

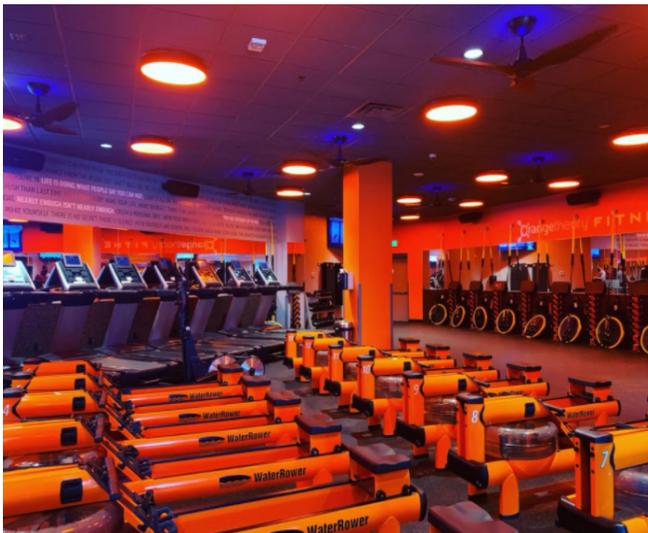


**BIG ASS FANS**

**EXCEPTIONALLY  
ENGINEERED**

## UTILIZING BAF-CAS, ORANGETHEORY FITNESS REDUCES INFECTION RISK IN STUDIOS NATIONWIDE

The installation of Big Ass Fans' [Clean Air System](#) (CAS) UV-C technology in Orangetheory Fitness studios results in an estimated infection risk reduction of greater than 90% for both members and coaches when properly implemented in a studio with sufficient fan quantity



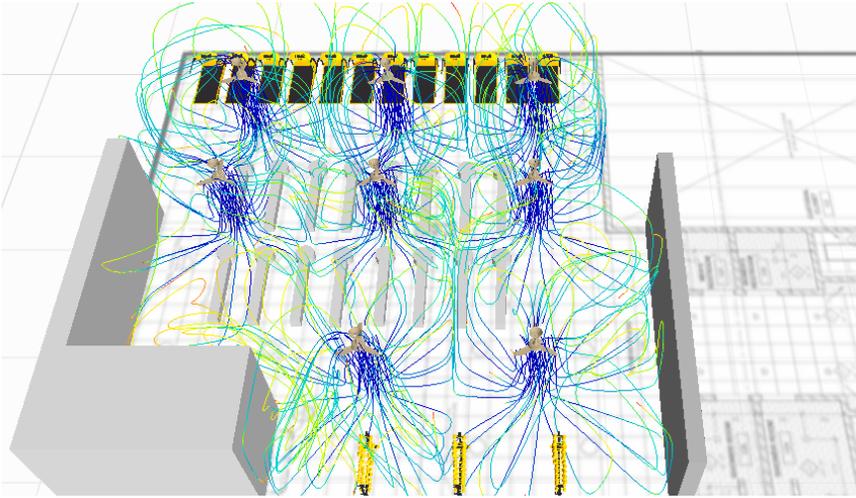
### BACKGROUND:

During the public health conditions brought forth by the COVID-19 pandemic, public fitness environments have made significant changes to mitigate the risk of disease transmission. In addition to ubiquitous health screenings and social distancing measures, many facilities have initiated contactless check-ins, increased cleaning with a focus on high-touch areas, and are maximizing outdoor air intake from HVAC units to improve indoor air quality. Big Ass Fans (BAF) can provide additional safety measures using UV-C disinfection technology in conjunction with ceiling fans to quantifiably improve the safety in public fitness environments such as Orangetheory Fitness (OTF). By directing UV-C energy toward the ceiling and using fans to circulate air into the disinfection zone above the fans, BAF can leverage the ability of UV-C technology to safely inactivate pathogens while simultaneously providing cooling airflow without exposing occupants to harmful levels of UV-C irradiation.

### PROJECT SCOPE:

Existing 56-inch fans in the OTF studio space were replaced by CAS Haiku UV-C. While the general functional areas for each OTF studio are similar (treadmills, rowers, and TRX), the footprint and equipment setup for each studio is unique and thus requires a unique solution. In most cases, existing fans were replaced on a 1-for-1 basis with either 52 or 60-inch Haiku UV-C fans. Prior to CAS implementation, a detailed CFD simulation and customized infection risk calculation using the Wells-Riley infection risk model were provided for each location. The CFD simulation was used to validate airflow performance throughout the space for comfort and UV-C disinfection. The infection risk calculation provided a numerical comparison of baseline risk vs. risk with CAS in the space for both a member and coach, who are exposed in the space differently.





CFD Simulation - Airflow Streamline Analysis

Calculation Inputs	
Unit System	English (IP)
Space Length	50 ft
Space Width	50 ft
Space Height	11.75 ft
Fan Mounting Height	11.75 ft
Number of Fans	8 Fans
Haiku Fan Size	60 inches
Extension Tube Length	20 inches
Fan Design Speed	Speed 7
Path Length Through Disinfection Zone	12 ft
Length of Time to be Studied	60 minutes
Baseline Outdoor Air Ventilation Rate	3 ACH
Occupant Activity Level	High (Running)
Pathogen #1	Coronavirus (SARS-COV-1)

Wells-Riley Infection Risk Inputs - Facility Specific

## KEY DATA AND OUTCOMES:

Orangetheory Fitness facilities, such as the example below, typically see a risk reduction of greater than 85% vs. baseline, with some facilities seeing greater than 90%. Infection risk is notably higher for a coach than a member due to the increased exposure time, but in both cases the addition of CAS provides a significant impact.

Configuration	Total ACH (ACH + eACH)	Coronavirus Infection Risk (Member - 1hr)	Coronavirus Infection Risk (Coach - 3hrs)
Existing HVAC Only	3	19%	48%
Haiku with UV-C (8 Fans)	46.0	1% (93% Reduction)	4% (92% Reduction)

Risk reduction is largely dependent on the square footage and quantity of fans in the studio, and therefore can be significantly greater in a well apportioned studio and significantly lower in a studio lacking in supplemental overhead fans. Based on the assessments provided by Big Ass Fans, some OTF franchisees choose to take extra steps to place additional fans in both the studio and lobby to further improve the safety and cooling comfort for members and staff. The investment in a solution that provides both comfort and peace of mind has not gone unnoticed by OTF members and staff as the testimonials below show. Dozens of OTF locations across the US have made the commitment to put the well-being of their members and associates first, with additional locations soon to follow.

*"It feels amazing. It feels really cutting edge – really high tech and makes me feel even better about coming here."*

**Cadee Harris**  
OTF Member - Arvada, CO

*"It just continues to give us that comfort level that we can keep a safe environment."*

**Trent Mack**  
OTF Coach - Arvada, CO

*"I've been aware of Big Ass Fans' stellar reputation in our industry for years. I've now been fortunate enough to partner with them and witness it firsthand."*

**Chris Labishak**  
Area Developer/Owner  
OTF Advisory Council President

## FURTHER ACTIONS:

Based on the potential for infection risk reduction and overwhelmingly positive feedback from members and staff at Orangetheory Fitness who have experienced Clean Air System firsthand, fitness centers of all shapes and sizes can benefit from CAS UV-C technology. Proper layout of Haiku UV-C or Essence UV-C can effectively mitigate airborne spread of diseases and create healthier, cleaner spaces for both employees and patrons alike.

