

# ABLE COMPANY

A 4C Marketplace Venture



# Contact Us

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To receive a Fever Screening Guide, or if you have questions about Fever Screening contact:

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# CDC Guidance on COVID-19

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Critical Infrastructure workers who have had an exposure but remain asymptomatic should adhere to the following practices prior to and during their work shift:

**Pre-Screen:** Employers should measure the employee's temperature and assess symptoms prior to them starting work. Ideally, temperature checks should happen before the individual enters the facility.

**Regular Monitoring:** As long as the employee doesn't have a temperature or symptoms, they should self-monitor under the supervision of their employer's occupational health program.

**Wear a Mask:** The employee should wear a face mask at all times while in the workplace for 14 days after last exposure. Employers can issue facemasks or can approve employees' supplied cloth face coverings in the event of shortages.

**Social Distance:** The employee should maintain 6 feet and practice social distancing as work duties permit in the workplace. **Disinfect and Clean work spaces:** Clean and disinfect all areas such as oces, bathrooms, common areas, shared electronic equipment routinely.

<https://www.cdc.gov/coronavirus/2019-ncov/downloads/critical-workers-implementing-safety-practices.pdf>

# OSHA Guidance on COVID-19

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Develop an Infectious Disease Preparedness and Response Plan

Prepare to Implement Basic Infection Prevention Measures

Develop Policies and Procedures for Prompt Identification and Isolation of Sick People, if Appropriate

Develop, Implement, and Communicate about Workplace Flexibilities and Protections

Implement Workplace Controls

- Engineering Controls
- Administrative Controls
- Safe Work Practices
- Personal Protective Equipment (PPE)

<https://www.osha.gov/Publications/OSHA3990.pdf>

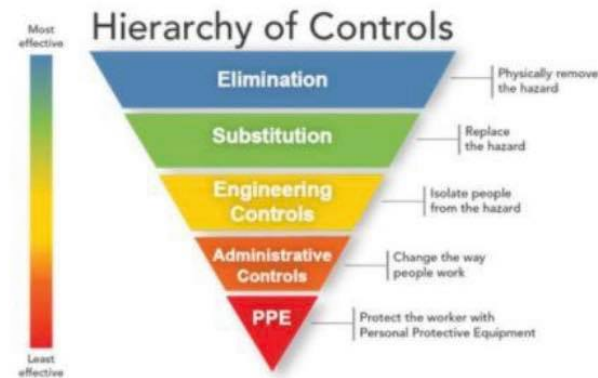
[https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fspecific-groups%2Fguidance-business-response.html](https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fspecific-groups%2Fguidance-business-response.html)

# OSHA Guidance on COVID-19

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## OSH Hierarchy of Controls

Safety professionals use the hierarchy of controls method to control hazards in the workplace. Use this method to control the COVID-19 hazard. The most effective protection measures are at the top of the hierarchy.”



### Elimination

- Work remotely if possible to prevent/limit the virus from entering the workplace
- Prompt identification and management of confirmed or suspected COVID-19
- Daily screening of employees and visitors
- COVID removal strategies

### Engineering Controls

- HVAC technologies, sneeze barriers, drive through windows
- Social distancing in the workplace
- Cloth Face coverings as barrier to spread COVID-19

### Administrative Controls

- Remote working to prevent workplace exposure, worker training, employee pods, shift modification, group meeting modifications, workflow modifications, COVID administrator

### PPE

- Gloves, face masks/shields, respiratory/hand hygiene

# FDA

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<https://www.fda.gov/media/137079/download><https://www.natlawreview.com/article/latest-covid-19-conundrum-can-employers-institute-temperature-checks-workplaces>

- No plans to enforce marketing violations, if systems are to be used, they should follow best practices

<https://www.fda.gov/medical-devices/general-hospital-devices-and-supplies/thermal-imaging-systems-infrared-thermographic-systems-thermal-imaging-cameras>

- Measure only one person's surface skin temperature at a time.
- Position the person at a fixed distance (follow the manufacturer's instructions for use) from the thermal imaging system, directly facing the camera.
- The image area should include the person's whole face and the calibrated blackbody, if using one.
- If an increased temperature is seen using the thermal imaging system, you should use a different method to confirm a fever. Public health officials can help you determine if the fever is a sign of infection.

# FDA Significance

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The marketing of temperature cameras in other countries is illegal unless registered as medical devices.

<https://ipvm.com/reports/australia-dahua>

The significance of US FDA clearance lies in third party testing and government approval.

By using cameras not currently approved, end users assume the risk of manufacturer-only validated products, meaning that there has been no outside validation of temperature screening process from both a hardware and software standpoint.

This could mean the difference between an accurate measurement from a camera to using a random number generator.

# EEOC Guidance on Fever Screening

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**A.2. When screening employees entering the workplace during this time, may an employer only ask employees about the COVID-19 symptoms EEOC has identified as [examples](#), or may it ask about any symptoms identified by public health authorities as associated with COVID-19? (4/9/20)**

- As public health authorities and doctors learn more about COVID-19, they may expand the list of associated symptoms. Employers should rely on the CDC, other public health authorities, and reputable medical sources for guidance on emerging symptoms associated with the disease. These sources may guide employers when choosing questions to ask employees to determine whether they would pose a direct threat to health in the workplace. For example, additional symptoms beyond fever or cough may include new loss of smell or taste as well as gastrointestinal problems, such as nausea, diarrhea, and vomiting.

