UNIVERSITY OF MINNESOTA
FACILITIES MANAGEMENT

RESPIRATORY PROTECTION PROGRAM

Effective: March 8, 2010

PURPOSE:
The purpose of this program is to establish engineering controls, administrative controls and/or work practices to ensure that recognized occupational respiratory hazards are minimized to the extent of being incapable of causing detrimental harm to an employee’s respiratory system.

SCOPE:
The primary goal of the Respiratory Protection Program is to establish engineering and/or administrative controls for preventing employee respiratory exposure(s) to potentially harmful airborne substances or conditions. Personal respiratory protective equipment is used to safeguard an employee’s health in situations where clean, breathable air is not available and engineering controls are either not possible or not economically feasible. Examples where personal respiratory protection may be required include: Temporary situations while new equipment is being installed, when corrections are being made to a system or when emergency maintenance is being conducted.

Respiratory protection must be carefully selected for the contaminant of concern by conducting a hazard assessment. When requesting a respiratory hazard assessment to be completed or for obtaining existing hazard assessment information, please contact the FM Safety Department.

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1. HAZARD EVALUATION
Whenever a supervisor or employee identifies or introduces a new substance, process and/or piece of equipment that may represent an occupational respiratory hazard, FM Safety is to be contacted to conduct a workplace hazard evaluation. Also, when there is a change in the work conditions of a degree that may affect the respiratory hazards
encountered or work stress levels, a hazard evaluation must be conducted.

Engineering controls and/or substitution of less toxic materials will be used whenever practical and feasible to provide uncontaminated breathing air for all employees and keep personal respiratory protection usage to a minimum. However, when engineering controls are not feasible, or while they are being instituted, appropriate personal respiratory protection will be used in accordance with the Respiratory Protection Program.

If a new or unknown respiratory hazard exists in the workplace, the supervisor must obtain Material Safety Data Sheets (MSDSs) for the chemicals or substances present and provide a copy to FM Safety. If necessary, after the hazard evaluation, a written standard operating procedure (SOP) for the particular respiratory hazard will be completed. The SOP will specify the approved respirator type and proper cartridge for protection from the respiratory hazard encountered.

Based on data collected during the respiratory hazard evaluation, employees will be provided with and required to wear appropriate respirators whenever air monitoring indicates the normal breathing air may be contaminated (containing a contaminant in excess of 50% of the current OSHA PEL), creating a potential health hazard for employees. Also, employees will be provided with and required to wear appropriate respirators whenever a questionable respiratory health hazard exists.

The following criteria will be used as a guideline in determining when employee use of personal respiratory protection is required:

- The results of the Hazard Evaluation for respiratory air contaminants.
- The OSHA permissible exposure limits (PELs) and the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLVs) for the specified contaminant. When the ACGIH TLV is lower than the OSHA PEL, we will strive to reduce the exposure to the TLV established by the ACGIH.
- The National Institute of Occupational Safety and Health (NIOSH) recommendations for air contaminants that pose a serious health hazard.
- If a new process involves materials which are not normally used or found in maintenance operations and there is very little documentation of the possible health effects caused by these materials, the need for respiratory protection will be evaluated.

2. **APPROVED RESPIRATORY PROTECTION**

Respirators will be selected in accordance with the guidance of the American National Standard (ANSI) Practices for Respiratory Protection Z.88.2-1969 and the selection recommendations by the respirator manufacturer. All personal respiratory protection must be approved by the National Institute of Occupational Safety and Health (NIOSH) for the contaminant present (not to exceed Immediately Dangerous to Life and Health (IDLH) levels) in the work environment as identified by the hazard evaluation.
Voluntary Use

FM Safety is to be contacted and will determine whether voluntary use of filtering face-piece (i.e. N-95, dust mask) respirators will be permitted for specific applications. The determination on the permitted voluntary use of respirators will be based on the extent and nature of the employee exposures to airborne contaminants. Voluntary use of filtering face-piece/dust masks will only be permitted for employee exposures to low level/nuisance particulates, where respiratory protection is not required to protect the employee from the respiratory hazard encountered. Voluntary use of a filtering face-piece style (N-95, dust mask) respirator is allowed under the following conditions:

✓ Before respirator use, employee training on the proper care and use of respiratory protection, and the limitations of the selected respirator must be provided.
✓ The air contaminant to which employees are attempting to limit their exposure has been determined to be below occupational exposure limits and is not otherwise toxic or harmful.
✓ FM Safety/Program Administrator has determined that the voluntary use respirator will not itself create a hazard.
✓ The voluntary use respirator wearer has a signed and dated “Voluntary Use Agreement” (see Appendix A) on file.
✓ FM Safety Department has approved the voluntary use of filtering face-piece style respirators for the work task. Approval will be based on a hazard assessment to ensure that the use of a filtering face piece is appropriate for the level of hazard in question.

