

# **16. Respiratory Protection**

## **Chapter 296-842, WAC**

### **1.0 Introduction**

The purpose of this respiratory program is to provide and maintain a safe and healthful work place for all employees who work in environments with airborne contaminants. This chapter establishes procedures and provides instructions in the selection, use and care of respiratory protective equipment. Supervisors of employees who work in oxygen-deficient conditions and/or harmful airborne hazard atmospheres must discuss the use of respiratory protective procedures and equipment with affected employees.

### **2.0 Work That Requires Respirator Use**

Respirator use is required when exposures exceed permissible exposure regulatory limits.

Work and contaminants that require respirator use due to exposure protocol or where exposures exceed regulatory limits include:

- Potential tuberculosis exposure to medical personnel

For the following work, voluntary use is permitted when exposures are below regulatory limits.

- Pesticide/herbicide application as suggested by manufacturers specifications
- Spray painting
- Preparing glaze and ceramics clay from powdered material
- Use by the auto mechanic for metal dust, solvent vapors, or removal of asbestos brakes from vehicles
- Welding
- When working in crawl spaces (protection from potential asbestos dust and animal feces)
- Asbestos surveying by Environmental Health & Safety Manager

### **3.0 Supervisor Responsibilities**

It is the supervisor's responsibility to identify and evaluate the workplace and select the appropriate respirator for an employee based on the direction given below. The Environmental Health & Safety Manager may assist with selection.

Supervisors who have the responsibility of overseeing the work activities of one or more persons who must wear respirators will arrange for the employee's training in the proper use of respirators, initial medical evaluation, and respirator fit test. The Environmental Health & Safety Manager may assist with this.

Supervisors are required to ensure that employees are using and maintaining their respirators correctly as dictated by the work and contaminant exposure level.

The supervisor shall also monitor employees for medical signs or symptoms, changes in the work place, changes in the employee, or other information that may indicate the need for additional medical evaluations.

## 4.0 Hazardous Atmospheres

Whenever possible, toxic levels of airborne contamination should be eliminated through administrative or engineering controls. An example of an administrative control is to reschedule work crews until contaminate levels are below regulatory thresholds. An example of an engineering control can be to eliminate the hazard by substituting a less toxic material or installing better ventilation. When administrative or engineering controls are not feasible, or while they are being instituted or evaluated, appropriate respirators will be used.

### 4.1 Toxic Atmosphere Defined by PELs, STELs, Ceiling Limits, & IDLH

The **Permissible Exposure Level (PEL)** is an 8-hour Time Weighted Average (TWA) above which employees are not permitted to work without respiratory protection. The following formula may be used to determine whether employees are approaching the PEL during a shift on a particular job site:

C= concentration of contaminate based on test sampling data  
t= length of time exposed (in hours)

$$\text{8-hr TWA} = \frac{C_1t_1 + C_2t_2 + C_3t_3 \dots}{(\text{Shift exposure}) 8 \text{ hours}}$$

The **Short Term Exposure Limit (STEL)** is a 15-minute TWA concentration to which employee exposure is limited to 15 minutes without respiratory protection.

Employees are not permitted to work at or above the **Ceiling Limit** without respiratory protection.

When an atmospheric environment is suspected of containing toxic levels of contaminants that could make it **Immediately Dangerous to Life or Health (IDLH)**, employees may not enter the area for any period of time.

The TWA, STEL, Ceiling, and IDLH limits for each contaminant can be found in the Washington General Occupational Health Standards. Contact the Environmental Health & Safety Manager for more information on exposure limits.

### 4.2 Oxygen Deficient Atmospheres

An atmosphere is considered oxygen deficient when the concentration of oxygen is less than 19.5%. It is unsafe to enter an oxygen deficient work area without an atmosphere-supplying respirator. Supervisors should investigate any environment with less than 21% oxygen even if higher than 19.5%. A lack of oxygen implies that something else is in the atmosphere that could be dangerous.

