

# **Guidelines to Protect Workers Related to Coronavirus (COVID-19) and Other Potential Infectious Materials (OPIM) in Plumbing and HVAC Systems**

**March 18, 2020**

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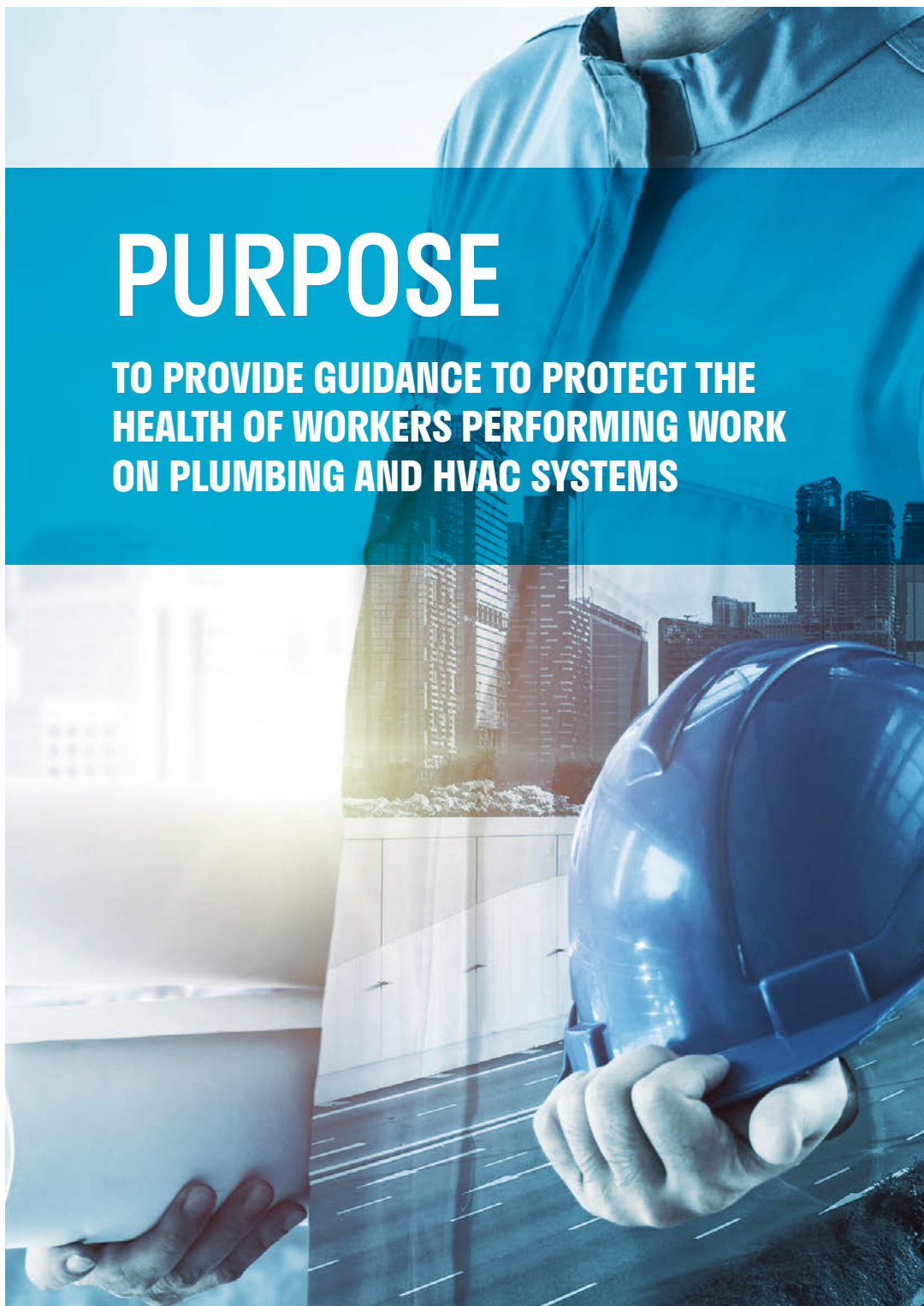
*Updated March, 25, 2020*

