

DuPage County Environmental, Safety, Health & Property Loss Control Program Respirator Program

Purpose: DuPage County employees performing various functions may be exposed to a respiratory hazard. Functions such as maintenance activities where there is a potential asbestos exposure. Sheriff's staff may be exposed to smoke from hostile fires or smoke grenades. Animal Control staff may be exposed to various airborne Zoonotic diseases, DOT Maintenance staff can be exposed to Crystalline Silica dust cutting or grinding concrete, etc. The purpose of this program is to ensure that employees exposed to respiratory hazards are aware of the protection used to limit their exposure to a known respiratory hazard.

Engineering controls, such as ventilation and substitution of less toxic materials, are the first line of defense at DuPage County; however, engineering controls have not always been feasible for some of our operations, or emergencies. In these situations, respirators and other protective equipment must be used.

The respirators must be selected for protection against a specific hazard. We utilize the National Institute of Occupational Safety (NIOSH), and OSHA 1910.134 in the selection of an appropriate respirator for the hazard.

Respirators protect the user in two basic ways. The first is by the removal of contaminants from the air. Respirators of this type include particulate respirators, which filter out airborne particles; and "gas masks" which filter out chemicals and gases. Other respirators protect by supplying clean respirable air from another source. Respirators that fall into this category include airline respirators, which use compressed air from a remote source; and self-contained breathing apparatus (SCBA), which include their own air supply.

The cautions, limitations and restriction of use provided with the respirator must be strictly followed. If your mask does not make a tight seal all the way around your face when you inhale, you may breathe contaminated air that leaks around the edges of the face seal. Anything that prevents the face mask from fitting tightly against your face, such as a beard or long sideburns, may cause leakage. Some respirators come in different styles and sizes, and fit different people differently because people's faces have different shapes. You also need training to know how to correctly put the mask on and wear it correctly. This information should be provided by the supplier of the respirator.

Policy: This program applies to all employees who are required and those who voluntarily wear respirators during normal work operations, and during some non-routine or emergency operations such as a spill of a hazardous substance or fire. This includes all employees performing job tasks listed in table 1 below. All employees working in these areas and engaged in certain processes or tasks as outlined in table 1 must be enrolled in the County's Respiratory Protection Program.

Employees need to be medically cleared to wear respirators before commencing use. Note: a dust mask is not considered a respirator and does not fall under this policy.

Any employee refusing a respiratory medical evaluation will not be allowed to work in a hazardous area requiring respirator use.

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In addition, some employees have expressed a desire to wear respirators during certain operations that do not require respiratory protection. As a general policy DuPage County will review each of these requests on a case-by-case basis. If the use of respiratory protection in a specific case will not jeopardize the health or safety of the worker(s), DuPage County will provide respirators for voluntary use to those requesting personnel. Voluntary respirator use is subject to most requirements of this program.

Employees required to wear a respirator in the performance of their job do so at no cost to them. The expense associated with training, medical evaluations, fit tests and respiratory protection equipment will be borne by the respective County unit of government.

All respirators to be worn by an employee must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use.

Dust masks are identified by NIOSH numbers, all of which begin with an N, R or P-letters that categorize oil-designation. There are three types of dust masks:

N series—are limited to atmospheres that are free from aerosolized oil. They can be used for any solid or liquid airborne particulates that DO NOT contain oil.

R series__ are limited for any particulates, including oil based liquid aerosols.

P series___ designed to block 99.9 % of particles .3 microns or larger.

Disposable dust masks have the same assigned protection factor (APF) as half mask air purifying respirators.