### 4.3 Atmospheric Testing

Worksite atmospheric testing is required whenever a hazardous material is present, the contaminant level is unknown, or the area cannot be thoroughly ventilated. Continuous testing (before entering and throughout the work shift) must be performed when there is a possibility that the area does or could contain an unknown toxic, be oxygen deficient, or contain another hazardous atmosphere. Contact the Environmental Health & Safety Manager for assistance in conducting atmospheric monitoring.

## 5.0 Voluntary Use of Respirators

Employees may voluntarily use their own or university-issued respirators when the supervisor has determined that such use will not in itself create a hazard. When voluntary use is permissible, the

supervisor must present the employee with the information in *Appendix A*. The employee must also sign a copy of the information and the signed copy must be forwarded to the Environmental Health & Safety Manager.

The supervisor is also responsible for ensuring the employee is medically fit (completes medical evaluation) to use a respirator and that it is used and cared for properly. Medical evaluations are not required for voluntary use of paper, filtering face piece respirators. Fit testing is not required for voluntary use of any respirator.

## **6.0 Procedures and Use of Respirators**

Employees who are likely to be exposed to hazardous levels of airborne contaminants will be issued a NIOSH-certified respirator, appropriate replacement parts, and cartridges or filters, at no cost to the employee. Assigned respirators must be properly fitted as described in this program.

### **6.1 Respirator Use Procedures**

The employee shall evaluate the potential for a respiratory exposure given the work environment. Identify the hazard. Are particles being generated? Are chemicals being used? What does the MSDS advise? Is the work area a confined space? Is there ventilation?

If the employee suspects a respiratory exposure or the atmosphere is unknown, the employee must cease operations or entry.

Employees authorized to wear respirators that will protect against the potential hazard may renew operations and/or initiate sampling of the atmosphere.

If the atmospheric concentration of the contaminant is found to be below the PEL, then re-entry is permitted without using a respirator unless it is reasonably foreseeable that the atmosphere could again or intermittently surpass the PEL or STEL.

PLU requires the use of respirators, regardless of the PEL for tuberculosis exposure.

A second employee shall be assigned to work with any employee using an airline respirator to ensure that the line is kept free of kinks or other blockages and to monitor the alarms and carbon monoxide levels.

### **6.2 Airborne Pathogen Medical Use Procedures**

The employee shall evaluate the patient's medical history and symptoms before entering the area of the patient.

If the patient is known to have tuberculosis (TB) or is symptomatic of TB, then the employee shall wear a respirator while treating the patient.

### **6.3 Respirator Use in IDLH Conditions**

WAC 296-842-190 details standby procedures that are required when respirators are used in IDLH conditions. Generally, one or two employees, who are trained and equipped to provide emergency rescue, must be located outside of the respirator use area. PLU employees are not expected to work in IDLH conditions.

## 6.4 Unanticipated Spills

An unanticipated spill of a large quantity of any highly toxic chemical could produce a toxic and/or oxygen deficient atmosphere. In such a case the building must be immediately evacuated and Fire Department (911 from personal phone or 9-911 from PLU phone) personnel called in to assist.

## 7.0 Selection of Respirators

Only “NIOSH-certified” respirators, filters, cartridges, and canisters may be selected and used. The choice between respirator types and cartridge types is dependent upon the airborne contaminant present, the hazardous operation performed, and the comfort and ease of obtaining a proper individual fit. An atmosphere-supplying respirator or an air-purifying respirator must be used for protection against gases and vapors. For protection against particulates, an atmosphere-supplying respirator or an air-purifying respirator with a NIOSH-certified HEPA or particulate filter will work.

Refer to WAC 296-842-130 or the Environmental Health & Safety Manager for more guidance on selecting the proper respirator.

### 7.1 Respirator Limitations

Each respirator will have some limitations. Refer to the respirator instructions for respirator limitations. Air-purifying respirators may only be used in atmospheres of at least 19.5% oxygen (The normal atmospheric oxygen content of air is about 21%). They may not be used in oxygen deficient atmospheres.

