

PPE OVERVIEW

PRESENTED BY: THE AICC



Current MA Governor's Mask Order



Governor Baker has issued an Order effective Wednesday, May 6 requiring face masks or cloth face coverings in public places where social distancing is not possible. This applies to both indoor and outdoor spaces. Exceptions include children under the age of 2 and those unable to wear a mask or face covering due to a medical condition.

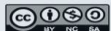
Exceptions for wearing face masks include situations that may inhibit an individual from wearing a face-mask safely. These may include, but are not limited to:

- Those who cannot breathe safely
- Those who, due to a behavioral health diagnosis, are unable to do so
- Those communicating with people who rely upon lip-reading
- Those who require supplemental oxygen to breathe
- Those who are exercising outdoors and are able to keep physical distance from others

Importance of Wearing A Face Mask

COVID-19 PANDEMIC

How is the virus transmitted?



Source: AL JAZEERA | Last updated: 11:30 GMT, March 24, 2020

@AJLabs ALJAZEERA

The face masks main responsibility is to prevent the spread of the virus from person to person. Some people don't show symptoms of being sick, and thus why the wearing of face masks becomes even more crucial! Also, it is important to remember one of the main ways the virus is transmitted, which is:

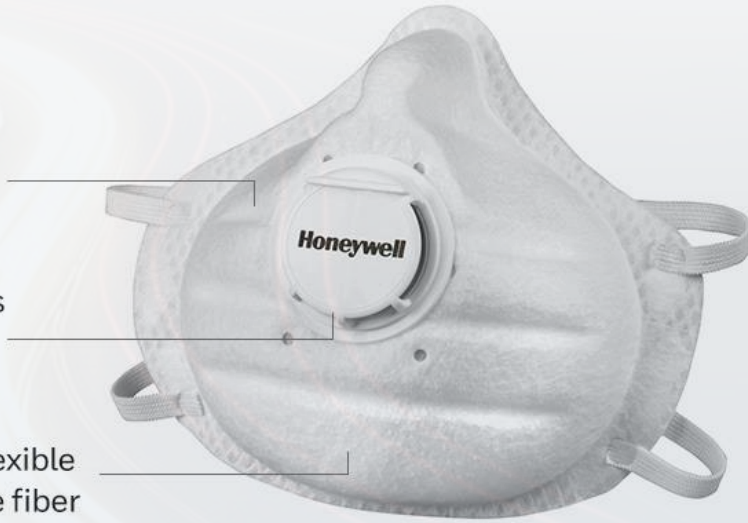
Through respiratory droplets produced when an infected person coughs, sneezes or talks. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

WHAT IS AN N95 MASK

95: Removes 95% of .3+ micron-particles

VALVE: Optional, reduces breathing resistance during exhalation

MATERIAL: Tough, yet flexible non-woven polypropylene fiber



An N-95 respirator is one of nine types of disposable particulate respirators. Particulate respirators are also known as “air-purifying respirators” because they protect by filtering particles out of the air as you breathe. These respirators protect only against particles—not gases or vapors. Since airborne biological agents such as bacteria or viruses are particles, they can be filtered by particulate respirators.

Overview N95 Respirators

N95: masks are regulated by the United States National Institute for Occupational Safety and Health (NIOSH).

N: This is a Respirator Rating Letter Class. It stands for “Non-Oil” meaning that if no oil-based particulates are present, then you can use the mask in the work environment. Other masks ratings are R (resistant to oil for 8 hours) and P (oil proof).

95: Masks ending in a 95, have a 95 percent efficiency. Masks ending in a 99 have a 99 percent efficiency. Masks ending in 100 are 99.97 percent efficient and that is the same as a HEPA quality filter.

.3 microns: The masks filter out contaminants like dusts, mists and fumes. The minimum size of .3 microns of particulates and large droplets won’t pass through the barrier, according to the Centers for Disease Control and Prevention (CDC.)