**[A.3. When may an ADA-covered employer take the body temperature of employees during the COVID-19 pandemic? \(3/17/20\)](#)**

- Generally, measuring an employee's body temperature is a medical examination. Because the CDC and state/local health authorities have acknowledged community spread of COVID-19 and issued attendant precautions, employers may measure employees' body temperature. However, employers should be aware that some people with COVID-19 do not have a fever.

[https://www.eeoc.gov/eeoc/newsroom/wysk/wysk\\_ada\\_rehabilitaion\\_act\\_coronavirus.cfm](https://www.eeoc.gov/eeoc/newsroom/wysk/wysk_ada_rehabilitaion_act_coronavirus.cfm)



# EEOC: National Law Review

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## United States

On March 17, 2020, the U.S. Equal Employment Opportunity Commission (EEOC) issued an [update to its guidance](#) that now expressly acknowledges that employers may implement temperature screening measures in response to the current COVID-19 pandemic. The EEOC noted that “[b]ecause the CDC [Centers for Disease Control and Prevention] and state/local health authorities have acknowledged community spread of COVID-19 and issued attendant precautions, employers may measure employees’ body temperature.” The EEOC did not condition its guidance on further or future assessments by health authorities, nor is the guidance specific to certain communities in the United States. Rather the EEOC appears to be acknowledging the propriety of implementing such measures nationwide. However, the EEOC cautions employers to “be aware that some people with COVID-19 do not have a fever.” In other words, implementing temperature screenings may identify some employees who have a fever (but not necessarily COVID-19) such that an employer may isolate them or send them home from work, but it is not a perfect screening device that will identify all persons who may be contagious with the virus.

<https://www.natlawreview.com/article/latest-covid-19-conundrum-can-employers-institute-temperature-checks-workplaces>

# Fever Screening: Implementation

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# Overview

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**Luxury Golf Community**

**Office Building**

**Manufacturing Facility**

**Bar**

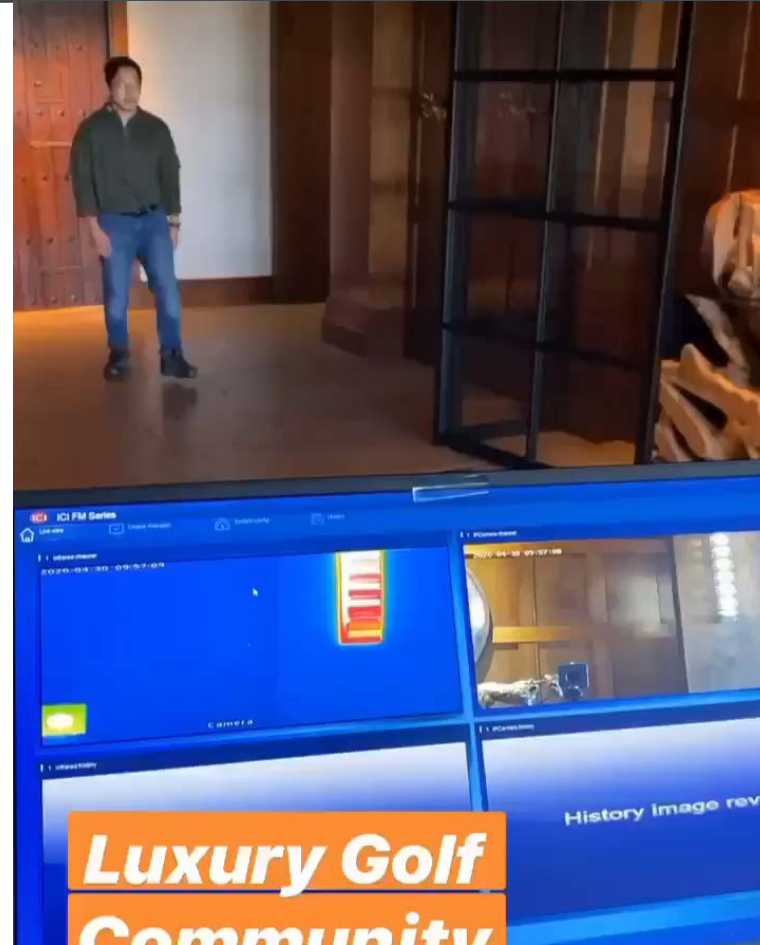
**Restaurant**

**Medical Office**

# Luxury Golf Community

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Excess Light



# Office Building

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Reflectivity

<https://youtu.be/hqNRHnrIE5Y>

# Bar

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Ambient Temperature

<https://youtu.be/OxivCy7zyT4>

# Restaurant

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Space

<https://youtu.be/65tIRJcdEL4>

# Medical Office Building

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Making use of Space

This medical customer was not comfortable with using non-FDA cameras due to liability as a medical provider

<https://youtu.be/AkKMELKz600>



# Other Best Management Practices

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# Eliminating Single Points of Contact

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# Conference Room Best Practices