### 7.2 Respirator Efficiency Factor and Evaluation Process

Every respirator has an Assigned Protection Factor (APF), which is a measure of the degree of protection provided by the respirator to the respirator wearer.

To ensure that a particular respirator will be adequate for use in a particular atmosphere, one must complete an analysis of the contaminant exposure and the assigned protection factor (APF) of the respirator before selection. The Environmental Health & Safety Manager can assist with this analysis.

### 7.3 Selected Respirators

Type of Work or Potential Exposure	Respirator
TB protection (Wellness Clinic, Health Ctr.)	Air-purifying, half-face piece w/ N, R, P, or HEPA filters or filtering facepiece.
Pesticide Application (Facilities Management)	Air-purifying, half-face piece w/ R, P, or HE filters or filtering facepiece.
Spray Painting (Facilities Management)	Supplied-air, continuous-flow hood or air purifying, half-mask with organic and HEPA cartridges or filtering facepiece w/ use of spray booth.
Preparing glaze and clay from powdered material (SOTA)	Air-purifying, half-face piece w/ N, R, P, or HE filters or filtering facepiece.
Wood and/or Metal Shop (Facilities Management, SOTA, Theater)	Air-purifying, half-face piece w/ N, R, P, or HE filters or filtering facepiece
Asbestos Brake Work (Facilities Management)	Air-purifying, half-face piece w/ N, R, P, or HE filtering facepiece.

Type of Work or Potential Exposure	Respirator
Solvent vapors (Facilities Management)	Air-purifying, half-face piece w/ organic vapor cartridges or filtering facepiece w/ use of spray booth.
Welding & metal foundry (SOTA, Facilities Management, Stage Services)	Air-purifying, half-face piece w/ welding fume cartridge filters or filtering facepiece w/ ventilation system.
Crawl Space Work (TV Services)	Filtering Facepiece
Asbestos Surveying	Half mask with HEPA filters or filtering facepiece in ventilated areas.

## 8.0 Medical Evaluation

A physician or other licensed health care professional (PLHCP) must evaluate each employee who is permitted or required to use a respirator to ensure that they are physically fit to wear it. Medical evaluation is required to be completed on an annual basis. This does not apply to those who use filtering facepiece respirators voluntarily. The supervisor may schedule the evaluation through the Environmental Health & Safety Manager. The Environmental Health & Safety Manager, with the help of the supervisor, must provide the PLHCP with:

- The “WISHA Respirator Medical Evaluation Questionnaire”
- The type and weight of the respirator used by the employee
- The duration and frequency of respirator use
- The expected physical work effort
- Additional protective clothing and equipment to be worn
- Temperature and humidity extremes that may be encountered
- A copy of this written respiratory program
- A copy of WAC Chapters: 296-842 and 296-841 ( Respiratory Protection)

### 8.1 Employee Questionnaire

The employee must complete the Pacific Lutheran University adapted “WISHA Respirator Medical Evaluation Questionnaire” found in *Appendix B* and submit it directly to the PLHCP. The Environmental Health & Safety Manager may facilitate the confidential submission of the questionnaire from the employee to the PLHCP. A medical examination may still be required when advised by the PLHCP based on the questionnaire. The cost of the medical evaluation will be borne by the department for which the employee is employed. There will be no charge to the employee.

The medical evaluation and completion of the questionnaire will be administered during the employee’s normal working hours or at a time and place convenient to the employee.

### 8.2 PLHCP Recommendation

The PLHCP must submit a written recommendation using the “Health Care Provider Respirator Recommendation Form” found in *Appendix C*. The recommendation must include 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, and a statement that the PLHCP has provided the employee with a copy of the written recommendation. The recommendation will be forwarded to the employee’s supervisor and maintained by the Environmental Health & Safety Manager. The PLHCP shall also recommend the frequency of subsequent evaluations for each employee.

