

# Back to Work: Are Respirators Needed?

Jessica Hauge, MPH, CIH, CSP

3M Application Engineer

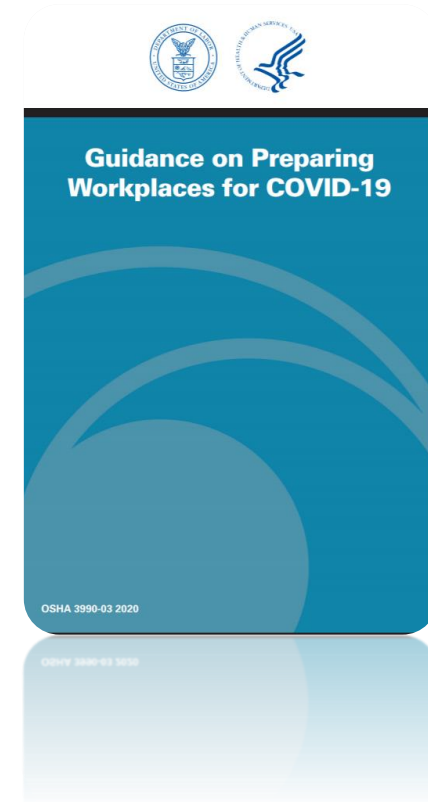
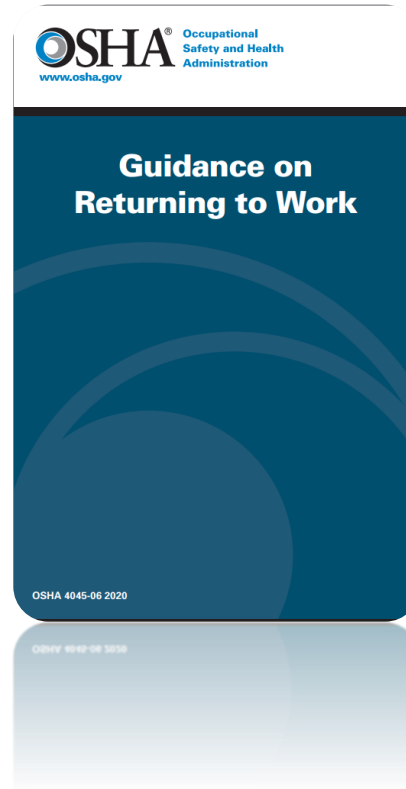
[jlthauge@mmm.com](mailto:jlthauge@mmm.com)

The background consists of a complex, abstract pattern of overlapping triangles in various shades of yellow and orange. The triangles vary in size and orientation, creating a dynamic, low-poly aesthetic. The colors range from bright, saturated yellow to a deeper, more muted orange, with some areas appearing as lighter, almost white highlights where the triangles overlap.