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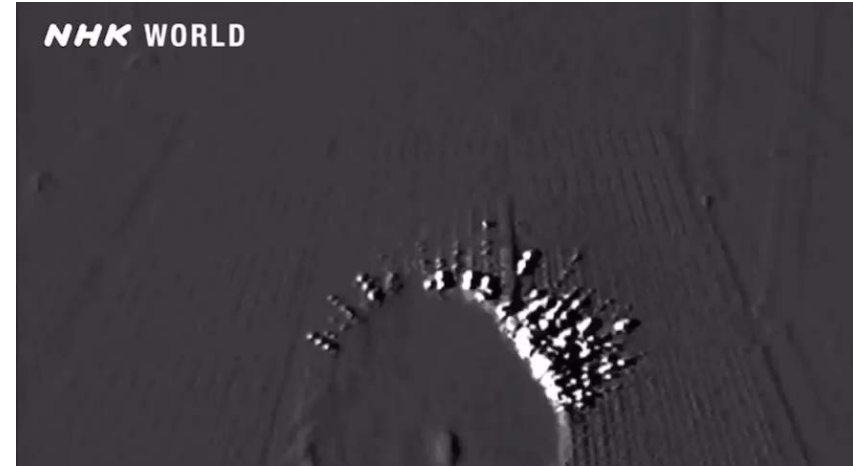


# Aerosol Based Transmission

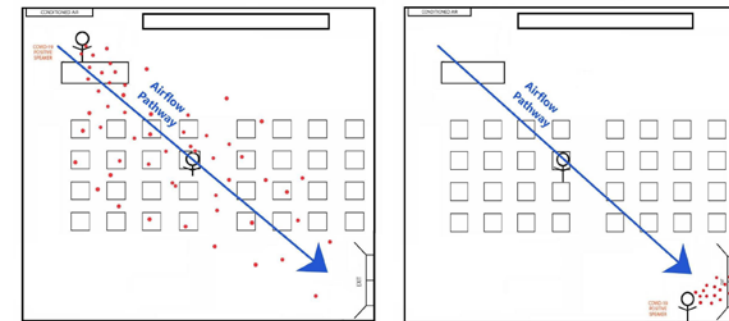
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# Overview – The danger of using technical terms interchangeably

- On July 04, 2020 the NYTimes published an article stating a claim by WHO “we have been stating several times that we consider airborne transmission as possible but certainly not supported by solid or even clear evidence,”
  - <https://www.nytimes.com/2020/07/04/health/239-experts-with-one-big-claim-the-coronavirus-is-airborne.html>
- This paper documents the math and science with exact calculations detailing aerosol-based transmission and deposition in the lungs. In addition, the paper clarifies the misuse of terms like “airborne”, “droplet” and aerosol and the misapplication of these terms to “six feet” of social distancing.
- The misuse of these terms is leading to the senseless deaths of hundreds of thousands of individuals. Each particle size has different risk reduction measures as documented in further slides.
- The application of the “six feet” guidance has zero benefit for particles containing the corona virus with the greatest deposition rates in the alveoli of the lungs. (particles ranging from 0.068 micron to 7.0 microns).
- **How we describe the way a virus behaves informs the way we prevent its spread, for better or worse.**



## Pathway is Important, Not Distance



With speaker at the front of the class, all students are infected by COVID-19 particles in the airflow pathway.

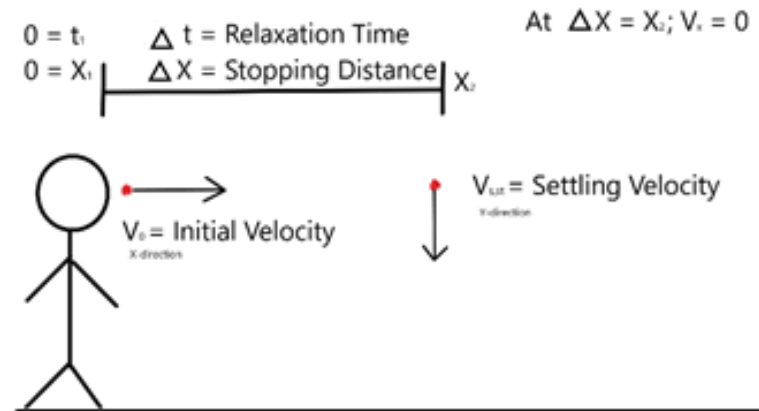
With the speaker by the door, COVID-19 particles exit the room without ever encountering any students.

Pathway is Critical to Aerosol-based Transmission of COVID-19

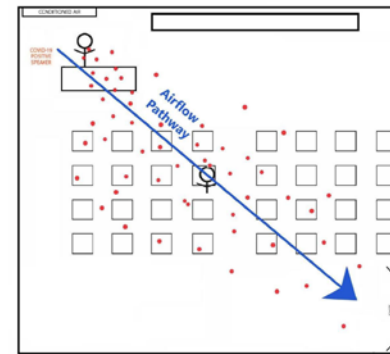
# Overview

*How many people can one symptomatic person infect? Are there super-spreading people or super-spreading conditions?*

