Respirators can be a valuable tool in protecting employees from airborne hazards. Employees that are working in areas that may have exposures to dusts, fogs, smokes, mists, gases, vapors, sprays, or any other hazardous conditions may be required to use a respirator. A hazard assessment must be conducted to assess the need. Any employee who is required to use a respirator or thinks they may need to use a respirator must follow the procedures listed below:

1. Employees who believe there is a need to use a respirator in the workplace or employees who have been deemed necessary to use a respirator must alert their supervisor. The supervisor will contact the Director of Risk Management/Environmental Health & Safety.
2. The Director of Risk Management/Environmental Health & Safety will conduct a hazard assessment of the workplace and job duties with the employee.
3. If the hazard assessment demonstrates the need for a respirator, the employee will be sent to Carroll Occupational Health for a medical evaluation as required under the OSHA standard, to ensure they are medically able to use a respirator.
4. Carroll Occupational Health will send the results to Human Resources, who will alert the Director of Risk Management/Environmental Health & Safety of the results.
5. If the employee has been medically cleared to use the respirator, the supervisor will be informed, and training and fit testing will be scheduled by the Director of Risk Management/Environmental Health & Safety.
6. If the employee has not been medically cleared to use a respirator, a meeting with the employee, supervisor, and the Director of Risk Management/Environmental Health & Safety will be scheduled to make alternate arrangements to ensure the employee’s safety.
7. Each department will be responsible for funding the respirator.
8. The medical evaluation, fit testing, and training must be performed annually.

There are situations that a respirator is not warranted under the standard; however, the use of a respirator would provide the employee with an additional level of comfort and protection. An employee may voluntarily use an N-95 (dust mask) respirator as long as it does not in itself create a hazard. This can occur if the respirator is used improperly or not kept clean. Any employee who wishes to use an N-95 (dust mask) respirator voluntarily when there is no requirement under the standard must follow the procedures listed below:
1. Employees who wish to use a respirator in the workplace must alert their supervisor. The supervisor will contact the Director of Risk Management/Environmental Health & Safety.

2. The Director of Risk Management/Environmental Health & Safety will conduct a hazard assessment of the workplace and job duties with the employee.

3. If the hazard assessment demonstrates that the employee is eligible to voluntarily use a respirator and there is no requirement under the standard, the employee will be provided with this Policy, which includes a copy of Appendix D to 29 CFR 1910.134.

4. The employee must read and complete the waiver found in Appendix 2 of this document, Waiver for Employees Voluntarily Using Respirators to its entirety and comply with proper use, cleaning, and storage methods of the respirator, as well as all manufacturer instructions. McDaniel College assumes no liability related to use of voluntary respirators.

5. If at any point in the future, the employee’s job duties change or the employee or supervisor becomes concerned that a respirator may be required and not voluntary, they must contact the Director of Risk Management/Environmental Health & Safety for a hazard assessment to be conducted.
Appendix 1 – Respirator FAQs

What is a respirator?
A respirator is a device that protects you from inhaling dangerous substances, such as chemicals and infectious particles. Respirators are among the most important pieces of protective equipment for working in hazardous environments. Selecting the right respirator requires an assessment of all the workplace operations, processes or environments that may create a respiratory hazard. The identity of the hazard and its airborne concentrations need to be determined before choosing a respirator. This assessment should be done by experienced safety personnel or by an industrial hygienist. There are several different types of respirators, as described below.

How do respirators work?
Respirators work by either filtering particles from the air, chemically cleaning (purifying) the air, or supplying clean air from an outside source.

**Particulate Respirators:** Particulate respirators are the simplest, least expensive, and least protective of the respirator types available. These respirators only protect against particles (e.g., dust). They do not protect against chemicals, gases, or vapors, and are intended only for low hazard levels. The commonly known "N-95" filtering facepiece respirator or "dust mask" is one type of particulate respirator, often used in hospitals to protect against infectious agents. Particulate respirators are "airpurifying respirators" because they clean particles out of the air as you breathe.

- Filter out dusts, fumes and mists.
- Are usually disposable dust masks or respirators with disposable filters.
- Must be replaced when they become discolored, damaged, or clogged.
- Examples: filtering facepiece or elastomeric respirator.

**Chemical Cartridge/Gas Mask Respirator:** Gas masks are also known as "air-purifying respirators" because they filter or clean chemical gases out of the air as you breathe. This respirator includes a facepiece or mask, and a cartridge or canister. Straps secure the facepiece to the head. The cartridge may also have a filter to remove particles. 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" cartridge that protects against all substances. It is important to know what hazards you will face in order to be certain you are choosing the right filters/cartridges.

- Uses replaceable chemical cartridges or canisters to remove the contaminant.
- Are color-coded to help you select the right one.
- May require more than one cartridge to protect against multiple hazards.