**Are Respirators  
Needed?**

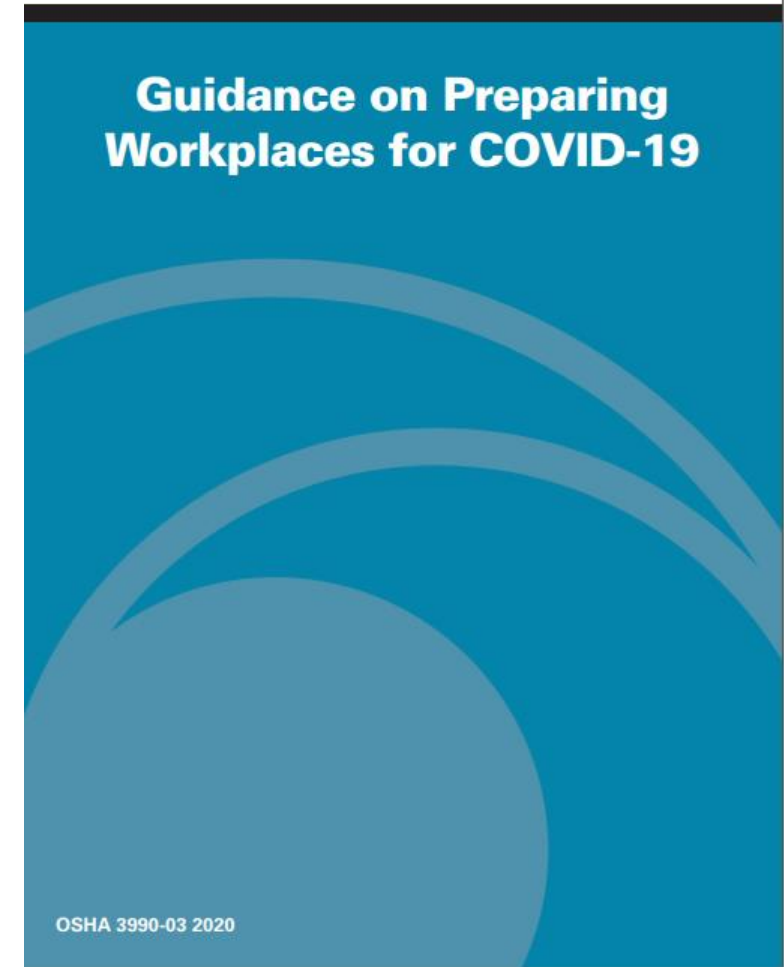
# Available Resources

Get information and guidance from trusted sources



# OSHA COVID-19 Guidance

- Key elements of a COVID-19 plan
- Suggested Risk Assessment Categories
- Suggested controls by risk level
  - Engineering
  - Administrative
  - PPE



# OSHA Guidance on Preparing Workplaces for COVID-19: Risk Pyramid

**Occupational Risk Pyramid  
for COVID-19**



Healthcare and Medical Personnel

Jobs that require frequent and/or close contact with others

Jobs that do not require frequent and/or close contact with others. Minimal occupational contact with the public and other coworkers

# Evaluating the Need for Respirators

<https://multimedia.3m.com/mws/media/1833462O/evaluating-the-need-for-respirators-during-covid-19-pandemic-non-healthcare-workplaces.pdf>

## Evaluating the Need for Respirators during COVID-19 Pandemic – Non-healthcare Workplaces

### Summary

During the COVID-19 pandemic, many employers need to determine whether their workers require personal protective equipment (PPE) to help reduce their potential on-the-job exposure to the virus which causes the disease. **According to a non-regulatory guidance document published by the US Occupational Safety and Health Administration (OSHA), which takes a hazard banding approach to categorizing work, the majority of non-medical workers do not require the use of respiratory protection.**

[Guidance on Preparing Workplaces for COVID-19 \(OSHA\)](#)

### Background

The COVID-19 Pandemic has resulted in hundreds of thousands of confirmed cases as of April 2020. COVID-19 is a pneumonia-like disease caused by the virus SARS-CoV-2, which is transmitted primarily via airborne droplets, aerosols, and also likely via surface contact.

To help reduce the chance of acquiring the disease, the World Health Organization (WHO) advises members of the public to wash their hands regularly, avoid touching their eyes, mouth and nose, cover their nose and mouth with a tissue or their elbow (not their hand) when sneezing and coughing, and avoid close contact with anyone who is coughing or sneezing or showing signs of respiratory illness. At this time WHO has not made any recommendations for personal protective equipment (PPE) use by the general public, including respirators and masks.

[Coronavirus disease \(COVID-19\) advice for the public \(WHO\)](#)

### Non-healthcare Workplaces during COVID-19

In many parts of the world, governments have issued “Stay at Home” or “Shelter in Place” orders to promote social distancing measures, requiring business to temporarily close. But many operations, such as utilities, transportation, food and other necessary goods, essential construction, etc., are considered critical and must remain operational.

In light of COVID-19, employers around the world have been needing to consider the possibility of PPE to their workers, in many cases for the first time.

