes in processes, equipment, and/or work practices may affect selection of respirators.
- Ensure that tight fitting respirators are not used by employees when facial hair is between the skin and any part of the respirator sealing surface.
- Ensure proper inspection, use, care, and storage of respiratory protection
- Ensure that departmental respirator users comply with the 8hrs cartridge change-out schedule.
- Provide respiratory protection at no cost to employees when it is determined that respiratory protection is necessary to reduce airborne exposure to workplace materials.
- Ensure that all aspects of the Respiratory Protection Program are implemented, properly managed, and enforced.
- Ensure that all individuals wearing respirators are current on all requirements to maintain eligibility in the program.
- Cover the cost of initial and annual fit testing for departmental respirator users.

3. Proper selection

- 3.1 Respirator selection must be based on the respiratory hazard, workplace and use factors that may affect respirator performance and reliability. In addition, respirators must be certified by the National Institute of Occupational Safety (NIOSH)
- 3.2 EHS staff will evaluate each intended use of respiratory protection when contacted.

The following information may be collected by EHS representatives for proper selection of respiratory protection:

- Nature of the hazard
- Chemical and physical properties of the contaminant
- Adverse health effects of the hazard
- Relevant exposure limits/ guide values
- Results of workplace monitoring of airborne concentrations of the contaminant
- Nature of the unit operation or process
- Engineering controls in place to avoid release or exposure
- Duration of exposure
- Engineering controls in place/to be installed to avoid exposure
- Period of time that respiratory protection will be worn
- Potential stresses on work activities from wearing respirators
- Fit test results
- Warning properties of the contaminant
- Functional capability and limitations of the different types of respirators in terms of the chemical contaminant
- Results of Industrial Hygiene evaluations and samples

4. Medical Evaluation

- 4.1 Medical evaluation is arranged by the employee's Supervisor/ Manager through EH&S.
- 4.2 EH&S assist by providing a list of approved Health Care Providers, please contact ehs.fiu.edu.
- 4.3 Medical evaluations clearance documentation must be provided to EH&S in order to proceed with the fit testing.

5. Medical Determination

- 5.1 The physician must provide a written recommendation regarding the potential user's ability to use the respirator ("PLHCP Written Statement for Respirators" or similar) compliant with OSHA requirements. The recommendation requires the following:
 - Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator
 - The need, if any, for follow up medical evaluations
 - A statement that the physician has provided the employee with a copy of the written recommendation

6. Additional Evaluations

- 6.1 Additional medical evaluation or re-evaluations shall be performed if:
- A user reports medical signs or symptoms that affects his/her ability to use the respirator
 - A physician, supervisor, OHN or EHS representative feels that the employee needs to be reevaluated
 - Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for reevaluation
- 6.2 A change occurs in workplace conditions (e.g.-physical work effort, protective clothing, temperature) that may result in a substantial increase in physiological burden placed on a user

7. Use of Respiratory Protection

- 7.1 All required use of respiratory protection must be documented in SOPs, PPE hazard evaluations, Job Hazards Analysis or other documents.
- 7.2 Supervisors and employees must review these documents to verify that the correct respirator/cartridge(s) is/are worn at the appropriate time in each process and integrate selection into internal procedures, guidelines, trainings and others.
- 7.3 All components of the respirator must be inspected before each use.
- 7.4 Before tight fitting respirators are worn in contaminated areas, a successful positive and negative fit-check must be conducted to ensure that a proper face seal exists. This fit-check must be conducted as follows:
- **Positive Pressure** Check-Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
 - **Negative Pressure** Check-Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The section of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.
- 7.5 Area requiring respiratory protection must be left immediately under the following conditions:
- It is necessary to wash skin and respirator face piece to prevent eye or skin irritation
 - Cartridge change-out is required or vapor or gas breakthrough is detected
 - Changes in breathing resistance are detected
 - Leakage of the face piece is detected
- 7.6 All of the conditions above must be appropriately addressed before users are allowed to wear a respirator.
- 7.7 Clean and properly store respiratory protection devices after each use.

