



## Reusable Filtered Mask

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# Guidance



*In settings where facemasks are not available, HCP might use homemade masks (e.g., bandana, scarf) for care of patients with COVID-19 as a last resort.*

*-Centers for Disease Control and Prevention*

# Timeline



- 3/22/2020 Joe Savoie, Director of Imaging Services, texts 3D printed mask
- 3/23/2020 Prototype printed over night
- 3/24/2020 Meeting with Infection Prevention
- 3/25/2020 Fit test with Respiratory Support  
Asked Facebook to for people with 3D printers
- 3/26/2020 Connect groups in LA on getting masks made
  - CRASH Space - <https://blog.crashspace.org/>
  - Sunweaver Creative
  - Trojan Family
    - Iovine and Young Academy
    - USC School of Architecture
    - USC School of Engineering

# Reusable Filtered Mask



## Reusable

- Can be sanitized in a hospital setting

## Filtered

- Has to be able to provide filtration comparable to N95 or better

## Mask

- Must be able to fit on the face of the healthcare worker



# Disinfection



1.4%  
Hydrogen  
Peroxide



THE UV Box  
UV 254 nm  
germicidal  
wavelength



Pulsed Xenon  
Robot  
UV  
Disinfection

# Filter Material



- We are not creating our own filter material.
- We are assessing different material for efficacy and ease of installation
- We are looking to partner with laboratories to quantitatively test filter materials.

# Filter Material



## Required Criteria:

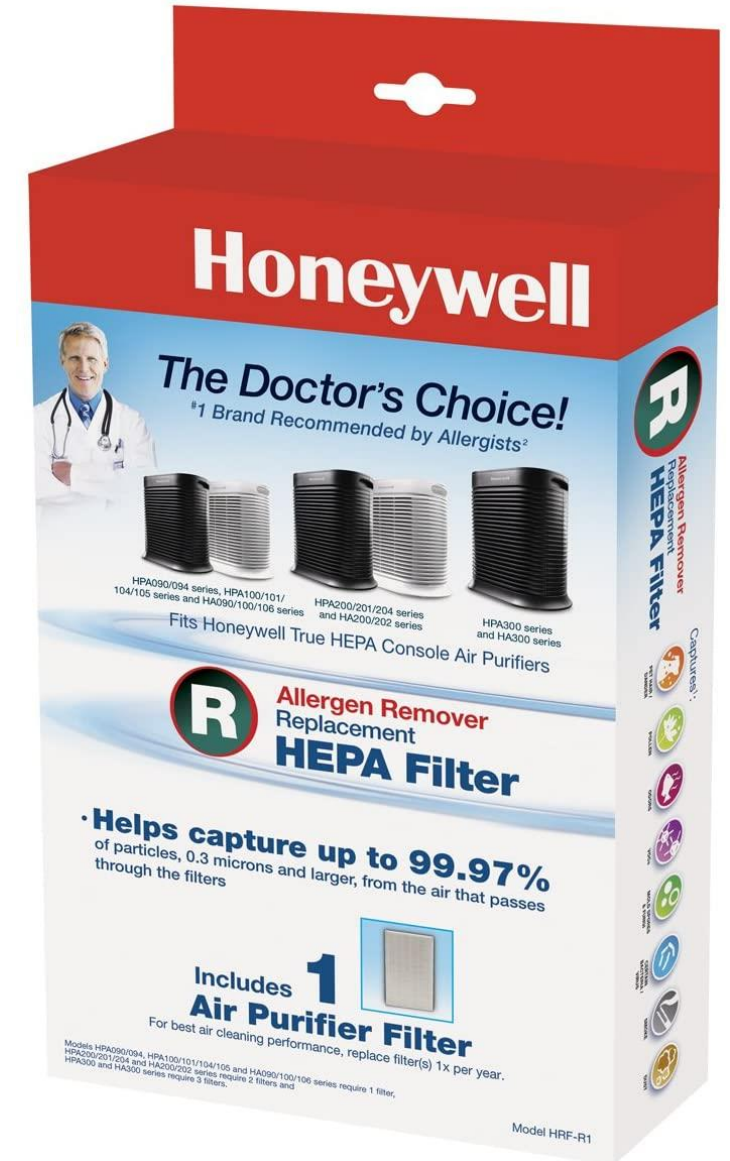
- Needs to be MERV 16 or better
- Must not have fiberglass

## Nice to have:

- Easy to adapt

Honeywell HEPA Filter

Model: HRF-R1





# 3D Printed Mask





# Finishing the Mask



# Finished Mask





# 3D Printed Mask



# Reusable Filtered Mask



For more information:

<https://keckmedicine.org/covid/ppe>

**FIGHT ON!**