Half Face Negative-Pressure

The use of a half face negative-pressure respirator must be approved by FM Safety for its application. Only * authorized employees (current medical clearance for respirator usage, annual training and annual fit testing) will be permitted to obtain and use this type of respirator. A half face negative-pressure respirator has a protection factor of 10.

A half face negative-pressure respirator is approved for use by asbestos abatement crew members meeting authorized employee requirements.

Full-Face Negative-Pressure

The use of a full-face negative-pressure respirator must be approved by FM Safety for its application. Only * authorized employees (current medical clearance for respirator usage, annual training and annual fit testing) will be permitted to obtain and use this type of respirator. A full-face negative-pressure respirator has a protection factor of 50.

Powered Air-Purifying Respirator (PAPR)

PAPRs are the preferred choice of respiratory protection when encountering toxic levels of airborne contaminants requiring personal respiratory protection. Only authorized employees (current medical clearance for respirator usage and annual training) will be permitted to obtain and use this type of respirator. Fit testing is not required for PAPR.
Protection factors for PAPR use are:

- Helmet Assembly – 25 PF
- Head Cover – 25 PF
- Hood Assembly – 1000 PF

*Note: When a half or full-face respirator is required for use, the authorized employee is prohibited from having facial hair that interferes with the face-piece to face seal or the valve function of the half or full-face negative-pressure respirator. Also, authorized employees need to ensure that if eye glasses or other personal protective equipment (PPE) is worn, it does not interfere with the face-piece to face seal.

3. **CARTRIDGE SELECTION and CHANGE-OUT SCHEDULE**

After the hazard evaluation is completed and it has been determined respiratory protection is required, the proper filtering media will be selected. High Efficiency Particulate Air (HEPA or N/R/P 100) filters are designed for dusts, mists and fumes. These cartridges will be used in Asbestos Contaminated areas and where lead dusts are a respiratory hazard. Organic vapor cartridges are designed for paint and solvent vapors. Contact FM Safety with any questions regarding the proper protection for the respiratory hazard to be encountered.

A cartridge change-out schedule will be developed to ensure the cartridges are changed before the end of their useful service life. The change-out schedule will be based on the best available information about the conditions under which the cartridge is used considering:

1) Specific manufacturer recommendations on cartridge service life in conjunction with workplace information.

2) Additional data to be collected and considered includes:
   - Estimated airborne concentrations.
   - Expected/actual duration of exposure.
   - Environmental factors such as temperature and humidity.
   - Estimated physical exertion to which respirator users will be subjected.
   - Estimate of contaminant loading on cartridge based on conditions.
   - Other factors as deemed necessary.

3) When specific data is not yet available, or during the time that the evaluation is being conducted, respirator users are to change cartridges based on the following schedule:
   - By the manufacturer’s expiration date, and/or,
   - After 100 hours of continuous use, and/or,
   - Whenever odors are detected that have penetrated the filtering media, and/or,
   - At the end of any project or distinct application, i.e. at the end of
a spray painting project, etc..

4. **EMERGENCY SITUATIONS**

The tight-fitting filtering face-piece, negative-pressure and powered air-purifying respirators available and provided for Facility Management operations are not designed for emergency use. Emergency situations may contain an atmosphere that is immediately dangerous to life or health (IDLH) including, but not limited to:

- Atmospheres containing less than 19.5% oxygen,
- Explosive level atmospheres,
- Atmospheres containing gases or vapors with poor warning properties
- Atmospheres containing gases or vapors that generate high heats of reaction with sorbent materials in the cartridge/canister.

In emergency situations **ALL EMPLOYEES ARE TO EVACUATE THAT SPACE OR AREA IMMEDIATELY AND POSITION THEMSELVES A SAFE DISTANCE UPWIND FROM THE HAZARD AREA** and immediately call FM Safety, Department of Environmental Health and Safety (DEHS) and Campus Police.

If a respirator should ever fail for any reason while in use, the user is to immediately evacuate the respiratory hazard area and if applicable, decontaminate leaving through the controlled access space. After the employee has evacuated, trouble shooting of the respiratory protection may begin.

5. **TRAINING**

Prior to an employee being issued personal respiratory protection (required and voluntary use), the employee will receive initial respiratory protection training about the proper care and use of respiratory protection, and the limitations of the selected respiratory use. Following the initial training, respirator users and their supervisors will be required to attend and receive annual respiratory protection training.