## 9.0 Fitting of Respirators

Proper fitting of negative or positive pressure tight-fitting respirators is essential, if employees are to receive the protection for which this program is designed. Air that passes around the face piece of the respirator, rather than through it, is not filtered air. In order to ensure a good face seal, the manufacturer's fitting instructions and the rules below must be followed.

### 9.1 Respirator Sealing Problems

- Tight-fitting respirators may not be worn when conditions prevent a seal of the respirator to the wearer.
- A person who has hair (stubble, mustache, sideburns, beard, low hairline, or bangs) that passes between the face and the sealing surface of the face piece of the respirator is not permitted to wear such a respirator.
- A person who has hair (mustache, beard) that interferes with the function of a respirator valve is not permitted to wear the respirator.
- The wearing of eyeglasses with temple bars or straps, a hat or other head covering, a goggle, a face shield, a welding helmet, or other device which interferes with the seal of a respirator to the wearer may not be used with the respirator.
- If scars, hollow temples, excessively protruding cheekbones, or any other condition or facial configuration prevent a seal of a respirator face piece to a wearer's face, then the person may not wear a respirator.

### 9.2 Employee Self-Check Fit Test

The employee must perform the following pressure fit check every time a tight-fitting respirator is worn. The employee is permitted to perform a fit check as recommended by the manufacturer of the respirator in different than this procedure.

First:

- Cover air inlets with palms of hands
- Gently breathe in so that face piece collapses slightly
- Hold breath for 10 seconds
- If the respirator remains slightly collapsed and no inward leaks are felt, the face piece probably fits tightly enough

Next:

- Cover the air outlet (Usually this requires removing the exhalation valve cover first).
- Exhale gently
- A small build-up of positive pressure, but no outward leaks, usually indicates a good fit.

### 9.3 First Time Fit Test

A more elaborate fit test will be conducted:

- On each new employee
- With each new type of respirator used
- When there are changes in the physical condition of the employee that could affect respirator fit, such as weight loss

The respirator must be tested using the WISHA-accepted qualitative or quantitative protocols. The employee's supervisor may arrange employee fit testing with the Environmental Health & Safety Manager.

If an employee passes a fit test and subsequently notifies the supervisor that the fit is unacceptable, the employee must be permitted to select a different respirator facepiece and be re-tested.

#### **9.4 Annual Medical Evaluation and Respirator Re-testing**

Employee medical evaluation is required to be completed on an annual basis.

Annual re-testing of required respirators will be conducted to verify the condition of respirators and quality of seal. Defective equipment or parts will be replaced. Voluntary users may make use of this service during the re-testing period, if they wish.

#### **9.5 Fit Test Recordkeeping**

The results of the fit test shall be documented. The documentation includes:

- The name or identification of the employee tested
- Type of fit test performed
- Specific make, model, size, and style of the respirator tested
- The pass or fail results for the qualitative fit-test or the test results from quantitative fit-test
- Date of the test

The Environmental Health & Safety Manager will maintain a copy of the record.

### **10.0 Maintenance & Repair of Respirators**

Respirators must be cleaned frequently enough to be maintained in a sanitary condition and placed in a plastic bag or stored in another container provided for this purpose (zip-lock bags or clean coffee can). DO NOT leave them in the work area or hung on a nail. Respirators that are shared by employees must be cleaned and disinfected before being worn by another person.

Respirators should be completely cleaned and disinfected by carrying out the following procedures.

#### **10.1 Cartridges**

Remove the cartridge from the respirator body. Cartridges must never be washed or disinfected. Also, remove speaking diaphragms, hose and valve assemblies or other parts recommended by the manufacturer.

#### **10.2 Body**

Immerse the respirator body in a warm soap and water solution. The respirator face piece and parts may be scrubbed gently with a cloth or soft brush. Make sure that all foreign matter is removed from all surfaces of the rubber exhalation valve flap and plastic exhalation valve seats.

When the soap used in the first step does not contain a disinfectant, the respirator parts must be disinfected with a commercial solution. Alcohol solutions are NOT recommended by WISHA because they are known to degrade the plastic.

