A GREENER LONDON

Air Quality Monitoring Report Across Selected Indoor and Outdoor Locations in Wandsworth Council, London

Table of Contents

Page

List of Tables

Page

List of Figures

Page

1 Executive Summary

This report presents the findings of the Comprehensive Air Quality Monitoring Report Across Selected Indoor and Outdoor Locations in Wandsworth Council, London. The purpose of the monitoring was to assess indoor and outdoor air quality conditions across different public, educational, residential, commercial, and workplace environments, with emphasis on pollutant levels, ventilation performance, comfort conditions, and practical opportunities for improvement.

The seven monitored locations were Hurlingham School, Putney High Street, River Homes, Roehampton Sports Center, Shaw Building, Southland Reef, and Venture X Business Center. Monitoring was carried out using Airthings indoor air quality devices, including Space Pro, Space Plus, Space CO2, and related configurations, depending on the location and available device setup. The main indicators assessed included carbon dioxide, PM1, PM2.5, volatile organic compounds, temperature, relative humidity, noise, relative light, and virus risk indicators where available. For the roadside context, outdoor exposure concerns such as traffic related particulate matter, nitrogen dioxide, and ozone were also considered as important indicators for future monitoring.

Overall, the results show that most locations had generally acceptable air quality, with several indicators falling within good or manageable ranges. Venture X Business Center and Southland Reef showed the best overall air quality performance, particularly for CO2, VOC, particulate matter, temperature, and humidity. River Homes and Roehampton Sports Center showed the weakest performance in terms of fair CO2 and particulate matter levels, suggesting the need for closer ventilation and particle control. Shaw Building showed good pollutant control but had poor temperature comfort, while Hurlingham School performed well overall but recorded occasional CO_2 peaks.

The top risks identified were short term ventilation stress, fine particle accumulation in some locations, poor thermal comfort, and limited traffic pollutant data for Putney High Street. The key recommendations include CO_2 guided ventilation, improved cleaning controls, HEPA filtration where PM remains elevated, low VOC cleaning products, improved thermal comfort management, continued monitoring across seasons, and the use of living walls and green infrastructure as complementary sustainability and wellbeing interventions.

2 Introduction

Air quality has become a central public health, sustainability, and building-performance concern in dense urban areas such as Wandsworth Council, London. This study was carried out to generate baseline evidence on indoor and outdoor air quality across selected settings, including schools, offices, business centers, sports facilities, cafés, and high-traffic corridors. These environments represent different exposure conditions: pupils and staff spend long hours in classrooms, office workers depend on safe and comfortable indoor environments for productivity, café and business-center users experience mixed occupancy and ventilation patterns, while high-street users are exposed to traffic-related pollutants such as nitrogen dioxide and fine particulate matter. Recent evidence shows that exposure to $PM_{2.5}$, PM_{10}, NO_2, and ozone is associated with respiratory and cardiovascular disease, premature mortality, reduced lung function, and wider wellbeing impacts (WHO, 2021; Kelly & Fussell, 2020; Schraufnagel et al., 2019).

Indoor air quality is equally important because people spend much of their time indoors, where pollutant levels are influenced by outdoor infiltration, ventilation quality, occupancy, cleaning products, building materials, and human activities (Mannan & Al-Ghamdi, 2021; Sadrizadeh et al., 2022). In offices and learning environments, carbon dioxide is commonly used as a practical indicator of ventilation adequacy and occupancy load, while elevated CO2, poor ventilation, and volatile organic compounds have been linked with discomfort, lower cognitive performance, and reduced productivity (Persily & de Jonge, 2017; MacNaughton et al., 2017; Wargocki, 2021). The COVID-19 pandemic further reinforced the need to understand ventilation and airborne transmission risk in shared indoor spaces (Morawska et al., 2020; Allen & Marr, 2020).

The outdoor dimension of this study is also relevant because Wandsworth contains busy roads, commercial zones, and pedestrian corridors where traffic emissions, resuspended dust, and local meteorology can shape exposure patterns. Monitoring in high-traffic areas such as Putney High Street provides insight into pollution conditions experienced by pedestrians, school communities, workers, and local businesses. At the same time, the project links directly to sustainability and green infrastructure by generating practical evidence that can support urban greening, ventilation improvement, exposure reduction, and healthier building operations. Green infrastructure cannot solve all air pollution challenges, but well-designed planting, street vegetation, and living walls may support microclimate regulation, pollution dispersion management, and wider wellbeing benefits when used alongside source control and monitoring (Greater London Authority, 2019; Liao et al., 2024).

Therefore, this report examines air quality conditions across the selected indoor and outdoor locations, interprets the findings against relevant health and comfort benchmarks, and identifies practical actions to improve occupant health, productivity, environmental quality, and public health resilience.

3 Aim and Objectives of the Study

The aim of the study was to assess indoor and outdoor air quality conditions across selected locations in Wandsworth Council, London, with a focus on identifying pollutant levels, environmental comfort conditions, and practical opportunities for improvement.

The objectives of the study were to:

1. Monitor key air quality indicators across selected indoor and outdoor environments.
2. Compare air quality performance across different location types.
3. Identify locations with good, fair, or poor air quality conditions.
4. Compare the findings with relevant UK and international air quality guidance.
5. Recommend practical actions for improving air quality, environmental comfort, and occupant wellbeing.

