Respiratory Protection Program

DARTMOUTH

EHS Approved By:	*Annette Chism, Sr. Director*	**Revision Date:**	November 25, 2025
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Section 1 – Scope

It is the intent of Dartmouth College to provide a safe, healthful environment for all work activities, research and learning. This program is designed to provide information and requirements regarding respiratory protection to achieve that goal. The use of respiratory protection at Dartmouth is largely directed by the requirements contained in the Occupational Safety and Health Administration (OSHA) regulations, specifically **29 CFR 1910.134.** A component of this regulation is the concept of achieving exposure control through the determination and implementation of the most effective control methods, such as elimination/substation, engineering controls, and administration controls whenever feasible. When such controls are not feasible to achieve adequate exposure control, personal protective equipment and/or other protective measures must be used, such as respiratory protection.

Section 2 – Purpose

A respirator is any device intended to protect the user from airborne contaminants and/or oxygen deficient environments. The selection and proper usage of respiratory protection is a critical component of the desired result of exposure control. Significant amounts of information must be known about the contaminants, and the environment in which respirators will be utilized to provide adequate protection. Some of this information includes:

1. General use conditions, including determination of contaminant(s);
2. Physical, chemical, and toxicological properties of the contaminant(s);
3. Odor threshold data;
4. The smallest of the Permissible Exposure Limit (PEL), Recommended Exposure Limit (REL) and Threshold Limit Value (TLV) exposure limits
5. **Immediately dangerous to life or health (IDLH) concentration; No Dartmouth employee should ever enter an atmosphere that is known to be IDLH. If an atmosphere becomes IDLH after entrance, it must be evacuated immediately and not re-entered until the IDLH atmosphere is no longer present.**
6. Eye and skin irritation potential; and
7. Any service life information available (for cartridges and canisters).

All Dartmouth faculty, staff, or students who wear a respirator, either due to institute policy or by personal choice (see Voluntary use section), must do so in accordance with this Program and must inform ***Environmental Health and Safety*** of their activities.

Section 3 – Definitions

See Appendix F.

Section 4 – Roles and Responsibilities

4.1 Program Administrator

The primary function of Dartmouth's Respiratory Protection Program Administrator involves administering the program and evaluating its effectiveness. An individual is qualified to be a program administrator if they have appropriate training or experience in accordance with the program's level of complexity. The administrator may rely on other employees to help run parts of the respiratory protection program (e.g., fit testing, medical evaluations). The Program Administrator is responsible for assuring that all the requirements of this program are applied to the Dartmouth workplace.

4.2 Employees/Supervisors

It is the dual responsibility of each employee and their supervisor to be familiar with, and strictly adhere to the contents and requirements of this program. No employee shall engage in the utilization of respiratory protection (except for Filtering Face Pieces –see section 3.3) without the written approval of the Program Administrator. Individuals who believe respiratory protection is necessary, or desired, should contact the Program Administrator prior to utilizing respiratory protection.

4.3 Voluntary Respirator Users

Voluntary use is defined as a situation in which an employee chooses to wear a respirator, even though the use of a respirator is not required by either Dartmouth policy or by OSHA standard. Voluntary use **does not** exempt an employee from the notification requirements included in section 1.3. Further, Voluntary Respirator Users must follow the following procedures:

- The Voluntary User must notify the Program Administrator of the intended voluntary respirator use prior to the utilization of the respiratory protection.

- The Program Administrator must determine that the respirator itself will not present a hazard to the employee due to misuse, other hazards or conditions in the workplace, or employee medical conditions.

- The Voluntary User must be provided with, sign, and date the advisory information included in **Appendix C** prior to the utilization of the respiratory protection by the Voluntary User.

- The Voluntary User shall complete a medical evaluation (at cost to the department) and receive on-going evaluations as described in Medical Evaluation (section 7) of this Program prior to the utilization of the respiratory protection, and will be provided a copy of Appendix C.

- The Voluntary User must be fit tested for the type and style of respirator to be used. This procedure must satisfy the requirements presented in Fit Testing (section 8) of this program.

4.4 Occupational Medicine

- Provide medical evaluation for faculty and staff as outlined in this Program.
- Keep medical records for faculty and staff in accordance with applicable regulations.

4.5 Dartmouth College Health Service

- Provide medical evaluation for students as outlined in this Program.
- Keep medical records for students in accordance with applicable regulations.
- Maintain respiratory protection program for employees under Dartmouth College Health Service and Athletics.