**Powered Air-Purifying Respirator (PAPR):** Powered air-purifying respirators use a fan to draw air through the filter to the user. They are easier to breathe through; however, they need a fully charged battery to work properly. They use the same type of filters/cartridges as other air-purifying respirators. It is important to know what the hazard is, and how much of it is in the air, in order to select the proper filters/cartridges.
**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 on how to use and to maintain them. Also, the air tanks typically last an hour or less depending upon their rating and your breathing rate (how hard you are breathing).

**Self-Contained Breathing Apparatus:**

- Provide clean air from a portable air tank when the air around you is simply too dangerous to breathe.

  All of these respirators (except for the "dust masks" or filtering face pieces) are available in either half-mask or full-face pieces.

**What are respirators made from?**

Filtering facepiece (dust masks) are generally made directly from a cloth-like filter material. Chemical cartridge/gas mask respirators can be made from a variety of materials. The most popular facepiece materials are silicone, neoprene, and rubber. In general, rubber and neoprene are rigid, durable materials. Silicone is usually preferred for its comfort, flexibility and ease in cleaning. Full-face respirators are available with strap harnesses or ratchet suspensions. The harness type can be worn under a hard hat, but ratchet suspensions are generally easier to adjust, making donning and doffing easier.

**What optional features are available for respirators?**

Various features are available to help you customize respirators to suit your employees and the specific hazards they encounter. For example, nose cups reduce lens fogging with full facepiece respirators and lens covers protect the lens from paint, minor chemical splash and scratches. Spectacle kits are needed when using prescription corrective lenses. The frame mounts into full-face masks, and the prescription lenses are made by the users' optometrist. This allows the wearer to maintain a proper fit and still wear prescription lenses.

**How are particulate filters classified?**

There are nine classes of particulate filters which are broken down into three series: N, R, and P. Each series (N, R, and P) is available at three efficiency levels: 95%, 99%, and 99.97%. The N series filter is used in environments free of oil mists. The R series filters can be exposed to oil mists, but should only be worn for one work shift. The P filter can be exposed to oil mists for longer than one work shift.

**What is the color coding for gas mask chemical cartridges/canisters?**

All cartridges are assigned a color designating the type of contaminant they filter:

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Color Coding on Cartridge/Canister</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid gases</td>
<td>White</td>
</tr>
<tr>
<td>Hydrocyanic acid gas</td>
<td>White with 1/2 inch green stripe completely around the canister near the bottom.</td>
</tr>
<tr>
<td>Chlorine gas</td>
<td>White with 1/2 inch yellow stripe completely around the canister near the bottom.</td>
</tr>
<tr>
<td>Organic vapors</td>
<td>Black</td>
</tr>
</tbody>
</table>
### Contaminant

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Color Coding on Cartridge/Canister</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia gas</td>
<td>Green</td>
</tr>
<tr>
<td>Acid gases and ammonia gas</td>
<td>Green with 1/2 inch white stripe completely around the canister near the bottom.</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>Blue</td>
</tr>
<tr>
<td>Acid gases &amp; organic vapors</td>
<td>Yellow</td>
</tr>
<tr>
<td>Hydrocyanic acid gas and chloropicrin vapor</td>
<td>Yellow with 1/2 inch blue stripe completely around the canister near the bottom.</td>
</tr>
<tr>
<td>Acid gases, organic vapors, and ammonia gases</td>
<td>Brown</td>
</tr>
<tr>
<td>Radioactive materials, except tritium &amp; noble gases</td>
<td>Purple (magenta)</td>
</tr>
<tr>
<td>Pesticides</td>
<td>Organic vapor canister plus a particulate filter</td>
</tr>
<tr>
<td>Multi-Contaminant and CBRN agent</td>
<td>Olive</td>
</tr>
<tr>
<td>Any particulates - P100</td>
<td>Purple</td>
</tr>
<tr>
<td>Any particulates - P95, P99, R95, R99, R100</td>
<td>Orange</td>
</tr>
<tr>
<td>Any particulates free of oil - N95, N99, or N100</td>
<td>Teal</td>
</tr>
</tbody>
</table>

### Are there any cautions or limitations when using respirators?

Yes. Each type of respirator can come in several varieties, each with its own set of cautions, limitations, and restrictions of use. Tight fitting respirators require fit testing to ensure an adequate fit to the face, and cannot be used with facial hair. Certain escape respirators use a nose clip and mouthpiece, which is clenched between your teeth, similar to a snorkel. Some respirators prevent the user from talking while others have speaking diaphragms or electronic communication devices. Every respirator contaminated with hazardous chemicals should be cleaned and decontaminated or disposed of properly.

All respirators require training in order to be properly used. Sometimes you can practice using your own respirator. Some escape respirators come in a package that must remain sealed until use, so you need to be trained using a special “practice” version. Training is extremely important in regard to the storage, maintenance, use, and disposal of the respirator. This information is provided by the supplier of the respirator (i.e., seller, distributor, or manufacturer). If you do not use a respirator correctly, it is very likely that it will not adequately protect you and may even hurt you.

### How well does a respirator need to fit me?

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. Most 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.