After washing and disinfecting the respirator, rinse it with warm water and then allow it to air-dry. Do not store the respirator with wet straps. Mildew will result. The face piece, inhalation, and exhalation valves must be in a normal position during storage to prevent the abnormal “set” of the elastomer parts.

After the respirator is dry, reassemble the facepiece.

Test the respirator to ensure that all the components work properly.

### **10.3 Repair**

When a respirator is found to have faulty or damaged parts, the respirator must be removed from service. Repairs or adjustments to the respirator must be performed by persons who are trained to do so. ONLY NIOSH-approved parts designed for the specific respirator may be used and repairs must be made according to the manufacturer's instructions. ONLY the manufacturer or a technician trained by the manufacturer may repair, replace, or adjust reducing and admission valves, regulators, and alarms.

## **11.0 Inspections**

Each person required to use a respirator must maintain and routinely inspect it before and after each use. Employees should also conduct monthly inspections to assure that they are clean and in satisfactory working condition. The respirator inspection will include:

- Check of respirator function
- Tightness of connections
- Condition of face piece
- Condition of head bands
- Condition of valves
- Condition of connecting tube
- Condition of cartridges, canisters, or filters
- Check of rubber or elastomer parts for pliability and deterioration

*NOTE: Stretching and manipulating rubber or elastomer parts with a massaging action will keep them pliable and flexible and prevent them from setting during storage.*

### **11.1 Damaged Equipment**

When a respirator is found to be damaged or worn, the employee shall tag and removed it from service. Any malfunction or damage of the respirator shall be immediately reported to the supervisor, who will supply replacement parts or send it to the manufacturer's representative for repair. If it is not possible to repair the respirator, it must be discarded and replaced.

### **11.2 Cartridge Replacement Schedule**

The useful life of respirators, filters, and cartridges will vary depending on the job duties and the actual time in use. As a general rule, dust or particle cartridges should be changed according to the manufacturer's recommendation or when filter resistance makes breathing difficult.

Organic vapor cartridges shall be changed after each use, regardless of the length of time it is worn. If the employee detects vapor or gas breakthrough or changes in breathing resistance before the prescribed change out schedule, the employee must leave the work area and replace the cartridge.

End-of-Service-Life-Indicators (ESLI) must be used whenever available for the contaminant of concern. When an ESLI is not available for a particular contaminant cartridge, a change-out schedule must be pre-determined based on objective data.



## **12.0 Breathing Air Quality**

Please refer to WAC 296-842-20005 for atmosphere-supplying respirator breathing gas requirements. Generally, breathing gas must meet the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.

Compressors must be constructed, maintained, and placed in a location that will ensure that carbon monoxide exhaust and other atmospheric contaminants are not permitted to enter the air supply system. The breathing air must not exceed 10 ppm of carbon monoxide. Oil-lubricated compressors must have a high-temperature or carbon monoxide alarm.

Compressors must have a tag indicating the most recent filter change date. The designated “competent person” authorized by the supervisor to perform the change must also sign the tag. Breathing air couplings must not be compatible with outlets for non-respirable worksite air or other gas systems.

## **13.0 Training of Employees**

Employees that are required to use respirators, supervisors of employees who are required to wear respirators, and any person issuing respirators will be trained in the use and maintenance of respirators before performing functions related to respirator use.

Employees will also be trained by their supervisor to understand the respiratory hazards that require them to use a respirator before being permitted to use hazardous materials or work in hazardous conditions. All safety training will be provided at no cost to the employee.

Training must enable employees to demonstrate:

- Why the respirator is needed and how improper fit, use, or maintenance may compromise the protection level of the respirator
- Capabilities and limitations of the respirator
- How to use the respirator 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
- Procedures for maintaining and storing the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- The nature, extent, and effects of respiratory hazards to which the person may be exposed.
- General requirements of Chapter 296-842

### **13.1 Retraining**

Affected employees shall be retrained as necessary to assure effective respirator use. Refresher training shall be given at least annually.

