

Minneapolis Community & Technical College

Respiratory Protection Program

29 CFR 1910.134

Respiratory Protection Program

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1.0 Introduction

It is the policy of the Minneapolis Community & Technical College (MCTC) to provide employees with a safe and healthful working environment. This is accomplished by utilizing facilities and equipment that have all feasible safeguards incorporated into their design. When effective engineering controls are not feasible, or when they are being initiated, protection shall be used to ensure personnel protection.

This program does not apply to contractors as they are responsible for providing their own respiratory protection programs and respiratory protective equipment.

2.0 Responsibilities

2.1 Environmental Health and Safety

The Director of Public Safety and the Safety Administrator are responsible for establishing and maintaining a respiratory protection program consistent with the goal of protecting MCTC personnel. The Director of Public Safety and the Safety Administrator will implement a Respiratory Protection Program which is designed and organized to ensure respirators are properly selected, used, and maintained by MCTC personnel, and to meet federal regulatory standards (29 CFR 1910.134) and industry accepted standards (American National Standards Institute - ANSI).

The Director of Public Safety, Health and Safety Specialist and Supervisors are responsible for evaluating those tasks for which respiratory protection is thought to be necessary, determine the degree of hazard posed by the potential exposure, determine whether engineering or administrative controls are feasible, and will specify which respiratory protection device is to be used at each task.

2.2 Occupational Health Clinic/Health Center, OHC/HC

MCTC's designated clinic, MN Occupational, has established medical evaluation, surveillance procedures and reviewing the health status of all personnel who may be required to wear respiratory protective equipment in the completion of their assigned tasks.

2.3 Supervisor

Supervisors will ensure each employee under his or her supervision using a respirator has received appropriate training in its use a medical evaluation and a fit test. Supervisors will ensure the availability of appropriate respirators and accessories, provide adequate storage facilities, and encourage proper respirator equipment maintenance. Supervisors must be aware of tasks requiring the use of respiratory protection, and ensure all employees engaged in such work use the appropriate respirators at all times.

2.4 Respirator Wearers

It is the responsibility of each respirator wearer to wear his/her respirator when and where required and in the manner in which they were trained. Respirator wearers must report any malfunctions of the respirator to his/her supervisor immediately. The respirator wearer must also guard against mechanical damage to the respirator, clean the respirator as instructed, and store the respirator in a clean, sanitary location.

2.5 Others

Contractors are required to develop and implement a Respiratory Protection Program for their employees who must enter into or work in areas where exposure to hazardous materials can not be controlled or avoided. This program must meet OSHA regulations and include issuance of respirators, medical evaluations, fit testing and training.

3.0 Medical Evaluation

MCTC's designated clinic, initially, makes a determination as to whether or not an employee can wear the required respirator without physical or psychological risk. Based on the overall health of the individual and medical evaluation results, the examining physician determines whether or not the individual will be restricted from wearing respiratory protective equipment. If a medical restriction is applied, the employee, his/her Supervisor, Human Resources, , Safety Administrator and the Director of Public Safety are formally notified of the restriction.

Specific medical tests and procedures will be determined by the Occupational Health Physician and will be in accordance with OSHA medical surveillance requirements and/or the National Institute for Occupational Health & Safety (NIOSH) recommendations.

4.0 Selection and Use of Respiratory Devices

4.1 Respirator Use

Respiratory protection is authorized and issued for the following personnel:

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

Table 4-1 Respirator Selection and Use

Hazard	Respirator Type	Area	Employees Affected
Silica	P-95, N-95	Jewelry, Ceramics	Facilities, Jewelry and Ceramics Instructors
Epoxy, Oil, or Lead Based Paints	, Half Faced 6100 or 6200,	Aviation, Cabinetmaking, Ceramics Campus Wide	Facilities Painter, Cabinetmaking, Aviation and Ceramics Instructors
Wood Dust	Particulate Respirator P-95, N-95	Cabinetmaking	Facilities, Cabinetmaking Instructors
Dust	Particulate Respirator P-95, N-95	various	various
Pandemic	Particulate Respirator N-95	various	various (Public Safety)