4 Description of Study Locations

The study covered seven selected locations within Wandsworth Council, London. These locations were chosen to represent different indoor and outdoor exposure environments, including educational spaces, business centers, residential offices, sports facilities, campus buildings, cafés, and high traffic urban areas. This variety allowed the study to examine how air quality differs across spaces with different occupancy patterns, ventilation conditions, activity levels, and surrounding environmental pressures.

Hurlingham School was included as an indoor educational environment. Schools are important air quality monitoring sites because pupils and staff spend long periods indoors, often in shared classrooms where ventilation, occupancy, and indoor comfort can influence concentration, health, and learning conditions. The school setting was therefore relevant for assessing exposure among children, teachers, and support staff.

Putney High Street represented the outdoor roadside environment. As a busy commercial and traffic corridor, it was relevant for assessing exposure to outdoor pollutants associated with vehicle movement, pedestrian activity, congestion, and high street commercial use. This location provided useful insight into the air quality conditions experienced by pedestrians, workers, visitors, and nearby businesses.

River Homes was monitored as an indoor office and residential business environment. It was relevant because office spaces are occupied for long working periods and are influenced by ventilation, indoor activities, cleaning practices, and outdoor air infiltration. The site helped assess air quality conditions linked to staff comfort, productivity, and workplace wellbeing.

Roehampton Sports Center represented an indoor sports and physical activity environment. This location was important because sports facilities often experience fluctuating occupancy, increased movement, higher breathing rates, and changing ventilation needs. Monitoring this site helped assess how physical activity and shared facility use may affect indoor air quality and comfort.

The Shaw Building an indoor university hostel within the University of Roehampton, where students live and spend extended periods of time. This location was relevant because student accommodation represents a residential indoor environment where air quality may be influenced by occupancy density, ventilation habits, personal activities, cleaning practices, cooking-related emissions, and time spent indoors. Monitoring the Shaw Building therefore helped assess air quality conditions within student living spaces and provided insight into how indoor environmental quality may affect student comfort, health, rest, and overall wellbeing.

Southland Reef was included as a café and communal campus environment. This type of location is relevant because cafés often combine food related activity, social interaction, seating, and variable footfall. Monitoring this site helped assess air quality in a space where occupancy and activity levels can change throughout the day.

Venture X Business Center represented a modern office and coworking environment. It was relevant because business centers often contain shared workspaces, meeting rooms, and flexible occupancy patterns. This site provided insight into air quality conditions affecting professionals, visitors, and businesses using shared indoor office facilities.

5 Methodology and Monitoring Approach

The study adopted a site based air quality monitoring approach to assess indoor and outdoor environmental conditions across selected locations in Wandsworth Council, London. The monitoring focused on buildings and public facing spaces with different exposure patterns, including a school, business center, office environment, sports facility, university hostel, campus communal space, and high traffic urban location. The approach was designed to capture both routine air quality conditions and short term variations that may occur due to occupancy, ventilation, traffic influence, building use, physical activity, and changes in outdoor weather conditions.

Indoor monitoring was carried out using Airthings indoor air quality monitors, including Space Pro, Space Plus, Space CO2, and Space Hub configurations where available. These devices provided continuous measurements of key indoor air quality and comfort indicators. The core parameters measured across the monitored indoor locations included carbon dioxide, temperature, relative humidity, volatile organic compounds, PM2.5, PM1, relative light, and noise. In locations where the device supported additional indicators, the reports also considered virus risk scores. The virus risk indicator was treated as an interpretive screening tool, not as a direct measurement of viruses in the air. Parameters such as PM10, nitrogen dioxide, and ozone were considered where outdoor or device specific data were available, but they were not consistently captured across all indoor Airthings reports.

The monitoring periods varied by location. River Homes was monitored between 16 March and 27 March 2026, while Roehampton Sports Center was monitored between 23 April and 7 May 2026. Shaw Building was monitored between 1 April and 16 April 2026. Southland Reef had repeated monitoring periods, including 31 March to 13 April 2026, 1 April to 23 April 2026, and 17 May to 18 May 2026. Hurlingham School was monitored between 15 May and 14 June 2026, while Venture X was monitored between 16 April and 30 April 2026. Outdoor comparison reports were also generated for Hurlingham School and Southland Reef between 7 June and 14 June 2026. These outdoor comparison reports helped interpret how outdoor humidity, temperature, pressure, and wider weather related conditions may influence indoor air quality.

The analysis focused mainly on opening hour averages because these values represent conditions during the periods when people were most likely to occupy the spaces. This was important for interpreting exposure in schools, offices, cafés, sports facilities, and business centers. Average values were used to describe general air quality performance, while highest and lowest values were used to identify short term peaks or unusual events. For example, a location could have a good average CO2 level but still experience occasional poor peaks during periods of high occupancy or reduced ventilation. Therefore, both average conditions and peak readings were considered necessary for a balanced interpretation.

