Instructions for Personal Protective Equipment (PPE) Use and Re-Use for City and County of San Francisco (CCSF) Disaster Service Workers and Contractors Working in Settings with Significant Commingling of Individuals with Varying COVID-19 Status

April 21, 2020

Purpose:
The San Francisco Department of Public Health (SFDPH) has developed the following instructions for proper personal protective equipment (PPE) use and re-use for CCSF Disaster Service Workers and Contractors working in settings with significant commingling of individuals with varying COVID-19 status. These include medical and non-medical staff using PPE in Shelter-in-Place (SIP) Hotels, Isolation and Quarantine (I/Q) Hotels, Post-COVID-19 Sites, Shelters or Navigation Centers for persons experiencing homelessness (PEH), and alternative care sites (ACS); this guidance is also for EVS/janitorial staff using PPE in these settings. The information in this document is for general guidance and institutions may have specific procedures governing their facilities and work practices. Individuals using PPE should follow their institution’s own guidance around proper PPE use and re-use, if available.

Background:
Given that the supply and availability of PPE may be limited during the COVID-19 pandemic, SFDPH has developed an “Interim Framework for COVID-19 PPE Use by City and County of San Francisco (CCSF) Disaster Service Workers and Contractors Working in Settings with Significant Commingling of Individuals with Varying COVID-19 Status” that recommends which PPE to use in varying circumstances, taking into account the risk of SARS-CoV-2 transmission during different activities and the availability of PPE supplies and resources (visit www.sfcdcp.org/covid19 under “Persons Experiencing Homelessness”). Final decisions regarding PPE use, extended use, and re-use in each setting are up to individual organization’s or facility’s policy.¹

REQUIRED SUPPLIES

- N95 respirators or facemasks
- Non-sterile disposable isolation gowns or alternative (lab coats, cloth isolation gown, or coveralls)
- Non-sterile gloves
- Face shields, goggles, or safety glasses
- Cleaning/disinfectant wipes that meet EPA Emerging Viral Pathogens (EVP) criteria for COVID-19² for cleaning face shields or goggles (examples: PDI Sani-Cloth AF3 Germicidal Disposable Wipe, Diversey Oxyvir-1 Hydrogen Peroxide Wipes, or Clorox Healthcare Hydrogen Peroxide wipes)
- Paper bags
- Pen to label paper bags
- Changing area for donning/doffing PPE
Table storage space
- Hand-wash station (sink with soap and paper towels or alcohol-based hand sanitizer)
- Garbage receptacle

**STEPS FOR DONNING PPE – WHEN USING A NEW (NOT PREVIOUSLY WORN) N95 RESPIRATOR or FACEMASK**

(if using coverall – see “Coverall” section below)

1. See “USING YOUR PERSONAL PROTECTIVE EQUIPMENT (PPE)” (Appendix 1) for general steps and illustrations for donning PPE
2. Wash your hands.
3. Don gown or other alternative (e.g. lab coat, coveralls)
   - If **donning a gown**: don gown so that it fully covers torso from neck to knees, arms to end of wrists, and wraps around back. Fasten in back of neck and waist.
   - If **donning a lab coat**: don lab coat so that it fully covers torso and arms.
4. Don the N95 respirator or facemask:
   - **If donning an N95 respirator**, inspect the respirator for any damage, then slip the top loop over the crown of the head and bring the second loop over the head to the base of the neck. Make any adjustments for comfort and fit.
     - Note: Facial hair which intrudes into the sealing surfaces of the respirator will cause the respirator leak. You must be clean-shaven to wear an N95 respirator.
   - **Perform a user seal check for the N95 respirator**: place your hands over the face piece and exhale gently. You should feel a slight positive pressure being built up inside the face piece without evidence of leakage of air at the seal (feeling air movement on your face or fogging of your glasses). If leakage is present, reassess fitting around nose, adjust positioning if needed, and make sure straps fit correctly.
   - **If donning a facemask**: grasp ear loops in each hand and secure face mask over nose and mouth and secure loops behind each ear. Gently pat the top of the mask so it conforms around your nose, and pull mask under your chin.
   - You can continue to wear the N95 respirator or facemask if you are practicing reuse and extended use unless the respirator must be discarded due to any of the reasons listed in the “Discard Criteria for PPE” table below. If you do need to discard your N95 respirator or facemask, wash your hands immediately.
5. Put on a clean face shield, goggles, safety glasses, or other eye protection. A face shield may reduce the potential for surface contamination of the respirator.
6. Put on a clean face shield, goggles, safety glasses, or other eye protection. A face shield may reduce the potential for surface contamination of the respirator.

