



Case Study

The Forum, Bath

1a Forum Buildings, St James Parade, Bath, BA1 1UG



Reaction Group



Project Info

Customer

The Forum

Location

Bath, UK

React-Air Products Installed

React-Air Expanse

React-Air Impact

React-Air Induct

React-Air X

React-Air AHU Array

React-Air Ozonator

About The Forum

The Forum is a listed, landmark Art Deco building in the centre of Bath.

The Forum initially had seating for 2000 and was opened on 19 May 1934 by the Marquis of Bath and was used as a cinema until 1969, when it was home to a dancing school and bingo hall.

The building is owned by Bath and North East Somerset Council, and from 1988 is let on a 700-year term lease to the Bath Christian Trust as the home of Life Church Bath - formerly known as Bath City Church.

It presently has 1600 seats, making it Bath's largest venue for events and is also used for concerts, performances and presentations.

The Forum has undergone a programme of extensive renovations under the supervision of Stubbs Rich Architects. In 2014, the Bath Christian Trust put together plans to convert part of The Forum's ground floor into a café, which is now open.

The Issue

Due to the Global Pandemic and the Government announcement on the lockdown, The Forum was forced to close its doors and cancel all activities until the lockdown is lifted.

During its brief return to re-opening in 2020, The Forum faced the challenge of keeping their customers and staff as safe and healthy as possible. They introduced reduced capacity, social distancing and hand cleaning facilities around the building. They also put in place a stringent daily cleaning programme, including biocide spraying on the cloth seating.

The Forum has a strong commitment to ensuring that everyone who walks through the doors are the safest they can be and in doing so, they were looking for an independent consultant to provide support and verification that the measures taken were the necessary controls in line with Health and Safety legislation, current Government advice and Public Health England guidelines. So that on re-opening, staff, performers and patrons feel confident, and safe in the knowledge that the theatre is not only Covid-secure, but is focused on air quality and deep cleaning, thus reducing the risk of viral and bacterial contamination.

THE FORUM

The Solution

Reaction Group was contacted by the management of Bath Forum who were seeking a Covid safe solution for the premises, as well as a long-term solution for air quality. We undertook a two-stage consultation on site to evaluate the needs of the client, in order to provide suggestions and further investigations on the existing infrastructure.

The Forum had two existing Air Handling units on the roof, these covered the auditorium area and could provide fresh air or recycle the warm air it extracts.

In summer months, the fresh air system is the best solution for the building operators, but in the colder months, this would come at a high cost to continuously heat the fresh air coming in. We provided UVC arrays, which were installed into the air handling units, they had been designed to provide the correct dosage of germicidal radiation to clean the air of viruses and bacteria in line with the Air Handling Units' airflow.



This provided a cost-effective solution to the air quality in the area, the arrays were wired back to the air system's control panel, so they only came on when the air was recycled.

Studies have shown that UVC germicidal lamps can effectively disrupt the RNA of viruses. There have been various studies in the past 40 years, with a recent study by Boston University and Signify, (Philips Lighting), who have validated the effectiveness of UV-C light sources on inactivating the virus that causes COVID-19.

The next problem The Forum faced was keeping the auditorium clean; even though the cleaning regime they had in place was excellent, there is only so much detergent the cloth seats and the art deco design could withstand.

Reaction Group provided 6 portable ozone generators which are easily placed around the auditorium after shows. They have a delay start time to enable staff to leave the premises whilst they are running. As ozone is an incredibly powerful disinfectant, it ensures everything in the area has been sterilised, even the carpet, under the seats, walls and touchpoints. Upon completion of the install, our technical director, along with the building manager, set up ozone monitoring around the auditorium to demonstrate the effectiveness of the ozone. The results came back positive, with all areas covered, the room was safe to return to after a 3-hour cycle, 2 hours of ozone generation and 1 hour of ozone destruction.



The next step was to find a solution to keep the air clean in areas where the public gather, those identified were the Ballroom, Upper Foyer and Coffee shop, all places where the risk is higher, not only for coronavirus transmission, but also airborne bacteria, aerosol influenza and other airborne allergens, such as pollen.



The solution for these areas was simple - Reaction Group provided five React-Air Impacts. The units were placed around the areas identified to ensure an even distribution of air movement. These units versatile in that they can be moved into any area of the building as the need arises. The Impact's big Brother, The Expanse, was used in the Entrance Foyer.

The React-Air Impact is a standalone air and surface steriliser designed for use in commercial environments. Using a UVC technology, the powerful fans drive the airflow through the decontamination chamber, neutralising bacteria, viruses,

pollen and odours, delivering clean and sterile air to a room. The Impact is also a powerful ozone generator, which can be set to activate when a room is unoccupied, filling the environment with ozone gas. When the ozone comes into contact with items and surfaces, it eradicates viruses and bacteria, sterilising everything it touches.

Multiple Impacts are connected via WiFi or 4g to allow you to manage the settings on all devices through a single unit or through our desktop and mobile app. Real-time and historic data on airflow, air quality, and ozone sterilisation can also be viewed on our desktop and mobile applications. Ozone Release, UVC times can be set using the UVC touchscreen. The Impact also contains a powerful sensor array that monitors Air Exchanges, Air Quality and UVC Dose. This information is displayed on the screen to give users extra peace of mind.

The interface has a strict security protocol, to ensure that the units' programming cannot be tampered with by a third party, only the duty holder would be able to operate and set timings. For Bath Forum a disablement was programmed in, so even the duty holder could not enable the ozone release at certain times of the day.

Another consideration for the Forum was additional smaller rooms, meeting rooms and green rooms which are not used daily, so Reaction Group advised the use of four of the smallest and most portable of the React-Air range, the X.

These units were originally designed for hospital/nursing home bedrooms, to give the staff confidence when they were dealing with highly contagious patients. In a typical nursing home bedroom, the units would change the air every 10 minutes, ensuring the risk of transmission was extremely low, making the React-Air X an ideal solution for the multiple smaller areas within The Forum.





Lastly, the final areas of the building that required a solution were the staff office; an open plan office separated into three working areas.

Three React-Air Inducts were utilised, installed above the suspended ceiling and, ensuring the air is changed every 10 minutes, inlets and outlets were installed in strategic positions to enable constant recycling of air.

The units are controlled by a simple programmable digital timer.

The React-Air units are designed and manufactured solely by Reaction Group in Poundbury, Dorchester, UK. All of the installation work was carried out by Reaction Group's experienced engineers.

Reaction Group's technology has been tested by Innovative Bioanalysis in the USA, where they built a specific Lab to test the efficacy of React-Air products against Sars CoV 2. The lab was constructed to provide a real-life scenario on aerosol Covid 19 transmission, the products will eliminate Covid 19 on a single pass but in a real life situation Reaction Group needed to find out how their air products would reduce the levels of the virus in a larger room over a period of time. The tests were carried out over 15 minutes in a test room with small fans mimicking common air movement in occupied rooms, the room was then aerosoled with Sars CoV 2 and samples were taken before and after. Reaction Group was hoping for an average of 65% reduction in this timescale, but the results came back at an outstanding 89% average, putting Reaction Group's product as the leading virus neutraliser tested on the market.

The Forum's Bryn Williams and Reaction Group's Mike Holland-Porter with some of the products at Bath Forum