Several sets of guidelines have been published to help employers prepare for and cope with the COVID-19 pandemic:

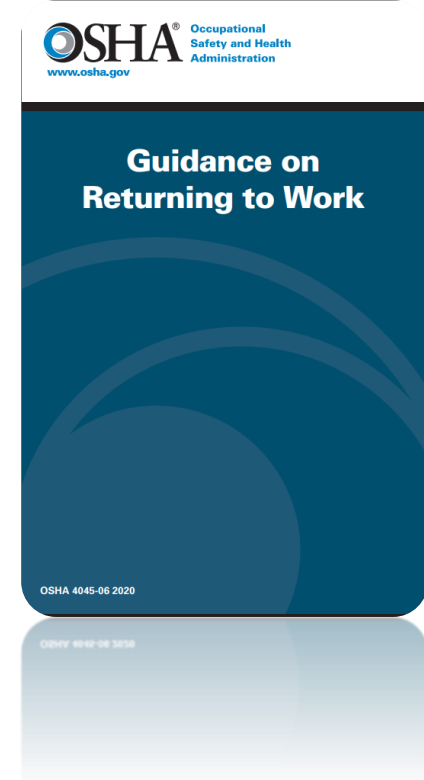
- [Getting Your Workplace Ready for COVID-19 \(WHO\)](#)

# Risk Assessment

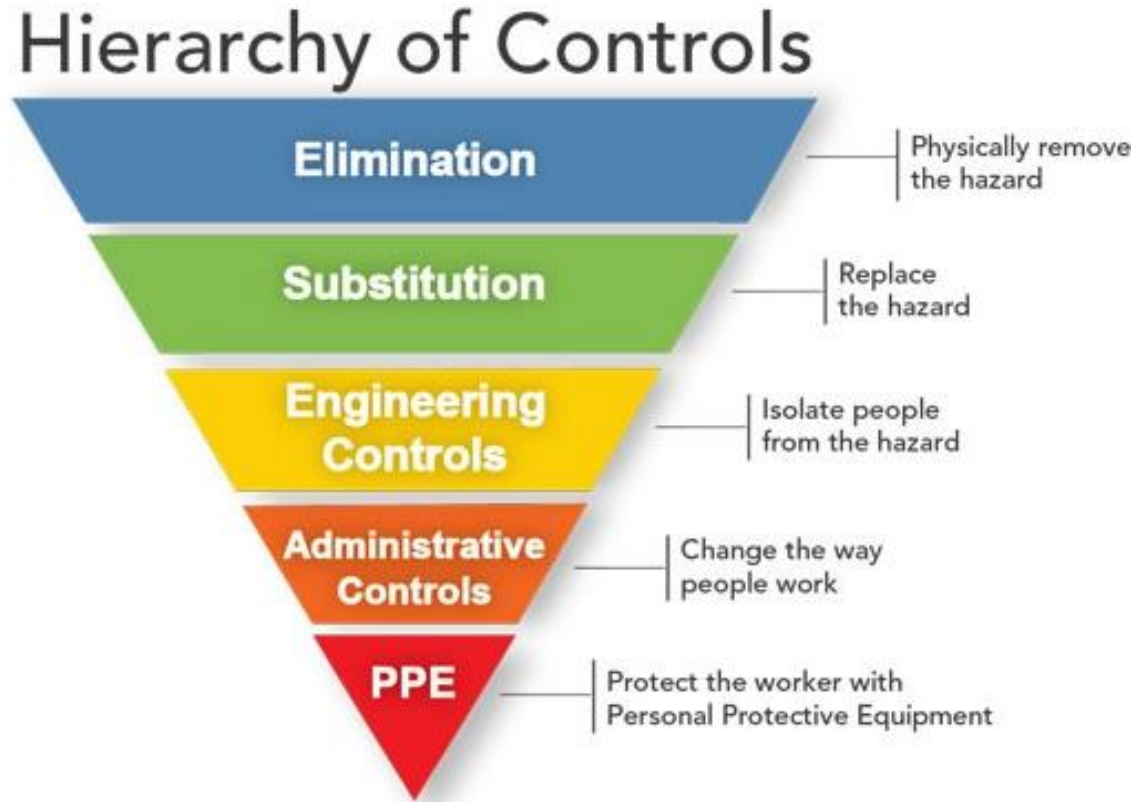
---

<https://www.osha.gov/Publications/OSHA4045.pdf>

- Every work activity is unique
- Evaluate the workplace individually and practically
- Follow local regulations
- Check with other peers in Industry
- Make simple changes



