

MOUNT SINAI HOSPITAL & ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI STANDARD: POLICY	SUBJECT NO. EH-SAF11-1
DEPARTMENT: Environmental Health and Safety	
SUBJECT: Respiratory Protection Requirements	

CROSS-REFERENCE: EH-SAFP11-1 Respiratory Protection Evaluation, Fit Testing, and Certification Procedure; EH-SAFDB11-1 Respiratory Protection Risk Assessment Database; The Joint Commission Accreditations Standard IC.02.01.01 C2

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1 Purpose

The respiratory protection policy requires the following for the proper use of respirators. Respirators are issued to individuals for protection against airborne contaminant(s) and only after completion of required medical evaluation, training, and practical fit test. Respirators must not be worn for any other purpose without the knowledge and approval of the supervisor and Environmental Health and Safety.

2 Requirements

This policy is administered by Environmental Health and Safety (Respiratory Protection Program Administrator: Maureen Parilla). Environmental Health and Safety and Infection Control, with the assistance of each respective department, will evaluate the work area for potential exposures, and then select or approve appropriate NIOSH-certified respirators and accessories. Where feasible, engineering and administrative controls will be used to eliminate potential hazards. Where such controls do not eliminate the hazard or reduce it to an acceptable regulatory level, respiratory protection may be used. For respiratory protection required under NIOSH/OSHA/CDC guidelines for exposure to airborne pathogens such as H1N1, TB, or SARS, a risk assessment will be used to rate relative risks and to track required controls. (See EH-SAFP11-1 Respiratory Protection: Evaluation, Fit Testing, and Certification Procedure.)

Prior to working in areas requiring respiratory protection, employees must undergo appropriate medical tests and fit testing. The initial stages of this process will begin with a medical questionnaire, completed by the employee, and provided to a physician or other professional

licensed health care practitioner (PLHCP). Based on the overall health of the individual and special medical tests (pulmonary function studies, EKG, etc.) as appropriate, an examining physician or PLHCP determines whether or not the individual will be restricted from wearing respiratory protective equipment. If a medical restriction is applied, the employee, his/her supervisor, and the Program Administrator are formally notified of the restriction.

Employees shall not be assigned to tasks requiring the use of respirators unless it has been determined by medical authorities that the employee can perform duties while wearing the respirator and any other protective clothing. Specific medical tests and procedures will be determined by the Occupational Health Physician and will be in accordance with OSHA medical surveillance requirements and/or NIOSH recommendations.

Medical evaluations shall include:

- Completion of the Mount Sinai respirator medical questionnaire
- A medical history, including previously diagnosed disease, particularly known cardiovascular or respiratory diseases
- Psychological problems or symptoms including claustrophobia
- Problems associated with breathing during normal work activities
- Past problems with respirator use
- Past and current usage of medication
- Any known physical deformities or abnormalities, including those which may interfere with respirator use
- Previous occupations
- The following may disqualify an employee from wearing a respirator:
 - Facial deformities
 - Perforated tympanic membranes
 - Respiratory diseases affecting pulmonary function
 - Symptomatic coronary artery disease, significant arrhythmias, or history of recent myocardial infarction
 - Endocrinal disorders which may cause the employee to suffer sudden loss of consciousness or response capability
 - Inability to perform coordinated movements and conditions affecting response and consciousness due to neurological disabilities
 - Use of medications that affect judgment, performance or reliability or alter the state of awareness or consciousness
 - A history of claustrophobia may require further evaluation
 - Any other condition which the physician believes might require special restriction

Appropriate medical follow-up and/or a medical examination will be provided for an employee who gives a positive response to any question among Part A, Section 2, Questions 1-8 of the questionnaire. The medical examination shall include any medical tests, consultations, or

diagnostic procedures that the professional licensed health care practitioner deems necessary to make a final determination.

Documentation of medical clearance shall be provided by Employee Health Services or the professional licensed health care practitioner to the employee. A copy of this clearance must be presented to Environmental Health and Safety (or other fit testing entity), and to the employee's supervisor.

