

Section 11: RESPIRATORY PROTECTION PROGRAM

INTRODUCTION

This program details the basic requirements and procedures for respiratory protection of King County employees. These requirements apply to employees who work in areas with hazardous levels of airborne dusts, mists, vapors, gases, or fumes, or oxygen deficient atmospheres, when the hazard cannot be eliminated or reduced to safe levels.

King County Safety and Claims Management (206-477-3350) supervises respirator program development and implementation, and can assist your department with meeting the program requirements.

Each department that has operations involving respiratory hazards will appoint a Respirator Program Administrator. The administrator for the

_____ Department/Division is
_____.

RESPONSIBILITIES

Safety and Claims Management will support departments by:

- Providing technical support to managers and supervisors in conducting respiratory hazard evaluations, including air monitoring
- Assisting departments in conducting training on the care and use of respirators for supervisors and employees
- Assisting departments in performing fit tests, upon request
- Assisting departments in obtaining medical evaluations for employees who use respirators, and for employees accidentally exposed to hazardous levels of airborne contaminants, as appropriate
- Updating this Respiratory Protection Program as necessary

Department Respirator Program Administrators, with the support of department managers and supervisors, are responsible for:

- Contacting Safety and Claims Management to evaluate tasks that may require respiratory protection
- Restricting the use of respirators to employees who have received initial and periodic (as determined by health care professional) medical clearance (except for voluntary use of dust masks or other filtering face pieces)
- Ensuring that employees receive initial and annual fit tests and training for the use of respirators required for their jobs
- Monitoring and ensuring that their employees properly use required respiratory protection
- Ensuring proper sanitation and maintenance of respirators
- Documenting monthly visual inspections of Self Contained Breathing

- Apparatus (SCBA) units, and ensuring annual service inspection by an authorized service representative
- Ensuring that respiratory protective equipment purchased for use by King County employees has been certified by the National Institute for Occupational Safety and Health (NIOSH)
 - Ensuring that this written Respiratory Protection Program is tailored to the needs of department employees, as necessary
 - Revising and updating the hazard evaluation as needed (i.e., any time work process changes may affect employee exposure)

Employees are responsible for:

- Using required respirators in compliance with this program
- Notifying management of respirator malfunction or job circumstances where respiratory protection use might need to be reviewed
- Ensuring the care and maintenance of their assigned respiratory equipment
- Notifying management if their medical status changes and requires an updated medical evaluation for the use of respirators

VOLUNTARY USE OF RESPIRATORS

Departments may choose to provide respirators for use in areas where respiratory hazard exposures are below the Washington State Department of Labor and Industries Permissible Exposure Limits (PELs). This is referred to as voluntary use.

Voluntary use of any respirator requires that employees receive the information contained in Attachment 1. This information must be posted or distributed in workplaces where there is voluntary respirator use. No additional requirements apply to the voluntary use of filtering face piece (dust mask) type respirators. Voluntary use of other types of respirators (e.g., cartridge respirators) must comply with the medical evaluation, cleaning, disinfecting and proper storage requirements. The requirements for breathing air must be met for use of air-supplying respirators.

Effective training must be given to ensure that voluntary respirator use does not create a hazard. A department-specific written program addressing these requirements must be developed. Fit testing is not required for voluntary use respirators.

TRAINING

Respirator users and their direct supervisors must be trained in selecting the proper type of respirator for each task requiring respiratory protection. Training must take place before any initial use of respirators, any change in respirator type or procedures, and annually thereafter. Safety and Claims Management will

assist departments in providing training classes. Each user and direct supervisor must be able to demonstrate competency of the following:

1. Why the respirator is necessary. Include information identifying respiratory hazards such as hazardous chemicals, the extent of the employee's exposure and potential health effects and symptoms.
2. The respirator's capabilities and limitations. Include how the respirator provides protection and why air-purifying respirators can't be used in oxygen-deficient conditions.
3. How improper fit, use, or maintenance can compromise the respirator's effectiveness and reliability.
4. How to inspect, put on, seal check, use and remove the respirator.
5. How to clean, disinfect, repair and store the respirator.
6. How to use the respirator effectively in emergency situations, including what to do when a respirator fails.
7. Medical signs and symptoms that may limit or prevent the effective use of respirators, such as shortness of breath or dizziness.
8. The employer's general regulatory obligations: develop a written program, select appropriate respirators and provide medical evaluations.