# Hierarchy of Controls



- **Elimination:** Focusses on eliminating / removing the hazard altogether
- **Substitution:** Looks at the materials used in the process and considers there's a suitable alternative that's safer
- **Engineering Controls:** examine what engineering controls can be installed in the existing process, applications or facilities to reduce exposure to the hazard at source
- **Administrative controls:** the last of the collective controls such as safety signage, job rotation, PPE zones
- **PPE :** PPE is classified as the least effective and reliable control measure in the hierarchy of that requires correct selection of adequate and suitable PPE

Promoting productive workplaces through safety and health research / **NIOSH**<sup>®</sup>

**CDC** Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™

<https://www.cdc.gov/niosh/topics/hierarchy/default.html>



# Select COVID-19 Engineering & Administrative Controls

## Engineering Controls

Barriers – 6 feet travel distance face to face

## Administrative Controls

Physical distancing

Restrict access or limit capacity in enclosed areas such as elevators, trailers, small spaces, shared vehicles, and break areas

Modify work schedules to stagger trades, or minimize mixing of shifts

Limit in-person meetings

Designate “lanes” in hallways/walkways

Face coverings as source control – **not a substitute for distancing!**

If workers wear cloth face coverings, is 6-ft distance still required?

**“Yes. Cloth face coverings are not a substitute for social distancing measures.”**







- OSHA COVID-19 FAQs ([link](#))

When these controls are not feasible, **respiratory protection** may be necessary.

-OSHA Guidance on Returning to Work

Compiled from OSHA, CDC, WHO guidance

# Respiratory Protection Devices and Masks

	Not PPE <sup>1</sup>	Considered PPE by OSHA <sup>1</sup>				
	Homemade face covering 	Procedure Mask 	Surgical Mask 	Filtering Facepiece Respirators 	Elastomeric Respirators 	PAPR with hood, helmet, or headcover 
Fitment	Loose	Loose	Loose	Tight	Tight	Loose
Recommended* as source control to help capture spit or mucous expelled by wearer	●	●	●	● (some models only)		
Tested for fluid resistance			●	● (some models only)		
Designed to help reduce the wearer's exposure to airborne particulate hazards when properly selected and worn				●	●	●
>94-95% filtration efficiency against particulates**				●	●	●
Some components can be cleaned / disinfected and reused					●	●

This table provides general information concerning the products shown. Always read and follow all user instructions and applicable guidance.

\*Recommended by [CDC](#), [OSHA](#), and/or [FDA](#) as source control.

\*\*when used with an N95, FFP2 or similar particulate filter

<sup>1</sup> OSHA Guidance on Returning to Work <https://www.osha.gov/Publications/OSHA4045.pdf>

# Valved vs Unvalved Respirator

## Valved Respirators



**Inhalation:** As the wearer inhales, air is pulled through the respirator.

- Inhaled air is filtered

**Exhalation:** As the wearer exhales, the respirator is filled with warm, moist air.

- Exhaled air exits through the valve and filter media
- Exhaled air passing through valve is not filtered

## Unvalved Respirators



**Inhalation:** As the wearer inhales, air is pulled through the respirator.

- Inhaled air is filtered

**Exhalation:** As the wearer exhales, the respirator is filled with warm, moist air.

- Exhaled air passes through filter media
- Exhaled air is filtered

# Half-mask respirator & Loose-fitting PAPR

## Half-mask respirator



**Inhalation:** As the wearer inhales, air is pulled through the attached particulate filters.

- Inhaled air is filtered

**Exhalation:** As the wearer exhales, the mask is filled with warm, moist air.

- Exhaled air exits through valve
- Exhaled air is not filtered.

## Loose-fitting PAPR



A battery-powered motorized fan pulls air through a filter, supplying a continuous flow of air into a hood or headtop.

The continuous flow of filtered air is greater than the volume of air inhaled by the wearer. Therefore, there is a constant flow of air escaping from the hood or headtop.

Although the hood or headtop is loose-fitting, there is a face or neck seal.