The only way to tell if a tight-fitting respirator fits you properly, and is capable of protecting you, is to fit test the respirator. Fit testing can be accomplished a number of different ways and
should be done by a health and safety professional before workers wear a respirator in a hazardous environment. Respirators must be checked for proper fit each time they are donned to ensure they provide adequate protection.

**Can I wear a respirator if I have a beard?**
Anything that prevents the face mask from fitting tightly against your face, such as a beard or long sideburns, may cause leakage. If your respirator requires a tight fit, you must trim back your beard so that it will not interfere with the face-facepiece seal. If your respirator is a loose-fitting (hooded) positive pressure respirator (e.g., a powered air-purifying respirator, PAPR) then you may have a beard.

**If I have the right cartridges/filters for a certain hazard, and my mask fits, will they always protect me against that hazard?**
No. Gas masks and respirators reduce exposure to the hazard, but if the exposure is such that it goes beyond what the filter is capable of handling (either because the amount of toxic gas or particles is more than what the filter is designed to handle, or because the exposure lasts longer than what the filter is designed to handle), the filter may not be effective in providing required protection. Also, there may be a small amount of leakage even if the fit of the respirator has been tested. If so, and if there is a large amount of a toxic chemical in the outside air, even that small leakage can be dangerous.

**Can anyone wear a respirator?**
No. Breathing through a respirator is more difficult than breathing in open air. People with lung diseases, such as asthma or emphysema, elderly people, and others may have trouble breathing. People with claustrophobia may not be able to wear a full facepiece or hooded respirator. People with vision problems may have trouble seeing while wearing a mask or hood (there are special masks for people who need glasses). Employees must be medically evaluated before assigned to use a respirator.

**Will my cartridge/filter and respirator mask protect forever?**
No. Cartridges, filters, and masks get old. If the filter cartridges are outdated, have been open to the air or are damaged, you may not be protected. Cartridges that contain charcoal or other chemicals for filtering the air should be kept in air-tight packages until use. If cartridges are open or not packed in air-tight packaging, they should not be used. Even cartridges in original packaging have expiration dates that should be checked before purchase and use. Also, over time your mask can get old and break down. Keep your mask in a clean, dry place, away from extreme heat or cold. Inspect it before and after use according to the manufacturer's instructions. Cartridges also have a limited service life; they must be changed periodically during use.

**Will a gas mask protect me if there is not enough oxygen in the air?**
No. Air-purifying respirators do not provide oxygen. If used in an environment with low oxygen levels, such as in a fire or a confined space, you are in danger of asphyxiation.

**Will a gas mask protect me if there is a fire?**
Most will not. It's important to read the manufacturer's information if your main concern is to be able to escape from a smoke-filled building. Smoke particles can rapidly clog gas mask filters,
and filters with special chemicals are needed to protect against carbon monoxide and other gases that may occur in a fire. Not all gas masks or escape respirators protect against these hazards. Some components, including hoods and facepieces, of many of the gas masks and escape respirators may melt if exposed to a fire.

**Once I put on my gas mask, how long will it last?**

That depends on how much filtering capacity the respirator has and the amount of hazard in the air – the more chemical or biological hazard in the air (higher concentration), the shorter the time your filter will last. There is no absolute time limit, and it will vary by each respirator model's capacities and the concentration of the hazard.

*Adapted from General Respiratory Guidance for Employees, OSHA Safety Bulletin 2011*
Appendix 2 – Waiver for Employees Voluntarily Using Respirators

There are situations that a respirator is not warranted under the standard, however, the use of a respirator would provide the employee with an additional level of comfort and protection. An employee may voluntarily use an N-95 (dust mask) respirator as long as it does not in itself create a hazard. This can occur if the respirator is used improperly or not kept clean. The following information is copied from 29 CFR 1910.134, OSHA Respiratory Protection Standard and applies to the voluntary use of respirators. After reading the information below, please complete the section at the end of this form and submit to Jaclyn Graves, Director of Risk Management/Environmental Health & Safety.

APPENDIX D TO §1910.134 (MANDATORY) INFORMATION FOR EMPLOYEES USING RESPIRATORS WHEN NOT REQUIRED UNDER THE STANDARD

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 wear 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, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:
1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use 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. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. 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.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

The filtering respirator you have elected to use is approved when worn properly against nuisance non-hazardous particulates. It will not provide protection against chemical vapors or airborne particulates. By signing this waiver, you agree to properly use, clean, and store your voluntary respirator and comply with all manufacturer instructions. McDaniel College assumes no liability related to use of voluntary respirators. If at any point in the future, your job duties change, or you or supervisor becomes concerned that a respirator may be required and not voluntary, contact the Director of Risk Management/Environmental Health & Safety for a hazard assessment to be conducted.

Name (print): ______________________________ Job Title: ______________________________

Department: ______________________________ Supervisor: ______________________________

Reason for dust mask use: __________________________________________________________

I have read and understand the information provided:

Sign: _____________________________________ Date: ______________________________