Valve: Some disposable N95 masks come with an optional exhalation valve. “The presence of an exhalation valve reduces exhalation resistance, which makes it easier to breathe (exhale,)” according to the CDC. However, valves will not protect other people as well. If you are sick, and you breathe out, some of the moisture from your breath can expel through the valve, potentially putting others in danger.

Not recommended for general public, as it is required that the wearer of the N95 respirator be properly fit tested by a qualified person. Also, these respirators should be saved for high exposure workers (healthcare for example)

KN95 Respirators Comparison To N95 Respirators

KN95




VS.

N95

What's the difference?

Certification/ Class (Standard)	N95	KN95
Filter performance (must be \geq X% efficient)	$\geq 95\%$	$\geq 95\%$
Test Agent	NaCl	NaCl
Flow Rate	85 L/min	85 L/min
Total Inward Leakage (TIL) – tested on human subjects each performing exercises	N/A	$\leq 8\%$ leakage (arithmetic mean)
Inhalation Resistance – max pressure drop	≤ 343 Pa	≤ 350 Pa
Flow Rate	85 L/min	85 L/min
Exhalation Resistance – max pressure drop	≤ 245 Pa	≤ 250 Pa
Flow Rate	85 L/min	85 L/min
Exhalation Valve Leakage Requirement	Leak rate ≤ 30 mL/min	Depressurization to 0 \geq 20 sec
Force Applied	-234 Pa	-1180 Pa
CO ₂ Clearance Requirement	N/A	$\leq 1\%$

- KN95 masks are regulated by the Government in China.
- KN95 Mask is a standard for respiratory equipment which filters 95% of particulates greater than 0.3 microns (same effectiveness as N95).
- KN95 masks are a PPE. They offer significant protection over standard surgical blue 3 ply masks and are approved by the CDC as acceptable replacements if N95 masks are unavailable.

Mask Type	Standards	Filtration Effectiveness		
	China: YY/T0969	Open-Data Tests Smart Air SmartAirFilters.com 3.0 Microns: ≥95% 0.1 Microns: ✗		
	China: YY 0469	3.0 Microns: ≥95% 0.1 Microns: ≥30%		
	USA: ASTM F2100	Level 1	Level 2	Level 3
		3.0 Microns: ≥95% 0.1 Microns: ≥95%	3.0 Microns: ≥98% 0.1 Microns: ≥98%	3.0 Microns: ≥98% 0.1 Microns: ≥98%
	Europe: EN 14683	Type I	Type II	Type III
		3.0 Microns: ≥95% 0.1 Microns: ✗	3.0 Microns: ≥98% 0.1 Microns: ✗	3.0 Microns: ≥98% 0.1 Microns: ✗
	USA: NIOSH (42 CFR 84) China: GB2626	N95 / KN95	N99 / KN99	N100 / KN100
		0.3 Microns: ≥95%	0.3 Microns ≥99%	0.3 Microns ≥99.97%
	Europe: EN 149:2001	FFP1	FFP2	FFP3
		0.3 Microns: ≥80%	0.3 Microns: ≥94%	0.3 Microns: 99%

3.0 Microns: Bacteria Filtration Efficiency standard (BFE).

0.1 Microns: Particle Filtration Efficiency standard (PFE).

0.3 Microns: Used to represent the most-penetrating particle size (MPPS), which is the most difficult size particle to capture.

✗: No requirements.

Effectiveness Of Various Disposable Respirators

- Single use masks (normally one layer, very thin) are typically only effective at capturing larger dust particles, but can do so fairly well.
- Surgical mask standards have higher requirements for capturing virus-sized (0.1 micron) particles, however they vary by region.
- Pollution masks (respirators) typically capture >90% of virus-sized particles. You can use the rating system in the table above to see the exact proportion each certification requires. This includes ratings such as N95, KN95, FFP1, FFP2 and FFP3
- It is important to note that the disposable respirators discussed in this presentation don't provide 100% protection against airborne biological agents, such as viruses. However, offer very good protection overall.