Section 5 – Respiratory Hazards

5.1 Introduction to Respiratory Protection

The respiratory system can tolerate exposures to gases, vapors, and particulates to an extent. In excessive amounts, however, contaminants can impair or destroy portions of the respiratory tract, be absorbed directly into the bloodstream from the lungs, and/or damage organs and tissues. Respirators, when properly fitted and of the appropriate design, have the capability of drastically reducing the number of contaminants entering the respiratory system.

5.2 Oxygen Deficiency

Atmospheres containing less than 19.5% oxygen are **oxygen deficient**.

If ventilation is not possible and/or effective in normalizing the oxygen

concentration in the atmosphere (meaning the oxygen concentration in the space remains less than 19.5%) the atmosphere is both oxygen deficient and IDLH and entry into the environment must not occur.

Atmospheres containing oxygen concentrations greater than 23.5% also present hazards and should not be entered. The Dartmouth *Confined Space Entry Program* may be referenced for specific information regarding entry into hazardous atmospheres.

5.3 Chemical Contaminants

As previously discussed, chemical contaminants in the air can create a host of health-related concerns depending upon the dose, specific chemical and other factors. Identifying potential chemical hazards, as well as potential concentrations is critical. This information allows for the appropriate selection of respiratory protection. In certain areas chemical monitoring may be required to determine exposure levels.

5.4 Aerosols

The term “aerosol” is used to describe fine particulates (solid or liquid) that are suspended in air. Aerosols can create serious health hazards depending upon their composition and concentration. Aerosols may be filtered by using an appropriately designed mechanical filtering device.

5.5 Dusts, Smoke and Particles

Dust and smoke are produced by a mixture of particulates in air. As with aerosols, the diameter of the particulate is to a large degree the determining factor in choosing appropriate respiratory protection. Smoke is generally liquid or solid particles created by the incomplete combustion of a material. Certain dusts can create explosive environments when present in appropriate concentrations.

Section 6 – Selection of Respirators

Respirator selection depends on evaluating workplace conditions and potential hazards. Key factors include:

- Type and concentration of contaminants
- Oxygen levels (must be ≥19.5%)
- Work environment (open area, confined space)
- Device limitations, service life, and fit testing results
- Health risks include skin and eye irritation, as well as IDLH conditions

Decision logic tree (Appendix B: Respiratory Protection Selection Guide) may assist EHS for selecting the appropriate respirator.

6.1 Air-Purifying Respirators (APR)

APR's filter contaminants from ambient air. They include:

- **Particulate APRs** – filter dusts, fumes, and mists
- **Gas/Vapor APRs** – use chemical cartridges or canisters
- **Combination APRs** – filter both particulates and vapors

Limitations:

- Not for oxygen-deficient or unknown atmospheres
- Must match the correct cartridge/filter to the hazard
- Subject to maximum use concentration (MUC) limits

Conditions for Use: contaminant identity/concentration known, proper cartridge selection, adequate warning properties, fit test completed, and MUC not exceeded.

6.1.1 Powered APRs (PAPR)

PAPRs use a battery-powered blower to push air through filters, reducing breathing resistance. They still rely on ambient air and are not suitable for oxygen-deficient spaces.

6.1.2 Cartridges and Filters

- **Particulates:** filters available in 95, 99, and 100 efficiency levels; N, R, or P types depending on oil resistance.
- **Gases/Vapors:** cartridges are color-coded (e.g., black = organic vapor, white = acid gas).
- **Service Life:** cartridges must be replaced before breakthrough, using ESLIs or a change-out schedule.

6.2 Supplied Air Respirators (SAR)

Provide clean breathing air from cylinders or compressors. Types include:

- **Airline Respirators** (demand, pressure-demand, or continuous-flow)
- **SCBA** – self-contained units, used only by trained EHS staff

SARs are required for:

- Unknown contaminants or IDLH conditions
- Oxygen-deficient atmospheres

- Inadequate warning properties or when APR limits are exceeded
- Regulated areas relating to methylene chloride use. See online: Workplace Chemical Protection Program

Air quality for SARs must meet OSHA Grade D breathing air standards (O_2 19.5–23.5%, CO ≤10 ppm, CO_2 ≤100 ppm, no noticeable odor).

6.3 Filtering Facepieces

- Lightweight, disposable respirators for dusts and fibers only
- Must be NIOSH-approved
- Cannot protect against gases/vapors or oxygen deficiency
- Voluntary use allowed but must notify the Respiratory Program Administrator and follow Appendix C requirements

Section 7. Medical Evaluation

7.1 Initial (Pre-usage)

Due to the potential health-related effects of respirator usage, all faculty, staff, and students who may need to utilize respiratory protection at Dartmouth are required to receive a pre-usage medical evaluation prior to being "Fit Tested" (See Section 8) or utilizing a respirator at Dartmouth.