The results were interpreted using the good, fair, and poor categories provided in the monitoring reports and then compared with relevant UK and international air quality and comfort guidance where applicable. However, the findings should be understood as indicative rather than regulatory compliance measurements. Low cost and smart IAQ sensors are useful for trend identification, screening, and operational decision making, but they may be affected by sensor placement, calibration status, environmental conditions, building activity, and device specific limitations. Therefore, the results are strongest when used to identify patterns, compare locations, and guide practical improvements rather than to make final legal or regulatory compliance conclusions.

6 Standards and Benchmarking Framework

The results of this study were interpreted using a benchmarking framework that combined device based good, fair, and poor ratings with relevant UK and international air quality guidance. This approach was necessary because the monitored locations included different types of environments, such as schools, offices, a university hostel, a café, a sports center, a business center, and outdoor or traffic influenced spaces. As a result, interpretation required attention to both health related pollutant guidance and comfort related building performance indicators.

For indoor air quality, UK guidance emphasizes the need for adequate ventilation and sufficient fresh air in occupied spaces. Carbon dioxide was used as a practical indicator of ventilation performance because CO_2 levels usually rise when occupancy is high and fresh air supply is limited. The Health and Safety Executive notes that CO_2 monitoring can help identify poorly ventilated spaces, and that levels consistently above 1,500 ppm in an occupied room indicate poor ventilation requiring action (HSE, 2026). However, this value is not a strict health based exposure limit. For workplace exposure, HSE guidance also identifies much higher occupational exposure limits for carbon dioxide, including 5,000 ppm over an eight hour reference period and 15,000 ppm over a fifteen minute reference period (HSE, 2024). In this report, therefore, CO_2 was interpreted mainly as a ventilation and comfort indicator rather than as a direct toxicity measure.

Particulate matter was interpreted using World Health Organization air quality guideline values because PM2.5 and PM10 are strongly associated with respiratory and cardiovascular health risks. The WHO guideline values include an annual mean of 5 $\mu g/m^3$ and a twenty four hour mean of 15 $\mu g/m^3$ for PM2.5, and an annual mean of 15 $\mu g/m^3$ and a twenty four hour mean of 45 $\mu g/m^3$ for PM10 (WHO, 2021). These values were used cautiously because the monitoring reports captured site specific periods rather than full annual exposure.

Comfort indicators were assessed using the ranges embedded in the monitoring reports and common indoor environmental quality expectations. Temperature was generally interpreted around the recommended comfort range of about 18 to 25°C, while relative humidity was interpreted against the commonly recommended 30 to 60 percent range. Values outside these ranges may affect comfort, respiratory health, mould risk, perceived air quality, and occupant productivity.

Some indicators were treated as screening measures rather than regulatory compliance measures. VOC readings provide a useful indication of possible indoor chemical emissions from cleaning products, materials, furnishings, and human activity, but they do not identify individual compounds. Similarly, the virus risk indicator was interpreted only as a ventilation, occupancy, humidity, and temperature based risk screening tool, not as evidence that viruses were present in the air. Finally, all comparisons considered averaging periods. A short peak, opening hour average, daily average, and annual guideline value do not mean the same thing, so exceedances and risks were interpreted in relation to the time period over which each measurement was recorded.