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# PURPOSE

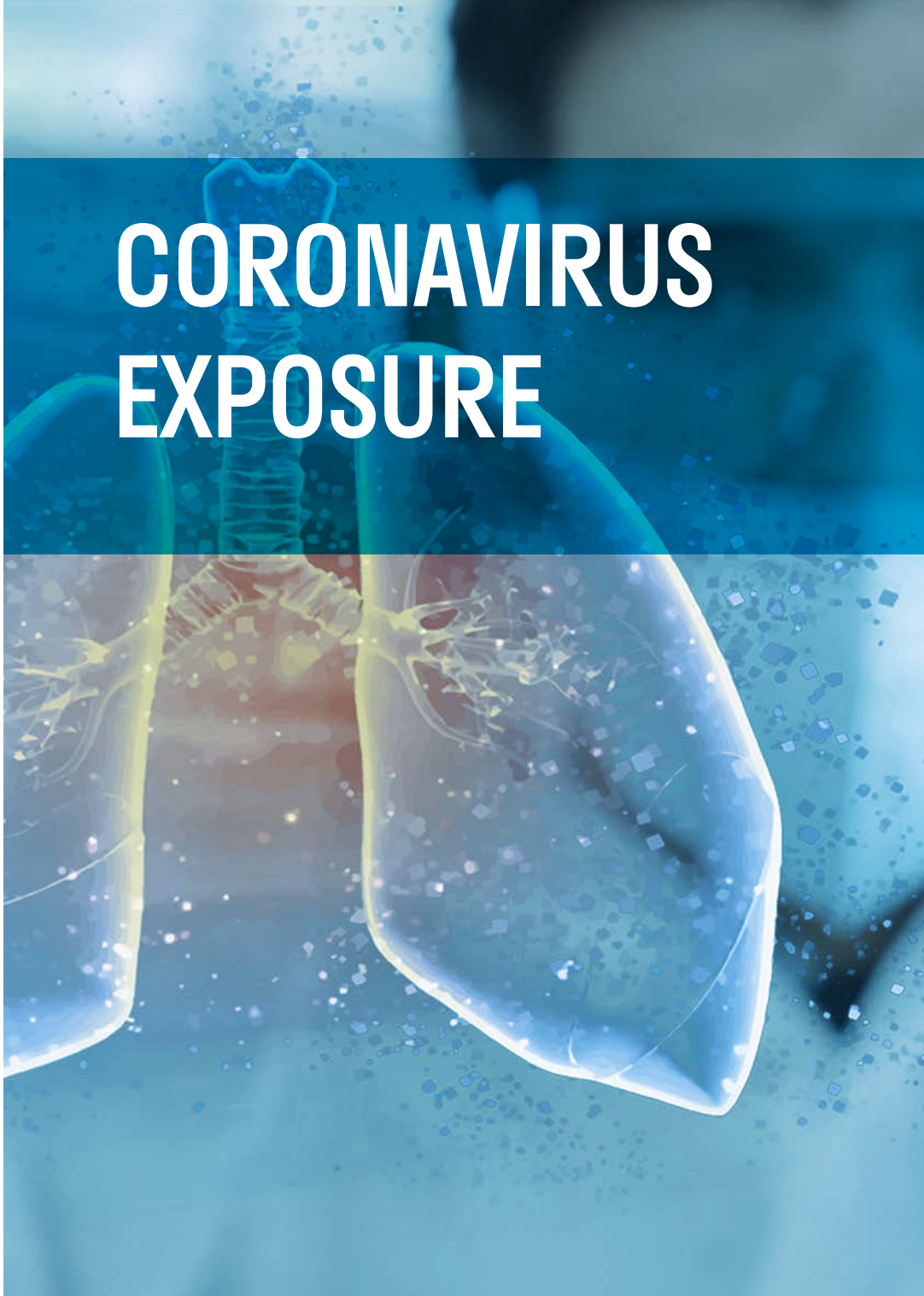




TO PROVIDE GUIDANCE TO PROTECT THE HEALTH OF WORKERS PERFORMING WORK ON PLUMBING AND HVAC SYSTEMS



# TABLE OF CONTENTS

<b>Section</b>	<b>Page</b>
Coronavirus Exposure.....	4-6
Understanding Coronavirus Exposure for the Mechanical Trades.....	5
How do you get infected with COVID-19? .....	5
What are the symptoms? .....	6
Can it be spread through drinking water? .....	6
Can the virus spread through sanitary drain and vent systems? .....	6
Mechanical Tradespeople.....	7-10
How do mechanical tradespeople protect themselves? .....	8
OSHA Standards .....	8
Personal Protective Equipment (PPE) for Working on Sanitary Drain and Sewer Systems .....	9
Additional Best Practice Recommendation for PPE.....	10
Personal Protective Equipment (PPE) for Working Near Plumbing Vents and Rooftop HVAC Equipment, Specifically Exhaust Fans.....	10
Procedures for Tool Cleaning.....	11
Training for Workers .....	12-13
CDC Recommendations .....	13
Practice Social Distancing .....	14
Resources .....	15-16