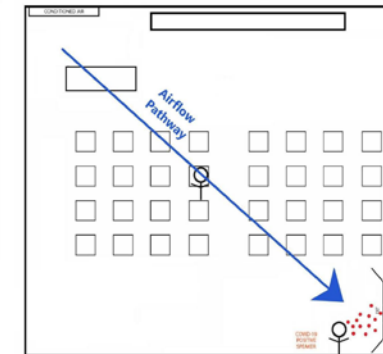
- One person may infect up to 216 people based on particle generation rates and aerosol transmission.
- “Adult humans inhale over 10,000 liters of air per day. Contained within this air are somewhere between 100 billion and 10 trillion particles.” (Tsuda et al., 2013)
- Around 5,000 particles are generated per breath, more for singing, exercise, etc. The average number of breaths per 8-hour period is approximately 5,000. One infected person will produce about 2.5 million particles per 8-hour period just from breathing. A symptomatic person coughing 10 times per 8-hour period will generate another 750,000 particles at 75,000 particles per cough (see William et al).



## Pathway is Important, Not Distance



With speaker at the front of the class, all students are infected by COVID-19 particles in the airflow pathway.



With the speaker by the door, COVID-19 particles exit the room without ever encountering any students.

Pathway is Critical to Aerosol-based Transmission of COVID-19

# SECTION 2.1 VERY LARGE PARTICLES – NEWTON'S LAW REGION

Very large airborne droplets fall to the floor quickly (>1350 microns)

The spread of coronavirus caused by large airborne droplets may be reduced by:

- 1.) Febrile Screening reduces the number of particles in the air by eliminating symptomatic individuals from social and workplace gatherings.
- 2.) Wearing masks to create a protective barrier and to reduce the number of particles in the droplet cloud. Wearing a mask will prevent projecting large particles on people during a cough or sneeze. (see graph above).
- 3.) Social distancing to avoid the particles landing on your face or entering your breathing space.
- 4.) Sanitizing surfaces where the particles land.
- 5.) Surface Testing using reverse transcription quantitative polymerase chain reaction (RT-qPCR) testing to determine fomite-based transmission.

# SECTION 2.2 <1350 AND >100 MICRON RANGE – INTERMEDIATE REGION

Particles <1350 and >100 microns will travel a distance but are too bulky to avoid objects, thus crashing into whatever is in the pathway. (door, wall, face, floor, ceiling, tracheobronchial tract, etc.)

The spread of coronavirus caused by >100 microns particles may be reduced by;

- 1.) Febrile Screening reduces the number of particles in the air by eliminating symptomatic individuals from social and workplace gatherings,
- 2.) Sanitizing surfaces where the particles land,
- 3.) Wearing masks to create a protective barrier and to reduce the number of particles in the droplet cloud. Wearing a mask will prevent projecting large particles on people during a cough or sneeze. (see graph above),
- 4.) Managing the forced and natural convection to prevent smaller particles from encountering individuals.
- 5.) Social or physical distancing to allow largest particles to settle prior to contact.
- 6.) Measuring particulate (>10, >2.5 and >0.3) micron as a surrogate for airborne (droplet and aerosol) virus concentrations reduces the risk of aerosol particle build up in a room.
- 7.) Surface Testing using reverse transcription quantitative polymerase chain reaction (RT-qPCR) testing to determine fomite-based transmission.



# SECTION 2.3 <100 AND >7.0 MICRON RANGE – STOKES'S LAW REGION

Particles in the <100 and >7.0 microns range will only crash into something when there is a change in direction in the pathway (turn in a vent, a hair follicle in your nose, your tongue). Think of this like a car taking a turn too fast and crashing into the wall.

The spread of coronavirus caused by particles <100 and >7 microns may be reduced by:

- 1.) Febrile Screening reduces the number of particles in the air by eliminating symptomatic individuals from social and workplace gatherings
- 2.) Wearing masks to create a protective barrier and to reduce the number of droplet and aerosol particles in the air. Wearing a mask will prevent projecting large particles on people during a cough or sneeze. Wearing a mask will not prevent aerosol-based transmission events as the corona virus is less than 1 micron in diameter. Masks are effective for droplet events but do not provide protection from aerosol-based transmission in enclosed spaces for meetings of 2 hours or more in duration.
- 3.) Managing the forced and natural convection to prevent these particles from encountering individuals.
- 4.) Measuring particulate (>10, >2.5 and >0.3) micron as a surrogate for airborne (droplet and aerosol) virus concentrations reduces the risk of aerosol particle build up in a room.
- 5.) Surface Testing using reverse transcription quantitative polymerase chain reaction (RT-qPCR) testing to determine fomite-based transmission.

# SECTION 2.4 $<7.0$ AND $>0.068$ MICRON RANGE – CUNNINGHAM SLIP & KNUDSEN REGION

$<7.0$ -micron particles will change direction with the air current until a small space is encountered. (Think of a dead end on a racetrack.) In a human, this is the alveolus in the lung.