Dartmouth will provide initial medical evaluations at no cost to the employee and at a time and place that is convenient to the employee. A Physician or other Licensed Health Care Professional (PLHCP) will review the initial medical evaluation and will utilize the questionnaire or obtain the same information that is included in the questionnaire that is presented in Appendix C to OSHA regulation 29 CFR 1910.134. The contents of this questionnaire are available from ***Environmental Health and Safety***

The results of all medical evaluations will be kept confidential. The PLHCP will be made available to Dartmouth employees to discuss the contents of their medical evaluations.

Dartmouth will provide the PLHCP with information specific to each employee's potential respiratory protection requirement. This information will include:

- The type and weight of the respirator to be worn by the employee
- The estimated duration and frequency of respirator use
- The tasks the employee may be completing while wearing the respirator
- The temperature and humidity extremes that may be encountered in the work area

The form included in **Appendix E** should be used to document this information. The

form, once completed and signed by the PLHCP must be returned to the **Program Administrator**.

Based on the combination of information provided by Dartmouth, the contents of the medical questionnaire, and any other factors that the PLHCP deems relevant to the medical evaluation, the PLHCP will furnish both Dartmouth and each employee a written determination regarding the employee's medical qualification to wear the respirator. This written determination will include:

- A determination of whether the employee is medically able to use a respirator
- Any limitations on the respirator use related to the medical condition of the employee or to the workplace conditions in which the respirator will be used.
- The need, if any, for follow-up medical evaluations
- Verification that the PLHCP has provided a copy of the written determination to the employee

7.2 Follow-Up Medical Evaluations

Follow-up medical evaluations will be made available to Dartmouth employees whenever any of the following events occur:

1. The employee reports symptoms related to their ability to wear a respirator.
2. The PLHCP, the Respiratory Protection Program Administrator, or supervisor determines that a medical re-evaluation is necessary.
3. Information from this program suggests a need for re-evaluation.
4. Workplace conditions have changed, placing an increased burden on the employee's health.

7.3 Record Keeping

All applicable medical evaluation records will be kept strictly confidential and will be made available to employees upon request.

Section 8 – Fit Testing

Annual Fit Testing is a process that is designed to ensure that a specific type of respirator (Size, Brand, Style and Type) fits a specific individual adequately. If a respirator does not fit an individual appropriately contaminants may leak into the face-piece causing potential exposure. Fit Test procedures must be completed, at a minimum:

1. Prior to Initial use
2. Whenever an individual switches to a different type of respirator
3. When there is a significant physical change in the respirator wearer
4. At least annually

8.1 Types of Fit Tests

- **Qualitative Fit Testing (QLFT):** Pass/fail test based on the wearer's ability to detect a test agent (e.g., saccharin, Bitrex, isoamyl acetate). Only acceptable for certain negative-pressure respirators used at ≤10x PEL.
- **Quantitative Fit Testing (QNFT):** Numeric measurement of leakage using instruments. Requires a Fit Factor ≥100 for half/quarter facepieces and ≥500 for full facepieces.

8.2 Respirator Pressure Types

- **Positive Pressure Respirators:** Maintain pressure inside the mask, preventing contaminant entry if leakage occurs.
- **Negative Pressure Respirators:** Rely on wearer's inhalation, which may allow contaminant entry if the seal is compromised.

8.3 Recordkeeping

Dartmouth EHS will document all fit tests, including respirator type (brand, model, size), method and results, test date, and tester's name. Records are maintained using the Fit Test Documentation Form (Appendix D).

Section 9 – Respirator Usage

9.1 Preventing Leaks in the Face Piece Seal

The proper seal of a tight-fitting respirator to the face of the user is a critical element of exposure control. Additionally, the improper functioning of a respirator valve can result in exposure to contaminants. Specific conditions that can interfere with proper seals and valve functions can include:

- Facial hair
- Facial Scars
- Jewelry or headgear that projects under the face piece seal
- Corrective glasses, goggles or other personal protective equipment

9.2 User Seal Checks

To verify that leaks in the facepiece seal are not present and that all respirator valves are working appropriately, "user seal checks" should be completed before each usage.

Note: User Seal Checks do not take the place of appropriate fit test procedures. User Seal Checks should be utilized before each use.

If, at any point, during normal usage, an individual believes that their respirator is not properly functioning, they should immediately leave the area until further inspection can be completed on the respirator.