# CORONAVIRUS EXPOSURE

SECTION  
**01**

## CORONAVIRUS EXPOSURE

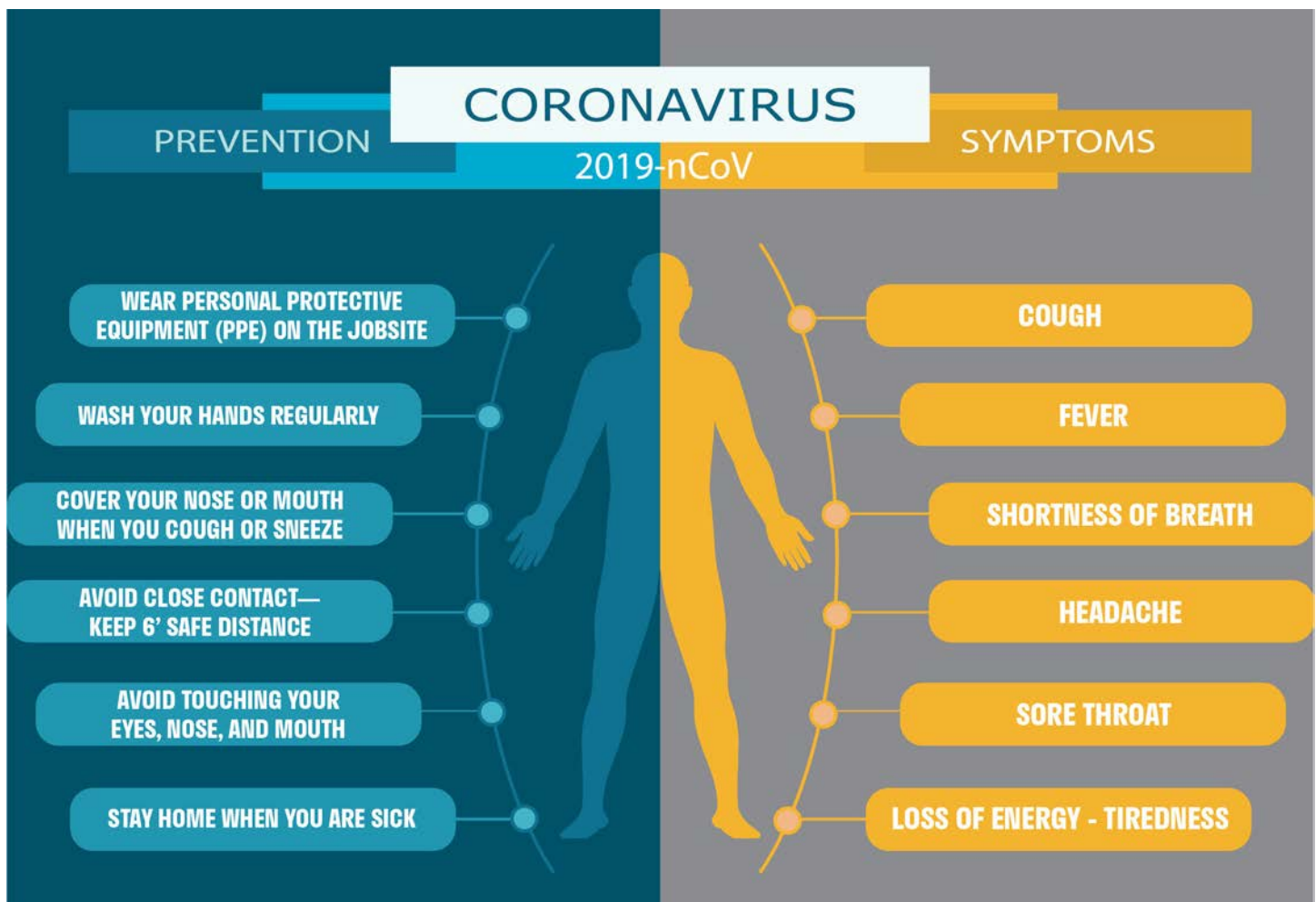
### Understanding Coronavirus Exposure for the Mechanical Trades

It is important to understand that Coronavirus is a large family of viruses found in humans and animals. Coronaviruses are responsible for upper respiratory infections, which range from a common cold to death. In 2002-2003, a new animal coronavirus called SARS (severe acute respiratory syndrome) emerged in humans in Southern China and spread throughout 29 countries around the world. A total of 8,098 individuals were infected, resulting in 774 fatalities.