7. If practicing extended use of N95/eye protection but need to change gown, follow Steps 1-3 of “PPE GUIDANCE: 1. Re-Use/Re-Don” (Appendix 2) to remove gown and gloves
   - To don a new isolation gown and gloves, follow Steps 1-3 of “PPE GUIDANCE: 2. Extended Wear” (Appendix 2)
     - Put on gown from front, DO NOT pull gown over your head.
     - Tape opening at top of gown. Tie gown at waist. If available, ask for help taping gown.
- Perform hand hygiene and don clean gloves
  - Gowns should be discarded if they meet any discard criteria (see “Discard Criteria for PPE” below)

8. Use hand gel and rub until hands dry
9. Don gloves last. Extend to cover wrists of gown
10. Between contacts with different patients, discard gloves, practice hand hygiene, and re-don new gloves.

STEPS FOR DONNING PPE – WHEN USING A PREVIOUSLY WORN N95 RESPIRATOR OR FACEMASK (if using coverall see “Coverall” section below)

1. See “USING YOUR PERSONAL PROTECTIVE EQUIPMENT (PPE)” (Appendix 1) for general steps and illustrations for donning PPE.
2. Wash your hands.
3. Put on clean gloves
4. Don gown or other alternative (e.g. lab coat, coveralls)
   - If donning a gown: don gown so that it fully covers torso from neck to knees, arms to end of wrists, and wraps around back. Fasten in back of neck and waist.
   - If donning a lab coat: don lab coat so that it fully covers torso and arms.
5. Don the previously worn N95 respirator or facemask.
   - Donning a previously worn N95 respirator: inspect the N95 respirator for any damage (see “Discard Criteria for PPE” table below) while being careful not to touch the inside. If damaged or you inadvertently touch the inside of the respirator, discard the respirator and gloves. Wash your hands and don new gloves and obtain a new respirator. If the previously worn respirator is in good condition, using one hand, pick-up the N95 mask by cupping the outside with one hand and fitting to face. Use other clean gloved hand to carefully slip the top loop over the crown of the head and then bring the second loop over the head and to the base of the neck. Adjust your respirator for comfort and fit.
   - Perform a user seal check for the N95 respirator: place your hands over the face piece and exhale gently. You should feel a slight positive pressure being built up inside the face piece without evidence of leakage of air at the seal (feeling air movement on your face or fogging of your glasses). If leakage is present, reassess fitting around nose, adjust positioning if needed, and make sure straps fit correctly. Discard your gloves and wash your hands. Put on a new pair of gloves.
   - If donning a facemask: grasp ear loops in each hand and secure face mask over nose and mouth and secure loops behind each ear. Gently pat the top of the mask so it conforms around your nose, and pull mask under your chin. Discard your gloves and wash your hands. Put on a new pair of gloves.
Anytime you touch the face piece of a previously worn N95 respirator or facemask to adjust it for comfort or fit, discard your gloves, wash your hands with soap and water or use an alcohol-based hand sanitizer, and then put on a new pair of gloves.

You can continue to wear the N95 respirator or facemask if you are practicing reuse and extended use unless the respirator must be discarded due to any of the reasons listed in the “Discard Criteria for PPE” table below. Wash your hands immediately after removing and discarding your N95 respirator or facemask.

6. Put on a clean face shield, goggles, safety glasses, or other eye protection. A face shield may reduce the potential for surface contamination of the respirator.

7. If practicing extended use of N95/eye protection but need to change gown, follow Steps 1-3 of “PPE GUIDANCE: 1. Re-Use/Re-Don” (Appendix 2) to remove gown and gloves
   - To don a new isolation gown and gloves, follow Steps 1-3 of “PPE GUIDANCE: 2. Extended Wear” (Appendix 2)
     - Put on gown from front, DO NOT pull gown over your head.
     - Tape opening at top of gown. Tie gown at waist. If available, ask for help taping gown.
     - Perform hand hygiene and don clean gloves
   - Gowns should be discarded if they meet any discard criteria (see “Discard Criteria for PPE” below)

8. Between contacts with different patients, discard gloves, practice hand hygiene, and re-don new gloves.

**STEPS FOR DONNING PPE – WHEN USING A NEW (NOT PREVIOUSLY WORN) N95 RESPIRATOR or FACEMASK AND COVERALLS**

1. See “STEPS TO PUT ON PPE INCLUDING COVERALL” (Appendix 3) for general steps and illustrations for donning PPE

2. Store personal items, wear scrub suit (rubber boots not necessary for COVID-19), and undertake donning under supervision of trained observer, if possible.