HAZARD EVALUATION AND RESPIRATOR SELECTION

Safety and Claims Management will assist departments in conducting respiratory hazard evaluations. The evaluations consist of the following steps:

1. Identify tasks and operations that involve potentially-significant exposure to respiratory hazards
2. Evaluate physical, chemical and biological characteristics of the hazard
3. Assess the extent of exposure, based on professional judgment and quantitative methods (air sampling)

If the exposure assessment determines that a respiratory hazard exists, control measures to reduce the exposure will be considered. If control measures are not feasible or cannot be immediately installed, respiratory protection is selected.

The type of respirator selected is based on a thorough review of the hazard, task characteristics, and efficacy of the respirator in controlling the hazard. The

assigned protection factor for respirators required by WAC 296-842-13005 shall be used for selection.

If a chemical cartridge respirator is selected, the cartridge must either have an end-of-service life indicator or the replacement frequency must be specified. The change schedule will be determined based on a review of data on the breakthrough time of the contaminant. Such data are deemed reliable if provided by the manufacturer, published in a peer-reviewed journal or by established research agencies, such as NIOSH.

The findings of the respiratory hazard assessment must be conveyed and readily-accessible to employees. Attachment 2 contains the current King County respiratory hazard assessment table.

Each department's Respirator Program Administrator is responsible for revising and updating the hazard evaluation as needed (i.e., any time work process changes may affect employee exposure). If an employee feels that respiratory protection is needed during a particular activity, s/he is to contact the supervisor, who will contact the Respirator Program Administrator. The Respirator Program Administrator will evaluate the potential hazard and will then communicate the results of that assessment back to the affected employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks and this program will be updated accordingly. Safety and Claims Management will provide technical assistance to each Respirator Program Administrator.

MEDICAL EVALUATION

An initial medical evaluation is required to determine if employees have any physical condition that may limit or restrict the use of respiratory protection equipment.

Employees who are or may be required to wear respirators (voluntary use of dust masks is exempt) must complete an initial medical questionnaire administered by a physician or licensed health care provider (PLHCP). The questionnaire must contain all information listed in WAC 296-842-22005, along with any additional questions recommended by the PLHCP. Questionnaires must be administered confidentially during normal work hours. Department supervisors and managers are not permitted to review the completed forms.

Based on questionnaire responses, the PLHCP will determine if a follow-up medical evaluation is required for each employee. The protocol for the follow-up examination is designed by the PLHCP.

The PLHCP must provide a written recommendation to the department containing only the following information:

- Any limitations on respirator use
- Need for follow-up medical evaluation(s)
- A statement that the PLHCP has provided the employee with a copy of the recommendation

Medical re-evaluations are required under any of the following conditions:

- The employee reports medical signs or symptoms related to respirator use
- The PLHCP recommends a re-evaluation
- Observations of the employee or workplace indicate the need for re-evaluation
- A change occurs in workplace conditions, including changes in physical work effort or environmental conditions

The department management will provide the PLHCP the following information:

- Type and weight of the respirator to be used by the employee
- Duration and frequency of use
- Physical work effort
- Additional personal protective equipment to be worn
- Temperature and humidity extremes
- A copy of this written program and the DOSH regulations (WAC 296-842-22005)

Safety and Claims Management will coordinate medical questionnaire procedures with each department for existing and new employees.

RESPIRATOR FIT TESTS

Each department will arrange for respirator fit tests for employees who are required to use tight-fitting respirators (all respirators except for hooded powered air purifying respirators). Contact Safety and Claims Management at 206-477-3350 for assistance.

Fit testing must occur prior to initial use and annually thereafter. In addition, testing is required whenever a different respirator face piece is used or whenever there are changes in the employee's facial characteristics.

The fit test must be administered using an L&I -accepted quantitative or qualitative protocol (WAC 296-842-22010). Qualitative fit testing of negative pressure respirators is acceptable only if exposures are less than 10 times the Permissible Exposure Limit. Safety and Claims Management uses the Bitrex qualitative fit protocol. The employee and supervisor will be provided with fit test results.

Fit test records will be maintained by each department, and shall include the following information:

- Type of respirator fit test used
- Manufacturer, model and size of respirator tested
- Name of person tested, test operator, and date of test

PROCUREMENT

Based on the findings of the respiratory hazard assessment described above, supervisors and managers will procure adequate quantities and sizes of NIOSH-certified respirators.

NOTE: Bid Specifications and purchase orders must contain a statement such as "Only respiratory equipment certified by NIOSH is acceptable."

