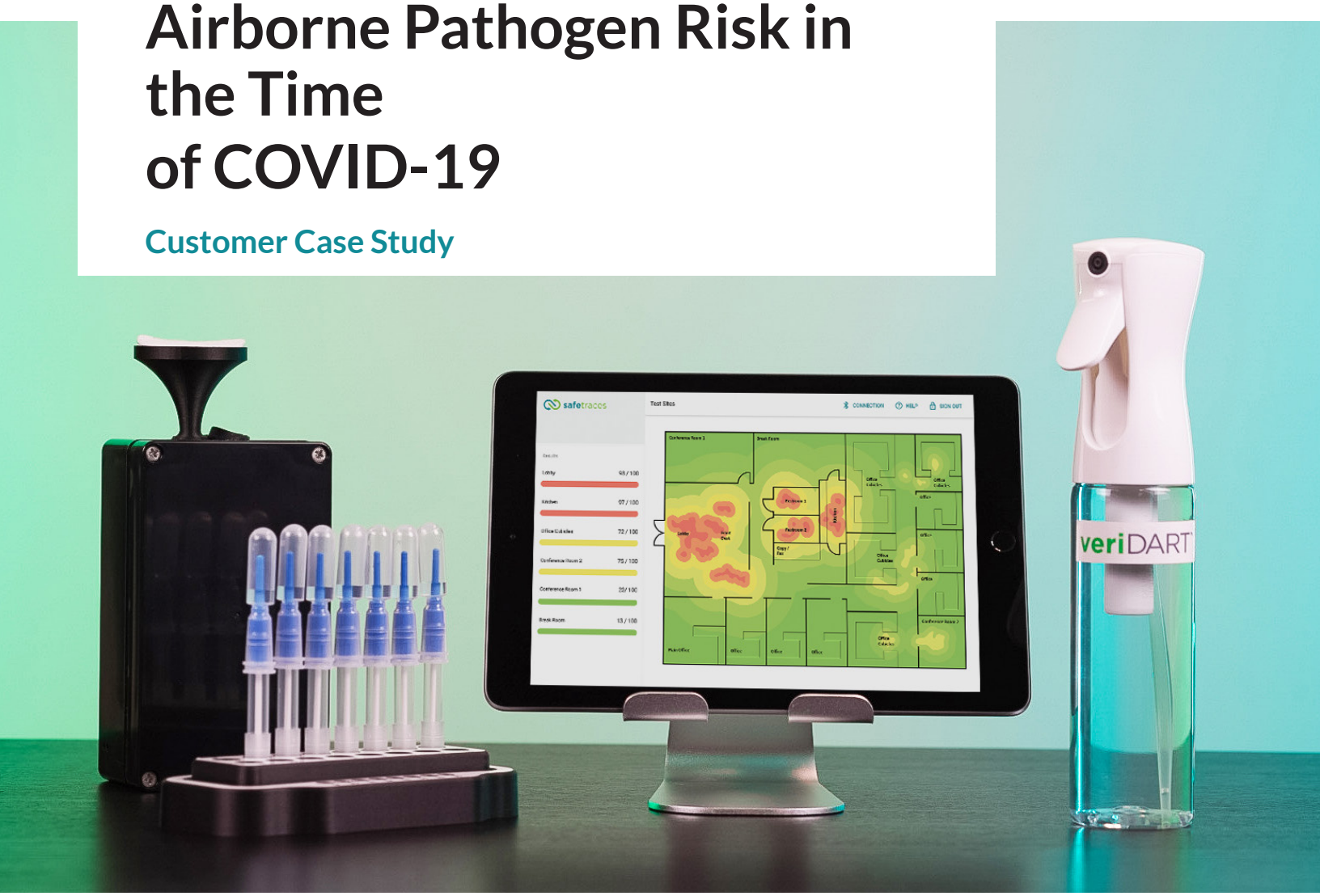
veriDART™

# Assess and Mitigate Airborne Pathogen Risk in the Time of COVID-19

## Customer Case Study




safetraces

## About SafeTraces

SafeTraces is deeply committed to the mission of ensuring the highest safety standards for the food we eat, the medication we take, and the air we breathe. Now more than ever, people demand transparency and assurances from food companies, drug manufacturers, and property managers regarding their safety practices.

Harnessing the power of DNA, SafeTraces has developed groundbreaking solutions for food and drug traceability, sanitation verification, and safe airflow verification that address our fundamental human need for safety. We work tirelessly in support of our customers to advance the cause of making a better, safer world.

## Customer Overview

Our customer is a multinational Fortune 100 company with two major office buildings undergoing a comprehensive health and safety risk assessment for reopening during the COVID-19 pandemic:

1. 500,000 square foot / 3,000 occupant capacity complex multi-use building, including open offices floors, conference rooms, laboratories, engineering bays, and food court
2. 30,000 square foot / 300 occupant capacity traditional building including open office floors, conference rooms, and employee gym

## The Challenge

Leading scientists, public health officials, and industry associations have emphasized the importance of mitigating airborne transmission as part of disease-control strategies for COVID-19. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), a leading authority on building health and safety, states,

*"Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes in building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures."*

Our customer's goal was to assess and mitigate the risk of airborne transmission of COVID-19 for reopening two major office buildings in order to:

- Mitigate health and safety risk to employees
- Maintain workforce productivity
- Target capital expenditures and operating expenses to the highest value mitigation opportunities
- Mitigate company liability risk

Key customer decisions included:

- What level of occupancy should they allow in their buildings?
- What adjustments should they make to their floor plan layouts?
- What building areas should they keep open, partially open, or closed?
- How should they revise their SOP's for space utilization in the buildings?
- Should they upgrade their air filtration to a higher MERV-level and add portable HEPA filters to high-risk enclosed spaces?
- Should they incorporate UV-C, bipolar ionization, or other airborne disinfection solutions?
- Should they make mechanical enhancements to high-risk areas?
- How should they manage temperature, humidity, and ventilation in the buildings?
- What are the tradeoffs between risk mitigation versus financial cost for each decision?

