



Poor Air Quality

Module 15

Approved Air Quality Monitoring Tools

Click the Icons below to visit Air Quality Monitoring Sites





Air Quality Index Chart

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable, However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects, members of sensitive groups may experience more serious health effects
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone
Maroon	Hazardous	301 +	Health warning of emergency conditions: everyone is more likely to be affected

THE RELATIVE SIZE OF PARTICLES

From the COVID-19 pandemic to the U.S. West Coast wildfires, some of the biggest threats now are also the most microscopic.

A particle needs to be 10 microns (μm) or less before it can be inhaled into your respiratory tract. But just how small are these specks?

Here's a look at the relative sizes of some familiar particles \blacktriangleright

HUMAN HAIR 50-180 μm \blacktriangleright
FOR SCALE

FINE BEACH SAND 90 μm \blacktriangleright

GRAIN OF SALT 60 μm \blacktriangleright

WHITE BLOOD CELL 25 μm \blacktriangleright

GRAIN OF POLLEN 15 μm \blacktriangleright

DUST PARTICLE (PM₁₀) <10 μm \blacktriangleright

RED BLOOD CELL 7-8 μm \blacktriangleright

RESPIRATORY DROPLETS 5-10 μm \blacktriangleright

DUST PARTICLE (PM_{2.5}) 2.5 μm \blacktriangleright

BACTERIUM 1-3 μm \blacktriangleright

WILDFIRE SMOKE 0.4-0.7 μm \blacktriangleright

CORONAVIRUS 0.1-0.5 μm \blacktriangleright

T4 BACTERIOPHAGE 0.225 μm \blacktriangleright

ZIKA VIRUS 0.045 μm \blacktriangleright



Pollen can trigger allergic reactions and hay fever—which 1 in 5 Americans experience every year.

Source: Harvard Health

The visibility limits for what the naked eye can see hovers around 10-40 μm .



Respiratory droplets have the potential to carry smaller particles within them, such as dust or coronavirus.



Wildfire smoke can persist in the air for several days, and even months.

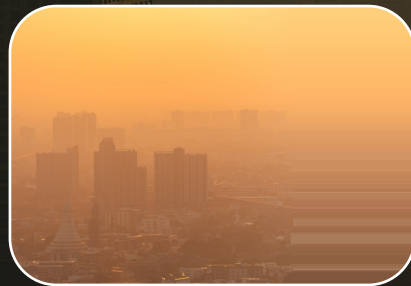


Five Major Pollutants

EPA establishes an AQI for five major air pollutants regulated by the Clean Air Act. Each of these pollutants has a national air quality standard set by EPA to protect public health:



*Ground-level
Ozone*



*Particle Pollution
(PM_{2.5} & PM₁₀)*



Carbon Monoxide



Sulfur Dioxide



Nitrogen Dioxide

PM2.5

An aerial photograph of a city skyline at sunset. The sky is a mix of orange, yellow, and light blue, with a hazy atmosphere. The city below is densely packed with buildings of various heights and colors. The sun is visible as a small orange circle on the horizon. The text 'PM2.5' is overlaid in a large, semi-transparent, light green font across the top half of the image.

Determining Harmful Exposure

- The smallest and usually the most harmful particulate matter is called PM_{2.5} (solid particles and liquid droplets suspended in air with an aerodynamic diameter of 2.5 micrometers or smaller).
- Emergency regulation section 5141.1, Protection from Wildfire Smoke, applies to workplaces and operations where the current Air Quality Index (AQI) for PM_{2.5} particulate is 151 or greater ("unhealthy") and where the employer should reasonably anticipate that employees may be exposed to wildfire smoke.

State of California Industrial Relations

- Applies to workplaces and operations where the current Air Quality Index (AQI) for PM_{2.5} particulate is 151 or greater ("unhealthy")
- Employer should reasonably anticipate that employees may be exposed to wildfire smoke
- Based on stipulations from NIOSH and OSHA – Reference section 5141.1



California Code of Regulations, Title 8, Section 5141.1

Scope. (1) This section applies to workplaces where:

- (A) The current Air Quality Index (current AQI) for PM_{2.5} is 151 or greater, regardless of the AQI for other pollutants; and
- (B) The employer should reasonably anticipate that employees may be exposed to wildfire smoke.