Using disposable respirators

Pre-use checks

- You should be clean-shaven around the face seal to achieve an effective fit when using disposable respirators. Beards and stubble will stop the disposable respirator sealing to your face and protecting you properly
- Make sure it is the right disposable respirator for your work and for you - have you passed a face fit test in this disposable respirator?
- Make sure the disposable respirator is clean and undamaged before you use it
- Follow the manufacturer's instructions for checking the disposable respirator and putting it on
- Check the fit every time you put on the disposable respirator to ensure there are no leaks

Putting the disposable respirator on and checking it fits



This poster illustrates a typical disposable respirator; there are many other types available. Follow the manufacturer's instructions on putting your type of disposable respirator on and checking it fits.

Visit [hse.gov.uk/respiratory-protective-equipment](https://www.hse.gov.uk/respiratory-protective-equipment) for more information

How To Properly Put On Disposable Respirators:

1. Separate the edges of the respirator to fully open it.
2. Slightly bend the nose wire to form a gentle curve.
3. Hold the respirator upside down to expose the two headbands.
4. Using your index fingers and thumbs, separate the two headbands.
5. While holding the headbands with your index fingers and thumbs, cup the respirator under your chin.
6. Pull the headbands up over your head.
7. Release the lower headband from your thumbs and position it at the base of your neck.
8. Position the remaining headband on the crown of your head.
9. Conform the nosepiece across the bridge of your nose by firmly pressing down with your fingers.
10. Continue to adjust the respirator and secure the edges until you feel you have achieved a good facial fit. Now, perform a Fit Check.

How To Properly Remove A Face Mask:

Wearing a fabric mask DOES NOT protect YOU from other people's germs
It DOES help protect OTHERS from your germs

**Fabric Masks Offer
Some Protection**

BUT

**Additional Prevention
Practices are Needed**



**WASH HANDS
OFTEN**



**DISINFECT
SURFACES**



**SOCIAL
DISTANCING**



**STAY
HOME**

- Untie the strings behind your head or stretch the ear loops
- Handle only by the ear loops or ties
- Fold outside corners together
- Place covering in the washing machine
- Wash your hands with soap and water

Wearing Reusable Face Masks



Wash hands before
putting on mask



Wear mask the same way each
time: same side facing out



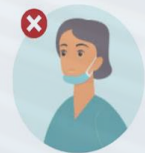
Mask needs to cover
nose and mouth



Do not touch your mask
while wearing it



If you touch your mask
wash/sanitize hands
immediately



Do not remove your mask
to talk to others

Removing Reusable Face Masks



Do not use dirty masks,
always wash between use



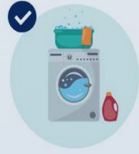
To remove mask take
straps and pull forward



Wash hands before and
after removing mask



Place mask in plastic
bag until ready to wash



Wash mask with hot water and
detergent, completely dry mask
before reuse

Note, if you can properly sanitize the face mask, then you may re-use it, as this PPE is in short supply.

How To Re-Use Disposable Face Masks

Washable Masks:

- Washing daily does not change their integrity.
- It is key to use soap / detergent.
- The soap emulsifies the phospholipid bilayer which wraps the genetic sequence of the virus - much like how soap disperses oil.
- Soap breaks up the virus.
- Soap is key - not the temperature of the water.
- These masks do not need to be boiled. BLEACH SHOULD NOT BE USED.

Our recommended washing instructions would be:

- Machine or hand wash, regular cycle, with soap / detergent
- Tumble dry or hang dry



How To Inspect / Properly Care For Disposable Respirators

Disposable Respirators -- Check for:

- Holes in filter (obtain new respirator)
 - Deterioration or loss of elasticity in straps (obtain new respirator)
 - Deterioration of metal nose clip (obtain new respirator)
-
- Only an experienced person is permitted to make repairs, using parts specifically designed for the respirator. This person must consult the manufacturer's instructions for any repair and no attempt should be made to repair/replace components or make adjustments/repairs beyond the manufacturer's recommendations.
 - The employer must ensure that respirators are cleaned and disinfected as often as necessary to keep them sanitary. In addition, the employer must ensure that emergency-use respirators are cleaned and disinfected immediately after each use.
 - Users must store respirators in a way that protects them against dust, sunlight, heat, extreme cold, excessive moisture, and damaging chemicals. When packed or stored, each respirator should be positioned to retain its natural configuration.



