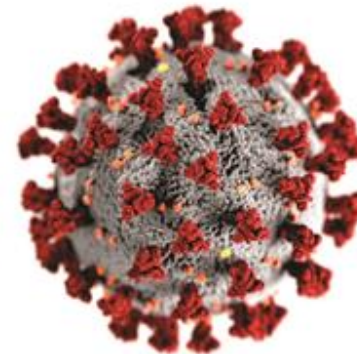




Carbon Dioxide as a Rapid Risk Monitoring and Certification Tool

Facilities managers navigating turbulent
times during the covid19 pandemic





Some Background info

Lack of clear communication about the airborne nature of COVID-19 and the substantial risks of poorly ventilated environments.

Overwhelming evidence that trapped exhaled air is the main source of Super spreader incidents

Critical failure to ensure that public spaces are adequately ventilated



World First & Proudly South African Initiative

Multidisciplinary association comprises international scientists, academics, and business representatives

Aimed at reducing the transmission of COVID-19 and other airborne pathogens in closed-air public spaces.

Operate collaboratively to provide practical solutions where the tyre hits the road

Active on all media platforms - Rapidly escalating our profile to weigh in at policy level



IOL



CO₂ and Risk Assessment

Carbon Dioxide as a proxy for infection risk

Since humans generate both CO₂ and virus, it is scientifically accepted that measurement of CO₂ can be accurately used as a proxy for determining the amount of virus in the air



The lower the CO₂ concentration, the lower the Infection risk

Limits applied to Rapid Test Ventilation Rates



- Accepted that CO₂ value maintained as <400ppm above ambient (outside) air limits viral transmission (99.9% Risk Reduction)
- 800ppm roughly equates to 15 liters / second / person
- >800ppm indicates increasingly poorer quality ventilation with
- > 1400ppm and above indicating very Low-Quality ventilation

Concentrations above 1400 ppm are not unusual in poorly ventilated areas

GreenFlag Association Certification



A baseline inspection and Risk Assessment

- Protocols
- Occupancy – Rates, Static and Transient
- Activity and Vocalisation
- Manual Testing CO₂ levels in the space
- May recommend the installation of the GSM Platform CO₂ Monitoring Device to add clarity – 1 month

GreenFlag Association Certification



GREENFLAG
CERTIFICATE OF COMPLIANCE

This is to confirm that:

The Butcher Boys
Shop 1, Lighthouse Mall, Umhlanga, Durban
Tel: 031 561 4106
umhlanga@butcherboysgrill.co.za

was inspected on the 25 March 2021 by:

Apex Solutions

Inspector:	Approved Supplier
Sithembile Sinenhlanhla Nxumalo ID: 9803220474082	Apex Solutions https://greenflagsolutions.co.za info@greenflagsolutions.co.za

and is hereby deemed **COMPLIANT** with the GreenFlag Association's certification criteria to provide a healthy public space that significantly mitigates the risk of spreading airborne pathogens like COVID-19, through implementing the following key barriers:

Management Systems / Ventilation / Social Distancing / Occupancy Rates / Mask Use / Disinfection & Sanitisation

With average Carbon Dioxide concentrations predicted to be in the **EXCELLENT (<800PPM)** range for Indoor Air Quality at a peak occupancy of **100** people, this certificate is issued subject to the following provisions:

- Maintain the existing excellent customer login and surface disinfection protocols including sanitization station at the entrance
- All North and East facing windows to remain FULLY OPEN during peak occupancy and open to 30% – to 40% off-peak occupancy
- Occupancy rates should not exceed 100 people

The GreenFlag Association has confirmed the above information, for digital certification and sharing by PrivySeal Limited, at 12:53 PM (Africa/Johannesburg) on 30 Apr 2021.

Certificate Number: AGFS001
Expiry Date: 25 June 2021

Issued by:
The GreenFlag Association
info@greenflagassociation.com
www.greenflagassociation.com

GREENFLAG CERTIFIED

POWERED BY PRIVYSEAL

Certificate and QR Code Decals Issued **Or** proposal for improvement presented

- Includes caveats and permanent monitoring of CO₂ as indicated
- Monthly follow-up inspection – can be adjusted according to risk profile
- Confirm the GreenFlag certification requirements are being carried out
- Carry out measurement of CO₂ concentrations to ensure there have been no ventilation changes which negatively impact the venue / patrons / employees
- Check that CMD's have not been moved or tampered with