COMPLIANCE

LAW

REGULATION



5141.1 Appendix B – Protection from Wildfire Smoke & Information to Be Provided to Employees

- The health effects of wildfire smoke
- An N95 filtering facepiece respirator, is the minimum level of protection for wildfire smoke.
- How employees can obtain the current Air Quality Index (AQI) for PM_{2.5}
- The requirements in Title 8, section 5141.1 about wildfire smoke
- The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke
- How to properly put on, use, and maintain the respirators provided by the employer

AIU	1,822
EJK	3,680
HPL	1,062
KBE	485
NAH	8,569
QOP	6,602
TIK	890
WIG	6,280
AHD	2,436

Acceptable Respiratory Protection Equipment Includes (AQI 151 & Above)



N95: Filters at least 95% of airborne particles. Not resistant to oil.



N99: Filters at least 99% of airborne particles. Not resistant to oil



N100: Filters 99.97% of airborne particles. Not resistant to oil



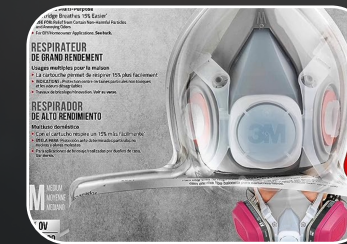
R95: Filters at least 95% of airborne particles. Somewhat resistant to oil.



P95: Filters at least 95% of airborne particles. Somewhat resistant to oil.



P99: Filters at least 99% of airborne particles. Strongly resistant to oil.



P100: Filters at least 99.97% of airborne

A photograph of the Golden Gate Bridge at night, illuminated with a warm orange glow. The bridge's suspension cables and towers are visible against a dark sky. A dark horizontal band is overlaid across the middle of the image, containing white text.

All SMCCCD Employees shall be trained to the stipulations of 5141.1 Appendix B

Before an AQI Incident Occurs (AQI Chart 0 – 100)

- Subscribe to [Air Now California](#) & [Air Quality Department of Education](#)
- District units responsible for monitoring AQI
- Contact Campus and District leadership for policy direction if AQI Projection is to be **Orange**



Recommendations for When Conditions are Between 100 & 150 (Green, Yellow, Orange)

Consider Closing Campus

Monitor Campus Recreation & Intramurals

Promote Caution & Use Personal Judgement for Athletes

Monitor Vulnerable Populations

Limit Campus Operations at Department Discretion (Athletics/Gyms/Recreation / & Affiliated Operations)

Monitor SMCCCD Affiliated Operations, Outdoor Classes, Children Outdoor Activities, Children Camps

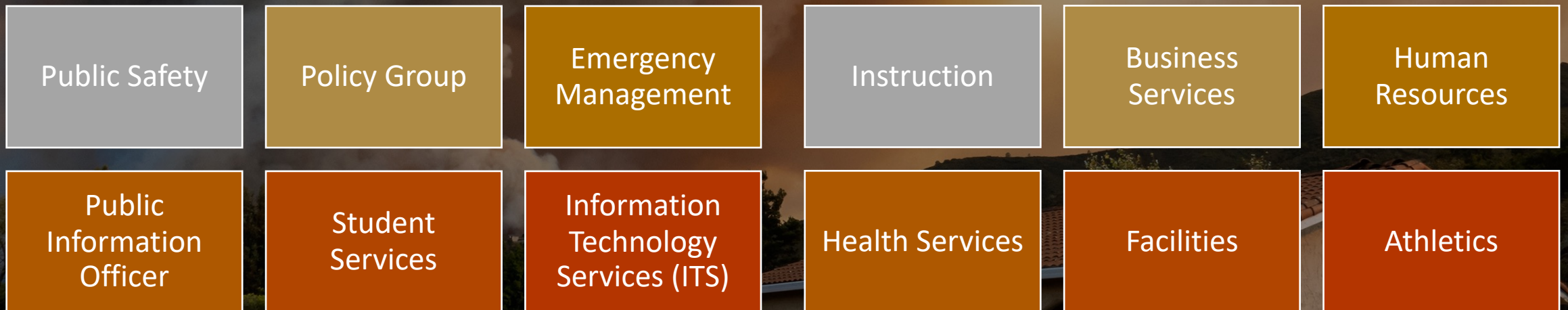
Consider Instruction Relocation for Classes in Unfiltered Buildings to Filtered Buildings



AQI Projected to be 151 – 200 (Red)

Recommendations

- All Instruction shall cease if projected AQI is greater than or equal to 151 for next operational period
- AND/OR**
- Sustained for more than four (4) hours in current operational period



AQI Projected to be 201 – 500

Purple to Maroon

- Advise Policy Group
- Send an AlertMe notification to students, faculty, staff (SMS & email)
- Update SMCCCD Emergency Website & College Home Webpage