3. Wash your hands.

4. Put on gloves.

5. Don coverall without placing coverall hood over your head.

6. Don the N95 respirator or facemask.
   - **If donning an N95 respirator**, inspect the respirator for any damage, then slip the top loop over the crown of the head and bring the second loop over the head to the base of the neck. Make any adjustments for comfort and fit.
   - Note: Facial hair which intrudes into the sealing surfaces of the respirator will cause the respirator leak. You must be clean-shaven to wear an N95 respirator.
Perform a user seal check for the N95 respirator: place your hands over the face piece and exhale gently. You should feel a slight positive pressure being built up inside the face piece without evidence of leakage of air at the seal (feeling air movement on your face or fogging of your glasses). If leakage is present, reassess fitting around nose, adjust positioning if needed, and make sure straps fit correctly.

If donning a facemask: grasp ear loops in each hand and secure face mask over nose and mouth and secure loops behind each ear. Gently pat the top of the mask so it conforms around your nose, and pull mask under your chin.

You can continue to wear the N95 respirator or facemask if you are practicing reuse and extended use unless the respirator must be discarded due to any of the reasons listed in the “Discard Criteria for PPE” table below. If you do need to discard your N95 respirator or facemask, wash your hands immediately.

7. Put on a clean face shield, goggles, safety glasses, or other eye protection. A face shield may reduce the potential for surface contamination of the respirator.

8. Put on head and neck covering.


10. Put on second pair of gloves over the cuff of overall if possible.

11. Between contacts with different patients, discard outer gloves, practice hand hygiene, and re-don new gloves.

STEPS FOR DONNING PPE – WHEN USING A PREVIOUSLY WORN N95 RESPIRATOR or FACEMASK AND NEW COVERALLS

1. See “STEPS TO PUT ON PPE INCLUDING COVERALL” (Appendix 3) for general steps and illustrations for donning PPE

2. Store personal items, wear scrub suit (rubber boots not necessary for COVID-19), and undertake donning under supervision of trained observer, if possible.

3. Wash your hands.

4. Put on gloves.

5. Don coverall without placing coverall hood over your head.

6. Don the previously used N95 respirator or facemask:
   - Donning a previously worn N95 respirator: inspect the N95 respirator for any damage (see “Discard Criteria for PPE” table below) while being careful not to touch the inside. If damaged or you inadvertently touch the inside of the respirator, discard the respirator and gloves. Wash your hands and don new gloves and obtain a new respirator. If the previously worn respirator is in good condition, using one hand, pick-up the N95 mask by cupping the outside with one hand and fitting
to face. Use other clean gloved hand to carefully slip the top loop over the crown of the head and then bring the second loop over the head and to the base of the neck. Adjust your respirator for comfort and fit.

- **Perform a user seal check for the N95 respirator:** place your hands over the face piece and exhale gently. You should feel a slight positive pressure being built up inside the face piece without evidence of leakage of air at the seal (feeling air movement on your face or fogging of your glasses). If leakage is present, reassess fitting around nose, adjust positioning if needed, and make sure straps fit correctly. **Discard your gloves and wash your hands. Put on a new pair of gloves.**

- **If donning a facemask:** grasp ear loops in each hand and secure face mask over nose and mouth and secure loops behind each ear. Gently pat the top of the mask so it conforms around your nose, and pull mask under your chin. **Discard your gloves and wash your hands. Put on a new pair of gloves.**

- Anytime you touch the face piece of a previously worn N95 respirator or facemask to adjust it for comfort or fit, discard your gloves, wash your hands with soap and water or use an alcohol-based hand sanitizer, and then put on a new pair of gloves.

- You can continue to wear the N95 respirator or facemask if you are practicing reuse and extended use unless the respirator must be discarded due to any of the reasons listed in the “Discard Criteria for PPE” table below. Wash your hands immediately after removing and discarding your N95 respirator or facemask.

7. Put on a clean face shield, goggles, safety glasses, or other eye protection. A face shield may reduce the potential for surface contamination of the respirator.

8. Put on head and neck covering.


10. Put on second pair of gloves over the cuff of overall if possible.

11. Between contacts with different patients, discard outer gloves, practice hand hygiene, and re-don new gloves

**STEPS FOR DOFFING PPE**

1. After you are done with patient care, go to the designated PPE Doffing Area.

2. Remove your gloves and gown or alternative following the PPE doffing procedure.

   - **If doffing gown:** pull gown away from neck and shoulders, touching outside of gown only. Turn gown inside out and fold or roll into a bundle and discard (if disposable). Grasp outside of glove and pull off. Slide fingers of ungloved hand under remaining glove at wrist and remove. Discard gloves.
If *doffing lab coat*: remove gloves first, then remove coat turning inside out, minimizing touching the outside of the coat. Submit for cleaning.