7 Location by Location Results and Interpretation

7.1 Hurlingham School

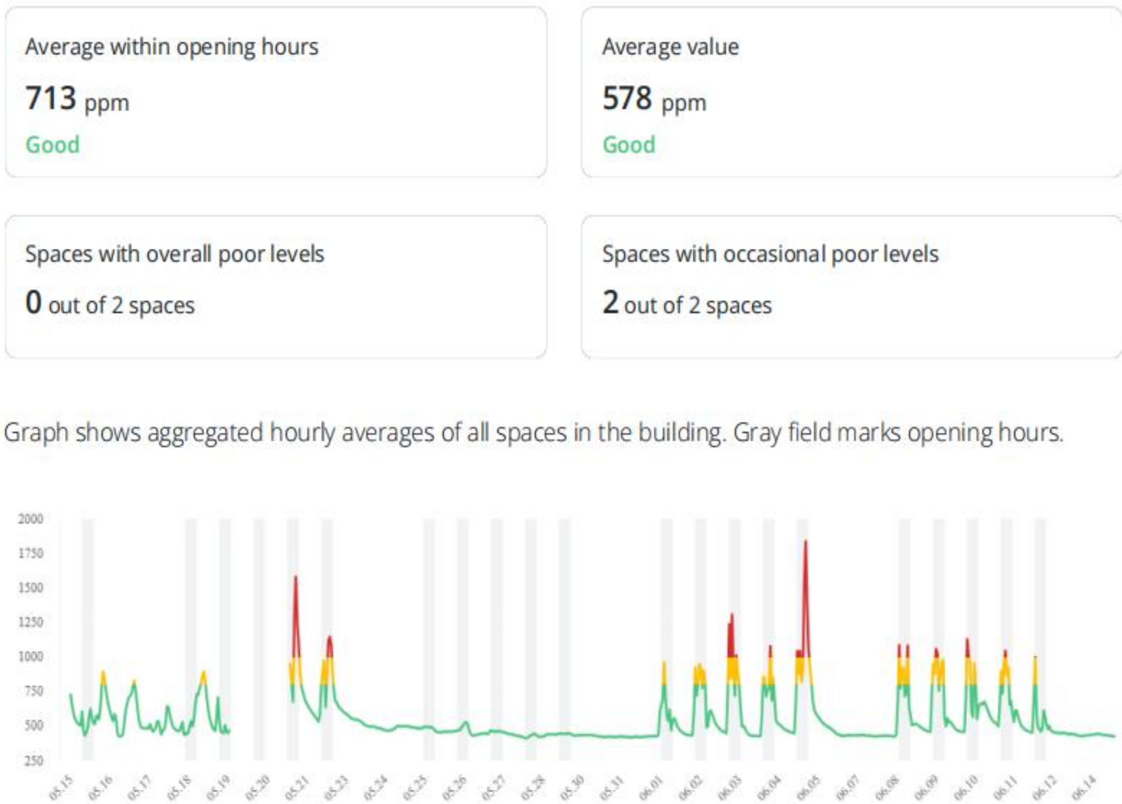


Figure 1: CO_2 Air Quality details

Hurlingham School was monitored as an educational environment located at 122 Putney Bridge Road, London SW15. The indoor air quality report covered the period from 15 May 2026 to 14 June 2026. The building was classified as a school with balanced ventilation, two floors, and weekday opening hours from 9:00 AM to 5:00 PM. The monitoring was carried out using Airthings devices, including Space CO and Space Plus configurations, with measurements taken in key areas such as the classroom, corridor, canteen, and office.

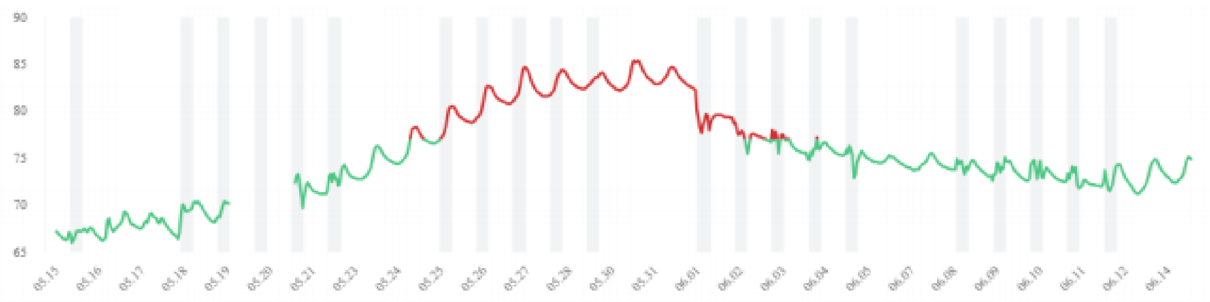
Average within opening hours
75.6 °F
Good

Average value
75.4 °F
Good

Spaces with overall poor levels
0 out of 2 spaces

Spaces with occasional poor levels
2 out of 2 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



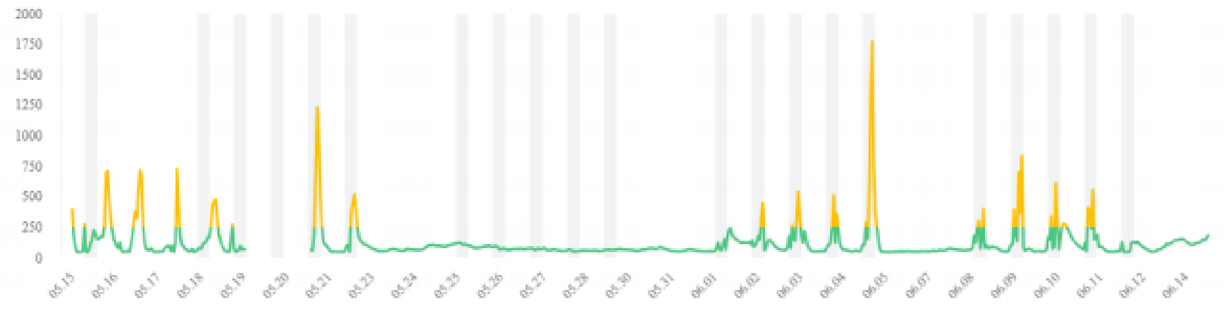
Floor	Space name	Average	Lowest	Highest
0	Canteen	75.1 °F Good	65.4 °F Good	82.7 °F Poor
1	Office	76.2 °F Good	65.9 °F Good	87.1 °F Poor

Figure 2: Temperature Air Quality details

The opening hour results show generally acceptable indoor air quality, with CO_2 averaging 713 ppm, temperature 75.6°F, humidity 46 percent, VOC 197 ppb, PM2.5 0 µg/m³, PM1 0 µg/m³, relative light 42 percent, and noise 0 dBA. These values indicate that the school performed well overall, particularly for particulate matter and humidity. The balanced ventilation system appears to have supported generally good average CO_2 control. However, the report also recorded occasional poor CO_2 levels in both monitored spaces, with peaks above the 1,000 ppm poor threshold. This suggests that while the average ventilation condition was acceptable, short periods of high occupancy or reduced air exchange may have caused temporary ventilation stress. The PM readings were very low, with PM2.5 and PM1 reported as good during opening hours. This suggests limited particle accumulation during the monitoring period, although the value should still be interpreted with attention to device sensitivity and placement. VOC levels were also good, indicating no persistent indoor chemical emission concern from cleaning products, furnishings, or other indoor sources. Temperature and humidity were generally within comfort ranges, although occasional temperature exceedances were observed, suggesting possible overheating at certain times.