4.2 Respirator Selection

Selection of the proper respirator(s) to be used in any work area or operation at MCTC will be made only after a determination has been made as to the real and/or potential exposure of employees to harmful concentrations of contaminants in the workplace atmosphere. This evaluation will be performed prior to the start of any routine or non-routine tasks requiring respirators. Respiratory protective devices will be selected jointly by the affected department, Supervisor, Safety Administrator and the Director of Public Safety, using ANSI Z88.2, NIOSH Certified Equipment List, and/or the NIOSH Respirator Selection Decision Logic as a guide. The following items will be considered in the selection of respirators:

- Effectiveness of the device against the substance of concern;
- Estimated maximum concentration of the substance in the work area;
- General environment (open shop or confined space, etc.);
- Known limitations of the respiratory protective device;
- Comfort, fit, and worker acceptance; and
- Other contaminants in the environment or potential for oxygen deficiency.

Supervisors shall contact the Safety Administrator and the Director of Public Safety prior to non-routine or new work which may expose workers to hazardous substances or oxygen deficient atmospheres. Examples of work which may require the use of respirators includes, but are not limited to:

- Asbestos abatement activities
- Cutting or melting lead or stripping lead-based paints from surfaces
- Silica

- Painting, especially with epoxy or organic solvent coatings
- Using solvents, thinners, or degreasers
- Any work which generates large amounts of dust
- Working in a confined space

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

4.3 Types of Respirators

Air-Purifying Respirator (note: MCTC does not have Air Purifying Respirators, section 4.3 is for informational purposes only)

These respirators remove air contaminants by filtering, absorbing, adsorbing, or chemical reaction with the contaminants as they pass through the respirator canister or cartridge. This respirator is to be used only where adequate oxygen (19.5 to 23.5 percent by volume) is available. Air-purifying respirators can be classified as follows:

1. Particulate removing respirators, which filter out dusts, fibers, fumes and mists. These respirators may be single-use disposable respirators or respirators with replaceable filters.
NOTE: *Surgical masks do not provide protection against air contaminants. They are never to be used in place of an air-purifying respirator. They are for medical use only.*
2. Gas- and vapor-removing respirators, which remove specific individual contaminants or a combination of contaminants by absorption, adsorption or by chemical reaction. Gas masks and chemical-cartridge respirators are examples of gas- and vapor-removing respirators.
3. Combination particulate/gas- and vapor-removing respirators, which combine the respirators characteristics of both kinds of air-purifying respirators.

4.4 Identification of Respirator Cartridges and Gas Mask Canisters

Respirator cartridges and canisters are designed to protect against individual or a combination of potentially hazardous atmospheric contaminants, and are specifically labeled and color coded to indicate the type and nature of protection they provide.

The NIOSH approval label on the respirator will also specify the maximum concentration of contaminant(s) for which the cartridge or canister is approved. For example, a label may read:

"DO NOT WEAR IN ATMOSPHERES IMMEDIATELY DANGEROUS TO LIFE. MUST BE USED IN AREAS CONTAINING AT LEAST 20 PERCENT OXYGEN. DO NOT WEAR IN ATMOSPHERES CONTAINING MORE THAN ONE-TENTH PERCENT ORGANIC VAPORS BY VOLUME. REFER TO COMPLETE LABEL ON

RESPIRATOR OR CARTRIDGE CONTAINER FOR ASSEMBLY, MAINTENANCE, AND USE."

4.5 MCTC's Respirators Defined

1. N-95 – a particulate respirator for sweeping, grinding, and sanding non-oil based particulates.
2. P-95 – a particulate respirator for liquid or oil based particles that don't emit vapors.
3. 6100 & 6200 – a half faced respirator for Organic Vapors, Chlorine, Hydrogen, Chloride, and Sulfur Dioxide.
4. 6800 – a full faced respirator with a high level of protection for most industrial and chemical applications.