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RETURN TO WORK PERSONAL PROTECTIVE EQUIPMENT

PERSONAL PROTECTIVE EQUIPMENT (PPE) ORDER FORM

100% AMERICAN-MADE MASKS WITH N95 COMPLIANT FILTERS

- Masks are washable and reusable
- Our supima cotton is sourced from Georgia, California and Texas
- Antimicrobial Coating for increased effectiveness

WHILE SUPPLIES LAST

PLEASE COMPLETE THE FORM BELOW IF YOU WOULD LIKE TO ORDER MASKS
EMAIL JOSIE GELFIN - JOSIE@NARFA.COM FOR ALL ORDERS
OR FAX TO THE NARFA OFFICE 603-924-4490



10 filters per mask

Name _____
Company Name _____
Mailing Address _____

Phone _____ Email _____

100% American-Made Masks	Member Price - \$10 each (Reg. \$19.99 each)	Quantity Desired _____ + \$10.00 shipping
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N95 COMPLIANT REPLACEMENT FILTERS FOR MASKS

10 reusable N95 compliant filters	\$11 @ \$1.10 each	Quantity Desired _____
20 reusable N95 compliant filters	\$17 @ \$0.85 each	Quantity Desired _____
100 reusable N95 compliant filters	\$60 @ \$0.60 each	Quantity Desired _____

PAYMENT TERMS: PLEASE MAKE CHECKS PAYABLE TO NARFA INC.

We also have access to another mask and we can provide a referral to our preferred vendor:
Please contact Josie Gelfin josie@narfa.com for more information about ordering these masks.



ASTM F2100 Level 2 Mask is FDA approved with surgical grade filtration, fluid resistance, great fit and comfortable feel. This level 2 mask provides moderate barrier protection.
Expected arrival July. * Sourced from China. Minimum order: 100 masks

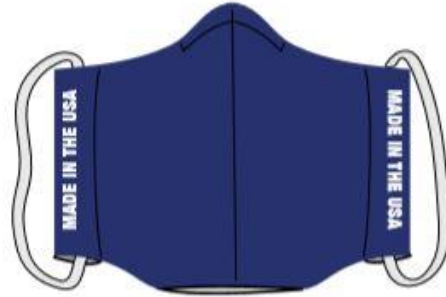
QTY 100	\$1.20 per mask + \$10.00 shipping
QTY 500	\$1.10 per mask + \$10.00 shipping
QTY 1,000	\$0.90 per mask + \$10.00 shipping
Quantity Desired	_____



NARFA | 800-258-5318



N95 INFORMATION



PROTOTYPE



Particle Filtration Efficiency
(for N95 compliant filters)
(PFE - 115) for
Lab Number 1286728

WHY PUBLIC USE OF MASKS IS IMPORTANT

The key number to track in viral spread is a metric called the Reproductive number – this measures the number of new infections that can be uniquely attributed to a single infected person. As such, a Reproductive number larger than 1 will grow exponentially, and a Reproductive number less than one will eventually plateau and subside.

The genetic makeup and protein structure of the virus determine some of this Reproductive number – however we can reduce it through actions intended to slow the transmission rate or “flatten the curve”. Studies have shown that, assuming the size the United States is 325 million people – we are seeing a Reproductive number rate of 2.3 with no intervention. This number reduces to 0.99 with interventions. In the absence of a vaccine and widespread testing, the suppression strategy recommended by the CDC and Surgeon General (<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>) is driven by two primary public health interventions: social distancing and, more recently, through new guidance to wear cloth face coverings and masks. The intention is to reduce our Reproductive number through non-pharmaceutical interventions.