The spread of coronavirus caused by particles  $<7.0$  microns may be reduced by:

- 1.) Febrile Screening reduces the number of particles in the air by eliminating symptomatic individuals from social and workplace gatherings
- 2.) Managing the forced and natural convection to prevent these particles from encountering individuals.
- 3.) Wearing masks to create a protective barrier and to reduce the number of droplet and aerosol particles in the air. Wearing a mask will prevent projecting large particles on people during a cough or sneeze. Wearing a mask will not prevent aerosol-based transmission events as the corona virus is less than 1 micron in diameter. Masks are effective for droplet events but do not provide protection from aerosol-based transmission in enclosed spaces for meetings of 2 hours or more in duration.
- 4.) Measuring CO<sub>2</sub> concentrations as a surrogate for fresh air circulation reduces the risk of aerosol particle build up in a room.
- 5.) Measuring particulate ( $>10$ ,  $>2.5$  and  $>0.3$ ) micron as a surrogate for airborne (droplet and aerosol) virus concentrations reduces the risk of aerosol particle build up in a room.
- 6.) Surface Testing using reverse transcription quantitative polymerase chain reaction (RT-qPCR) testing to determine fomite-based transmission.

# SECTION 2.5 <0.068 MICRON RANGE – DIFFUSION RANGE

- Particles small enough to be primarily governed by diffusion are also of little concern as the particles are too small to be a coronavirus laden particle. (Average coronavirus particle size is 100nm)

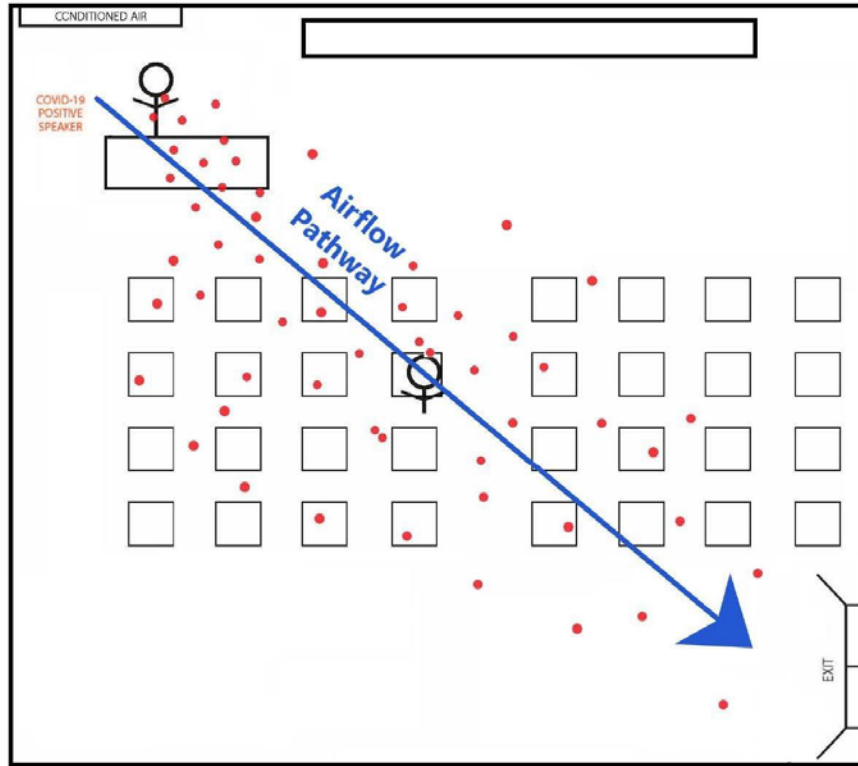
The spread of coronavirus caused by particles <0.068 microns may be reduced by:

- 1.) Febrile Screening reduces the number of particles in the air by eliminating symptomatic individuals from social and workplace gatherings
- 2.) Wearing masks to create a protective barrier and to reduce the number of droplet and aerosol particles in the air. Wearing a mask will prevent projecting large particles on people during a cough or sneeze. Wearing a mask will not prevent aerosol-based transmission events as the corona virus is less than 1 micron in diameter. Masks are effective for droplet events but do not provide protection from aerosol-based transmission in enclosed spaces for meetings of 2 hours or more in duration.
- 3.) Measuring CO2 concentrations as a surrogate for fresh air circulation reduces the risk of aerosol particle build up in a room.
- 4.) Surface Testing using reverse transcription quantitative polymerase chain reaction (RT-qPCR) testing to determine fomite-based transmission.