4.6 Warning Signs of Respirator Failure

A. Particulate Air-Purifying

When breathing difficulty is encountered with a filter respirator (due to partial clogging with increased resistance), the filter(s) must be replaced. Disposable filter respirators must be discarded.

B. Gas or Vapor Air-Purifying

If, when using a gas or vapor respirator (chemical cartridge or canister), any of the warning properties (e.g., odor, taste, eye irritation, or respiratory irritation) occur, promptly leave the area and check the following:

- Proper face seal
- Damaged or missing respirator parts
- Saturated or inappropriate cartridge or canister

If no discrepancies are observed, replace the cartridge or canister.

C. Service Life of Air-Purifying Respirator Canisters and Cartridges (note: MCTC doesn't have Air Purifying Respirators, section C is for informational purposes only)

The canisters or cartridges of air-purifying respirators are intended to be used until filter resistance precludes further use, or the chemical sorbent is expended as signified by a specific warning property, e.g., odor, taste, etc. New canisters, cartridges or filters shall always be provided when a respirator is reissued. When in doubt about the previous use of the respirator, obtain a replacement canister or cartridge.

5.0 Respirator Training

Respirator users and their Supervisors will receive training on the contents of the MCTC Respiratory Protection Program and their responsibilities under it.

Supervisors will provide or arrange for training of respirator wearers in the use, maintenance, capabilities, and limitations of respirators is initially upon assignment of personnel to tasks requiring the use of respirators. Retraining is arranged by the Safety Administrator and the Director of Public Safety and given annually thereafter and only upon successful completion of the medical evaluation.

The training program will include but not limited to the following:

1. Nature and degree of respiratory hazard
2. Respirator selection, based on the hazard and respirator capabilities and limitations
3. Donning procedures and fit tests including hand's-on practice
4. Care of the respirator, e.g., need for cleaning, maintenance, storage, and/or replacement
5. Use and limitations of respirator
6. Respirator training will be properly documented (Appendix A) and will include the type and model of respirator for which the individual has been trained and fit-tested.

6.0 Respirator Fit Testing

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

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

Fit testing will be arranged by the Safety Administrator and the test results will be the determining factor in selecting the type, model, and size of negative-pressure respirator for use by each individual respirator wearer.

6.1 Fit Checking

Each time a respirator is donned, the user will perform positive and negative pressure fit checks. These checks are not a substitute for fit testing. Respirator users must be properly trained in the performance of these checks and understand their limitations.

A. Negative Pressure Check

Applicability/Limitations: This test cannot be carried out on all respirators; however, it can be used on facepieces of air purifying respirators equipped with tight-fitting respirator inlet covers and on atmosphere supplying respirators equipped with

breathing tubes which can be squeezed or blocked at the inlet to prevent the passage of air.

Procedure: Close off the inlet opening of the respirator's canister(s), cartridge(s), or filter(s) with the palm of the hand, or squeeze the breathing air tube or block its inlet so that it will not allow the passage of air. Inhale gently and hold for at least 10 seconds. If the facepiece collapses slightly and no inward leakage of air into the facepiece is detected, it can be reasonably assumed that the respirator has been properly positioned and the exhalation valve and facepiece are not leaking.

B. Positive Pressure Check

Applicability/Limitations: This test cannot be carried out on all respirators; however, respirators equipped with exhalation valves can be tested.

Procedure: Close off the exhalation valve or the breathing tube with the palm of the hand. Exhale gently. If the respirator has been properly positioned, a slight positive pressure will build up inside the facepiece without detection of any outward air leak between the sealing surface of the facepiece and the face.