THE ROLE OF MASKS IN REDUCING THE REPRODUCTIVE NUMBER

While the N-95 type respirators and surgical masks are intended to protect healthcare professional, the primary role of masks – for the public – is to suppress spread by capturing droplets and spray emitted while coughing or sneezing – essentially, to protect the infection of others.

This is particularly important when limited testing is available - individuals who are infected, but show no symptoms, are contagious for several days before the individual either shows symptoms or never does.

In a Brown University Medical literature-review regarding the use of face masks (<https://www.preprints.org/manuscript/202004.0203/v1>) they have found a correlation between:

- The effectiveness of the mask – meaning how well it prevents drops from being transmitted and;
- The adherence level – how many people use it and whether they use it properly

The Brown study models that with a 60% overall efficacy and 60% adherence by the public, we can achieve a Reproductive number of less than one, leading to suppression of the virus before vaccination is feasible.

We are using a medical grade filter media which provides effective and appropriate levels of filtration based on the CDC recommendations for public use – supporting the CDC's key non-pharmaceutical intervention during this public health crisis.

Test Article	NCSWashablePFE01
Article #	Filtration Efficiency (%)
1	99.31
2	99.04
3	99.0
4	99.06
5	98.7



COST ANALYSIS – REUSABLE VS. DISPOSABLE

MASK	COST	FILTER	DAYS/WEEK	WEEK 1	3 MONTH COST PER EMPLOYEE	6 MONTH COST PER EMPLOYEE
AMERICAN - REUSABLE	\$10.00	\$0.60	5	\$13.00	\$39.00	\$78.00
CHINA - DISPOSABLE	\$0.90	-	5	\$4.50	\$58.50	\$117.00
SAVINGS					\$19.50	\$39.00

N95 COMPLIANT FILTERS	
WEEKLY	\$3.00
YEAR (52 WEEKS)	\$156.00
MONTHLY	\$13.00
COST 3 MONTHS	\$39.00
COST 6 MONTHS	\$78.00

CHINA - DISPOSABLE	
WEEKLY	\$4.50
YEAR (52 WEEKS)	\$234.00
MONTHLY	\$19.50
COST 3 MONTHS	\$58.50
COST 6 MONTHS	\$117.00

FILTER PRICING BASED ON \$0.60 / FILTER WITH 100 FILTERS
3 & 6 MONTH COST IS BASED ON A ONE-TIME \$10.00 PURCHASE OF THE WASHABLE/REUSABLE MASK
5 DAY WORK WEEK & FILTERS CHANGED DAILY

THE “4 Fs” OF SELECTING THE RIGHT MASK



FILTRATION *Filter it*

When you're around smoke or are interacting with a TB-infected patient, properly protect yourself with a high filtration mask (N95 Respirator).



FLUID RESISTANCE *In matters of splatter*

When at risk of encountering blood and/or bodily fluid splatter, wear the recommended ASTM Level 3 fluid-resistant mask and get the best protection for the OR.



FEATURES *Bells and whistles, ties and loops*

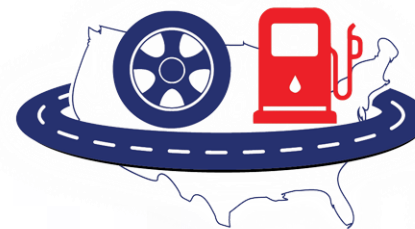
Securement – loops or ties (Mask with ear loops are not recommend for the OR) Anti-fog film, foam and tapes reduce distractions from fogging issues Shields and protective eyewear keep eyes clear of blood and splash.



FIT *The fit is it*

Even the right mask not worn correctly could put you at risk. Nose and mouth must be covered completely. Create a seal around the face to prevent gaps that increase the risk of inhalation exposure.





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In this time of uncertainty during the Corona Virus pandemic, NARFA, and the Loss Control Team wanted to let the members within the AICC know that we are here for them with any of their safety needs! Please feel free to reach out to me via phone (603-933-3975) or email (ben@narfa.com)

Sources:

CDC.gov

OSHA.gov

Mass.Gov