### **13.2 Records and Documentation of Training**

Training records shall be forwarded to and maintained by the Environmental Health & Safety Manager. Employees must understand and be able to apply the information in this respirator program including the daily use, care, and safekeeping of respirators.

## **14.0 Respirator Program Evaluation**

The Environmental Health & Safety Manager and each supervisor will monitor the effectiveness of this program by:

- Evaluating the workplace to ensure that the requirements of this written program are being effectively applied
- Frequent unscheduled observation of employees to confirm proper respirator use throughout the university
- Discussion with affected employees on the effectiveness of the program, including:
  - Respirator fit
  - Appropriate respirator selection for the hazards to which the employee is exposed
  - Proper respirator use under workplace conditions that employees encounter
  - Proper respirator maintenance

The university's PHLCP may also recommend further surveillance to ensure that employees who are using respirators are being adequately protected.

The program will be updated as necessary to reflect changes in workplace conditions that may affect respirator use.

### 15.0 Summary of Requirements for Different Users

Use	Medical Evaluation.	Fit Test Tight-Fitting Face Pieces	Training
Contaminant over PEL (Required by Regulation)	Yes	Yes	Yes
PLU required	Yes	Yes	Yes
Volunteer	Yes (Not Required for Filtering Facepieces)	No	Read and Sign Advisory Information for Employees

## Appendix A. Advisory Information for Voluntary Users

### Advisory Information for Employees Who Voluntarily Use Respirators

- Respirators protect against airborne hazards when properly selected and used. The Washington Industrial Safety & Health Act (WISHA) office recommends voluntary use of respirators when exposure to substances is below WISHA permissible exposure limits (PELs) because respirators can provide you an additional level of comfort and protection.
- If you choose to use a respirator be aware that respirators can create hazards for you, the user. You can avoid these hazards if you know how to use your respirator properly and how to keep it clean. Take these steps:
  - Read and follow all instructions provided by the manufacturer about use, maintenance (cleaning and care), and warnings regarding the respirator's limitations.
  - Choose respirators that have been certified for use to protect against the substance of concern. The National Institute for Occupational Safety and Health (NIOSH) certifies respirators. If a respirator isn't certified by NIOSH, you have no guarantee that it meets minimum design and performance standards for workplace use.
    - A NIOSH approval label will appear on or in the respirator packaging. It will tell you what protection the respirator provides.
  - Keep track of your respirator so you don't mistakenly use someone else's.
  - Do not wear your respirator into:
    - Atmospheres containing hazards that your respirator isn't designed to protect against. For example, a respirator designed to filter dust particles won't protect you against solvent vapor, smoke, or oxygen deficiency.
    - Situations where PELs and oxygen deficient atmospheres require the use of respirators. Do not enter these environments.
- A respirator will not protect effectively if you have facial hair or if the respirator does not fit properly to form a seal.
- If you have any questions regarding the voluntary use of respirators, please speak with your supervisor or contact the Environmental Health & Safety Manager at x7233.

I have read, understand, and have been instructed in respirator use. I am responsible to use and wear a respirator correctly. PLU, therefore, is not responsible for unauthorized or improper usage.

Name (Print) \_\_\_\_\_ PLU ID# \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

## Appendix B. Medical Evaluation Questionnaire

### Part 1. Employee Background Information

1. Today's Date: \_\_\_\_\_
2. Your Name: \_\_\_\_\_
3. Your Age (to nearest year): \_\_\_\_\_
4. Sex (circle one): Male Female
5. Your Height: \_\_\_\_\_ ft. \_\_\_\_\_ in.
6. Your Weight: \_\_\_\_\_ lbs
7. Your Job Title: \_\_\_\_\_
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include area code): \_\_\_\_\_
9. The best time to call you at this number: \_\_\_\_\_
10. Has your employer told you how to contact the health care professional who will review this questionnaire? \_\_\_\_\_

11. Check the type of respirator that you will be using:

\_\_\_\_\_ N, R, or P filtering facepiece respirator (for example, a dust mask, OR an N95 filtering facepiece respirator).