2.1 Selection and Use of Respiratory Protective Devices

2.1.1 Respirator Fit Testing

A fit test shall be used to determine the ability of each individual respirator wearer to obtain a satisfactory fit with any air-purifying respirator. Personnel must successfully pass the fit test before being issued an air-purifying respirator.

No employee is permitted to wear a negative-pressure respirator in a work situation until he or she has demonstrated that an acceptable fit can be obtained. Respirator fitting is conducted initially upon assignment and annually thereafter upon successful completion of the respirator training.

Respirator fit-testing shall be documented and shall include the type of respirator, brand name and model, method of test and test results, test date and the name of the instructor/tester. The tested individual shall sign this fit-test record. A copy will be maintained by the Employee Health Services, the employee's department, and by the tested individual.

Staff who wear a beard for religious reasons, or are unable to fit with one of the hospital approved respirators due to a medical condition or failure on multiple respirator types, must obtain a hooded powered air purifying respirator (PAPR) when respirator protection is required or may not perform interventions on patients with confirmed or suspected airborne illnesses. The use of PAPRs must comply with the Infection Control Manual requirement Section F-5.40 Infection Control Guidelines for the Use and Maintenance of Particulate Respirators and Powered Air Purifying Respirators (PAPR).

2.1.2 Respirator Selection

Respirators shall be selected for use in accordance with the maximum use concentration of the respirator type.

Respirators shall be selected based upon the Assigned Protection Factors in the table below:

Assigned Protection Factors⁵

Type of respirator ^{1, 2}	Quarter mask	Half mask	Full facepiece	Helmet/ hood	Loose-fitting facepiece
1. Air-Purifying Respirator	5	³ 10	50	.....	.....
2. Powered Air-Purifying Respirator (PAPR)	.....	50	1,000	⁴ 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	.....	10	50	.....	.....
• Continuous flow mode	.....	50	1,000	⁴ 25/1,000	25
• Pressure-demand or other positive-pressure mode	.....	50	1,000	.....	.....
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	.....	10	50	50	.....
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	.....	.....	10,000	10,000	.....

Notes:

¹Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

²The assigned protection factors in the table are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

³This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

⁴The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

⁵These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

No employee is to wear a self-contained breathing apparatus (SCBA) or airline respirator unless specifically authorized by the Program Administrator.

Respiratory protective devices will be selected by the Respiratory Protection Program Administrator and the affected department, using ANSI Z88.2, NIOSH Certified Equipment List, and/or the NIOSH Respirator Selection Decision Logic as a guide. The following items will be considered in the selection of respirators:

- Effectiveness of the device against the substance of concern;
- Estimated maximum concentration of the substance in the work area;

- General environment (open shop or confined space, etc.);
- Known limitations of the respiratory protective device;
- Comfort, fit, and worker acceptance; and
- Other contaminants in the environment or potential for oxygen deficiency.

Examples of work which may require the use of respirators includes, but are not limited to:

- Asbestos abatement activities
- Abrasive blasting
- Cutting or melting lead or stripping lead-based paints from surfaces
- Welding or burning
- Painting, especially with epoxy or organic solvent coatings
- Using solvents, thinners, or degreasers
- Any work which generates large amounts of dust
- Working in a confined space
- Using formaldehyde to decontaminate a space
- Bioaerosols

A review of the real and/or potential exposures is made by Environmental Health and Safety and Infection Control at least annually to determine if respiratory protection continues to be required, and if so, do the previously chosen respirators still provide adequate protection.

2.1.2.1 Specific Job Classifications Utilizing Respirators

Job classifications approved or mandated to wear respiratory protection may be found in the most recent version of the respiratory protection risk assessment matrix. Voluntary physicians (those who Mount Sinai Health System does not compensate for their services or direct their provision of care) must ensure that they are compliant with the requirement for medical screening and respirator fit testing, and must provide their own respirators.

2.1.3 Respirator Use

Respiratory protection is authorized and issued for the following personnel:

- Workers in areas known to have contaminant levels requiring the use of respiratory protection or in which contaminant levels requiring the use of respiratory protection may be created without warning (e.g., emergency purposes such as hazardous material spill responses).
- Workers performing operations documented to be health hazardous and those unavoidably required to be in the immediate vicinity where similar levels of contaminants are generated.
- Workers in suspect areas or performing operations suspected of being health hazardous but for which adequate sampling data has not been obtained.