Retraining on respirator protection will be provided if:

- Changes in the workplace or respirator render previous training obsolete;
- Employee work practices or performance indicate important information has not been retained or implemented; or
- Any other situation indicates re-training is necessary.

6. **MEDICAL CLEARANCE**

Prior to an employee being assigned to a work task requiring personal respiratory protection, the employee must be medically evaluated to determine whether they are medically able to safely use a respirator. The initial medical evaluation will be conducted using a confidential written Respiratory Medical Evaluation Questionnaire. The questionnaire will be completed by the employee and forwarded to the medical evaluator for review. Upon review of the medical questionnaire, a personal medical examination may be necessary prior to gaining approval to use a respirator. In this case, the employee will be contacted and may be required to undergo any medical tests,
consultations or diagnostic procedures deemed necessary.

Following the review of the questionnaire or medical evaluation, the medical evaluator will provide a written recommendation to FM Safety as to the employee’s ability to use a respirator. The recommendation will provide only the following information:

- Any limitations on respirator use related to the employee’s medical condition, or relating to the workplace conditions in which the respirator may be used;
- Recommendation as to whether or not the employee is medically able to wear a respirator and when re-evaluation is required;
- Any follow-up medical evaluation that is required;
- If an employee medical condition prevents the use of a negative-pressure respirator, the medical evaluator may identify that a powered air-purifying respirator (PAPR) can be approved for use as an accommodation.

Medical clearances are not required for voluntary use respirators.

7. **FIT TESTING**

All individuals that participate in the Respiratory Protection Program and who are required to wear a tight-fitting face-piece respirator as a part of their work assignment will be required to successfully complete a qualitative or quantitative fit test. A fit test must be successfully completed prior to issuance of that equipment and annually thereafter, while in use. Infrequent users may receive fit testing on an as-needed/just-in-time basis for specific work assignments.

Documentation required on initial and annual fit tests include:

- Name of employee tested.
- Date and type of test performed.
- Specific make, model, style and size of respirator tested.
- Pass/Fail results of qualitative or quantitative fit test.

Fit testing is not required for powered air purifying respirators or respirators used for voluntary use.

8. **INSPECTION and CARE**

**Respirators Assigned to an Individual:** Daily, prior to use, the respirator will be inspected for any defects by the user. Any respirator defects found due to age, damage, missing parts or spent cartridges must be repaired before use or the defective respirator is to be removed from service and replaced.

After each use, the respirator user is responsible to clean, sanitize and properly store the respirator. After cleaning a personal use respirator, inspect all parts for damage or wear, replacing parts if necessary. Allow the components to dry completely, away from direct sunlight and heat. Place the respirator in a clean plastic bag or carrying case and store in a clean area, away from moisture, heat and direct sunlight. Storage temperatures are not to
exceed 120°F.

**Respirators Checked Out and Returned to Inventory Centers:** When a PAPR is checked out, it must be inspected before use by the Inventory Center and user. When returning a PAPR, the respirator user is responsible to remove contaminants as much as possible on the PAPR prior to returning and the Inventory Center will do a post-inspection upon return. PAPRs available from the Inventory Centers will be cleaned and disinfected by the Inventory Center prior to being re-checked out.

After cleaning a personal use respirator, inspect all parts for damage or wear, replacing parts if necessary. Allow the components to dry completely, away from direct sunlight and heat. Place the respirator in a clean plastic bag or carrying case and store in a clean area, away from moisture, heat and direct sunlight. Storage temperatures are not to exceed 120°F.

9. **PROGRAM EVALUATION/AUDITS**

FM Safety/Program Administrator will periodically evaluate, as necessary, this Respiratory Protection Program by doing informal audits of the program components and its implementation. Revisions and updates to the program will be made accordingly.

10. **RESPONSIBILITIES**

**Managers**
Managers have the primary responsibility for implementation of the Respiratory Protection Program in their work area by:

- Assuring the Respiratory Protection Program is implemented by supervisors and employees assigned to wear personal respiratory protection as a part of their work assignment.
- Ensuring personal respiratory protection equipment is readily available for employee use.