In 2019, a pandemic outbreak of another coronavirus was discovered in Wuhan, China. This new coronavirus is called SARS-CoV-2 which causes the disease known as COVID-19. This new coronavirus, SARS-CoV-2, is spreading much quicker than the 2003 SARS outbreak. To date, Johns Hopkins reports that over 190,000 people worldwide are infected with over 7,500 fatalities. Because this virus can be easily transmitted between humans, the World Health Organization (WHO) has qualified this virus as a pandemic. All predictions are that this pandemic is going to continue to spread quickly.

### How do you get infected with COVID-19?

The disease is spread by close person-to-person contact. It usually occurs from a cough, sneeze, or when someone exhales. This releases infected droplets that can get into another's mouth, nose, or lungs. Most of these droplets fall onto nearby surfaces and objects like desks, tables or telephones. People could catch COVID-19 by touching contaminated surfaces or objects – and then touching their eyes, nose or mouth. It is unclear how long a virus can remain contagious when exposed on a surface. COVID-19 spreads in a way like the flu.



### What are the symptoms?

Most infected with COVID-19 experience mild symptoms and recover. However, some experience more serious illness and may require hospital care. Risk of serious illness rises with age. Those who are elderly are at a higher risk. People with weakened immune systems and people with conditions such as diabetes, heart and lung disease are also more vulnerable to serious illness. Symptoms of COVID-19 include fever, cough, or shortness of breath.

### Can it be spread through drinking water?

According to the CDC, the SARS-CoV-2 virus has not been detected in drinking water. Conventional water treatment methods that use filtration and disinfection should remove or inactivate the SARS-CoV-2 virus that causes COVID-19.

### Can the virus spread through sanitary drain and vent systems?

According to the CDC, the virus can survive in human feces. How long it will survive and how contagious it remains is unclear. The Chinese government identified an outbreak in a sanitary drain and vent system in Hong Kong. The Hong Kong outbreak took place in a 30-story high-rise building. The sanitary drain and vent systems were “altered” which resulted in open vent connections within the building. The building was evacuated after numerous COVID-19 cases were diagnosed.

***“Therefore, for as long as the pandemic is still active, it should be assumed by anyone working on a sanitary drainage system that the virus is present.” (IAPMO, 3/11/2020)***