Average within opening hours 197 ppb Good	Average value 122 ppb Good
Spaces with overall poor levels 0 out of 2 spaces	Spaces with occasional poor levels 1 out of 2 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



Floor	Space name	Average	Lowest	Highest
0	Canteen*	-	-	-
1	Office	197 ppb Good	46 ppb Good	2335 ppb Poor

Figure 3: VOC Air Quality details

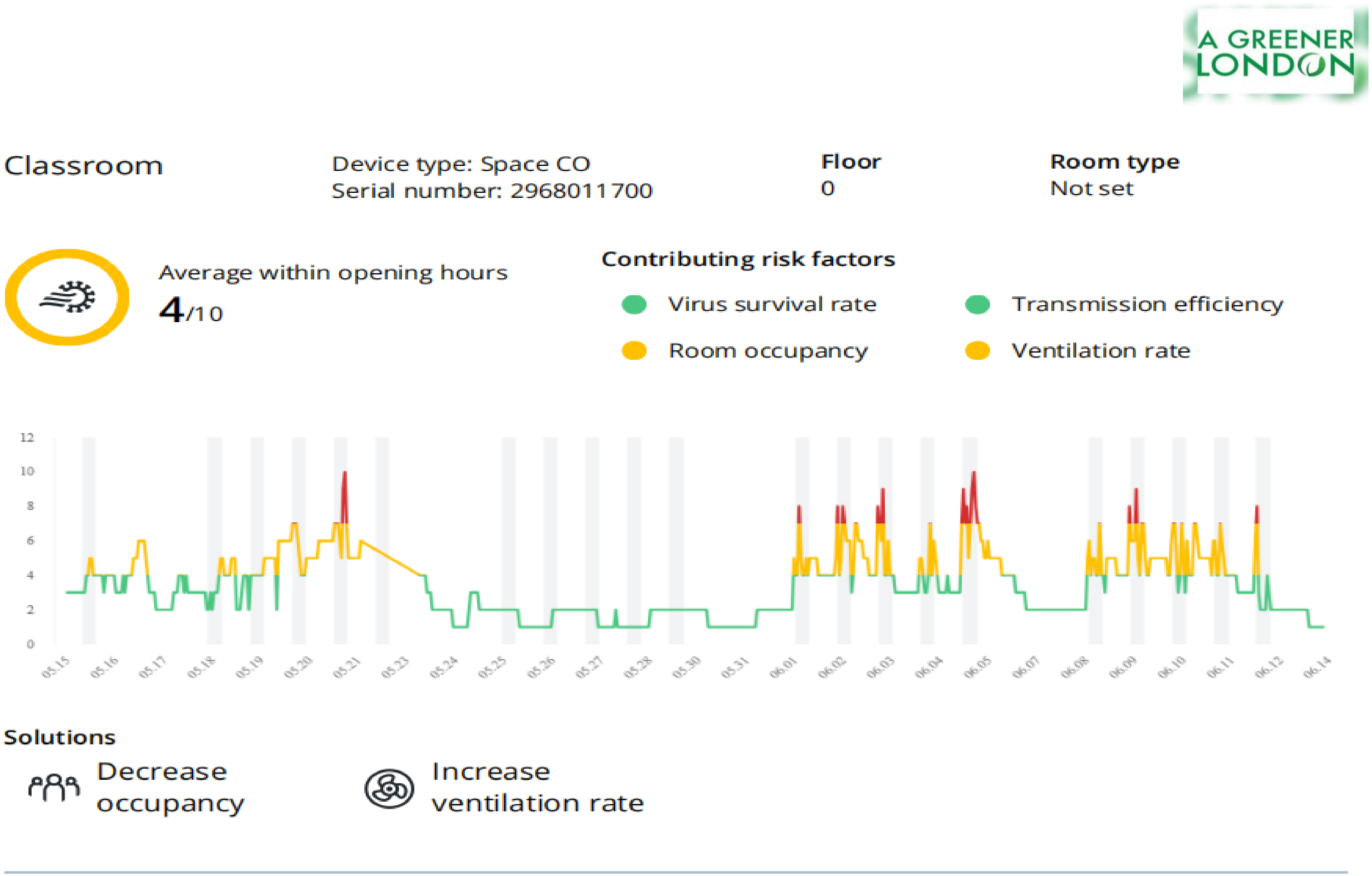


Figure 4: Hurlingham School Classroom Virus Risk Report

Corridor

Device type: Space Plus
Serial number: 2930142351

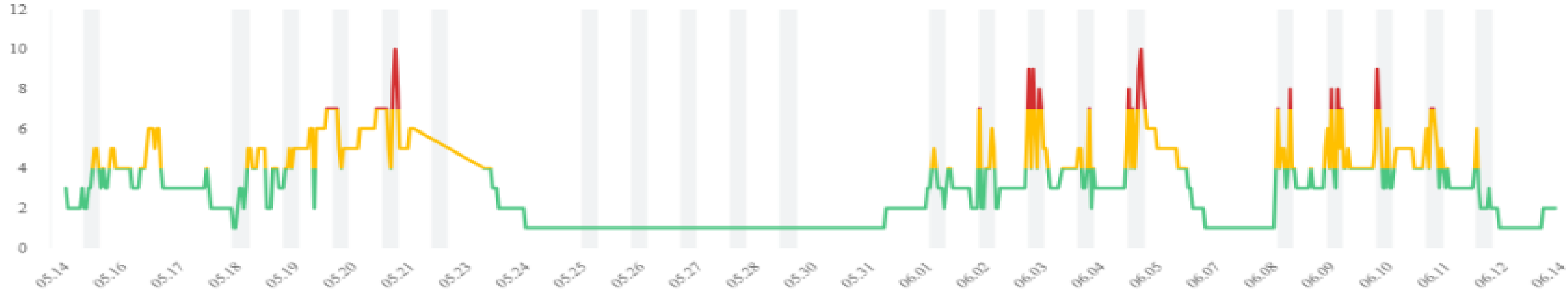
Floor
1

Room type
Not set

Average within opening hours
4/10

Contributing risk factors

- Virus survival rate
- Transmission efficiency
- Room occupancy
- Ventilation rate



Solutions

Decrease occupancy

Increase ventilation rate

Figure 5: Hurlingham School Corridor Virus Risk Report

The main risks for Hurlingham School are therefore not continuous pollution exposure, but short term ventilation peaks and occasional thermal discomfort. These are important because pupils and staff spend long periods indoors, and poor ventilation or heat discomfort can affect concentration, wellbeing, and perceived air freshness. Recommendations include continued CO2 monitoring, reviewing ventilation during busy classroom periods, ensuring vents are not blocked, maintaining balanced ventilation systems, and using outdoor comparison data to anticipate temperature and humidity effects on indoor comfort.

7.2 Putney High Street

Putney High Street was monitored as a high traffic urban location within Wandsworth Council, London. The site is important because it reflects a busy roadside and commercial exposure environment, where pedestrians, shop workers, commuters, cyclists, and nearby businesses may be affected by vehicle movement, congestion, bus activity, deliveries, and changing outdoor conditions.