Their decision-making process was challenged by the complexity of the COVID-19 airborne transmission risk, the overwhelming, often conflicting guidance from various scientific, health, and building management experts, and the significant health, safety and financial consequences of their decisions. Moreover, there was a major gap in diagnostic tools available for safely assessing airborne transmission in buildings, hampering their ability to assess and mitigate their risk.

## The Solution

Our customer contracted SafeTraces to:

- Provide a baseline survey for airborne pathogen mobility throughout its two office buildings
- Conduct in-depth risk assessments for high-risk, high-trafficked areas
- Inform mitigations for hotspots identified in testing

Developed with support from the National Institutes of Health (NIH), SafeTraces' proprietary tracers mimic the mobility of virus-infected saliva droplets and aerosols, with spraying correlated to the human respiratory aerosol range for coughing and sneezing and air sampling correlated to the human breathing range. Tracers consist of food-safe, water-soluble materials used at levels significantly below OSHA and NIOSH safe exposure limits. SafeTraces measures the DNA reduction level of tracers from the spray point to the sampling point in order to quantitatively assess airborne pathogen mobility and risk within a building.

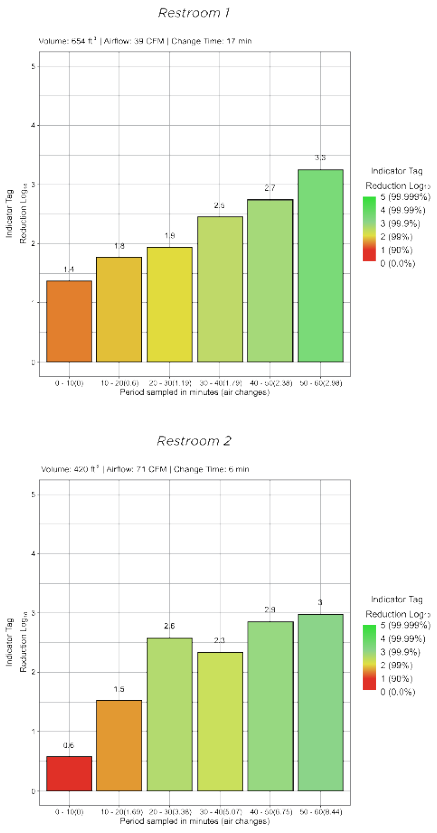
In close coordination with the customer's facilities and EHS leadership teams, SafeTraces executed a comprehensive test plan over five days that involved spraying dozens of unique DNA-tagged airborne pathogen mobility indicators ("tracers") and sampling an

extensive number of points throughout the two buildings based on the floor plans, HVAC system configuration, and areas of concern. Additionally, SafeTraces conducted detailed testing of restrooms and conference rooms, two high-risk enclosed spaces, to better understand the time and conditions, particularly around airflow, required to reduce tracer detection to low risk, safe levels.

Within one week after the completion of testing, SafeTraces delivered our customer comprehensive risk assessments for each building and specific hotspots within these buildings.

During testing, SafeTraces identified several important risk areas:

- **Restrooms, Conference Rooms, and Other Enclosed Spaces:** SafeTraces established clear time and condition parameters at which tracers reduced to low risk, safe levels in order to inform decisions on implementation of UV-C solutions and portable HEPA filters, installation of additional air vents, and revision of SOP's guiding employee utilization of these spaces.
- **High Airflow Pathways:** SafeTraces identified several high airflow pathways in open office areas, break areas, and other high-trafficked areas in order to inform decisions on which areas of the buildings to keep open or closed.
- **Ventilation and Filtration:** SafeTraces tested our customer's existing ventilation and filtration systems, with tracers traveling widely throughout the buildings, often not being caught by existing filters and in some instances indicating mechanical failures, in order to inform decisions around filtration enhancements, mechanical repairs, and optimal HVAC settings.




*SafeTraces established clear time and condition parameters at which tracers reduced to low risk, safe levels within restrooms.*

Leveraging SafeTraces' analysis, our customer is currently evaluating these key building health and safety decisions within their facilities, EHS, and executive leadership teams, while planning future testing to assess the efficacy of remediations undertaken and updating their risk assessment as variations in occupancy level


*SafeTraces creates comprehensive heatmaps across the building to identify hotspots and inform remediations.*

and weather conditions change airflow and consequently risk in their buildings.

Ultimately, our customer defined return on investment for veriDART as keeping employees healthy, safe, and productive, instilling trust and confidence among their workforce to return to their offices, and knowing where to target their mitigation-related spending.

## Contact

SafeTraces, Inc.
4473 Willow Road
Suite 260 Pleasanton,
CA 94588+1

925-326-1200
www.safetraces.com
info@safetraces.com

## Our Solutions

saniDART™

A revolutionary new way to verify cleaning and sanitation effectiveness. The saniDART™ solution provides results that directly correlate to pathogen removal on food contact and non-food contact surfaces in minutes to correct hygiene
problems in real-time.

miniDART™

The world's most advanced traceability solution, the miniDART™ applies seaweed-based barcodes directly on the food, not the packaging. It enables producers to provide the highest level of assurance for the provenance and purity of products ranging from fresh produce and grains to oils and juices.

veriDART™

By simulating the dispersion and settlement patterns of airborne pathogens, the veriDART™'s proprietary airborne tracers allow the user to verify safe airflow and effective air filtration, and create targeted remediation plans. The veriDART is NIOSH, OSHA, and ECHA compliant and can safely be deployed in any built environment.