If *doffing coverall*: if disposable follow gown instructions, if reusable, follow lab coat instructions.

3. Wash your hands, and if planning on re-using N95/mask or eye protection, put on a fresh pair of clean gloves.

4. Remove your face shield or goggles by handling from the headband. DO NOT touch the front of the face shield or goggles. The outside of the face shield and goggles are assumed to be contaminated. **Discard your face shield or goggles and wash your hands immediately if they meet discard criteria (see “Discard Criteria for PPE” table below).** For Reuse: If visibly soiled or difficult to see through and the eye protection is cleanable, you can reprocess the eye protection. First, while wearing gloves, carefully wipe the *inside followed by the outside* of the face shield or goggles with a disinfectant wipe. Then carefully wipe the *outside* of the face shield or goggles using a disinfectant wipe. To remove streaking, use a wet paper towel to wipe down the *inside, followed by outside* of the face shield or goggles after using the wipe. Dry the face shield (air dry or use clean absorbent towels) before reuse. If the face shield or goggles are not cleanable, dispose in the trash. If storing for re-use, place in a clean paper bag or hang in clean, secure area, not touching other PPE. See "PPE GUIDANCE: 1. Re-Use/Re-Don”

5. Remove your gloves, wash your hands. Put on a new pair of gloves.

6. If **removing N95 respirator**: assume that the outside of the respirator face piece is contaminated. First, tilt your head forward. Then, use two hands to grab the bottom strap, pull to the sides, then over your head. Next, use both hands to grab the upper strap, pull to the sides, then over your head. Keep tension on the upper strap as you remove it, which will let the mask fall forward. Be careful not to let the respirator face piece touch your gloves or clothing. **Discard N95 respirator if any discard criteria below are met.** For Reuse, place the N95 respirator in a clean paper bag. Do not store in a plastic bag. See PPE GUIDANCE: 1. Re-Use/Re-Don” (Appendix 2).

7. If **removing a facemask**: remove from the ear loops. Carefully fold the facemask so that the outer surface is held inward and against itself to reduce contact with the outer surface during storage. **Discard mask if any discard criteria below are met.** Place in a clean paper bag or container. See “PPE GUIDANCE: 3. Isolation Mask Procedure” (Appendix 2).

8. Remove gloves. Wash your hands.

9. Label the bag(s) with the date and your name.

10. Discard the paper bag(s) each time you reuse the respirator or other PPE.
## Discard Criteria for PPE in Settings of Reuse and Extended Use

<table>
<thead>
<tr>
<th>PPE</th>
<th>Discard criteria</th>
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| N95 or facemasks                 | • Dirty or visibly soiled  
• Comes in contact with blood or bodily fluids  
• Is hard to breathe through  
• If the straps appear overly stretched, torn or if facepiece becomes damaged  
• Worn in care area of patient with additional infectious diagnosis that is transmitted by contact (e.g. C difficile)                                           |
| Gown or gown alternative<sup>3</sup> | • Dirty or visibly soiled  
• Comes in contact with blood or bodily fluids  
• Physically damaged, including broken ties and fasteners  
• Worn in care area of patient with additional infectious diagnosis that is transmitted by contact (e.g. C difficile)  
• Consider discarding after high risk activities<sup>*</sup> depending on supply availability |
| Face shield, goggles, or Eye Protection Alternative<sup>4</sup> | • Can no longer fasten securely to the provider  
• Visibility obscured and reprocessing does not restore visibility                                                                                                                                  |

<sup>*</sup>High risk activities include those in which splashes and sprays are anticipated, including aerosol-generating procedures and patient care activities with prolonged face-to-face or close contact such as dressing, bathing/showering, transferring, providing hygiene, and changing linens, changing briefs or assisting with toileting, device care or use, or wound care and EVS activities that involve cleaning up body fluids or personal belongings. Aerosol generating procedures include cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction and nasopharyngeal swab collection that may induce coughing.