GREENFLAG

CERTIFICATE OF COMPLIANCE

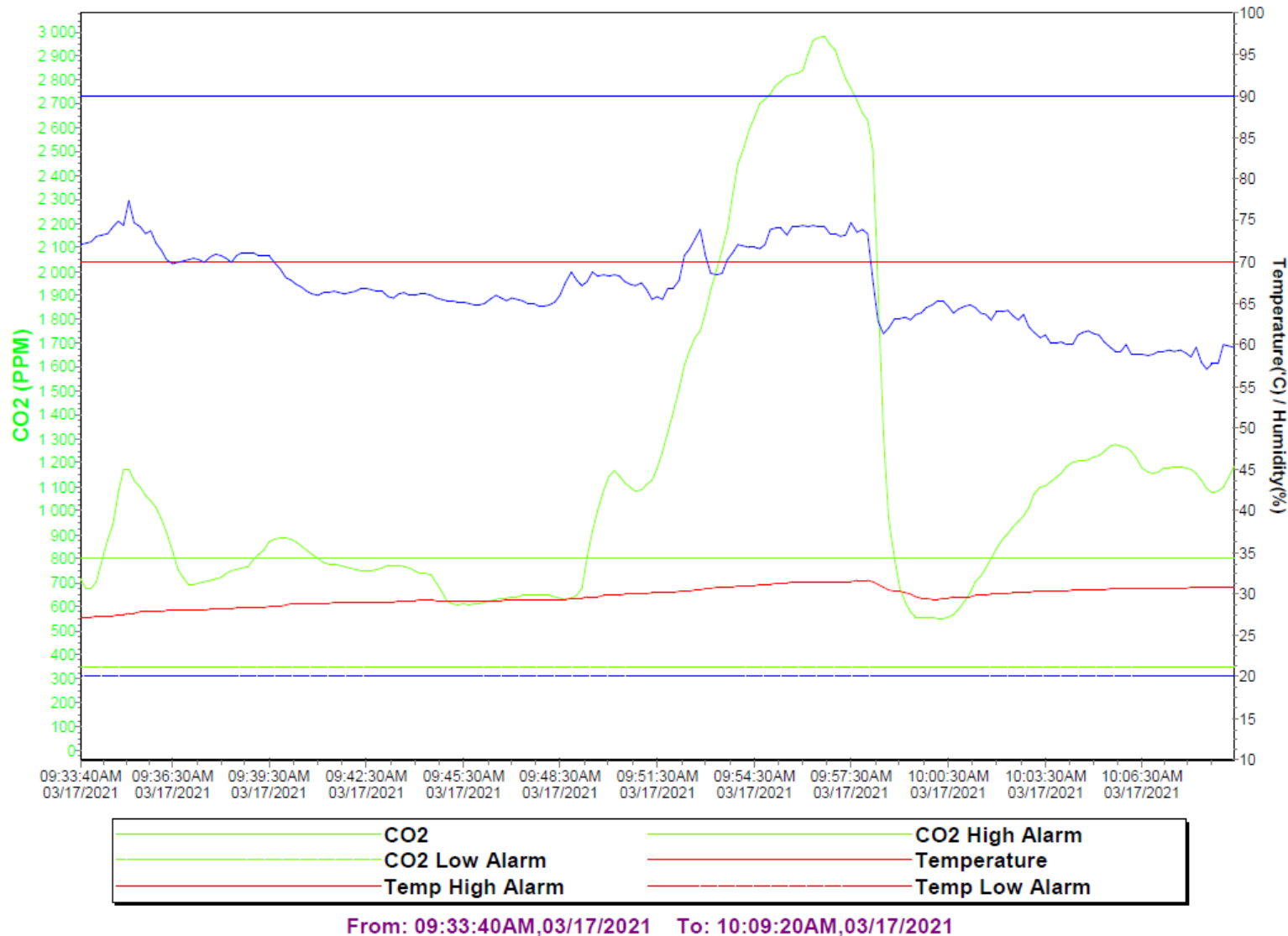
THE BUTCHER BOYS

10:53 AM (Africa/Johannesburg) on 01 Jul 2021

POWERED BY PRIVYSEAL

QR Code

Rapid Test Results



CO₂ monitoring is a **Rapid Test** where the complexity in the interpretation is well understood by the GreenFlag Association and backed by international standards and research



The GreenFlag Association Continuous Monitoring Platform



INDOOR AIR QUALITY
EXCELLENT

PATHOGEN RISK
LOW

TEMPERATURE COMFORT LEVEL
COMFORTABLE

Alerts

No new notifications

**Continuous Monitoring
allows for dynamic real-
time risk management of
occupied spaces**

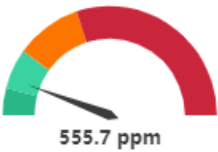
Air Quality

2 min ago



Equivalent CO2

2 min ago



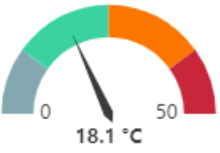
Light Level

2 min ago



Temperature

2 min ago



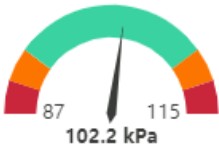
Humidity

2 min ago



Air Pressure

2 min ago



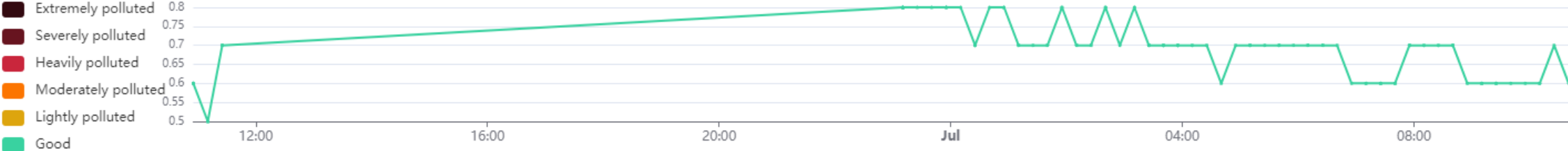
Not Occupied

23 hours ago

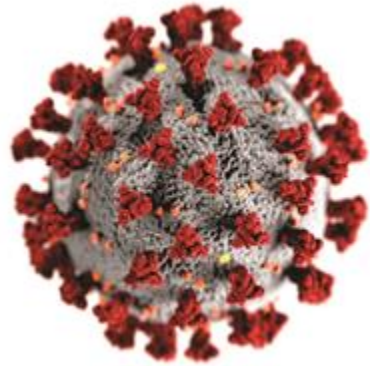
Air Quality

DAY WEEK MONTH

Start date 30/06/2021 End date 01/07/2021



Facilities managers navigating turbulent times during the covid19 pandemic



"The only thing necessary for the triumph of evil is for good men to do nothing." Edmund Burke