

Non-Occupational Respirator Use at U.S. Embassies & Consulates Against Air Pollution



U.S. Department of State

Bureau of Overseas Buildings Operations

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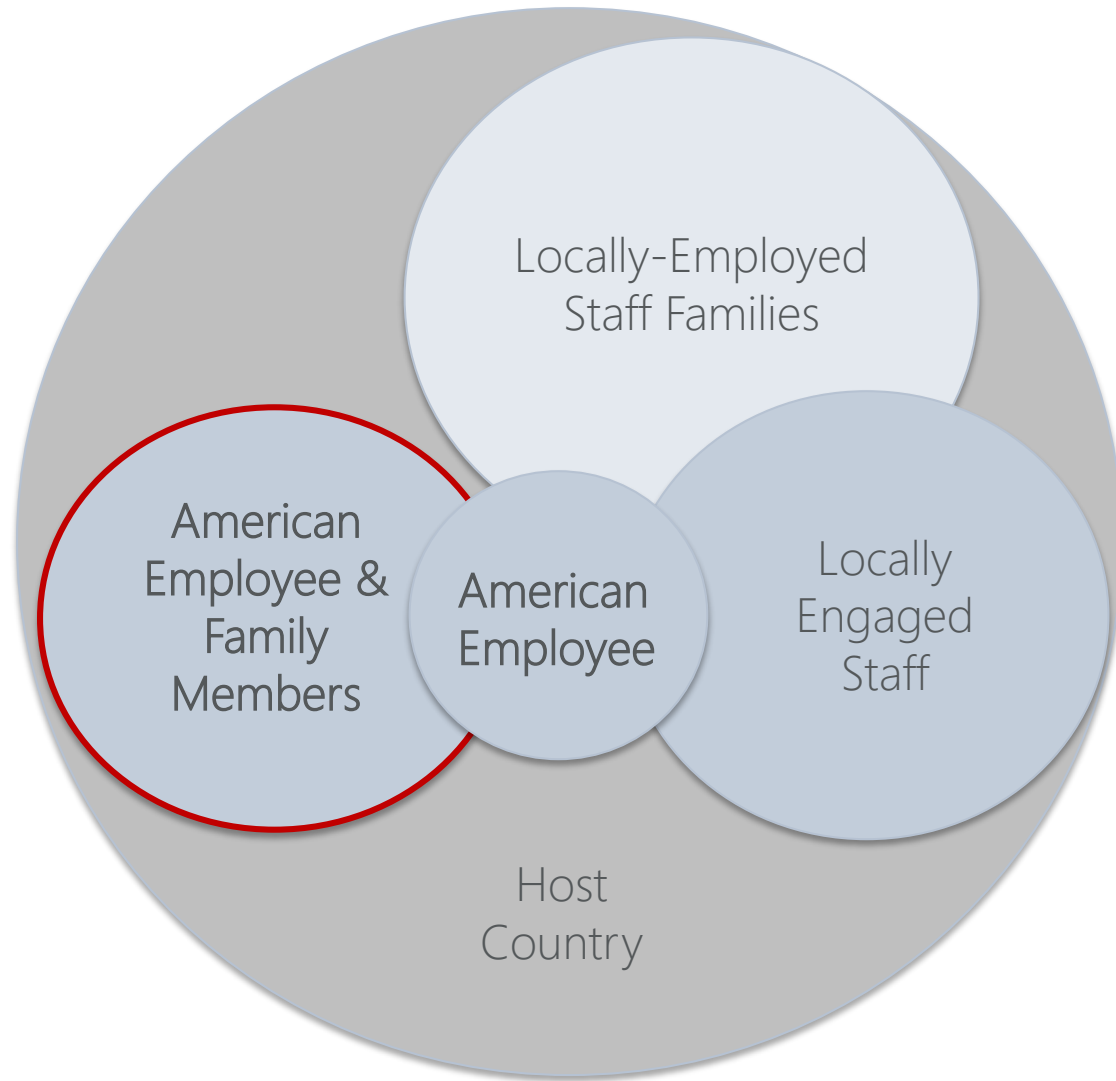
U.S. DEPARTMENT *of* STATE

- The lead foreign affairs agency with more than 270 diplomatic posts around the world.
- Promotes peace and stability in areas of vital interest to America.
- Provides services for U.S. citizens traveling abroad including passports and visas to foreigners visiting the U.S.
- Other U.S. government employees.