Mechanical-filter respirator

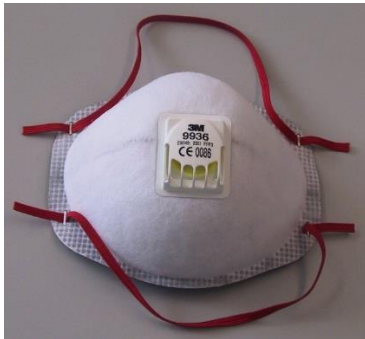
- For particulates
- 3 kinds:
 - N (Not resistant to oil)
 - R (Resistant to oil)
 - P (oil Proof)
- efficacy
 - 95
 - 99
 - 100



Definitions:

Air Purifying Particulate (Filtering Respirator):

Particulate respirators are the simplest, least expensive, and least protective of the respirator types available. These respirators only protect against particles. They do not protect against chemicals, gases, or vapors, and are intended only for low hazard levels. The commonly known "N-95" filtering face piece respirator is one type of particulate respirator. Particulate respirators are "air-purifying respirators" because they prevent air borne particles from entering your breathing zone.



Air Purifying Respirator (Chemical Cartridge/Gas Mask Respirator):

Sometimes referred to as a Gas Mask Respirator is also known as "air-purifying respirators" because they filter or clean chemical gases and possibly particles out of the air as you breathe. This respirator includes a face piece or mask, and a filter/cartridge (if the filter is in a metal shell it is called a "canister"). Straps secure the face piece to the head. The cartridge may have a filter to remove particles (such as a biological weapon), charcoal (to remove certain chemicals), both, or other parts. When the user inhales, air is pulled through the filter.

Gas Masks are effective only if used with the correct cartridge or filter (these terms are often used interchangeably) for a particular biological or chemical substance. Selecting the proper filter can be a complicated process. There are cartridges available that protect against more than one hazard, but there is no "all-in-one" filter that protects against all substances. You need to know what hazards you will face to be certain you are choosing the right filters.



Escape Respirators:

Escape respirators are designed to be used only in an emergency, and only to escape from a dangerous area to a safe area. There are several escape respirators on the market. Many of them use a hood with a neck seal instead of a face piece. They are typically designed for one-time use for a short period, typically 15 minutes to 1 hour. They may be available in a variety of sizes and will fit most adults. Individuals with small or very large neck sizes may not be able to use some escape hood designs-check the supplier product information before purchasing. This type cannot be fit tested.



Powered Air Purifying Respirator (PAPR):

Powered air-purifying respirators use a fan to blow air through the filter to the user. They are easier to breathe through and they need a fully charged battery to work properly. They use the same filters as gas masks, so you need to know what the hazard is, and how much of it is in the air.



Self-Contained Breathing Apparatus (SCBA):

Self-Contained Breathing Apparatus Self-Contained Breathing Apparatus (SCBA) is the respirator commonly used by firefighters. These use their own air tank to supply clean air, so you don't need to worry about filters. They also protect against higher concentrations of dangerous chemicals. However, they are very heavy (30 pounds or more), and require very special training to use and to maintain them. Also, the air tanks typically last an hour or less depending upon their rating and how hard you are breathing.



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Qualitative Fit Test (QNFT):

There are two types of fit tests: Qualitative and Quantitative. Qualitative fit testing is a pass/fail test method that uses your sense of taste or smell, or your reaction to an irritant in order to detect leakage into the respirator face piece. The exposures at the County have been evaluated by an outside environmental consultant and determined that Quantitative testing is not needed.

Medical Evaluations: Any employee who must wear a respirator per Table 1 (i.e., in certain maintenance operations or health exposures) is subject to an annual medical evaluation, annual fit tests, cleaning, maintaining and storage elements of this program, and must be provided with a copy of this program. Employees who either voluntarily or are required to wear disposable filtering face pieces (dust masks) are not subject to the medical evaluation, fit testing, cleaning, storage, and maintenance provisions of this program.