Average within opening hours

492 ppm

Good

Average value

519 ppm

Good

Spaces with overall poor levels

0 out of 2 spaces

Spaces with occasional poor levels

0 out of 2 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

Figure 6: Putney High Street CO2 and air quality details

The monitoring period covered 3 May 2026 to 15 May 2026, with readings interpreted during the stated opening hours of 9:00 AM to 5:00 PM, Monday to Friday. Airthings monitoring devices were used, including Space CO and Space Plus configurations. The available parameters in the report include CO2, temperature, and humidity, with a separate virus risk indicator report. The opening hour average CO2 level was 492 ppm, rated good, while the overall average value was 519 ppm, also good. No spaces recorded overall poor or occasional poor CO2 levels. This suggests that, during the monitored period, air dilution and ventilation conditions were generally favourable, with no evidence of sustained CO2 build up.

Temperature averaged 70.1°F, which was rated good, while relative humidity averaged 40 percent, also within the recommended comfort range. These findings suggest that the monitored environment maintained acceptable thermal and moisture comfort during the study period. However, because Putney High Street is a traffic exposed location, the absence of PM2.5, PM10, NO2, and ozone readings in the available report limits the ability to fully assess roadside pollution risk. For a high street setting, these pollutants would be especially important because traffic emissions and resuspended road dust are usually the main exposure concerns.