Supervisors will provide employees with the brand and model of respirator for which they have been fitted, will instruct employees regarding the specific tasks where they are to be used, and, if applicable, the cartridge replacement frequency.

Breathing air provided for supplied air respirators (SARs) must meet the requirements for Grade D breathing air (American National Standards Institute ANSI G-7.1.1989). This specification requires oxygen within 19.5-23.5% (volume/volume), Hydrocarbon (condensed) at no more than 10 parts per million (ppm), carbon monoxide at no more than 10 ppm, carbon dioxide at no more than 1000 ppm and no noticeable odor along with specific moisture content requirements. The supplier must provide a certificate of analysis.

If breathing air is supplied by in-house air supply apparatus, such as a compressed air system, then a written protocol must be developed and implemented that specifies all of the requirements listed in WAC 296-842-20015.

RESPIRATOR USE

No person may use a respirator or undergo fit testing if any of the following could affect the functioning of the respirator:

- Hair (stubble, mustache, sideburns, beard, low hairline, bangs) which passes between the face and the sealing surface of the face piece of the respirator; or a mustache or beard which interferes with the functioning of the respirator's valves.
- A head covering which passes between the sealing surface of the respirator face piece and the wearer's face.
- Eyeglasses, goggles, face shield, welding helmet or other eye and face protective device that interferes with the seal of the respirator.
- Facial deformities or the lack of teeth or dentures that could prevent a respirator from sealing properly.

Emergency use respirators will be used only under the following conditions:

- Written procedures will be developed at any location where respirators may be used for emergency and/or rescue purposes. Employees will be trained in these procedures, with emphasis on emergency rescue and limitations of the respiratory protection.
- All feasible controls will be implemented before allowing county employees to enter any atmosphere that is immediately dangerous to life or health (IDLH) due to a respiratory hazard. If the hazard cannot be adequately controlled, the worker will wear a SCBA or a positive pressure, supplied air respirator with escape bottle.
- An adequate number of standby employees trained in the proper procedures and equipped with the same level of protection must be stationed outside any potential IDLH atmosphere where employees must enter. Constant communication (visual, voice, or signal line) must be maintained between the standby persons and the employee entering the IDLH area.
- Other appropriate rescue and first aid equipment must also be readily available for immediate use. If feasible, the local fire department should be requested to provide standby rescue services.

RESPIRATOR INSPECTION AND CARE

Inspection

Each employee who wears a respirator must inspect the device before and after each use. Routine respirator inspection must include a check of the tightness of connections and the condition of the face piece, headbands, valves, airlines, canisters, and cartridges. Rubber or elastomeric parts must be inspected for pliability and signs of deterioration.

Any malfunction of the respirator shall be reported to the immediate supervisor, who will supply replacement parts. Respirators in need of parts and/or repair beyond the users' capability to correct must be red tagged and removed from the work area until they can be repaired.

A respirator that is used only for emergency situations must be inspected after each use and at least monthly to ensure it is in satisfactory working condition. Air cylinders must be maintained fully charged according to manufacturer's instructions. The inspection must also include regulator and warning device operability.

Supplied air and SCBA respirator systems must also be inspected annually by an authorized service representative.

SCBA cylinders must be tested every three years and maintained as prescribed in Shipping and Container Specification Regulations of the Department of Transportation (49 CFR 173 and 178).

A record will be kept at the storage site with or near the SCBA respirator system indicating the dates and findings of respirator inspections.

Cleaning and Disinfecting

Respirators issued for the exclusive use of one worker should be cleaned after each day's use or more often if necessary; respirators used by more than one worker must be cleaned and disinfected after each use.

Supplied air respirators used in regulated areas must be cleaned according to the manufacturer's instructions.

Respirators that are shared among employees shall be completely cleaned and disinfected after each use by carrying out the following procedures:

1. Remove and set aside the filters or cartridges from the respirator. Disassemble valves and head strap.
2. Immerse the respirator and parts (other than the cartridges/filter) in a warm (140 degrees F) aqueous solution of a germicidal detergent (available from the respirator supplier). 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.
3. After washing and disinfecting the respirator, rinse it with clean, warm (140 degrees F) water and then allow it to dry.
4. After the respirator is dry, attach the air-purifying cartridges, replacing cartridges if necessary.

NOTE: If a respirator is contaminated with organophosphate pesticides, it should be washed with alkaline soap and rinsed with 50% ethanol or isopropyl alcohol.