6.2 Qualitative Fit Testing

Federal regulations (29 CFR 1910.1001) require qualitative fit tests of respirators and describe step-by-step procedures. This test checks the subject's response to a chemical introduced outside the respirator facepiece. This response is either voluntary or involuntary depending on the chemical used. Several methods may be used. The two most common are the irritant smoke test, and the odorous vapor test.

A. Irritant Smoke

The irritant smoke test is an involuntary response test. Air purifying respirators must be equipped with a high efficiency particulate air (HEPA) filter for this test. An irritant smoke, usually either stannic chloride or titanium tetrachloride, is directed from a smoke tube toward the respirator. If the test subject does not respond to the irritant smoke, a satisfactory fit is assumed to be achieved. Any response to the smoke indicates an unsatisfactory fit. The irritant smoke is an irritant to the eyes, skin, and mucous membranes. It should not be introduced directly onto the skin. The test subject must keep his or her eyes closed during the testing if a full facepiece mask is not used.

B. Odorous Vapor

The odorous vapor test is a voluntary response test. It relies on the subject's ability to detect an odorous chemical while wearing the respirator. Air purifying respirators must be equipped with an organic cartridge or canister for this test. Saccharin, Isoamyl acetate (banana oil) and/or Bitrex is the usual test. An isoamyl

acetate-saturated gauze pad is placed near the facepiece-to-face seal of the respirator of the test subject's skin. If the test subject is unable to smell the chemical, then a satisfactory fit is assumed to be achieved. If the subject smells the chemical, the fit is unsatisfactory.

If the subject cannot smell the chemical, the respirator will be momentarily pulled away from the subject's face. If the subject is then able to smell the chemical, a satisfactory fit is assumed. If the subject cannot smell the chemical with the respirator pulled away from the face, this test is inappropriate for this subject, and a different test will be used.

This test is limited by the wide variation of odor thresholds among individuals and the possibility of olfactory fatigue. Since it is a voluntary response test it depends upon an honest response.

6.3 Special Problems

A. Facial Hair

Respirators with tight fitting facepieces will not be worn by employees if facial hair comes between the sealing surface of the facepiece and the face or interferes with the valve function.

B. Glasses and Eye

If an employee wears glasses or goggles or other personal protective equipment it must be worn in a manner that doesn't interfere with the seal of the facepiece to the face of the user.

6.4 Recordkeeping

Respirator fit-testing shall be documented by the Public Safety Department and shall include the type of respirator, brand name and model, method of test and test results, test date and the name of the instructor/tester (See Appendix A).

7.0 Maintenance and Issuance of Respirators

7.1 Maintenance

The maintenance of respiratory protective devices involves a thorough visual inspection for cleanliness and defects (i.e., cracking rubber, deterioration of straps, defective exhalation and inhalation valves, broken or cracked lenses, etc.). Worn or deteriorated parts will be replaced prior to reissue. No respirator with a known defect is reissued for use. No attempt is made to replace components, make adjustments or make repairs on any respirator beyond those recommended by the manufacturer. Under no circumstances will parts be substituted as such substitutions will invalidate the approval of the respirator.

Any repair to reducing or admission valves, regulators, or alarms will be conducted by either the manufacturer or a qualified trained technician.

7.2 Cleaning of Respirators

All respirators in routine use shall be cleaned and sanitized on a periodic basis. Respirators used non-routinely shall be cleaned and sanitized after each use and filters and cartridges replaced. Routinely used respirators are maintained individually by the respirator wearer. Obtaining replacement cartridges and filters are to be coordinated through department supervisors.

Cleaning and disinfection of respirators must be done frequently to ensure that skin-penetrating and dermatitis-causing contaminants are removed from the respirator surface. Respirators maintained for emergency use or those used by more than one person must be cleaned after each use by the user.

