

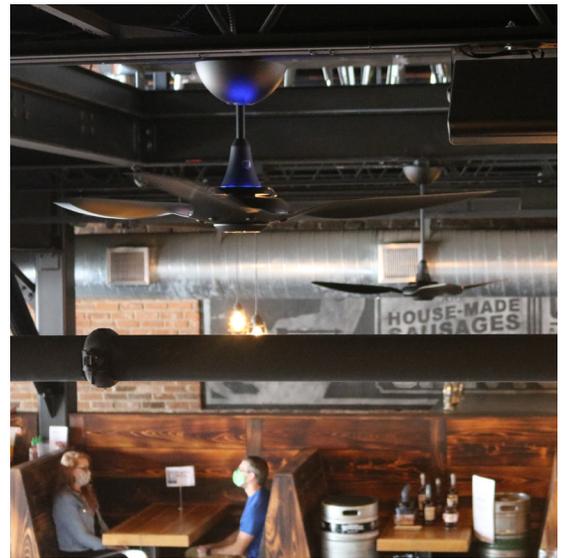


BIG ASS FANS

**EXCEPTIONALLY
ENGINEERED**

LOCAL GASTROPUB REDUCES INDOOR DINING RISK BY INSTALLING HAIKU WITH UVC TECHNOLOGY

The installation of Big Ass Fans' [Clean Air System](#) (CAS) UVC technology at local restaurant Bear & the Butcher results in an estimated infection risk reduction of nearly 85% for patrons when properly designed and implemented in target areas.



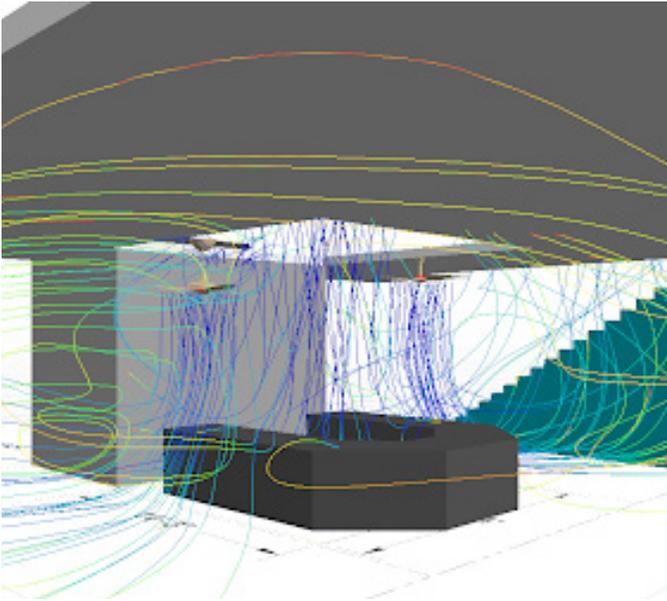
BACKGROUND:

During the public health conditions brought forth by the COVID-19 pandemic, the hospitality industry (food service, hotels, travel, and entertainment) has made significant changes to mitigate the risk of disease transmission in an effort to maximize customer and employee safety in an effort to protect occupants and to continue to offer socially distant service indoors in as safe of an environment as possible. In addition to ubiquitous health screenings and social distancing measures, many restaurants have initiated contactless ordering and food delivery, 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 UVC disinfection technology in conjunction with ceiling fans to quantifiably improve the safety in restaurants such as Bear & the Butcher in Lexington, KY. By directing UVC energy towards the ceiling and using fans to circulate air into the disinfection zone above the fans, BAF can leverage the ability of UVC to safely inactivate pathogens while simultaneously providing cooling airflow without exposing occupants to harmful levels of UVC irradiation.

PROJECT SCOPE:

The first floor bar was chosen as an excellent application for CAS due to the variety of possible exposures from highly variable patron turnover. Two 52-inch Haiku + UVC fans were recommended for the bar. Prior to CAS implementation, a detailed CFD simulation and customized infection risk calculation using the Wells-Riley infection risk model were provided. The CFD simulation was used to validate airflow performance throughout the space for cooling and UVC disinfection. The infection risk calculation provided a numerical comparison of baseline risk vs. risk with CAS in the space for patrons during a 1-hour dining period.





Calculation Inputs	
Unit System	English (IP)
Space Length	25 ft
Space Width	25 ft
Space Height	11.5 ft
Fan Mounting Height	11.5 ft
Number of Fans	2 Fans
Haiku Fan Size	52 inches
Extension Tube Length	20 inches
Fan Design Speed	Speed 3
Path Length Through Disinfection Zone	6 ft
Length of Time to be Studied	60 minutes
Baseline Outdoor Air Ventilation Rate	0.75 ACH
Occupant Activity Level	Low (Resting/Seated)
Pathogen #1	Coronavirus (SARS-COV-1)

(Left) CFD airflow streamline simulation results. (Right) Wells-Riley Infection Risk Model Inputs

KEY DATA AND OUTCOMES:

Representative occupants dining for an hour at Bear & the Butcher are expected to experience a risk reduction of nearly 85% versus baseline conditions by implementing CAS Haiku + UVC fans in the bar area.

Configuration	Total ACH (ACH + eACH)	Coronavirus Infection Risk (Patron - 1hr)
Existing HVAC Only	0.75	51%
Haiku with UV-C (2 Fans)	5.5	8% (84% Reduction)

Risk reduction is largely dependent on the square footage and quantity of fans in a defined occupied space, and is therefore positively correlated with the number of fans with UVC sources implemented in the design. Based on the assessments provided by Big Ass Fans, Bear & the Butcher plans to gradually phase in additional fans as budget allows to further improve the safety and cooling comfort of their patrons and staff across more functional areas of their restaurant. The investment in a solution that provides both comfort and peace of mind has not gone unnoticed by patrons and staff as the testimonial below shows.



It literally sterilizes the air as it pulls the air. I mean it's state of the art stuff. We're absolutely thrilled and I can't think of a safer place to be than this restaurant just because of that."

Glenn Cox
General manager

FURTHER ACTIONS:

Based on the potential for infection risk reduction and overwhelmingly positive feedback from patrons and staff at Bear & the Butcher who have experienced Clean Air System firsthand, hospitality facilities from restaurants to cruise ships can benefit from CAS UVC technology. Proper layout of Haiku + UVC can effectively mitigate airborne spread of diseases and create healthier, cleaner spaces for both employees and patrons alike.