9.3 Immediately Dangerous to Life and Health (IDLH) Atmospheres

No Dartmouth employee should ever enter an atmosphere that is known to be IDLH. If an atmosphere becomes IDLH after entrance, it must be evacuated immediately and not re-entered until the IDLH atmosphere is no longer present.

Section 10 – Respirator Maintenance

10.1 Cleaning/Disinfecting

Dartmouth employees who utilize respirator protection, and who are included within the scope of this program, are responsible for the cleaning/disinfecting of their own respirator(s). Since affected employees are assigned personal respirators (**respirators should not be shared between employees**) the frequency of respirator cleaning/disinfecting must be such that the respirator(s) is/are maintained in a clean and sanitary fashion. The proper procedures for cleaning/disinfecting a respirator are:

1. Remove all cartridges, canisters, or filters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assembly's hoses, and all other components recommended by the respirator's manufacturer.
2. Wash the components in warm water with a mild detergent, preferably containing a disinfecting agent. (If the detergent does not contain a disinfecting agent, a solution can be made by adding approximately one milliliter of household bleach to one liter of water).
3. Rinse the components in clean, warm water. Be sure to rinse the components completely as failure to do so could result in skin irritation and the premature failure of respirator components.
4. Components should be hand-dried with a clean, lint-free cloth or air-dried.
5. Reassemble the respirator.
6. Perform seal checks to verify that all components are returned to working order.

10.2 Storage

Respirators must be stored to prevent contamination, damage, or deformation:

- Keep away from dust, chemicals, sunlight, extreme heat, or moisture.
- Store cartridges separately from facepieces.
- Maintain natural shape to avoid warping of rubber or synthetic components.

10.3 Inspection

Respirators must be inspected regularly to ensure safe operation:

- **Air-Purifying Respirators (APR):** Inspect before each use and during cleaning. Check fit, connections, facepiece, straps, valves, tubes, and cartridges. Look for wear or loss of pliability.
- **Supplied-Air Respirators (SAR):** Same requirements as APR.
- **SCBA (EHS use only):** Inspect monthly. Cylinders must remain fully charged (≥90% of manufacturer's pressure). Inspect regulators, alarms, straps, and hydrostatic test dates. Maintain inspection records.

10.4 Repair

Defective respirators must be removed from service immediately. Repairs involving valves, regulators, or alarms may only be performed by the manufacturer or trained technicians, using **only NIOSH/manufacturer-approved parts**. Replacement respirators of the same make, model, and size will be issued if service is required

Section 11 – Employee Training and Information

11.1 Scope and Applicability

Training is an essential part of appropriate respiratory protection selection, usage and maintenance. Dartmouth has established a training program that includes (at a minimum):

- The general requirements of OSHA's respiratory protection standard
- Respiratory hazards identification
- Proper respirator selection
- Procedures for inspecting, wearing and seal checking a respirator
- Information regarding the potential consequences of improper fit, usage and/or maintenance
- Respirator limitations
- Proper procedures for maintenance and storage
- Recognizing medical signs and symptoms that may limit or prevent the use of respirators

11.2 Frequency

Respiratory training is required for individuals under the following conditions:

- Before a respirator is used by an individual at Dartmouth (Initial).
- Situations in which changes in the type of respirator assigned to an employee render previous training obsolete.
- Any situations that may arise that show that the employee lacks sufficient respiratory protection knowledge to have adequate protection.

- At least annually.

Section 12 – Program Evaluation

12.1 Conducting Program Evaluations

This Program will undergo an annual review and evaluation by EHS unless changes in operations, the OSHA Standard for Respiratory Protection, CFR 1910.134, or other relevant OSHA standards necessitate an immediate re-validation of this Program.

12.2 Employee Consultations

Employee consultations may be utilized by ***Environmental Health and Safety*** to ascertain employee's views on program effectiveness and to identify any problem areas. Such consultations may also include respirator inspections designed to ensure that proper usage, maintenance, and selection processes are being observed.