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Respirator Program**

TABLE I:
Voluntary and Required Respirator Use at DuPage County

Respirator	Department/Process
Filtering face piece (dust mask)	Voluntary use for metal working, wood working, and landscaping activities
Half-face piece APR or PAPR with P100 filter	Asbestos Operations and Maintenance Procedures including air filter changing in the Administrative 421 Building. During stainless steel / aluminum grinding, drilling and cutting operations
Half-face piece APR with organic vapor cartridge	Spray Painting Operators
Self- Contained Breathing Apparatus	Work in hostile fire incidents
N95 Respirator- Disposable	Animal Control, Convo Nursing, Health Department, DOT / PW Concrete cutting

Responsibilities:

Program Administrator:

The Program Administrator is responsible for administering the respiratory protection program. The Program Administrator for DuPage County Asbestos exposure is the Facilities Management Department. Other Departments are responsible for the respiratory exposures their staff that may be exposed to. Duties of the Program Administrator(s) with assistance from Risk Management include:

- Identifying work areas, processes or tasks that require workers wear respirators, and evaluating hazards.
- Selection of respiratory protection options.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications. The employee must provide the County Selected Physician with the information in paragraph (e) (5) of the OSHA standard. This information includes: the type and weight of the respirator to be used by the employee; the duration and frequency of respirator use; the expected physical work effort; additional protective clothing and equipment to be worn; and the temperature and humidity extremes that may be encountered. The physician must also be provided with a copy of the company's respiratory protection program and a copy of the OSHA standard.
- Arranging for and/or conducting training.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Conducting annual qualitative fit testing.
- Administering the medical surveillance program.
- Providing training and fit test records required by the program to Risk Management.
- Risk Management Evaluates the program.
- Risk Management Updates written program, as needed.

Supervisors Responsibilities:

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing and annual medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan.
- Ensuring that respirators fit well and do not cause discomfort.
- Continually monitoring work areas and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.

Employees:

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- Care for and maintain their respirators as instructed, and store them in a clean sanitary location.
- Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.

Program Elements:

Selection Procedures

The Program Administrator will select respirators to be used on site, based on the hazards to which workers are exposed and in accordance with all NIOSH and OSHA regulations. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

1. Identification and development of a list of hazardous substances used in the workplace, by department, or work process.
2. Review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.
3. Exposure monitoring to quantify potential hazardous exposures. Monitoring will be contracted out.

Updating the Hazard Assessment:

The Program Administrator must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his or her supervisor or the Program Administrator. The Program Administrator will evaluate the potential hazard, arranging for outside assistance as necessary. The Program Administrator will then communicate the results of that assessment back to the 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.

Respirator Use:

DuPage County will provide respirators at no charge to employees for mandatory use for the following work processes:

- Employees may wear half-face piece APRs with P 100 filter cartridges while performing any asbestos operations and maintenance procedures that may disturb asbestos in the work zone.
- N-95 Respirators may be required of Animal Control, Health Department, Convalescent Center and DOT, Public Works, OHSEM.

The Program Administrator will provide all employees who voluntarily choose to wear respirators with a copy of Appendix D of the OSHA standard. (Appendix D details the requirements for voluntary use of respirators by employees.) Employees choosing to wear a half face piece APR must comply with the procedures for Medical Evaluation, Fit Tests, Respirator Use, and Cleaning, Maintenance and Storage.

The Program Administrator shall authorize voluntary use of respiratory protective equipment as requested by all other workers on a case-by-case basis, depending on specific workplace conditions and the results of the medical evaluations.

Medical Evaluations:

Employees who are either required to wear respirators, or who choose to wear one voluntarily, must pass an **annual** medical exam before being permitted to wear a respirator on the job. All respirators generally place a burden on the employee. Negative pressure respirators restrict breathing, some respirators can cause claustrophobia and self-contained breathing apparatuses are heavy. Each of these conditions may adversely affect the health of some employees who wear respirators. A physician operating within the scope of his/her practice needs to medically evaluate employees to determine under what conditions they can safely wear respirators. Employees are not permitted to wear an N95, APR, PAPR or SCBA respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