Repair

Minor part replacement (such as valves, cartridges, and canisters) can be made to negative pressure respirators following manufacturer's instructions. Only authorized manufacturer representatives will do complicated repairs and all work on SCBAs.

All parts, cartridges and canisters must be from the same manufacturer as the respirator.

Storage

After inspection, cleaning, and maintenance respirators must be stored in a plastic bags or containers to protect against dust, sunlight, heat, extreme cold, excessive moisture or damaging chemicals. Respirators should not be put into

lockers or toolboxes without a storage container.

Respirators, cartridges or canisters must not be stored where chemicals may contaminate them.

Emergency respirators must be stored in special storage compartments, clearly marked and accessible at all times.

RESPIRATOR PROGRAM EVALUATION

Safety and Claims Management and each department's Respirator Program Administrator shall monitor the effectiveness of this program by:

- Conducting periodic unscheduled observation of employee activities at all work places to confirm proper respirator use
- Discussing respirator use with employees to confirm that training has been effective
- Conducting annual review and updating to maintain an effective Respirator Program

DOCUMENTATION AND RECORDKEEPING

To ensure the availability of this respirator program at all times, copies shall be distributed as follows:

- Master copy - Safety and Claims Management office.
- Electronic version – Public Folders
- Hard copies – Accident Prevention Program books, and supervisors and respirator users without web access.

Records of respirator fit tests shall be kept by each department until the next fit test is administered.

Safety and Claims Management will maintain records of any hazardous exposure and medical evaluations for the duration of employment, plus 30 years.

Attachment 1

IMPORTANT INFORMATION ABOUT VOLUNTARY USE OF RESPIRATORS

Respirators protect against airborne contaminants when properly selected and used. Respirator usage that is required by WA DOSH or your employer is not voluntary use. With required use, your employer will need to provide further training and meet additional requirements in the respiratory protection regulation. WA DOSH recommends voluntary use of respirators when exposure to substances is below WA DOSH permissible exposure limits (PELs), because respirators can provide you an additional level of comfort and protection.

If you choose to voluntarily use a respirator (whether it is provided by you or your employer), 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.

You should do the following:

1. Read and follow all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding respirator limitations.
2. Choose respirators certified 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. If a respirator isn't certified by NIOSH, you have no guarantee that it meets minimum design and performance standards for workplace use.
3. A NIOSH approval label will appear on or in the respirator packaging. It will tell you what protection the respirator provides.
4. Do not wear your respirator into required use situations when you are only allowed voluntary use. Do not wear your respirator into atmospheres containing contaminants your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against solvents or smoke (since smoke particles are much smaller than dust particles).
5. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Attachment 2

KING COUNTY RESPIRATOR USE^(a)

DEPT/ DIVISION	OCCUPATIONS	TASK/HAZARD DESCRIPTION	RESP TYPES^(b)	USER COMMENTS
DAJD	CORRECTIONS OFFICER	TB PATIENT EXPOSURE	DM N95; PAPR	RESPIRATOR WORN IF TRANSPORTING SUSPECTED TB PATIENT
DAJD	CORRECTIONS OFFICER	CORRECTIONS EMERGENCY RESPONSE TEAM (CERT)	GM	RIOT CONTROL
DAJD	CORRECTIONS OFFICER	FIRE IN CORRECTIONAL FACILITY	SCBA	ASSIST FIREFIGHTERS IN CASE OF FACILITY FIRE
FMD	CARPENTER	DRYWALL SANDING NUSIANCE DUST	DM N95	USE WHEN SANDING WITHOUT VACUUM ATTACHMENT
FMD	HAZMAT TECH/SUPERVISOR	MANUAL DEMO- LEAD PAINT ON DRYWALL, ETC.	HF APR; N100	
FMD	MAINT. SPEC. / WORKER; PLUMBER, ELECTRICIAN, STEAMFITTER, CARPENTER	SUSPENDED CEILING WORK (ASBESTOS) ADMIN BLDG	HOOD PAPR; N100; HF APR N100	
FMD	ASBESTOS MGT PLANNER/SURVEYO R/ COORD	ASBESTOS SURVEYS/ OVERSIGHT	HF APR; N100	MAY WEAR OTHER TYPES OF RESPIRATORS
FMD	HAZMAT TECH/SUPERVISOR	ASBESTOS ABATEMENT: SURFACE INSUL.	SA	
FMD	HAZMAT TECH/SUPERVISOR	ASBESTOS ABATEMENT: FLOOR TILE	HF APR; N100	
FMD	HAZMAT TECH/SUPERVISOR	ASBESTOS ABATEMENT: FULL ENCLOSURE	FF APR; N100 SA	
FMD	HAZMAT TECH/SUPERVISOR	ASBESTOS ABATEMENT: GLOVE BAG	FF PAPR; N100	