The following procedure is recommended for cleaning and disinfecting respirators:

1. Remove and discard all used filters, cartridges, or canisters.
2. Wash facepiece and breathing tube in a cleaner-disinfectant solution. A hand brush may be used to remove dirt. Solvents which can affect rubber and other parts shall not be used.
3. Rinse completely in clean, warm water.
4. Air dry in a clean area in such a way as to prevent distortion.
5. Clean other respirator parts as recommended by the manufacturer.
6. Inspect valves, headstraps, and other parts to ensure proper working condition.
7. Reassemble respirator and replace any defective parts.
8. Place in a clean, dry plastic bag or other suitable container for storage after each cleaning and disinfection.

7.3 Issuance of Respirators

Respiratory protective equipment shall not be ordered, purchased, or issued to personnel unless the respirator wearer has received respirator training, a medical evaluation, and a fit test.

7.4 Storage

After inspection, cleaning, and any necessary minor repairs, store respirators to protect against sunlight, heat, extreme cold, excessive moisture, damaging chemicals or other contaminants. Routinely used respirators, such as half-mask or full-face air-purifying respirators, shall be placed in sealable plastic bags. Respirators may be stored in such places as lockers or tool boxes only if they are first placed in carrying cases or cartons. Respirators shall be packed or stored so that the face piece and exhalation valves will rest in a normal position and not be crushed.

8.0 Program Surveillance

The ANSI Z88.2-1980 document entitled "Practices for Respiratory Protection" specifies:

"Section 3.5.15 Respirator Program Evaluation. An appraisal of the effectiveness of the respirator program shall be carried out at least annually. Action shall be taken to correct defects found in the program."

The evaluation of the Respirator Program will include investigating wearer acceptance of respirators, inspecting respirator program operation, and appraising protection provided by the respirator. Evidence of excessive exposure of respirator wearers to respiratory hazards will be followed up by investigation to determine why inadequate respiratory protection was provided. The findings of the respirator program evaluation will be documented, and this documentation will list plans to correct faults in the program and set target dates for the implementation of the plans. These evaluations will be conducted at least annually.

9.0 Record Keeping

The following records shall be developed and maintained for MCTC's Respirator Protection Program:

Record	Location
Medical Evaluations	Human Resources Office and Database
Training Records	Safety Administrator Office
Respiratory Protection Program	Safety Administrator Office, Public Safety Office, MCTC OSHA Website
Hazard Evaluations (Air sampling results, surveys, respirator selection records)	Safety Administrator, Public Safety Office, Facilities Department
Fit Test Records	Safety Administrator Office

APPENDIX A – Qualitative Fit Testing Form

Employee Name	Date of Birth	Age	Height	Weight
Supervisor Name		Department		

A respirator fit test must be completed by an individual trained in respiratory fit testing procedures. This fit test is required annually or sooner if the health of the employee changes.

Respirator Type (Make, Model, and Size)			
Compatible with eye glasses	___Yes ___No	___Yes ___No	___Yes ___No
Head stationary normal breathing (30 seconds)	___Pass ___Fail	___Pass ___Fail	___Pass ___Fail
Head stationary deep breathing (30 seconds)	___Pass ___Fail	___Pass ___Fail	___Pass ___Fail
Head turning side to side (30 seconds)	___Pass ___Fail	___Pass ___Fail	___Pass ___Fail
Head moving up and down (30 seconds)	___Pass ___Fail	___Pass ___Fail	___Pass ___Fail
Talking (30 seconds)	___Pass ___Fail	___Pass ___Fail	___Pass ___Fail
Test Substance	BITREX		

Does employee wear glasses? ___Yes ___No
 Does employee have facial hair, dentures or other attributes that will prevent a positive face fit? ___Yes ___No

Based on the information provided on this form, I certify that the employee named on this form can wear the following respiratory equipment:

Comments _____

Signature of Person Administering Test _____ Date _____

APPENDIX B - Medical Evaluation Form

This form can be obtained at MCTCs' designated clinic (Minnesota Occupational Health) website. Please follow this link to access the Minnesota Occupational Clinic website.

www.mohonline.com/Respirator%/20Form.pdf