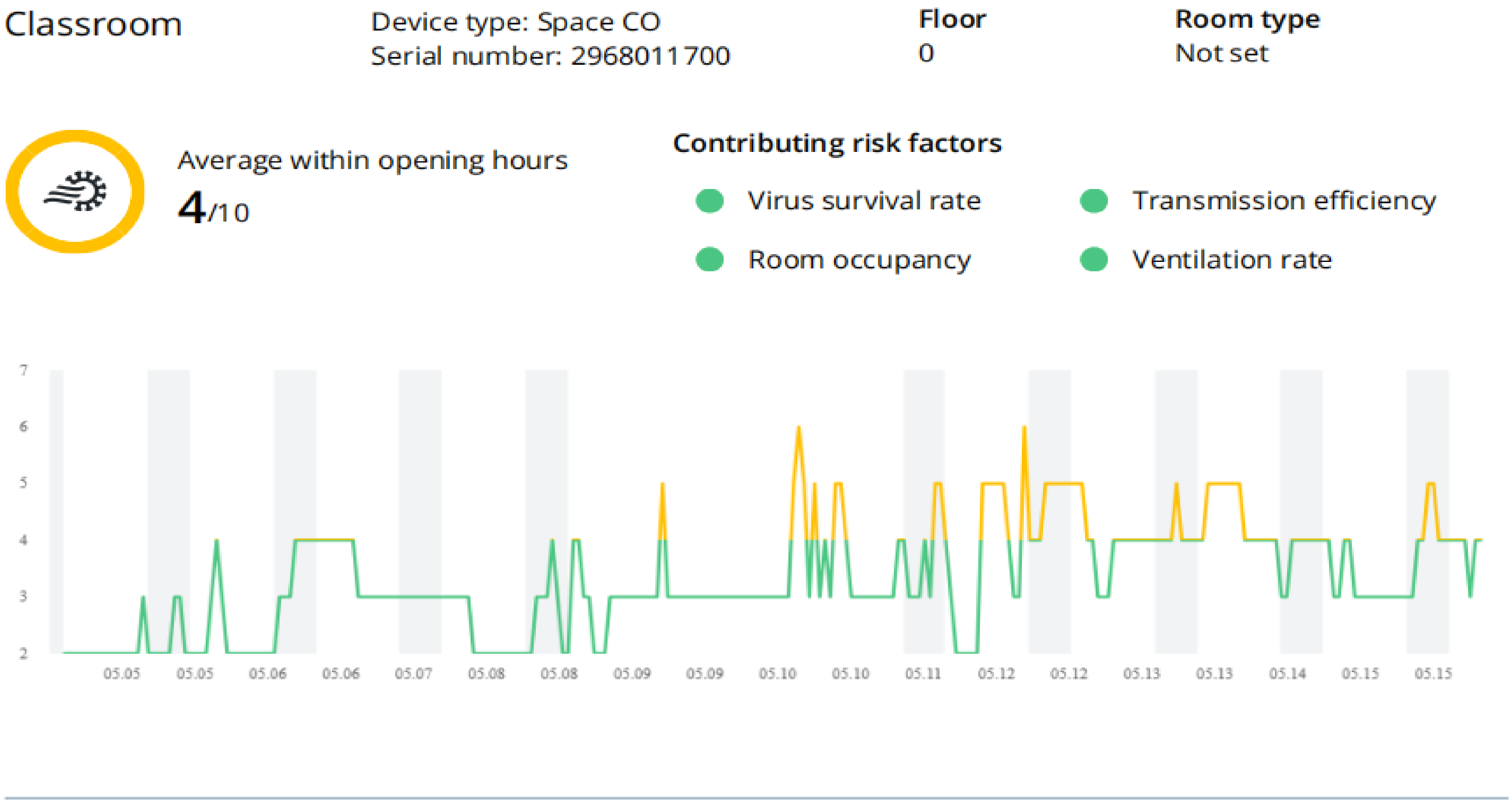


Figure 7: Virus risk indicator

The virus risk report showed one device above the recommended action level, with one monitored point averaging 4/10 and another averaging 3/10. This indicates low to moderate airborne transmission risk, with ventilation and occupancy still relevant. Recommendations include repeating monitoring with outdoor capable sensors for PM2.5, PM10, NO2, and ozone, separating rush hour patterns from general daytime averages, and using the findings to support traffic reduction, anti idling controls, improved pedestrian exposure management, and urban greening interventions.

7.3 River Homes

River Homes was monitored as an indoor office environment located at Lower Richmond Road, London SW15 1EJ. The main report covered the period from 16 March 2026 to 27 March 2026. The building was classified as an office with natural ventilation, three floors, and weekday opening hours from 9:00 AM to 5:00 PM. Monitoring was carried out using an Airthings Space Pro device, which captured key indoor air quality and comfort indicators including CO2, temperature, humidity, VOC, PM2.5, PM1, relative light, and noise.

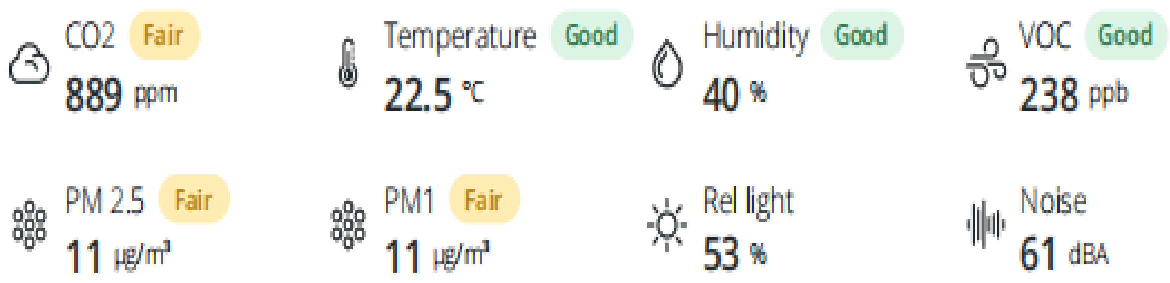


Figure 8: Summary of River Homes Air Quality Average

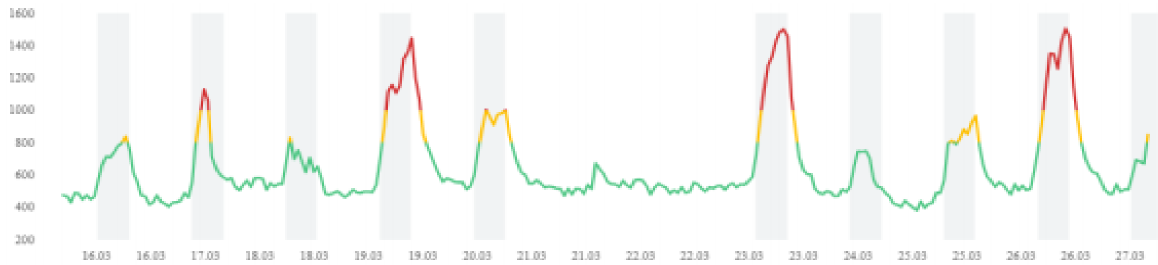
Average within opening hours
889 ppm
Fair