1. A licensed physician will provide the medical evaluations. Medical evaluation procedures are as follows:
 - The medical evaluation will be conducted using the questionnaire provided by AMITA Health.
 - The employee must call AMITA Health for an appointment explaining what the appointment is for (i.e., respirator evaluation for silica, or asbestos or Hexavalent Chromium (hot work on stainless steel dust) etc.
 - AMITA Health contact is Vicky at 224-265-9045 or Vicky.chiakulas@amitahealth.org
 - For those employees exposed to asbestos a separate medical questionnaire will be provided.
 - To the extent feasible, the company will assist employees who are unable to read the questionnaire (by providing help in reading the questionnaire). When this is not possible, the employee will be sent directly to the physician for medical evaluation.
 - All affected employees will be permitted to fill out the medical questionnaire on company time.
 - Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the physician.
 - All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
 - The Program Administrator has provided the selected physician with a copy of this program, a copy of the OSHA Respiratory Protection standard, and for each employee requiring evaluation: his or her work area or job title, proposed respirator type and weight, length of time required to wear respirator, expected physical work load (light, moderate, or heavy), potential temperature and humidity extremes, and any additional protective clothing required.
 - Any employee required for medical reasons to wear a positive pressure air purifying respirator will be provided with a powered air purifying respirator.

- After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:
 - * Employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
 - * The designated physician or supervisor informs the Program Administrator that the employee needs to be reevaluated;
 - * Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation;
 - * A change occurs in the workplace conditions that may result in an increased physiological burden on the employee.
- 2. A list of employees currently included in medical surveillance must be maintained in the Department each employee is assigned to.
- 3. All examinations and questionnaires are to remain confidential between the employee and the physician.

Fit Testing:

1. Fit testing is required for employees wearing N-95's and half-face piece APRs, PAPR's and SCBA. Employees voluntarily wearing half-face piece APRs, PAPR must also be fit tested. Disposable dust masks do not need to be fit tested.
2. Employees who are required to wear respirators listed in 1. above will be fit tested:
 - Prior to being allowed to wear any respirator with a tight fitting face piece.
 - Annually.
 - When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).
3. Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of PAPRs is to be conducted in the negative pressure mode.
4. The Program Administrator will conduct fit tests following the OSHA approved Protocol in Appendix B of the OSHA Respiratory Protection regulation.
5. An outside professional consultant has determined that QNFT is not required for the respirators used under current conditions here at DuPage County.
6. If conditions affecting respirator use change, the Program Administrator will evaluate on a case-by-case basis whether QNFT is required.

General Use Procedures:

- I. Employees will use their respirators under conditions specified by this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

2. All employees shall conduct user seal checks each time that they wear their respirator. Employees shall use either the positive or negative pressure check (depending on which test works best for them) specified in Appendix B- 1 of the OSHA Respiratory Protection Standard.

All employees shall be permitted to leave the work area to go to the locker room to maintain their respirator for the following reasons: to clean their respirator if the respirator is impeding their ability to work, change filters or cartridges, replace parts, or to inspect respirator if it stops functioning as intended. Employees should notify their supervisor before leaving the area.

3. Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good seal. Employees are not permitted to wear headphones, jewelry, or other articles that may interfere with the face piece-to-face seal.
4. 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.

Respirator Malfunction

For any malfunction of an APR (e.g., such as breakthrough, face piece leakage, or improperly working valve), the respirator wearer should inform his or her supervisor that the respirator no longer functions as intended, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee receives the needed parts to repair the respirator, or is provided with a new respirator.

Cleaning, Maintenance, Change Schedules and Storage

Cleaning

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station.

Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary.

The following procedure is to be used when cleaning and disinfecting respirators:

Note N-95 Respirators are disposable do not clean.

- Disassemble respirator, removing any filters, canisters, or cartridges.
- Wash the face piece and associated parts in a mild detergent with warm water. Do not use organic solvents.
- Rinse completely in clean warm water.
- Wipe the respirator with disinfectant wipes (70% Isopropyl Alcohol) to kill germs.
- Air dry in a clean area.
- Reassemble the respirator and replace any defective parts.
- Place in a clean, dry plastic bag or other air tight container.