# MECHANICAL TRADESPEOPLE

SECTION

# 02





## MECHANICAL TRADESPEOPLE

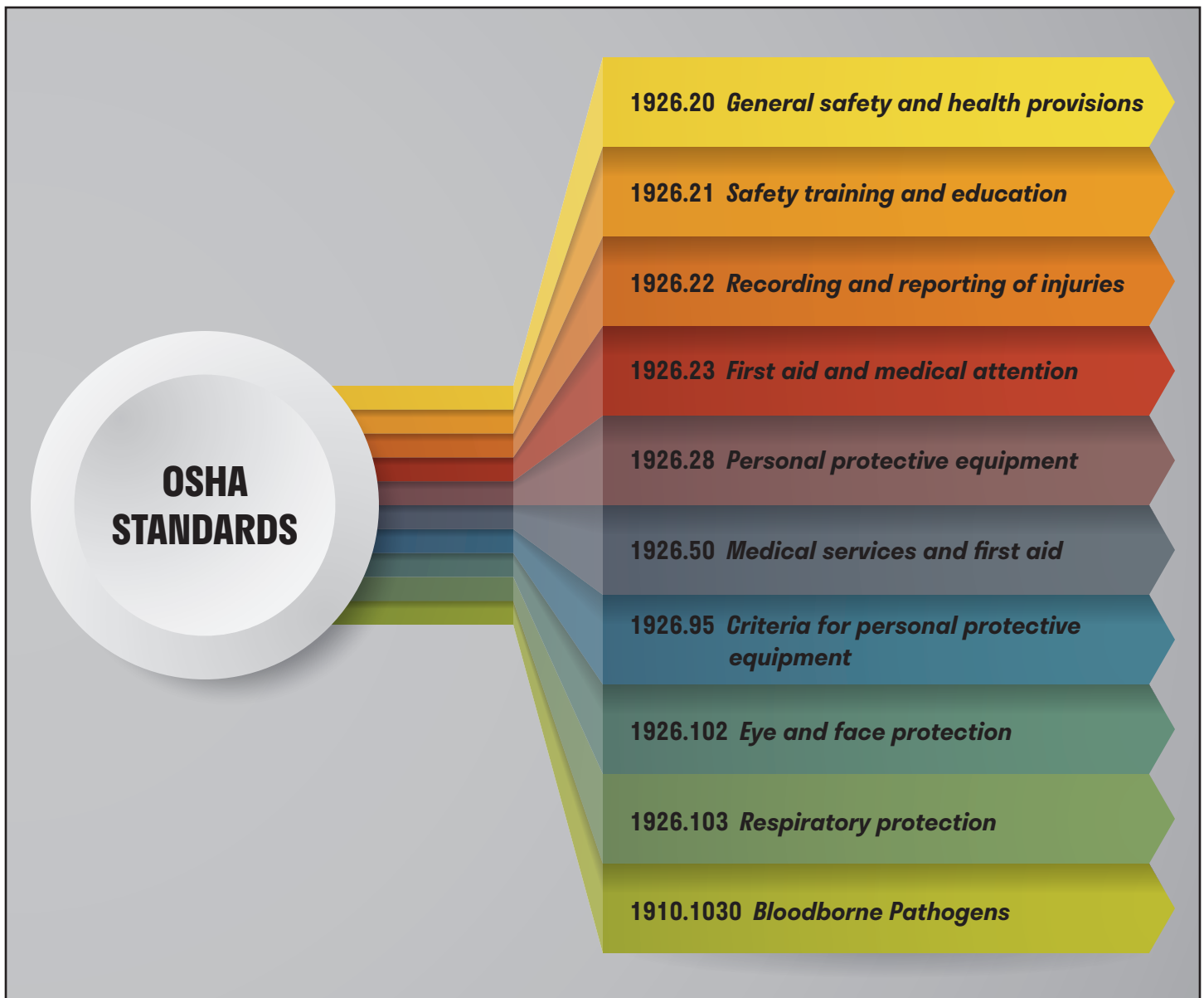
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### How do mechanical tradespeople protect themselves?

All plumbers and HVAC service technicians working on these systems are strongly recommended to wear personal protective equipment (PPE) including a full face shield worn over safety goggles, impermeable gloves, and protective clothing, because of the potential to come into contact with water and aerosols that contain the coronavirus when working on sanitary systems or sewers. Assume that everything inside that system is contagious.

### OSHA Standards

Follow all OSHA Standard 29 CFR 1926, Safety and Health Regulations for Construction and relevant 29 CFR 1910 General Industry requirements. The most relevant subsections to review are:



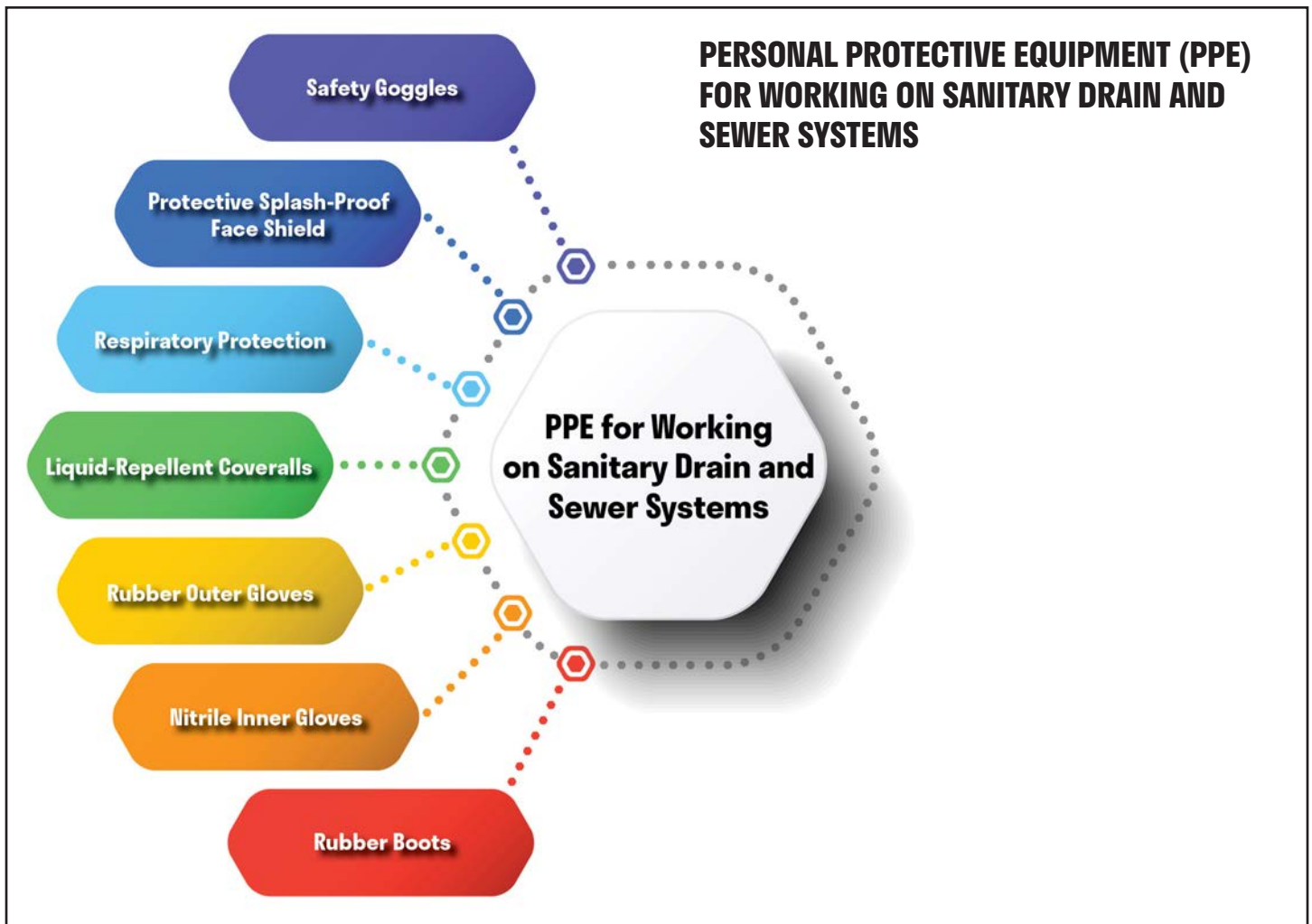


### Personal Protective Equipment (PPE) for Working on Sanitary Drain and Sewer Systems

Mechanical tradespeople working on sanitary drain and sewer systems should be provided proper personal protective equipment (PPE), training on how to properly use the PPE, and hand washing facilities. Workers should wash hands, arms and face (in that order) with soap and water for at least 20 seconds *immediately after* removing PPE.

The following PPE is recommended for workers handling human waste or sewage:

- **Safety Goggles** – To protect eyes from splashes of human waste or sewage.
- **Protective splash-proof face shield** – To protect nose and mouth from splashes of human waste or sewage.
- **Respiratory Protection** – Wear a NIOSH-approved N95 facemask.
- **Liquid-repellent coveralls** (such as Tyvek) – To keep human waste or sewage off skin and clothing
- **Rubber outer gloves** – To prevent exposure to human waste or sewage.
- **Nitrile inner gloves** – To prevent exposure when removing PPE and cleaning tools
- **Rubber boots** – To prevent exposure to human waste or sewage.



### Additional Best Practice Recommendation for PPE

Wear two liquid-repellant protective suits (outer suit and inner suit) for additional protection during cleaning of tools and equipment after work is complete. After completing work, follow this procedure:

- Carefully remove outer suit and glove by rolling inside out.
- Place in a plastic bag that can be sealed.
- Complete cleaning of tools and equipment. See guidelines below.
- Remove inner suit and gloves by rolling inside out being careful to not come in contact with any contaminated surfaces.
- Wash hands, arms and face (in that order) with soap and water for at least 20 seconds immediately after removing PPE.
- Keep your PPE clean by following manufacturer instructions carefully.



**Important Note Related to Healthcare Facilities:** If working in a healthcare facility, the Infectious Control Risk Assessment (ICRA) Program for the facility must be followed regarding anterooms, wearing and removal of PPE, and cleaning of tools.

### Personal Protective Equipment (PPE) for Working Near Plumbing Vents and Rooftop HVAC Equipment, Specifically Exhaust Fans

Mechanical tradespeople working near plumbing vents and rooftop HVAC equipment, specifically exhaust fans, should be provided proper personal protective equipment (PPE), training on how to properly use the PPE, and hand washing facilities. Workers should wash hands, arms and face (in that order) with soap and water for at least 20 seconds *immediately after* removing PPE.