Section 13 – References

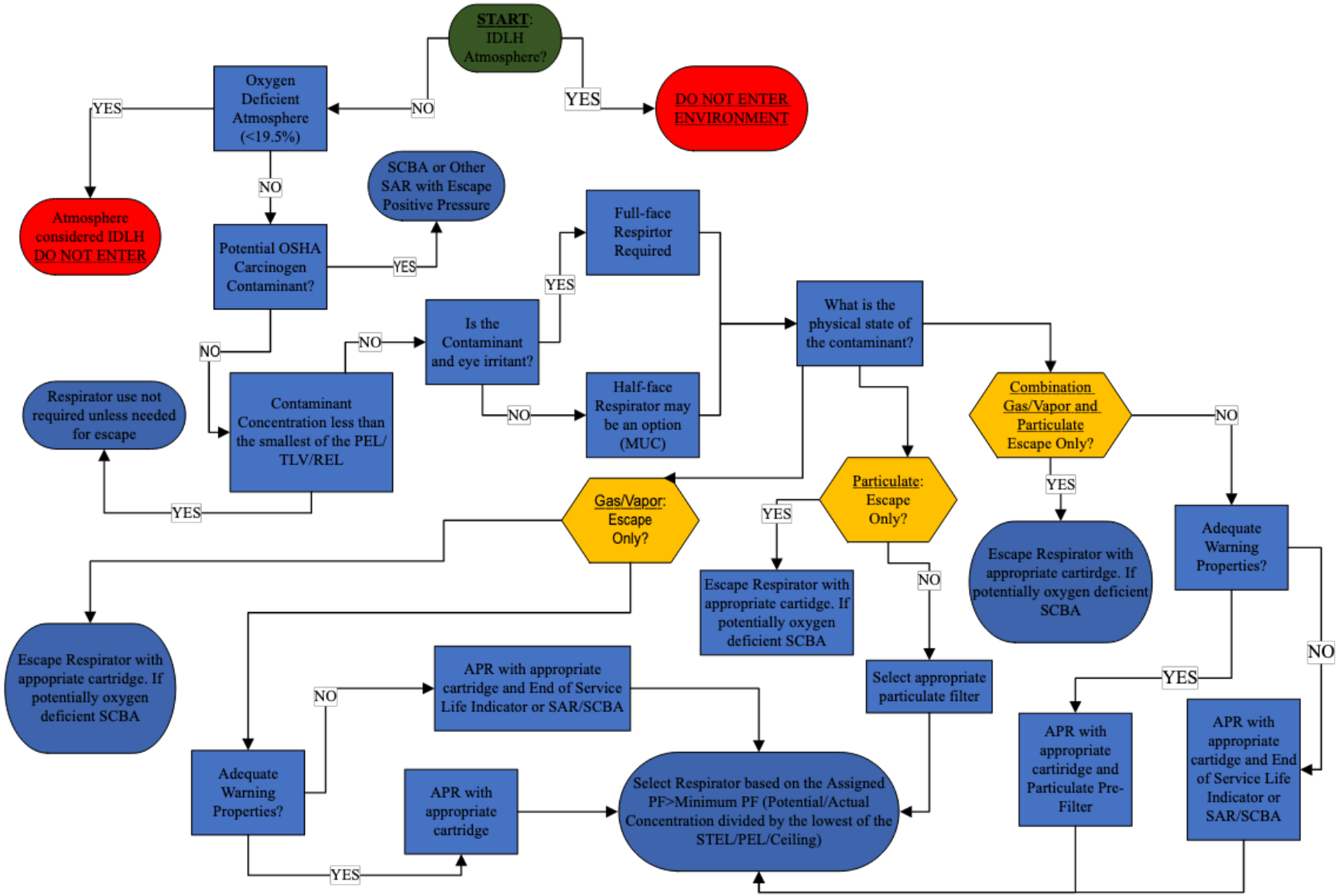
OSHA Regulations (standards – 29 CFR), Respiratory Protection Program – 1910.134

Appendix A: Assigned Protection Factors

Table of APFs for various types of Respirators

Respirator Class and Type	*OSHA* .	*NIOSH*
Air Purifying		
Filtering Facepiece	10	10
Half-Mask	10	10
Full-Facepiece	50	50
Powered Air Purifying		
Half-Mask	50	50
Full-Facepiece	250	50
Loose Fitting Facepiece	25	25
Hood or Helmet	25	25
Supplied Air		
Half-Mask-Demand	10	10
Half-Mask-Continuous	50	50
Half-Mask-Pressure Demand	1,000	1,000
Full-Facepiece Demand	50	50
Full-Facepiece Continuous Flow	250	50
Full-Facepiece Pressure Demand	1,000	2,000
Loose Fitting Facepiece	25	25
Hood or Helmet	25	25
Self-Contained Breathing Apparatus (SCBA)		
Demand	50	50
Pressure Demand	>1,000	10,000

Appendix B: Respirator Selection Flowchart



Appendix C: Voluntary Use Informational Form

In accordance with OSHA regulation **29 CFR 1910.134,** the following information is provided for your review. Signing of this form indicates that you have received the regulatory appendix, and understand its content.

Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. (63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998)

Employee Signature:_____**Date:**_____

Witness:_____**Date:**_____

Appendix D: Fit Test Documentation Form

Name of Employee:_____ **Date:**_____

Employee Signature:_____

Fit-Test Conducted by:_____ **Date:**_____

Signature:_____

Testing Result Information

☐ Qualitative Fit-Test Record Type

of Mask:_____

Manufacturer:_____

Model:_____

Size_____

Irritant used: Isoamyl Acetate
Saccharin Bitrex
Other:_____

Pass **Fail**

(circle one)

Additional Comments:_____

_____

_____

_____

Next Fit-Test Due Before:
_____/_____/_____

☐ Quantitative Fit-Test Record

Type of Mask:_____

Manufacturer:_____

Model:_____

Size_____

Results:_____

_____

Pass **Fail**

(circle one)

Additional Comments:_____

_____

_____

_____

Next Fit-Test Due Before:
_____/_____/_____

Appendix E: User Profile for Licensed Health Care Professional (Employee)

Respirator Medical Evaluation Questionnaire
Adapted from Appendix C to Sec. 1910.134: OSHA

To meet the requirements in the Dartmouth College Respiratory Protection Program, you must complete the following questionnaire annually, after which it will be reviewed by a licensed clinical provider at Occupational Medicine at Dartmouth Hitchcock Medical Center.

INSTRUCTIONS: Fully complete Section A below as well as the attached medical questionnaire.

Section A

Name:_____

Dept: **Supervisor:** _____

Email:_____ Phone: _____

Note: You must be clean shaven to wear any tight fitting respirator, including N95

Type of respirator/s worn – Check all that apply:

- ☐ Tight fitting half face
- ☐ Powered Air Purifying Respirator
- ☐ Filtering facepiece (N95)
- ☐ Tight fitting full face
- ☐ Other: _____

Job description while wearing respirator to include: description of work activities including contaminant(s) that may be encountered, duration and frequency of respirator use, expected physical work effort, additional protective clothing and equipment to be worn, and temperature and humidity extremes that may be encountered. Include weight of respirator if known.

A licensed healthcare provider will review the completed medical questionnaire. If you have questions or wish to discuss this evaluation, please call (603)653-3850.

Healthcare Provider Use Only (Return form to EHS prior to fit test)

○ This individual is medically able to wear a respiratory device at this time.

○ This individual is NOT medically able to wear a respiratory device at this time.

Health service provider signature: _____

Date of review: _____

Appendix E: User Profile for Licensed Health Care Professional (Student)

Respirator Medical Evaluation Questionnaire
Adapted from Appendix C to Sec. 1910.134: OSHA

To meet the requirements in the Dartmouth College Respiratory Protection Program, you must complete the following questionnaire annually, after which it will be reviewed by a licensed clinical provider at the Dartmouth College Health Service.

INSTRUCTIONS: Fully complete Section A below as well as the attached medical questionnaire.

Section A

Name: _____

Dept: Supervisor: _____

Email: _____ Phone: _____

Note: You must be clean shaven to wear any tight fitting respirator, including N95

Type of respirator/s worn – Check all that apply:

- ☐ Tight fitting half face
- ☐ Powered Air Purifying Respirator
- ☐ Filtering facepiece (N95)
- ☐ Tight fitting full face
- ☐ Other: _____

Job description while wearing respirator to include: description of work activities including contaminant(s) that may be encountered, duration and frequency of respirator use, expected physical work effort, additional protective clothing and equipment to be worn, and temperature and humidity extremes that may be encountered. Include weight of respirator if known.

A licensed healthcare provider will review the completed medical questionnaire. If you have questions or wish to discuss this evaluation, please call 603-646-9400.

Healthcare Provider Use Only (Return form to EHS prior to fit test)

☐ This individual is medically able to wear a respiratory device at this time.

☐ This individual is NOT medically able to wear a respiratory device at this time.

Health service provider signature: _____

Date of review: _____

Appendix F: Mandatory OSHA Medical Questionnaire

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1. Today's date:

2. Name (last, first, MI)	3. Date of Birth	4. Sex	5. Height ft in

6. Weight Lbs.	7. Job title	8. Phone number where you can be reached by the health care professional who will review this questionnaire (include area code)	9. Best time to reach you at this number

10. Has your employer told you how to contact the health care provider who will review this questionnaire? ☐ yes ☐ no	11. Type(s) of respirator you will use (mark all that apply): a. ☐ N, R, or P disposable respirator (filter-mask, non-cartridge type only) b. ☐ other type (for example, half- or full-facepiece type, powered-air purifying, supplied air, self contained breathing apparatus	12. Have you worn a respirator? ☐ yes ☐ no If yes, what type(s)