**Supervisors**
Supervisors have the responsibility for implementation of the Respiratory Protection Program in their work area by:

- Identifying work assignments or tasks which may require respiratory protection and providing this information to FM Safety.
- Ensuring the University of Minnesota's Facilities Management Respiratory Protection program procedures are being followed.
- Seeking assistance from FM Safety and assisting in the evaluation of respiratory hazards by providing information and coordinating work activities for hazard evaluation.
- Implementing engineering controls, administrative controls and work practices to minimize respiratory hazards in the workplace.
- Purchasing, verifying and only allowing the appropriate type of approved respiratory protection for the respiratory hazard involved.
• When required, enforcing and making mandatory the use of personal respiratory protection equipment.
• Ensuring required users of respirators under their supervision receive initial and annual refresher respiratory protection training, are annually fit testing when required, and have current medical clearance for respiratory use. Voluntary respiratory protection users under their supervision must have a signed and dated “Voluntary Respiratory Use Agreement” (see Appendix A) on file.
• Maintaining and storing personal respiratory protection in a clean, readily accessible and operational condition when needed.
• Contacting the FM Safety Department when questions or problems arise that involve the University of Minnesota, Facilities Management Respiratory Protection program.

**Employees**

Employees whom use respirators are responsible for the following:

• For required respiratory use, complete a Respirator Medical Evaluation Questionnaire and obtain medical clearance prior to use.
• Maintain current medical clearance for continued required respiratory use.
• For voluntary respiratory use; read, adhere to, sign and date the “Voluntary Respiratory Use Agreement” (see Appendix A).
• Attend initial and annual refresher respiratory protection training.
• When required to wear a tight-fitting respirator, undergo initial and annual fit testing for personal respiratory protection use.
• Inform your supervisor of operational, health status or physical body changes that could affect the safe use of personal respiratory protection.
• Maintain, properly store, inspect and take reasonable care of personal respiratory protection. Inform your supervisor when personal respiratory protection needs to be repaired or replaced due to defects or is no longer capable of providing adequate respiratory protection.
• Wear only approved respiratory protection when performing assigned work tasks with exposure to potentially harmful airborne respiratory hazardous substances, which are not adequately controlled by engineering or administrative controls.
• Promptly report to your supervisory any symptoms of illness that may be related to respirator usage or respiratory hazards in the workplace.

**Inventory Centers**

Inventory Centers have the responsibility to:

• Stock and maintain a sufficient inventory of approved personal respiratory protection types and sizes to meet the employee needs in that work area.
• Before issuing personal respiratory protection, verify whether the employee is approved for respiratory use by checking the individual’s current status for the following:
  o For required respiratory use, check for current medical clearance, training and as applicable, fit testing.
  o For voluntary respiratory use, check that a “Voluntary Respiratory Use Agreement” has been completed.
Inspect and clean each PAPR before and after each use (pre and post inspection checklist to be completed and filed before and after each use).

Maintain an inventory checklist of the employees who checkout PAPRs from the Inventory Center and when returned.

**FM Safety Department/Program Administrator**

FM Safety/Program Administrator responsibilities to oversee the respiratory program include:

- Developing and delivering annual training to respirator users on the proper use, maintenance and storage of personal use respirators.
- Assisting in the identification and evaluation of respiratory hazards in the workplace and making recommendations for respiratory hazard control measures to be implemented.
- When needed, assisting in the selection of the proper personal respiratory protection and filtering media.
- Providing consultation to managers and supervisors in the administration and implementation of the Respiratory Protection Program.
- Maintaining employee respiratory records for medical clearances, training, fit testing and voluntary use agreements.
- Maintaining a current copy of the Respiratory Protection Program with the PLHCP.
- Evaluating the Respiratory Protection Program annually.

**Physician or Other Licensed Health Care Professional (PLHCP)**

- Review Respiratory Medical Evaluation Questionnaire, conduct medical evaluations and maintain medical records of an individual’s fitness to use personal respiratory protection.
- Approve and/or recommend an employee’s fitness to wear personal respiratory protection, including re-evaluation schedule, conditional use respiratory accommodations when required, further medical evaluation and/or identify employees not approved for respiratory use.
- Provide FM Safety Department with personal respiratory use medical clearance documentation on individual employees.

**Legal References:**

- 29 CFR 1910.143 ANSI Z88.2
- 29 CFR 1926.55 ANSI Z88.6
- 29 CFR 1926.57
- 29 CFR 1926.103

**Appendix A: Voluntary Respirator Use Agreement - Filtering Face-Piece (i.e. N-95, Dust Mask) Respirators**
University of Minnesota Respiratory Protection Program
Voluntary Respirator Use Agreement

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

You should do the following:

1. Only wear an approved respirator certified to protect against the contaminant of concern.
2. Read and follow all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
3. Do not wear your respirator into areas containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Employee Information (Please print clearly)

Employee Name (Last, First) ________________________________

Department/ Shop: ________________________________

Respirator Type: _______ Filtering Face-Piece (i.e. N-95, Dust Mask)

I have read and understood the information provided above regarding voluntary respirator use.

_________________________________________       ___________________
Employee Signature                                      Date