Note: The Program Administrator will ensure an adequate supply of appropriate cleaning and disinfection material at the cleaning station. If supplies are low, employees should contact their supervisor, who will inform the Program Administrator.

Maintenance:

1. With the exception of disposable N-95's respirators are to be properly maintained at all times in order to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer.
2. The checklist in this program will be used when inspecting respirators:

Face piece:

- * cracks, tears, or holes
- * facemask distortion
- * cracked or loose lenses/face shield

Head straps:

- * breaks or tears
- * broken buckles

Valves:

- * residue or dirt
- * cracks or tears in valve material

Filters/Cartridges:

- * approval designation
- * gaskets
- * cracks or dents in housing
- * proper cartridge for hazard

Air Supply Systems:

- * breathing air quality/grade
- * condition of supply hoses
- * hose connections
- * settings on regulators and valves

3. Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include to wash their face and respirator face piece to prevent any eye or skin irritation, to replace the filter, cartridge or canister, and if they detect vapor or gas breakthrough or leakage in the face piece or if they detect any other damage to the respirator or its components.

Change Schedules

1. Employees wearing APRs or PAPRs with P100 filters for protection against asbestos fibers or other particulates shall change the cartridges on their respirators when they first begin to experience difficulty breathing (i.e., resistance) while wearing their masks.

Storage

1. Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program and will store their respirator in a plastic bag in their own locker. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.
2. The Program Administrator will store a supply of respirators and respirator components in their original manufacturer's packaging in an appropriate area.

Defective Respirators

1. Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor. Supervisors will give all defective respirators to the Program Administrator. The Program Administrator will decide whether to:
 - Temporarily take the respirator out of service until it can be repaired.
 - Perform a simple fix on the spot such as replacing a head strap.
 - Dispose of the respirator due to an irreparable problem or defect.
2. When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of similar make, model, and size. All tagged out respirators will be kept in the storage cabinet inside the Program Administrator's office.

Training:

The Program Administrator will provide training to respirator users and their supervisors on the contents of the Respiratory Protection Program and their responsibilities under it, and on the OSHA Respiratory Protection standard. Workers will be trained prior to using a respirator in the workplace. Supervisors will also be trained prior to using a respirator in the workplace or prior to supervising employees that must wear respirators.

The training course will cover the following topics:

- the Respiratory Protection Program
- the OSHA Respiratory Protection standard
- Respiratory hazards encountered at DuPage County and their health effects
- Proper selection and use of respirators
- Limitations of respirators
- Respirator donning and user seal (fit) checks
- Fit testing
- Emergency use procedures
- Maintenance and storage
- Medical signs and symptoms limiting the effective use of respirators

Employees may be retrained annually or as needed (e.g., if they change departments and need to use a different respirator). Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. Respirator training will be documented by the Program Administrator and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

Program Evaluation:

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records.

Problems identified will be noted by the Program Administrator. These findings will be reported to Risk Management and/or the environmental consultant. Any deficiencies found in the respirator program will be immediately addressed and target dates for the implementation of those corrections will be determined.

Documentation and Recordkeeping

- A. A written copy of this program and the OSHA standard is kept on the Intranet under Safety Resources and is available to all employees who wish to review it.

- B. All copies of training and fit test records will be recorded by Risk Management and maintained by HR. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.

- C. The completed medical questionnaire and the physician's documented findings are confidential and will remain with the employee and physician's office. The County HR Department will only retain the physician's written recommendation regarding each employee's ability to wear a respirator (Pass / Fail).

Access to OSHA's Respiratory Protection Standard

Copies of the OSHA Respiratory Protection Standard are available at www.osha.gov.

The OSHA website should be used to obtain copies of the most current version of the standards.