8. Inspection and Maintenance of Respirators

8.1 Inspection

- Respiratory protection must be inspected before each use and during cleaning. Inspection must include a check of tightness of all connections and the condition of the face piece, headbands, valves, connecting tube, and cartridges. Rubber or elastomer parts shall be inspected for pliability and signs of deterioration. Stretching and manipulating rubber or elastomer parts with a massaging action will keep them pliable and flexible and prevent them from setting during storage.

8.2 Maintenance

- Respirators that fail inspection or are defective in some fashion must be removed from service immediately, tagged as “Out of Order,” or disposed of and replaced.

9. Cleaning, Disinfecting and Storage of Respirators

9.1 Cleaning:

- Respirators must be thoroughly cleaned after each use. During cleaning, all components shall be inspected to ensure that they are in proper working order.
- Cleaning must be conducted as follows:
 - Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, or any components recommended by the manufacturer.
 - Wash components in warm water and a cleaner recommended by the manufacturer. A stiff bristle (non-wire) brush may be used to facilitate the removal of dirt. Note: Disinfecting must be done for personal respirators to maintain a sanitary condition (refer to procedure outlined below).
 - Rinse components thoroughly in clean, warm water. Drain.
- Disposable respirators should be discarded at least every 8 hours of use or if any issues are encountered.
- Do not clean disposable respirators

9.2 Disinfecting:

- After thoroughly rinsing, place the device in an uncontaminated area for air drying or use a lint-free cloth. A thorough rinsing is important to remove detergents/disinfectants to minimize the potential for dermatitis and material breakdown
- Respirators should be disinfected frequently, either by using a disinfectant detergent or disinfectant cleaning pad.

9.3 Storage

- Once dry, respirators must be placed in bags and stored in designated respirator storage locations that protect them against dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals and/or deformation of face piece or exhalation valve(s).

10. Training Requirements

- 10.1 All respirator users must complete training before initial respirator use and annually thereafter. General and respirator specific training will be given as part of initial certification in respiratory protection.
- 10.2 Respiratory specific training must be conducted for each new type of respirator used by an employee.
- 10.3 Each employee must complete Respiratory Protection Training prior to wearing respiratory protection.
- 10.4 Respiratory protection training is available at <https://develop.fiu.edu>, in two courses:
 - “Respirator Safety: Disposable Respirators” for disposable respirators such as, N-95; and
 - “Respirator Safety” for non-disposable respirators, such as full face respirators.
- 10.5 Training topics may include but not limited to instruction on the proper use (including limitations), care, maintenance, storage, reason for use, the hazard avoided, cartridge change-out, warning signs of breakthrough, and improper use for each type of respirator.
- 10.6 Respiratory protection users must ensure that they maintain a working knowledge of answers to the following questions:
 - Why is the respirator necessary and how improper fit, usage, or maintenance compromises the protective effect of the respirator?
 - What are the limitations and capabilities of the respirator?
 - How is the respirator used effectively in emergency situations, including situations in which the respirator malfunctions?
 - How to inspect, put on and remove, use, and check the seals of the respirator?
 - What are the maintenance and storage procedures for the respirator?
 - How are medical signs and symptoms that may limit or prevent the effective use of respirators detected?

11. Additional Training

- 11.1 Retraining must be provided whenever any of the following occurs:
 - Changes in workplace conditions or processes render previous training obsolete
 - Inadequacies in employee knowledge of proper respirator use are identified
 - Any other situation is identified which indicates that retraining is necessary to ensure safe use of respirators.
- 11.2 EHS must maintain copies of the following:
 - Records listing all participants in the respiratory protection program with the following information:
 - Employee name
 - Date of last fit test
 - Specific respirators for which the employee has been certified to use
 - All PPE Hazard Evaluations if any
- 11.3 Documentation of questionnaires or other materials used to demonstrate employee training knowledge.