Overseas Families:



- Educated and middle class
- Under 65 years of age
- On average, 3-year tour
- Medical screening & care
- Housing and other support
- Some awareness of conditions



Respiratory Protection Use Scenarios

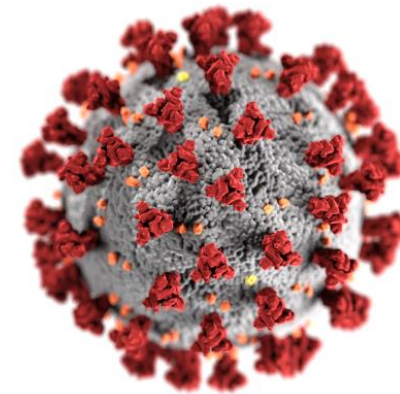
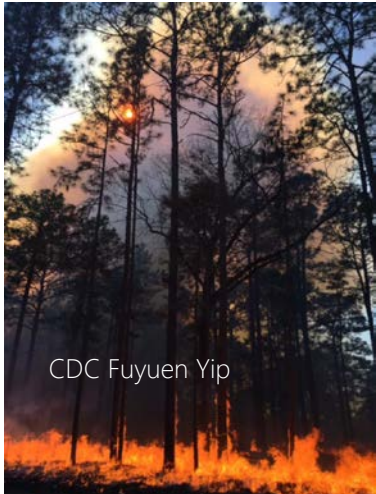
Two days of air pollution



	Concentration
	320
AQI	AQI Category
370	Hazardous

	Concentration
	70
AQI	AQI Category
154	Unhealthy

- Air Pollution
- Vegetative Fires
- Volcanic Eruptions
- Pandemic Flu



CDC

Air-Purifying Particulate Respiratory Devices



Guidance

- ✓ Medically ok?
- ✓ Quality filtration?
- ✓ Fits?
- ✓ Used properly?



Air Pollution Masks:

- Comfortable & portable
- Sizes for children (size charts)
- Ear loops
- Some cleanable.
- Last for months
- Cost varies (not low)
- Questionable fit

Confusing Information:

- "Not for industrial use"
- "HEPA-type"
- "Screening of particulates"
- "Shows conformance to U.S. standards in testing."
- Worn with beards

SHEM Recommendations:

- Reusable NIOSH respirators
- Otherwise, other hallmarks
- Name brands not NIOSH certified if not sold in the US

CONSISTENT EFFECTIVE PROTECTION?

Health, Pre-Existing Conditions, and Respirator Use



Medical Considerations:

Physiological Effects:

- Pulmonary effects
- Cardiac effects
- Claustrophobia
- Anxiety
- Hyperventilation
- Heat stress

Potential Contraindications:

- Severe pulmonary disease
- Severe cardiac disease
- Uncontrolled hypertension
- Claustrophobia
- Facial abnormalities that prevent good fit

Children - Not Little Adults:

- Sensitive individuals (e.g., asthmatic children) may be of greatest interest yet pose the biggest challenges for medical provider concurrence.

Needs:

- Clear and consistent, evidence-based guidance to medical professionals & parents
- Address liability concerns
- Analyze risks and benefits of respirator use
- Identify respirator types for challenging situations (e.g., lower resistance models, carbon dioxide?)
- Advise specifically for sensitive populations. Educate on WARNING SIGNS!
- Address routine use and emergency/disasters
- Highlight and prioritize other exposure reduction strategies!

Leak Checking Adults and Their Air Pollution Masks

Respirator		Unit Cost	NIOSH Approved?	Pass/Fail
1	FFR* 1 (disposable)	~\$2.25	Yes	Fail
2	Anti-pollution mask 1 (reusable)	~\$30	No (KF94 ^a)	Fail
3	Anti-pollution mask 1 (reusable)	~\$30	No (KF94 ^a)	Pass
4	FFR 2 (disposable)	\$2	No ^b	1 st Fail
				2 nd Pass
5	Anti-pollution mask 1 (reusable)	~\$30	No (KF94 ^a)	Fail
	FFR 3 (disposable N99)	\$9	Yes	Pass
6	Anti-pollution mask 1 (reusable)	~\$30	No (KF94 ^a)	Fail

FFR = Filtering facepiece respirator

^a Korean standard 94% efficient

^b US brand

Wish List

Respiratory Protection Devices

- Is respiratory protection needed?
- If so, when?
- Means to trigger usage
- Medical indications & contraindications
- Vocabulary and education
- Variety or universal fit
- Reasonable cost and availability
- Clear detailed information including on
 - **Protection factor-like system**
 - **Breathing resistance**
- User acceptance (aesthetics, comfort, convenience)
- Adequate filter
- Fit and seal every time donned
 - **Including for children**
 - **Range of facial features**
 - **Predictable ordering**
- Easy means to fit/seal check
- Cleanable
- 6 months minimum life

No false sense of protection!

Eliminate the need!