Staff must wear a hospital approved N95 respirator to control exposure to suspected or confirmed cases of TB, SARS, or H1N1 (per Mount Sinai Health System Hierarchy of Controls). They must be trained and fit tested by Environmental Health and Safety or other associated departments before using their respirator. N95 respirators are disposable so they cannot be cleaned or disinfected. N95 respirators may be reused provided the respirator is inspected prior to use, is in good condition and has not become contaminated or soiled with body fluids or other materials.

Tight-fitting respirators cannot be worn by employees who have facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function, or who have any condition that interferes with the face-to-facepiece seal or valve function.

Individual respirators shall be provided to each employee requiring a respirator. Employees shall not share respirators, except for powered air purifying respirators (PAPR) or self-contained breathing apparatus (SCBA).

Respirators shall be used in accordance with the revised 29 CFR 1910.134. Thus, particulate respirators certified by NIOSH under 30 CFR part 11 shall be used with HEPA filters unless used in an area where the mass median aerodynamic diameter of the particulate is 2 microns or greater. For the most part, employees will not be aware of the particle size. Thus, respiratory protection certified under 30 CFR part 11 shall be used only with HEPA filters. In addition, NIOSH has certified particulate respirators under 42 CFR part 84. Purchases of new particulate respirator supplies shall be restricted to respiratory protection certified under 42 CFR part 84. Air-purifying respirators used for organic vapors shall be used in accordance with the revised 29 CFR 1910.134. Thus, such respirators are to be used with either an end-of-service-life indicator (ESLI) or using a change schedule.

Single use, disposable or maintenance-free respirators shall normally not be used by personnel where the possibility of an overexposure exists. Use of such respirators in areas where an overexposure would exist would require the employee to be fit tested with that respirator.

2.1.4 Purchase of respirators

Respirators and associated replacement parts shall be purchased only if certified by NIOSH. However, if an approved respirator for an anticipated exposure is not commercially available then the Program Administrator shall determine whether the purchase and use of a non-approved respirator is warranted.

2.1.5 Inspection

Wearers must inspect their respirators before and after use. Respirators that are not used routinely are to be inspected after each use and at least monthly. Respirator inspections must include checking that

- Sealing surface are clean and free of cracks and holes
- Rubber and elastic parts have good pliability and no signs of deterioration
- Inhalation and exhalation valves are clean and seated properly
- Straps are sufficiently elastic and free of worn areas
- If full face, face shield is cleaned and clear (no smudges, scratches, or other damage that may impede visibility)

2.1.6 Pre-use Face Seal Check

Before using a respirator, the wearer must perform a positive and negative pressure check. The wearer must ensure current facial condition will allow an effective seal (for example the wearer must be clean shaven).

- Positive pressure check. Close off exhalation valve with palms and exhale gently. No leakage outward around the seal should occur.
- Negative pressure check. Close off cartridges and inhale. The respirator should collapse slightly on the face. No leakage around the face seal should occur while maintaining a negative pressure inside the respirator for several seconds.

2.1.7 Disinfection

A respirator should be cleaned and disinfected after each use. The solution used to clean the respirator(s) should contain some type of biocide for disinfection. Cartridges and filters must be removed from the respirator before cleaning.

- To clean and disinfect respirators:
- Disassemble and wash with dishwashing detergent in warm water, using a soft brush.
- Thoroughly rinse to remove any detergent residue.
- Air dry in a clean place.

NOTE: Do not use organic solvents to clean a respirator or high heat to dry it, as this may damage the elastomeric face piece.

2.1.8 Cartridges and Filters

Change cartridges and filters according to the schedule developed under the guidance of Environmental Health and Safety or the respirator's manufacturer, or sooner if you experience an increased resistance in breathing or when you detect contaminant odors or taste while wearing your respirator. Be familiar with the chemical properties of the substance you are using. Some chemicals require the cartridges to be changed more frequently, regardless of exposure concentration. Consult the SDS and the respiratory protection program manager for this information.