Medical History	YES	NO
Questions 1 through 9 below must be answered by every Employee who has been selected to use any type respirator. Please mark "X" yes or no for each.		
1. Do you currently smoke tobacco, or have you smoked tobacco during the past month?	☐	☐
2. Have you ever had any of the following conditions?	☐	☐
a. seizures (fits, convulsions, epilepsy)	☐	☐
b. diabetes (high blood sugar disease)	☐	☐
c. allergic reactions that interfere with your breathing	☐	☐
d. claustrophobia (fear of closed-in places)	☐	☐
e. trouble smelling odors	☐	☐
f. latex (rubber) allergy	☐	☐
3. Have you ever had any of the following pulmonary (lung) conditions?		
a. asbestosis	☐	☐
b. asthma	☐	☐
c. chronic bronchitis	☐	☐
d. emphysema	☐	☐
e. pneumonia	☐	☐
f. tuberculosis	☐	☐
g. silicosis	☐	☐
h. beryllium disease	☐	☐
i. sarcoidosis	☐	☐
j. pneumothorax (collapsed lung)	☐	☐
k. lung cancer	☐	☐
l. broken ribs	☐	☐
m. any chest injury or surgeries	☐	☐
n. any other lung problem that you've told about	☐	☐
4. Do you currently have any of the following symptoms of pulmonary or lung disease?		
a. shortness of breath	☐	☐
b. shortness of breath when walking fast on level ground or walking normal speed up a slight hill or incline	☐	☐
c. shortness of breath when walking with other people at an ordinary pace on level ground	☐	☐
d. have to stop for breath when walking at your own pace on level ground	☐	☐
e. shortness of breath when washing or dressing yourself	☐	☐
f. shortness of breath that interferes with your job	☐	☐

Medical History continued	YES	NO
g. coughing that produces phlegm (thick sputum)	☐	☐
h. coughing that wakes you up early in the morning	☐	☐
i. coughing that occurs mostly when you are lying down	☐	☐
j. coughing up blood in the last month	☐	☐
k. wheezing	☐	☐
l. wheezing that interferes with your job	☐	☐
m. chest pain when you breathe deeply	☐	☐
n. any other symptoms that you think may be related to lung problems	☐	☐
5. Have you ever had any of the following cardiovascular (heart) problems?		
a. heart attack	☐	☐
b. stroke	☐	☐
c. angina (heart pain)	☐	☐
d. heart failure	☐	☐
e. swelling in you legs or feet (not caused by walking)	☐	☐
f. heart arrhythmia (irregular heart beat)	☐	☐
g. high blood pressure	☐	☐
h. abnormal stress test -- approximate date:	☐	☐
i. cardiac (heart) catheterization – approximate date:	☐	☐
j. any other heart problem about which you have been told	☐	☐
6. Have you ever had any of the following cardiovascular (heart) symptoms?		
a. frequent pain or tightness in your chest	☐	☐
b. pain or tightness in your chest during physical activity	☐	☐
c. pain or tightness in your chest that interferes with your job	☐	☐
d. in the past two years, have you noticed your heart skipping or missing a beat	☐	☐
e. heartburn or indigestion that is not related to eating	☐	☐
f. any other symptoms that you think may be related to heart or circulation problems	☐	☐
7. Do you currently take any medication for any of the following problems?		
a. breathing	☐	☐
b. heart trouble	☐	☐
c. blood pressure	☐	☐
d. seizures (fits, convulsions, epilepsy)	☐	☐

Continued on page 2.

Medical History continued	YES	NO
Have you ever used a respirator? (If NO, skip to question 9.)	☐	☐
8. If you have used a respirator, have you ever had any of the following problems?		
a. eye irritation	☐	☐
b. skin allergies or rashes	☐	☐
c. anxiety (caused by wearing respirator)	☐	☐
d. general weakness or fatigue	☐	☐
e. any other problem that interferes with your use of a respirator	☐	☐
9. Would you like to talk to the healthcare professional who will review this questionnaire about your answers?	☐	☐
Answer questions 10 through 15 below only if you use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA)		
10. Have you ever lost vision in either eye (temporarily or permanently)?	☐	☐
11. Do you currently have any of the following vision problems?		
a. wear contact lenses	☐	☐
b. wear glasses	☐	☐
c. color blind	☐	☐
d. any other eye or vision problems	☐	☐
12. Have you ever had an injury to your ears, including a broken ear drum?	☐	☐
13. Do you currently have any of the following hearing problems?	☐	☐
a. difficulty hearing	☐	☐
b. wear a hearing aid	☐	☐
c. any other hearing or ear problem	☐	☐
14. Have you ever had a back injury?	☐	☐
15. Do you currently have any of the following musculoskeletal problems?		
a. weakness in your arms, legs, hands, or feet	☐	☐
b. back pain	☐	☐
c. pain or stiffness when you lean forward or backward at the waist	☐	☐
d. difficulty fully moving your arms and legs	☐	☐
e. difficulty moving your head up or down	☐	☐
f. difficulty moving your head side-to-side	☐	☐
g. difficulty bending at your knees	☐	☐
h. difficulty squatting to the ground	☐	☐
i. difficulty climbing a flight of stairs or a ladder carrying more than 25 pounds	☐	☐
j. any other muscle or skeletal problem that interferes with using a respirator		
16. Another health condition that you think may affect your ability to use a respirator safely? Answer below.		
If you answered yes to any of the questions 1-16, please explain		