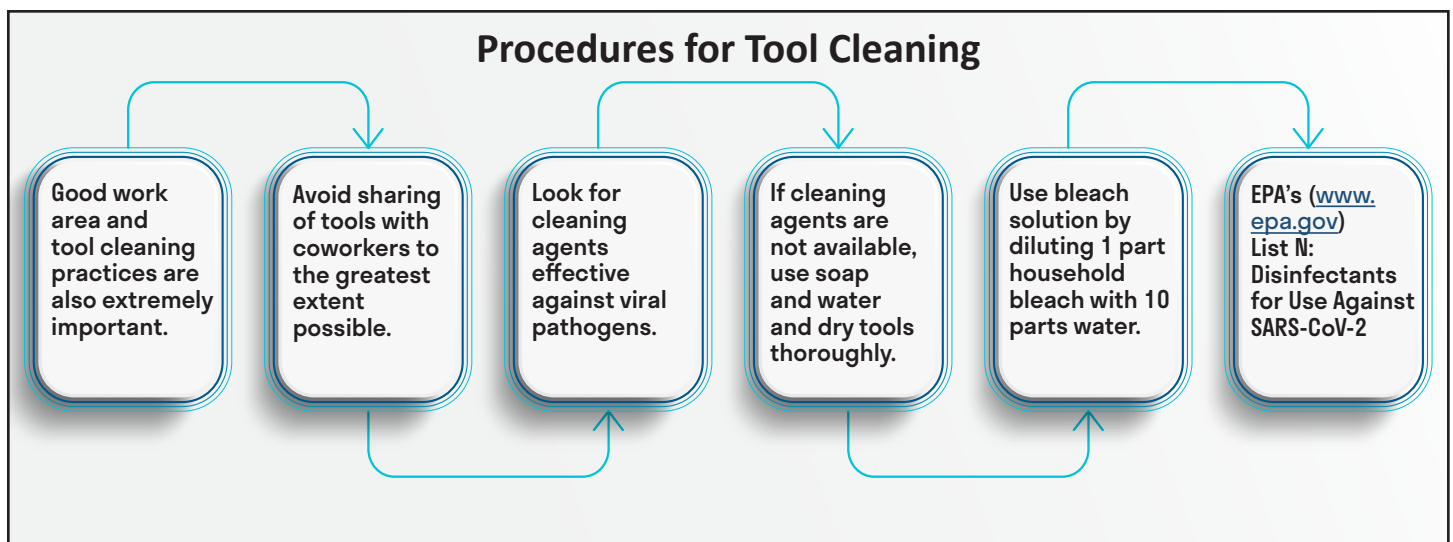


The following PPE is recommended for HVAC workers working near plumbing vents and rooftop HVAC equipment, specifically exhaust fans.

- **Safety Glasses with Face Shield** – To protect eyes and mouth from aerosol transmission of the virus
- **Respiratory Protection** – Wear a NIOSH-approved N95 facemask or half-face respirator with HEPA filters to protect from inhalation of aerosol transmission.
- **Protective suits/coveralls (such as Tyvek)** – To protect against aerosol transmission.
- **Cut resistant outer gloves** – To protect from cuts and tears to inner glove.
- **Nitrile inner gloves (6 mil thickness or greater)** – To prevent exposure to liquids and when removing PPE and cleaning tools.
- **Disposable Booties** – To prevent potential contamination of work boots.

**Important Note Related to Electrical Safety for COVID-19 Only:** When working on energized electrical conductors or circuit parts, make sure you are protected first from arc flash and electrical shock hazards by complying with NFPA 70E - 2018. Use all compatible protective measures against COVID-19, such as wearing an N95 facemask/respirator under your arc flash face shield and following through on the hygiene practices described in these guidelines. Once trouble shooting is completed, shut off the power, lock it out, test it dead, remove your arc flash and electrical shock PPE, and don the appropriate PPE for protection against COVID-19 described in these guidelines before completing your work.

**Important Note Related to Healthcare Facilities:** If working in a healthcare facility, the Infectious Control Risk Assessment (ICRA) Program for the facility must be followed regarding anterooms, wearing and removal of PPE, and cleaning of tools.





# TRAINING FOR WORKERS

SECTION  
**03**





### TRAINING FOR WORKERS

All workers who handle human waste or sewage should receive training on disease prevention. The training should include information on basic hygiene practices; use and disposal of personal protective equipment; and proper handling of human waste or sewage. Workers must also be urged to promptly seek medical attention if displaying any signs or symptoms of diarrhea, such as vomiting, stomach cramps and watery diarrhea.