DEPT/ DIVISION	OCCUPATIONS	TASK/HAZARD DESCRIPTION	RESP TYPES^(b)	USER COMMENTS
FMD, ROADS	PAINTER	PAINTING : PREP- SCRAPING/ SANDING PAINTED SURFACE/ORGANIC VAPORS	HF APR; R100; OV	
FMD, ROADS	WELDER	WELDING- UNPAINTED SURFACE, OPEN AREA/WELDING FUME	HF APR; N100	USE IF NO FORCED VENTILATION AVAILABLE.
FMD, ROADS	WELDER	GRINDING/ WELDING/ TORCHING- PAINTED SURFACE/ LEAD	HF APR, N100	INDOORS – MUST VENTILATE; OUTDOORS – MUST USE RESPIRATOR
FMD, ROADS	CARPENTER, PLUMBER, UTILITY	CONCRETE DEMO, SAWING, DRILLING/ SILICA	HF APR; N100	USE IF TASK IS OVER 15 MIN.
FMD, ROADS, PARKS	PAINTER; SIGN PAINTER	SPRAYING OIL: NO FORCED VENTILATION/ ORGANIC VAPORS	HF APR; OV/R100	USE IF TASK IS OVER 30 MIN. CHANGE CARTRIDGE- 8 HRS
DOT ROADS	BRIDGE MAINT. UNIT: CARPENTER; OPERATOR; UTILITY	BRIDGE PAINT MAINTENANCE/ LEAD	HF APR; R100	
DOT ROADS	PAINTER	SPRAYING OIL: WALK-IN BOOTH/ ORGANIC VAPORS	HF APR; R100/OV	USE IF PAINTING OVER 30 MIN; CHANGE CARTRIDGE- 8 HRS
FMD, ROADS, PARKS	SPRAY TECH; LANDSCAPE GARDENER	PESTICIDE/HERBICID E APPLICATION	HF APR; P	
PUBLIC HEALTH	CHIEF MEDICAL EXAMINER; MEDICAL EXAMINER; AUTOPSY TECHNICIANS	AUTOPSY/ FORENSICS/ (TB/BBP)	DM N95 / LOOSE FIT PAPR; N100	USE DURING AUTOPSY
PUBLIC HEALTH	JAIL-LPN/PUB HEALTH NURSE/RN; REQUIRED AT JAIL; TB CLINIC; PARAMEDICS	TB AND OTHER AIRBORNE DISEASE PATIENT EXPOSURE	DM N95	RESPIRATOR WORN IF EXPOSED TO SUSPECT PATIENT

DEPT/ DIVISION	OCCUPATIONS	TASK/HAZARD DESCRIPTION	RESP TYPES^(b)	USER COMMENTS
PARKS	POOL MGR; POOL FACILITY OPERATOR	EMERGENCIES: CHLORINE GAS	FF GM; CL	CHANGE CANISTER AFTER EACH USE AND EXP. DATE
PARKS	POOL FACILITY OPERATOR	ACID WASHING POOL SCALE	HF APR; AG	CHANGE CANISTER AFTER 8-HRS
SHERIFF'S OFFICE	SHERIFF'S DEPUTY; CORPORAL; SERGEANT	TEAR GAS USE	FF GM; OV	CHANGE CANISTER AFTER EACH USE AND EXP. DATE

^(a) Includes mandatory use of any type of respirator/voluntary use of non-dust mask type respirators

^(b) Key to Respirator Types:

- APR = Air purifying respirator
- DM = Dust mask
- PAPR = Powered air purifying respirator
- HF = Half face
- FF = Full face
- N100 = High efficiency particulate filter; (P100 and R100 also acceptable)
- R100 = High efficiency particulate filter; oil resistant
- N95 = Dust mask or cartridge (P95 and R95 also acceptable)
- OV = Organic vapor cartridge or canister
- AG = Acid gas cartridge
- P = Pesticide cartridge
- SCBA = Self-contained breathing apparatus
- SA = Supplied Air
- PD = Pressure demand
- GM = Gas Mask
- CL = Chlorine canister