

Pandemic Recovery Plan Research Sub Committee - Respiratory Protection Guidelines

Respiratory protection should always be selected based on the nature of the hazard present in the laboratory. Academic research laboratories are home to a wide variety of potentially hazardous materials. The Centers for Disease Control and Prevention (CDC), the National Institutes of Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Administration (OSHA) all recommend the following hierarchy of controls for hazard mitigation (in descending order of efficacy):

- Elimination and Substitution – remove or replace the hazard
- Engineering Controls – isolate the hazard
- Administrative Controls – institute sound work practices, rules, and guidelines
- Personal Protective Equipment (PPE) – wear protective gear

Understand the limits of respiratory protection.

It is important that personnel wearing face masks or respirators understand the type of hazard the face mask or respirator is designed to protect against. For example, a dust mask may offer protection against dust and particulates but offers no protection against chemical vapors.

Fabric Face Coverings:

During the COVID-19 pandemic, the CDC has recommended the wearing of fabric face coverings for all Americans when out in public. In line with federal and state recovery plans, the NJIT recovery plan describes a phased recovery of campus operations with more faculty, students, and staff expected to be on campus as we progress through the phasing process. It is anticipated that cloth face coverings will be required throughout phase 0, phase 1, and phase 2 of the recovery process.

The cloth face coverings recommended by the CDC are appropriate to be worn for most office, classroom, and campus activities during the phased recovery of NJIT's operations.

CDC recommendations include a reminder that cloth face coverings are not surgical masks or N-95 respirators which are considered critical supplies to be reserved for emergency responders and medical personnel.

The cloth face coverings recommended by the CDC are appropriate to be worn for most office, classroom, and campus activities during recovery. However, there may be certain situations where disposable face coverings, face masks, or enhanced respiratory protection are required, including:

Disposable Face Masks for Laboratory Settings:

Due to the presence of a variety of potentially hazardous materials present in research and instructional laboratories, reusable cloth face masks are not ideal for laboratory activities. This is due to the possible contamination of the cloth face covering with potentially harmful laboratory reagents including chemical, biological, or radioactive materials. Additionally, similar to lab coats, reusable PPE worn in the laboratory should not be laundered at home. This is to prevent the dissemination of contamination outside the laboratory.

Disposable face masks below the N-95 level of efficiency:

EHS recommends disposable face masks below the level of N-95 efficiency for use in research laboratories during the phased recovery period. Examples of disposable face masks include surgical masks, procedure masks and dust masks.

Respirators at or above the N-95 level of efficiency:

Typically, research laboratories utilize the hierarchy of controls for hazard mitigation when working with potentially hazardous materials in the laboratory. For example, hazardous chemicals are manipulated in a chemical fume hood to isolate the chemical vapors from the laboratory worker. This is an example of an engineering control.

The use of N-95 filtering face masks or higher levels of respiratory protection must be done in accordance with the OSHA Respiratory Protection Standard. Respirator selection must be based on the nature of hazard and should only be considered when elimination/substitution, engineering controls, and administrative controls are not effective or not feasible to implement.

OSHA Respiratory Protection Standard (29 CFR 1910.134):

The use of N-95 filtering face masks or higher levels of respiratory protection is performed in accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134). This standard has also been adopted for public employees in the state of New Jersey by Public Employees Occupational Safety and Health (NJ PEOSH).

The Respiratory Protection Standard requires the following main elements:

- Implementation of a written Respiratory Protection Program
- Medical evaluation to determine fitness to wear a respirator
- Training on respirator selection, limitations, care, use, cleaning, and storage
- Fit testing of personnel for the specific respirator to be worn

Summary of PRP Respiratory Protection Guidelines:

- Fabric Face Coverings - appropriate to be worn for most office, classroom, and campus activities.
- Disposable Face Coverings below the N-95 level of efficiency – appropriate for use in laboratories during the phased recovery process.
- N-95 Filtering Face Masks or Higher Levels of Respiratory Protection – may only be worn to protect against specific laboratory hazards based on a hazard assessment and must be utilized in conformance with the OSHA Respiratory Protection Standard.

Conditions:

The COVID-19 pandemic has necessitated the use of disposable face masks in the laboratory setting. Disposable face masks are preferred to reusable face masks to limit the dissemination of potential contamination outside the laboratory. The CDC's recommendations on face coverings is intended to protect the larger group from an undiagnosed individual (while the use of an N-95 respirator is intended to protect the individual). Additionally, disposable face masks offer little or no protection against various laboratory hazards. Care must be taken when manipulating hazardous materials in the laboratory to avoid hand to face behaviors. The hierarchy of controls (elimination/substitution, engineering controls, and administrative controls) should be implemented prior to considering respiratory protection. Hazardous materials need to be manipulated in a chemical fume hood.