Check all that apply:

- |   |  |                   |                       |
|---|--|-------------------|-----------------------|
| _____ Half mask                         | _____ Full facepiece mask                                    | _____ Helmet hood | _____ Escape          |
| _____ Non-powered cartridge or canister | _____ Powered air purifying cartridge respirator (PAPR)      |                   |                       |
| _____ Supplied-air or Air-line          | _____ Self-contained breathing apparatus (SCBA) (circle one) | _____ Demand      | _____ Pressure Demand |
| _____ Other:                            |  |                   |                       |

12. Have you previously worn a respirator? \_\_\_\_\_

If yes, describe what type(s): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Part 2. General Health Information

All employees must complete this part. Circle yes or no.

1. Do you *currently* smoke tobacco, or have you smoked tobacco in the last month? Yes / No
2. Have you *ever had* any of the following conditions?

Seizures (fits):	Yes / No
Diabetes (sugar disease):	Yes / No
Allergic reactions that interfere with your breathing:	Yes / No
Claustrophobia (fear of closed-in places):	Yes / No
Trouble smelling odors:	Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all "Yes" answers.

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3. Have you *ever had* any of the following pulmonary or lung problems?

Asbestosis:	Yes / No
Asthma:	Yes / No
Chronic bronchitis:	Yes / No
Emphysema:	Yes / No
Pneumonia:	Yes / No
Tuberculosis:	Yes / No
Silicosis:	Yes / No
Pneumothorax (collapsed lung):	Yes / No
Lung Cancer:	Yes / No
Broken Ribs:	Yes / No
Any chest injuries or surgeries:	Yes / No
Any other lung problem that you've been told about:	Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all "Yes" answers.

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4. Do you *currently* have any of the following symptoms of pulmonary or lung illness?

Shortness of breath:	Yes / No
Shortness of breath when walking fast on level ground or walking up a slight hill or incline:	Yes /
No	
Shortness of breath when walking with other people at an ordinary pace on level ground:	Yes /
No	
Have to stop for breath when walking at your own pace on level ground:	Yes / No
Shortness of breath when washing or dressing yourself:	Yes / No
Shortness of breath that interferes with your job:	Yes / No
Coughing that produces phlegm (thick sputum):	Yes / No
Coughing that wakes you early in the morning:	Yes / No
Coughing that occurs mostly when you are lying down:	Yes / No
Coughing up blood in the last month:	Yes / No
Wheezing:	Yes / No

Wheezing that interferes with your job: Yes / No  
Chest pain when you breathe deeply: Yes / No  
Any other symptoms that you think may be related to lung problems: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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5. Have you *ever had* any of the following cardiovascular or heart problems?

Heart attack: Yes / No  
Stroke: Yes / No  
Angina: Yes / No  
Heart failure: Yes / No  
Swelling in your legs or feet (not caused by walking): Yes / No  
Heart arrhythmia: Yes / No  
High blood pressure: Yes / No  
Any other heart problem that you’ve been told about: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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6. Have you *ever had* any of the following cardiovascular or heart symptoms?

Frequent pain or tightness in your chest: Yes / No  
Pain or tightness in your chest during physical activity: Yes / No  
Pain or tightness in your chest that interferes with your job: Yes / No  
In the past two years, have you noticed your heart skipping or missing a beat: Yes / No  
Heartburn or indigestion that is not related to eating: Yes / No  
Any other symptoms that you think may be related to heart or circulation problems: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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7. Do you *currently* take medication for any of the following problems?

Breathing or lung problems: Yes / No  
Heart trouble: Yes / No  
Blood pressure: Yes / No  
Seizures (fits): Yes / No

Please explain the circumstances, dates, and length of time used for all “Yes” answers.

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8. If you've used a respirator, have you *ever had* any of the following problems? (If you've never used a respirator, check the following space and go to question 9.)