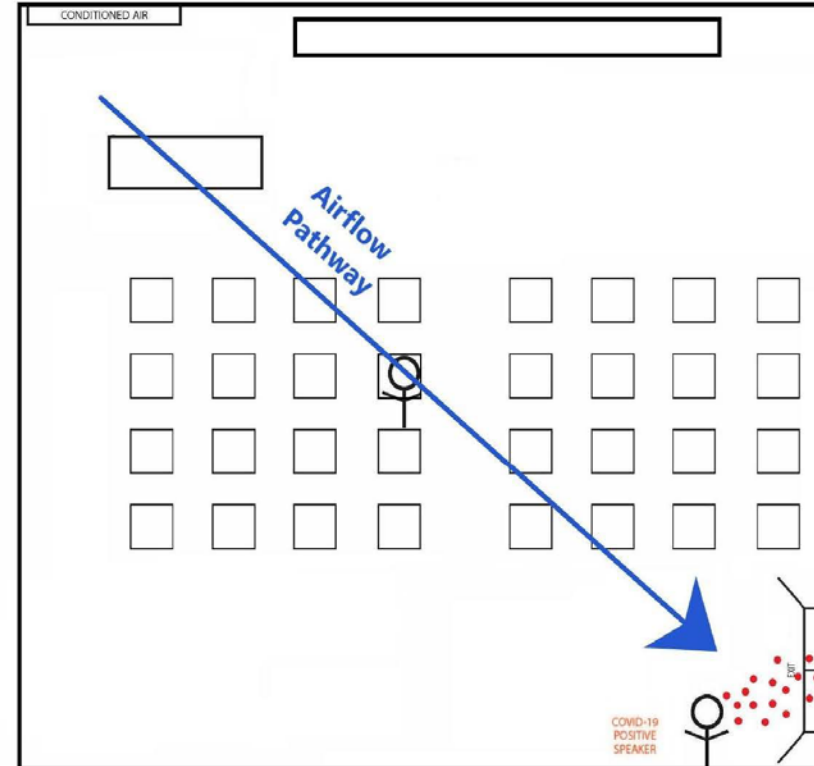
# Particle Size Table

| Type or Range                       | Meters     | Particle Diameter Micron | K        | Regime       | $\nu$ (CS) | $\nu$ (CS) | $\nu$ (CS) | $\nu$ (CS) | $\nu$ (CS) | Diffusivity (SI) | Diffusivity (CCG) | Relaxation Time (s) | Stopping Distance (5) | Stopping Distance (10) | Stopping Distance (22) | Stopping Distance (60) |
|-------------------------------------|------------|--------------------------|----------|--------------|------------|------------|------------|------------|------------|------------------|-------------------|---------------------|-----------------------|------------------------|------------------------|------------------------|
| 1 nm                                | 1.00E-09   | 0.001                    | 3.26E-05 | Boltzmann    | 6.69E-09   | 4.37E-13   | 225.914    | 68.000     | 1.6538     | 5.37E-06         | 5.37E-02          | 6.82E-10            | 3.41E-09              | 6.82E-09               | 1.50E-08               | 2.73E-08               |
| Diffusion Region                    | 6.75E-09   | 0.0068                   | 2.20E-04 | Boltzmann    | 4.58E-08   | 2.02E-11   | 33.957     | 10.074     | 1.6357     | 1.20E-07         | 1.20E-03          | 4.67E-09            | 2.33E-08              | 4.67E-08               | 1.03E-07               | 1.87E-07               |
| 10 nm                               | 1.00E-08   | 0.01                     | 3.26E-04 | Boltzmann    | 6.84E-08   | 4.47E-11   | 23.113     | 6.800      | 1.6259     | 5.50E-08         | 5.50E-04          | 6.98E-09            | 3.49E-08              | 6.98E-08               | 1.53E-07               | 2.79E-07               |
|                                     | 6.00E-08   | 0.06                     | 1.96E-03 | Boltzmann    | 4.70E-07   | 1.84E-09   | 4.407      | 1.133      | 1.5032     | 1.75E-09         | 1.75E-05          | 4.79E-08            | 2.39E-07              | 4.79E-07               | 1.05E-06               | 1.92E-06               |
| Mean Free Path                      | 6.80E-08   | 0.068                    | 2.22E-03 | Stokes-Cs    | 5.44E-07   | 2.42E-09   | 3.976      | 1.000      | 1.4878     | 1.39E-09         | 1.39E-05          | 5.55E-08            | 2.77E-07              | 5.55E-07               | 1.22E-06               | 2.22E-06               |
| Average Coronavirus Particle        | 1.00E-07   | 0.1                      | 3.26E-03 | Stokes-Cs    | 8.74E-07   | 5.71E-09   | 2.952      | 0.680      | 1.4352     | 7.02E-10         | 7.02E-06          | 8.91E-08            | 4.45E-07              | 8.91E-07               | 1.96E-06               | 3.56E-06               |
|                                     | 1.20E-07   | 0.12                     | 3.92E-03 | Stokes-Cs    | 1.11E-06   | 8.68E-09   | 2.596      | 0.567      | 1.4085     | 5.14E-10         | 5.14E-06          | 1.13E-07            | 5.64E-07              | 1.13E-06               | 2.48E-06               | 4.51E-06               |
|                                     | 1.40E-07   | 0.14                     | 4.57E-03 | Stokes-Cs    | 1.36E-06   | 1.25E-08   | 2.346      | 0.486      | 1.3859     | 3.98E-10         | 3.98E-06          | 1.39E-07            | 6.94E-07              | 1.39E-06               | 3.05E-06               | 5.55E-06               |
|                                     | 1.80E-07   | 0.18                     | 5.88E-03 | Stokes-Cs    | 1.94E-06   | 2.28E-08   | 2.020      | 0.378      | 1.3503     | 2.67E-10         | 2.67E-06          | 1.98E-07            | 9.88E-07              | 1.98E-06               | 4.35E-06               | 7.90E-06               |
| 2 Average Coronavirus Particles     | 2.00E-07   | 0.2                      | 6.53E-03 | Stokes-Cs    | 2.26E-06   | 2.95E-08   | 1.909      | 0.340      | 1.3363     | 2.27E-10         | 2.27E-06          | 2.30E-07            | 1.15E-06              | 2.30E-06               | 5.07E-06               | 9.22E-06               |
|                                     | 2.40E-07   | 0.24                     | 7.83E-03 | Stokes-Cs    | 2.98E-06   | 4.67E-08   | 1.745      | 0.283      | 1.3144     | 1.73E-10         | 1.73E-06          | 3.03E-07            | 1.52E-06              | 3.03E-06               | 6.67E-06               | 1.21E-05               |
|                                     | 2.80E-07   | 0.28                     | 9.14E-03 | Stokes-Cs    | 3.79E-06   | 6.92E-08   | 1.631      | 0.243      | 1.2985     | 1.38E-10         | 1.38E-06          | 3.86E-07            | 1.93E-06              | 3.86E-06               | 8.49E-06               | 1.54E-05               |
| 3 Average Coronavirus Particles     | 3.00E-07   | 0.3                      | 9.79E-03 | Stokes-Cs    | 4.23E-06   | 8.28E-08   | 1.586      | 0.227      | 1.2923     | 1.26E-10         | 1.26E-06          | 4.31E-07            | 2.15E-06              | 4.31E-06               | 9.48E-06               | 1.72E-05               |