It is recommended that plumbing workers be trained and certified to the ASSE Series 12000. ASSE International's Series 12000 Standard, *Professional Qualifications Standard for Infection Control Risk Assessment for All Building Systems*, is a standard that sets minimum criteria for the training and certification of pipe trades craftspeople, and other construction and maintenance personnel, on how to safely work in an environment with the potentially deadly diseases that may be present within worksites. (IAMPO, 3/12/2020)

ASSE International is making the ASSE Series 12000 Standard available for free at <https://asse-plumbing.org/12000-2018> while the pandemic remains ongoing. The ASSE 12000 certification training addresses viruses, including the Severe Acute Respiratory Syndrome (SARS) virus, but does not specifically reference COVID-19.

### CDC RECOMMENDATIONS - [www.coronavirus.gov](http://www.coronavirus.gov)

The Centers for Disease Control and Prevention (CDC) recommends that workers perform the following preventive/protective actions, generally and while at work:

- Wash hands frequently with soap and water for at least 20 seconds immediately after working on a sanitary waste and vent system.
- Avoid touching face, mouth, eyes, nose, or open sores and cuts while working on a sanitary waste and vent system.
- After working on a sanitary waste and vent system, wash hands with soap and water for at least 20 seconds **before** eating or drinking.
- After working on a sanitary waste and vent system, wash your hands with soap and water for at least 20 seconds **before** and **after** using the toilet.
- Before eating, remove soiled work clothes and eat in designated areas away from human waste and sewage-handling activities.
- Do **NOT** smoke or chew tobacco or gum while working on a sanitary waste and vent system.
- Keep open sores, cuts, and wounds covered with clean, dry bandages.
- Gently flush eyes with safe water if human waste or sewage contacts eyes.
- Use waterproof gloves to prevent cuts and contact with human waste or sewage.
- Wear rubber boots.
- Remove rubber boots and work clothes before leaving worksite.
- Clean contaminated work clothing daily with 0.05% chlorine solution (1-part household bleach to 100 parts water).
- Clean and disinfect tools and equipment used.
- Clean and disinfect the work area frequently.
- Cover your cough and/or sneeze with your bent elbow.
- Do not report to work when you feel ill.
- Report and document all exposures.
- If you start to feel ill, inform your supervisor immediately and document the incidence.
- Currently there is not a vaccination for COVID-19 but it is recommended that all other vaccinations be current.

**Practice Social Distancing**

Finally, it is important to follow social distancing recommendations. Try to keep a minimum six-foot distance between others. Remember, it could take anywhere from 2 to 14 days for COVID-19 symptoms to appear, if they even appear at all.

If you believe you have contracted the virus, stay home, contact your supervisor and seek assistance from your medical provider.

# PRACTICE SOCIAL DISTANCING



## COVID-19 OUTBREAK

KEEP A MINIMUM SIX-FOOT DISTANCE BETWEEN OTHERS. IT COULD TAKE ANYWHERE FROM 2 TO 14 DAYS FOR COVID-19 SYMPTOMS TO APPEAR. IF YOU CONTRACTED THE VIRUS, STAY HOME, CONTACT YOUR SUPERVISOR AND SEEK ASSISTANCE FROM YOUR MEDICAL PROVIDER.

A hand is holding a scientific calculator. The calculator has a blue overlay on its screen and keypad. The text "RESOURCES" is written in large white letters across the middle of the calculator. The background is a blurred image of a desk with a laptop and a pen.

# RESOURCES

SECTION  
**04**

## RESOURCES

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### **References:**

*ASSE/IAPMO/ANSI Series 12000 Professional Qualifications Standard for Infectious Control Risk Assessment for All Building Systems*, American Society of Sanitary Engineers/International Association of Plumbing and Mechanical Officials/American National Standards Institute, Issued: September 2018.

“Understanding Coronavirus Exposure for Plumbing Professionals,” International Association of Plumbing and Mechanical Officials (IAPMO), March 11, 2020.

“ASHRAE Position Document on Airborne Infectious Diseases,” American Society of Heating, Refrigeration and Air-Conditioning Engineers, January 19, 2014, reaffirmed February 5, 2020.

“Coronavirus (COVID-19),” The Centers for Disease Control and Prevention, <https://www.cdc.gov/coronavirus/2019-ncov/index.html>

Occupational Safety and Health Administration, [www.osha.gov](http://www.osha.gov)