- |   |          |
|---|----------|
| Eye irritation:   | Yes / No |
| Skin allergies or rashes:   | Yes / No |
| Anxiety:  | Yes / No |
| General weakness or fatigue:                                      | Yes / No |
| Any other problems that interferes with your use of a respirator: | Yes / No |

Please explain the circumstances, dates, length of time used, and if fully recovered for all "Yes" answers.

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9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire and/or medical issues associated with wearing a respirator?  
Yes / No

10. Would you like to schedule a phone appointment with the health care professional?  
Yes / No

11. Do you have any other medical comments or concerns about wearing a respirator?

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**Part 3. Additional questions for full facepiece respirators or SCBAs.**

1. Have you *ever lost* vision in either eye (temporarily or permanently): Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for “Yes” answer.

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2. Do you *currently* have any of the following vision problems?
- |                                  |          |
|----------------------------------|----------|
| Wear contact lenses:             | Yes / No |
| Wear glasses:                    | Yes / No |
| Color blind:                     | Yes / No |
| Any other eye or vision problem: | Yes / No |

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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3. Have you *ever had* an injury to your ears, including a broken ear drum: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for “Yes” answer.

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4. Do you *currently* have any of the following hearing problems?
- |                                   |          |
|-----------------------------------|----------|
| Difficulty hearing:               | Yes / No |
| Wear a hearing aid:               | Yes / No |
| Any other hearing or ear problem: | Yes / No |

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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5. Have you *ever had* a back injury: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for “Yes” answer.

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6. Do you *currently* have any of the following musculoskeletal problems?
- |   |          |
|---|----------|
| Weakness in any of your arms, hands, legs, or feet:               | Yes / No |
| Back pain:  | Yes / No |
| Difficulty fully moving your arms and legs:                       | Yes / No |
| Pain or stiffness when you lean forward or backward at the waist: | Yes / No |
| Difficulty fully moving head up or down:                          | Yes / No |
| Difficulty fully moving your head side to side:                   | Yes / No |
| Difficulty bending at your knees:                                 | Yes / No |



- Difficulty squatting to the ground: Yes / No
- Climbing a flight of stairs or a ladder carrying more than 25 pounds: Yes / No
- Any other muscle or skeletal problem that interferes with using a respirator: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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7. Do you *currently* have any of the following hearing problems?
- Difficulty hearing: Yes / No
  - Wear a hearing aid: Yes / No
  - Any other hearing or ear problem: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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8. Have you *ever had* a back injury: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for “Yes” answer.

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9. Do you *currently* have any of the following musculoskeletal problems?
- Weakness in any of your arms, hands, legs, or feet: Yes / No
  - Back pain: Yes / No
  - Difficulty fully moving your arms and legs: Yes / No
  - Pain or stiffness when you lean forward or backward at the waist: Yes / No
  - Difficulty fully moving head up or down: Yes / No
  - Difficulty fully moving your head side to side: Yes / No
  - Difficulty bending at your knees: Yes / No
  - Difficulty squatting to the ground: Yes / No
  - Climbing a flight of stairs or a ladder carrying more than 25 pounds: Yes / No
  - Any other muscle or skeletal problem that interferes with using a respirator: Yes / No

Please explain the circumstances, dates, length of time affected, and if fully recovered for all “Yes” answers.

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## Appendix C. Health Care Provider Respirator Recommendation Form

Name of Employee: \_\_\_\_\_ Date: \_\_\_\_\_

Employer: Pacific Lutheran University Job Title: \_\_\_\_\_

- This person is medically fit to wear any respirator or SCBA
- This person is fit to wear any type of respirator without restriction, except SCBA that may be used for egress only.
- This person is fit to wear only positive pressure respirators.
- Corrective lenses required for full-face respirator.
- This person is not fit to wear a respirator.
- Other limitations for use (please list):

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Respirator clearance expires on:

\_\_\_\_\_ (date)  
(The clearance expiration date means that the medical evaluation must be done again.)

I have provided a copy of this recommendation to the employee.

Provider signature:

\_\_\_\_\_ Date: \_\_\_\_\_