|                                     | 4.20E-07   | 0.42                     | 1.37E-02 | Stokes-Cs    | 7.37E-06   | 2.02E-07   | 1.411      | 0.162      | 1.2704     | 7.99E-11         | 7.99E-07          | 7.51E-07            | 3.76E-06              | 7.51E-06               | 1.65E-05               | 3.01E-05               |
| 500 nm                              | 5.00E-07   | 0.5                      | 1.63E-02 | Stokes-Cs    | 9.95E-06   | 3.25E-07   | 1.344      | 0.136      | 1.2640     | 6.39E-11         | 6.39E-07          | 1.01E-06            | 5.07E-06              | 1.01E-05               | 2.23E-05               | 4.06E-05               |
|                                     | 6.80E-07   | 0.68                     | 2.22E-02 | Stokes-Cs    | 1.71E-05   | 7.61E-07   | 1.252      | 0.100      | 1.2586     | 4.38E-11         | 4.38E-07          | 1.75E-06            | 8.73E-06              | 1.75E-05               | 3.84E-05               | 6.99E-05               |
| Beginning of High Slip Region       | See Kn --> |                          |          | Kn>0.1       |            |            |            |            |            |                  |                   |                     |                       |                        |                        |                        |
|                                     | 8.00E-07   | 0.8                      | 2.61E-02 | Stokes-Cs    | 2.30E-05   | 1.20E-06   | 1.214      | 0.085      | 1.2576     | 3.61E-11         | 3.61E-07          | 2.34E-06            | 1.17E-05              | 2.34E-05               | 5.16E-05               | 9.38E-05               |
|                                     | 1.00E-06   | 1                        | 3.26E-02 | Stokes-Cs    | 3.47E-05   | 2.26E-06   | 1.171      | 0.068      | 1.2571     | 2.78E-11         | 2.78E-07          | 3.53E-06            | 1.77E-05              | 3.53E-05               | 7.78E-05               | 1.41E-04               |
|                                     | 2.50E-06   | 2.5                      | 8.16E-02 | Stokes-Cs    | 1.98E-04   | 3.23E-05   | 1.068      | 0.027      | 1.2570     | 1.02E-11         | 1.02E-07          | 2.02E-05            | 1.01E-04              | 2.02E-04               | 4.43E-04               | 8.06E-04               |
|                                     | 5.00E-06   | 5                        | 1.63E-01 | Stokes-Cs    | 7.66E-04   | 2.50E-04   | 1.034      | 0.014      | 1.2570     | 4.92E-12         | 4.92E-08          | 7.80E-05            | 3.90E-04              | 7.80E-04               | 1.72E-03               | 3.12E-03               |
|                                     | 7.00E-06   | 7                        | 2.28E-01 | Stokes-Cs    | 1.49E-03   | 6.80E-04   | 1.024      | 0.010      | 1.2570     | 3.48E-12         | 3.48E-08          | 1.52E-04            | 7.58E-04              | 1.52E-03               | 3.33E-03               | 6.06E-03               |
| Beginning of Cunningham Slip Region | See Kn --> |                          |          | Kn>0.01      |            |            |            |            |            |                  |                   |                     |                       |                        |                        |                        |
|                                     | 7.50E-06   | 7.5                      | 2.45E-01 | Stokes       | 1.70E-03   | 8.35E-04   | 1.023      | 0.009      | 1.2570     | 3.24E-12         | 3.24E-08          | 1.74E-04            | 8.68E-04              | 1.74E-03               | 3.82E-03               | 6.95E-03               |
|                                     | 1.00E-05   | 10                       | 3.26E-01 | Stokes       | 3.01E-03   | 1.97E-03   | 1.017      | 0.007      | 1.2570     | 2.42E-12         | 2.42E-08          | 3.07E-04            | 1.53E-03              | 3.07E-03               | 6.75E-03               | 1.23E-02               |
|                                     | 5.00E-05   | 50                       | 1.63E+00 | Stokes       | 7.43E-02   | 2.43E-01   | 1.003      | 0.001      | 1.2570     | 4.77E-13         | 4.77E-09          | 7.57E-03            | 3.79E-02              | 7.57E-02               | 1.67E-01               | 3.03E-01               |
|                                     | 7.50E-05   | 75                       | 2.45E+00 | Stokes       | 1.67E-01   | 8.18E-01   | 1.002      | 0.001      | 1.2570     | 3.18E-13         | 3.18E-09          | 1.70E-02            | 8.51E-02              | 1.70E-01               | 3.74E-01               | 6.81E-01               |
|                                     | 1.00E-04   | 100                      | 3.26E+00 | Stokes       | 2.97E-01   | 1.94       | 1.002      | 0.001      | 1.2570     | 2.38E-13         | 2.38E-09          | 3.02E-02            | 1.51E-01              | 3.02E-01               | 6.65E-01               | 1.21E+00               |