### Footnotes

1. PPE reuse and extended use is per your facility policy and during times of PPE scarcity. Adherence to proper hand hygiene is essential when redonning an N95 respirator, face shield/goggles or gowns. For additional information go to: [https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html)

   - **Extended use** refers to the practice of wearing the same N95 respirator, facemask, eye protection, or gown for repeated close contact encounters with several patients, without removing the protective equipment between patient encounters. Extended use may be implemented when multiple patients/clients are infected with the same respiratory pathogen and patients are placed together in dedicated rooms.
   - **Reuse** refers to the practice of repeated use of an N95 respirator, facemask, or eye protection by the same person over a period of time for multiple encounters with patients and removing it (‘doffing’) after each encounter. The respirator, facemask, or eye protection is stored in between encounters to be put on again (‘donned’) prior to the next encounter with a patient/client

2. Disinfectants for Use Against SARS-CoV-2:
   - EPA “N” List: [https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2](https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2),
   - Center for Biocide Chemistries “Novel Coronavirus (COVID-19)—Fighting Product List”: [https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf](https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf), or
• Product manufacturer’s statement that product meets EPA Emerging Viral Pathogen criteria for COVID-19

³Gown Alternatives include re-usable cloth isolation gowns, coveralls, cloth gown, lab coats, or shop coats and will depend on availability at each facility.

⁴Eye Protection Alternatives in descending order of preference are ANSI safety glasses and then healthcare “eye shields”
Appendix 1

Using Your Personal Protective Equipment (PPE)
USING YOUR PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Sequence for Donning PPE**

1. **GOWN**
   - Fully cover torso from neck to knees; arms to end of wrists, and wrap around back.
   - Fasten in back of neck and waist.

2. **RESPIRATOR**
   - Secure elastic band at middle of head and neck.
   - To guarantee a proper seal, **DO NOT** cross the top and bottom elastic straps.
   - Fit metal band (if respirator equipped with one) to nose bridge.
   - Start from the center of the band, move outwards. **DO NOT** pinch the metal band.
   - Fit snug to face and below chin.
   - Fit-check respirator.

3. **GOGGLES** or **FACE SHIELD**
   - Place over face and eyes and adjust to fit.

4. **HAND GEL**
   - Press once and rub hands until dry

5. **GLOVES**
   - Don gloves last.
   - Extend to cover wrist of isolation gown.

**Sequence for Removing PPE**

1. **GOWN**
   - Pull away from neck & shoulders, touching outside of gown only.
   - Turn gown inside out and fold or roll into a bundle.

2. **GLOVES**
   - Grasp outside of glove and pull glove over bundled gown.
   - Slide fingers of ungloved hand under remaining glove at wrist.
   - Peel off over bundled gown and discard.

3. **HAND GEL**
   - Press once and rub hands until dry.

4. **GOGGLES** or **FACE SHIELD**
   - Outside of goggles or face shield is contaminated!
   - To remove, handle by head band or ear pieces.
   - Discard in waste container.

5. **RESPIRATOR**
   - Front of respirator is contaminated – **DO NOT TOUCH!**
   - Grasp bottom, then top ties or elastics and remove.
   - Discard in waste container.

6. **HAND GEL**
   - Press once and rub hands until dry
Appendix 2

PPE Guidance:

1: Re-Use/Re-Don

2: Extended Wear

3: Isolation Mask Procedure
PPE GUIDANCE: 1. Re-Use/Re-Don 2. Extended Wear 3. Isolation Mask Procedure

1. RE-USE/RE-DON: The practice of removing and storing eye protection and N95 between uses. Review steps below.

2. EXTENDED WEAR: The practice of wearing the same N95 and eye protection for repeated encounters with several patients without removing. Review steps below for donning a new gown and gloves.

3. ISOLATION MASK PROCEDURE: The practice of storing isolation mask when not in use.
Appendix 3

Steps to Put on PPE

Including Coverall
Steps to put on personal protective equipment (PPE) including coverall

1. Remove all personal items (jewelry, watches, cell phones, pens, etc.).

2. Put on scrub suit and rubber boots¹ in the changing room.

3. Move to the clean area at the entrance of the isolation unit.

4. By visual inspection, ensure that all sizes of the PPE set are correct and the quality is appropriate.

5. Undertake the procedure of putting on PPE under the guidance and supervision of a trained observer (colleague).

6. Perform hand hygiene.

7. Put on gloves (examination, nitrile gloves).

8. Put on coverall.²

9. Put on face mask.

10. Put on face shield OR goggles.

11. Put on head and neck covering surgical bonnet covering neck and sides of the head (preferable with face shield) OR hood.

12. Put on disposable waterproof apron (if not available, use heavy duty, reusable waterproof apron).

13. Put on second pair of (preferably long cuff)² gloves over the cuff.

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