12. General Fit Testing Protocol

- 12.1 Fit testing must be performed prior to the issuance of any tight fitting respirator.
- 12.2 Employees must be fit tested for each type of face sealing respirator required for use in their area initially and annually thereafter.
- 12.3 Fit testing shall only be performed after an employee has received medical clearance.
- 12.4 EHS and/or a contractor may conduct initial and/or annual fit testing. EHS must be contacted for scheduling at ehs@fiu.edu,
- 12.5 Fit testing shall be completed using quantitative or qualitative methods.
- 12.6 Tight fitting respirators will not be issued to, or approved for use for employees with conditions that will prevent a proper seal (i.e.-facial hair, absence of normally worn dentures, facial scars, and/or headgear that projects under the face piece seal).
- 12.7 Fit testing must be performed in accordance with the following general procedure:
 - The user will be shown how to don the respirator, how it should be positioned, how to adjust the straps to get proper tension, and how to access a comfortable fit.
 - The user will pick the most comfortable respirator from a selection of sizes.
 - Once the most comfortable respirator(s) is/are selected, the user will wear it for at least five minutes. If the subject is not familiar with the respirator, have him/her put it on and take it off several times to get the feel of it.
 - Review the following to assess comfort:
 - Position of the mask on the nose
 - Room for eye protection
 - Room to talk while maintaining a seal
 - Position of mask on chin, face, and cheeks
 - Also check the fit of the respirator by reviewing the following:
 - Placement on chin
 - Strap tension (not too tight)
 - Fit across bridge of nose
 - Sizing of respirator, able to fit from nose to chin
 - Amount of slippage
 - The user should inspect the fit by observation through a mirror
 - Have the user conduct a negative and positive fit-check as follows:
 - **Positive**-cover the exhalation valve and exhale gently. If positive pressure is able to build without the sensation of leaks, conduct a negative pressure test. If leaks are detected, readjust and retry test.
 - **Negative**-cover surface of cartridges with palm of hands. Gently inhale and hold breath for ten seconds. If the respirator maintains its slight collapse, proceed. If not, adjust and repeat test.
- 12.8 The following test exercises must be conducted to assess the fit of the respirator.
 - Normal breathing
 - Deep breathing
 - Turning head from side to side
 - Moving head up and down
 - Talking or reading the Rainbow passage
 - Bending over or jogging in place
 - Normal breathing

- 12.9 If the user passes the test, reassess the comfort. If it is uncomfortable, choose another respirator and retest.
- 12.10 Record the following information on an email to ehs@fiu.edu to request a respirator assessment.
- Name of employee
 - Type of respirator
 - Brand of respirator
 - Size of respirator
 - Date of the test

13. Procedures for IDLH (immediately Dangerous to Life and Health) Atmospheres

- 13.1 Entering any IDLH or potential IDLH atmosphere is not required for any job task at FIU. Where there is potential to fall into an IDLH atmosphere, fall protection has been installed to prevent falling, i.e.-safety nets.
- 13.2 Entering any IDLH or potential IDLH atmosphere **is prohibited.**

14. Providing Respiratory Protection Equipment

- 14.1 Each department shall provide respiratory protection equipment for their students/employees. The departments will ensure that only specified/fitted respirator models and sizes will be provided to students/employees.
- 14.2 Each department will ensure that components (i.e.-cartridges) and replacement parts are provided to students/employees when necessary and that they are appropriate for the respirator model assigned.

15. Respirators Change

- 15.1 A change in size, brand, model and type of respirator will required some or all steps in this procedure. Contact EHS at ehs@fiu.edu before changing the current approved/fitted respirator.
- 15.2 Different type of respirators can be recommended when changes in operations indicate the need for additional or alternative respirators.

Consult with EHS at ehs@fiu.edu if there is any questions or concerns regarding respiratory safety..