| Beginning of Stokes' Law Region     | K < 3.3    |                          |          | Re < 2       |            |            |            |            |            |                  |                   |                     |                       |                        |                        |                        |
|                                     | 2.00E-04   | 200                      | 6.53E+00 | Intermediate | 6.53E-01   | 8.53       | 1.001      | 0.000      | 1.2570     | 1.19E-13         | 1.19E-09          | 6.65E-02            | 3.33E-01              | 6.65E-01               | 1.46E+00               | 2.66E+00               |
|                                     | 5.00E-04   | 500                      | 1.63E+01 | Intermediate | 1.86E+00   | 60.60      | 1.000      | 0.000      | 1.2570     | 4.76E-14         | 4.76E-10          | 1.89E-01            | 9.46E-01              | 1.89E+00               | 4.16E+00               | 7.57E+00               |
|                                     | 7.50E-04   | 750                      | 2.45E+01 | Intermediate | 2.95E+00   | 144.32     | 1.000      | 0.000      | 1.2570     | 3.17E-14         | 3.17E-10          | 3.00E-01            | 1.50E+00              | 3.00E+00               | 6.61E+00               | 1.20E+01               |
|                                     | 1.00E-03   | 1000                     | 3.26E+01 | Intermediate | 4.09E+00   | 267.12     | 1.000      | 0.000      | 1.2570     | 2.38E-14         | 2.38E-10          | 4.17E-01            | 2.08E+00              | 4.17E+00               | 9.17E+00               | 1.67E+01               |
|                                     | 1.25E-03   | 1250                     | 4.08E+01 | Intermediate | 5.27E+00   | 430.61     | 1.000      | 0.000      | 1.2570     | 1.90E-14         | 1.90E-10          | 5.38E-01            | 2.69E+00              | 5.38E+00               | 1.18E+01               | 2.15E+01               |
|                                     | 1.35E-03   | 1350                     | 4.41E+01 | Newton       | 5.76E+00   | 507.71     | 1.000      | 0.000      | 1.2570     | 1.76E-14         | 1.76E-10          | 5.87E-01            | 2.93E+00              | 5.87E+00               | 1.29E+01               | 2.35E+01               |
| Beginning of Intermediate Region    | K < 43.6   |                          |          |              |            |            |            |            |            |                  |                   |                     |                       |                        |                        |                        |
| End of Newton's Law Region          | K > 43.6   |                          |          | Re > 500     |            |            |            |            |            |                  |                   |                     |                       |                        |                        |                        |
|                                     | 2.00E-03   | 2000                     | 6.53E+01 | Newton       | 9.01E+00   | 1177.35    | 1.000      | 0.000      | 1.2570     | 1.19E-14         | 1.19E-10          | 9.19E-01            | 4.59E+00              | 9.19E+00               | 2.02E+01               | 3.67E+01               |
|                                     | 2.50E-03   | 2500                     | 8.16E+01 | Newton       | 1.16E+01   | 1897.99    | 1.000      | 0.000      | 1.2570     | 9.51E-15         | 9.51E-11          | 1.18E+00            | 5.92E+00              | 1.18E+01               | 2.61E+01               | 4.74E+01               |
|                                     | 3.00E-03   | 3000                     | 9.79E+01 | Newton       | 1.43E+01   | 2803.76    | 1.000      | 0.000      | 1.2570     | 7.93E-15         | 7.93E-11          | 1.46E+00            | 7.29E+00              | 1.46E+01               | 3.21E+01               | 5.83E+01               |
|                                     | 4.00E-03   | 4000                     | 1.31E+02 | Newton       | 1.99E+01   | 5189.32    | 1.000      | 0.000      | 1.2570     | 5.94E-15         | 5.94E-11          | 2.02E+00            | 1.01E+01              | 2.02E+01               | 4.45E+01               | 8.10E+01               |

# Pathway is Important, Not Distance



With speaker at the front of the class, all students are infected by COVID-19 particles in the airflow pathway.



With the speaker by the door, COVID-19 particles exit the room without ever encountering any students.

Pathway is Critical to Aerosol-based Transmission of COVID-19

# Contact Us

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To receive a the article, “Understanding Aerosol-based Transmission”, or if you have questions about preventing Aerosol-based Transmission contact:

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Register Today [www.4conference.com](http://www.4conference.com)



Or reference the following link: <https://www.4conference.com/understanding-particle-size-and-aerosol-based-transmission-of-covid-19/>