Medical Clinic Use Only:	YES	NO
Medically fit to wear respirator *Positive responses to questions 1-8 of the Medical History portion require a physician's recommendation require a follow-up medical examination.	☐	☐
Referred for further evaluation If, YES, specify condition or concern:	☐	☐

Reviewed by: _____

Date:

Examiner's comments on positive responses:

Targeted physical exam (performed upon physician's recommendation):

BP:_____/_____ Pulse:_____ ☐ Reg ☐ Irreg

	Normal	Abn
HEENT	☐	☐
Neck – incl. carotid upstrokes and JVD	☐	☐
Lungs	☐	☐
Heart	☐	☐
Extremities – incl. peripheral pulses and edema	☐	☐
Other – specify:	☐	☐

Medically fit to wear respirator?	☐ Yes	☐ No

Appendix G: Definitions

American Conference of Governmental Industrial Hygienists (ACGIH): is a charitable scientific organization that advances occupational and environmental health.

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): of a respirator reflects the level of protection that a properly functioning respirator would be expected to provide to a population of properly fitted and trained users.

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.

Ceiling Limit Value: is the concentration that should not be exceeded during any part of the working exposure.

Continuous flow respirator: an atmosphere-supplying respirator that provides a continuous flow of breathable air to the respirator facepiece.

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

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 face piece (dust mask): a negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece 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.

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.

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

Maximum use concentration (MUC): the maximum concentration, not to exceed the IDLH concentration, of a specific contaminant in which a respirator can be worn. The MUC is calculated by multiplying the Protection Factor (PF) by the lowest of the PEL/TLV/REL.

National Institute of Occupational Safety and Health (NIOSH): a research agency focused on the study of worker safety and health, and empowering employers and workers to create safe and healthy workplaces.

Negative pressure respirator (tight fitting): a respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Occupational Health and Safety Administration (OSHA): is an agency of the U.S. Department of Labor that promotes safe and healthful working conditions for working people by setting and enforcing standards and by providing training, outreach, education, and assistance.

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

Peak (P): refers to acceptable maximum concentrations above acceptable ceiling concentrations for an 8-hour shift. Peak is never to be exceeded.

Permissible Exposure Limit (PEL): the limit that OSHA (legal limit) has set for employee exposure to regulated contaminants that a worker may be exposed to in a typical 40-hour work week (8 hours/day, based on a time-weighted average).

Physician or other licensed health care professional (PLHCP): an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows them to independently provide, or be delegated the responsibility to provide, some or all 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 face piece 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.

Recommended Exposure Limit (REL): the time weighted average

concentration for up to a 10-hour workday during a 40-hour work week as published by the National Institute for Occupational Safety and Health (NIOSH). Like TLVs, RELs are guidance values.

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 face piece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Service life: the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Short-term Exposure Limit (STEL): a 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the 8-hour TWA is within the TLV–TWA. The TLV–STEL is the concentration to which it is believed that nearly all workers can be exposed continuously for a short period of time without suffering from adverse health effects.

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.

Threshold Limit Value (TLV): the TWA concentration for a conventional 8-hour workday and 40-hour workweek, to which scientific data indicates that nearly all workers may be repeatedly exposed, day after day, without adverse effect. TLVs are published annually by the ACGIH (American Conference of Governmental Industrial Hygienists) and are guidance values.

Tight-fitting face piece: a respiratory inlet covering that forms a complete seal with the face.

Time-Weighted Average (TWA): represents airborne concentrations of substances averaged regarding their duration.

User seal check: an action conducted by the respirator user to determine if the respirator is properly seated to the face.

Voluntary Use: when an employee chooses to wear a respirator, even though the use of a respirator is not required by either Dartmouth policy or by OSHA standard.