2.1.9 Storage

Store respirators away from dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals, or contamination. Filters and cartridges should be removed from the respirator and stored in separate bags to prevent cross contamination. Do not store items on top of respirators, which could deform the face piece shape. Do not store respirators in such places as lockers or tool boxes unless they are in carrying cases or cartons to preserve face piece shape. Respirators should be packed and stored according to the manufacturer's instructions. Never store a respirator within a fume hood or at a work bench where contaminants are present.

2.1.10 Maintenance and Care of Dust Masks

Dust masks must be maintained in a clean and sanitary condition. Personnel who voluntarily wear dust masks when respirator use is not required must

- Store dust masks in a plastic bag or box in a secure location such as a locker or desk drawer, away from moisture and contamination
- Not share dust masks with others
- Not use a dust mask that is torn, distorted, or dirty

2.1.11 Replacement and Repair

Repair of respirators will be done only by experienced personnel with parts designed for the specific respirator needing repair. No attempt will be made to replace parts, or to make adjustments or repairs beyond the manufacturer's recommendations.

2.1.12 Voluntary Use Requirement

Any employee who voluntarily wears a respirator is subject to the medical evaluation, cleaning, maintenance and storage elements of this program, and must be provided with certain information as specified in this section of the program. NOTE: Employees who voluntarily wear filtering facepieces (dust masks) are not subject to the medical evaluation, cleaning, storage and maintenance provisions of this program.

2.1.13 Program Surveillance/Evaluation

The Program Administrator must conduct evaluations of the Respiratory Protection Program annually to ensure that the provisions of the current written respirator program are being properly implemented for all employees required to use respirators. Evaluations must be conducted to ensure the continued effectiveness of the program and will help to determine whether the correct respirators are being used and worn properly and whether the training program is effective.

2.2 Information and Education

Respirator users and their supervisors will receive training on the contents of the Respiratory Protection Program and their responsibilities under it. They will be trained on the proper selection and use, as well as the limitations of the respirator. Training also covers how to ensure a

proper fit before use and how to determine when a respirator is no longer providing the protection intended.

The training must cover, at a minimum, the elements specified in 29 CFR 1910.134(k) which include:

- Potential hazards that may be encountered at the site and the potential consequences of not wearing a respirator;
- Discussion concerning the proper type of respirator use in a particular environment;
- Limitations of the respirator including end-of-service-life indicators and change schedules;
- Recognition of emergency situations and actions the employee should take to ensure protection;
- Checking the fit of the respirator each time the respirator is worn;
- Proper maintenance and storage of the respirator;
- Checking the integrity of the respirator;
- Medical signs and symptoms that would suggest a need to limit or end the usage of the respirator;
- The requirements of 29 CFR 1910.134.

2.2.1 Retraining

Retraining of employees shall occur at least annually in accordance with 29 CFR 1910.134. Respirator training will be properly documented and should include the type and model of respirator for which the individual has been trained and fit-tested.

3 Forms

The following are forms required by these requirements:

- Periodic Medical Questionnaire for Respirator Users (v.1 or v.2)
- Respirator Medical Approval Form
- Respirator Fit Test Record
- Respirator Training and Fit Testing Program Certificate of Completion
- Respirator Fit Test Fail Notes and Instructions
- Recommendation Regarding Employee's Ability to Use a Respirator

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- A copy of each employee's respirator clearance form shall be kept in the employee's medical file for the duration of employment plus thirty (30) years.
- A copy of each employee's fit test record shall be kept on file for at least one year following fit testing.
- A digital record of each employee's historical fit test records shall be maintained.

5 References

Mount Sinai Documents

- EH-SAFP11-1 Respiratory Protection Evaluation, Fit Testing, and Certification Procedure
- EH-SAFDB11-1 Respiratory Protection Risk Assessment Database (contact Environmental Health and Safety for information)

Other Documents

- Title 29, Code of Federal Regulations, “Labor”, Subtitle B, “Regulations Relating to Labor (Continued)”, Chapter 17, “Occupational Safety and Health Administration, Department of Labor”, Part 1910, “Occupational Safety and Health Standards”, Subpart I, “Personal Protective Equipment”, Section 134, “Respiratory Protection” (29 CFR 1910.134)
- The Joint Commission Accreditations Standard IC.02.01.01 C2