Average value
824 ppm
Fair

Spaces with overall poor levels
0 out of 1 spaces

Spaces with occasional poor levels
1 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



Floor	Space name	Average	Lowest	Highest
1	Space Pro	889 ppm Fair	454 ppm Good	1575 ppm Poor

Figure 9: River Homes CO_2 Air Quality details

The opening hour averages show mixed but manageable air quality conditions. CO2 averaged 889 ppm, which was rated fair, while temperature was good at 22.5°C and humidity was good at 40 percent. VOC levels were good at 238 ppb. However, PM2.5 and PM1 were both rated fair at 11 µg/m³. Noise was 61 dBA and relative light was 53 percent. The CO2 pattern is important because the average was close to the upper end of the fair range, and the report recorded occasional poor CO2 levels, including peaks above 1,000 ppm. This suggests that natural ventilation did not always provide sufficient air exchange during occupied periods.

Average within opening hours

238 ppb

Good

Average value

166 ppb

Good

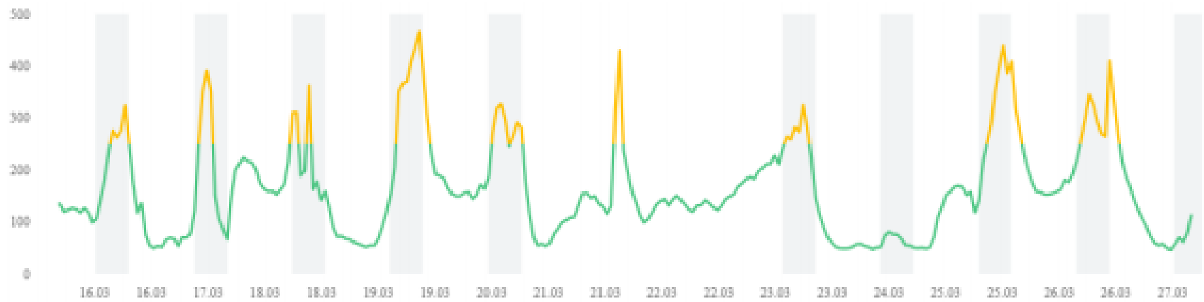
Spaces with overall poor levels

0 out of 1 spaces

Spaces with occasional poor levels

0 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



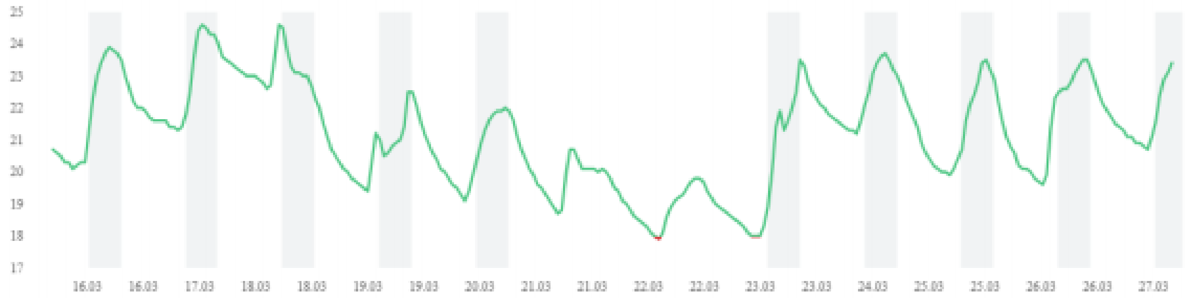
Floor	Space name	Average	Lowest	Highest
1	Space Pro	238 ppb Good	46 ppb Good	1264 ppb Fair

Figure 10: River Homes VOC Air Quality details

Average within opening hours	Average value
22.5 °C	21.2 °C
Good	Good

Spaces with overall poor levels	Spaces with occasional poor levels
0 out of 1 spaces	0 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



Floor	Space name	Average	Lowest	Highest
1	Space Pro	22.5 °C Good	18.6 °C Good	24.7 °C Good

Figure 11: Temperature and Humidity Air Quality details

Particulate matter was another concern. Although average PM2.5 and PM1 were only slightly above the good threshold, the fair classification suggests repeated or persistent particle presence. This may be linked to outdoor infiltration, dust resuspension, cleaning activities, open windows, occupant movement, or nearby traffic conditions. VOC readings were acceptable overall, with no persistent chemical air quality concern, but occasional VOC increases may still occur after cleaning or product use.

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Space Pro

Device type: Space Pro
Serial number: 2969045615

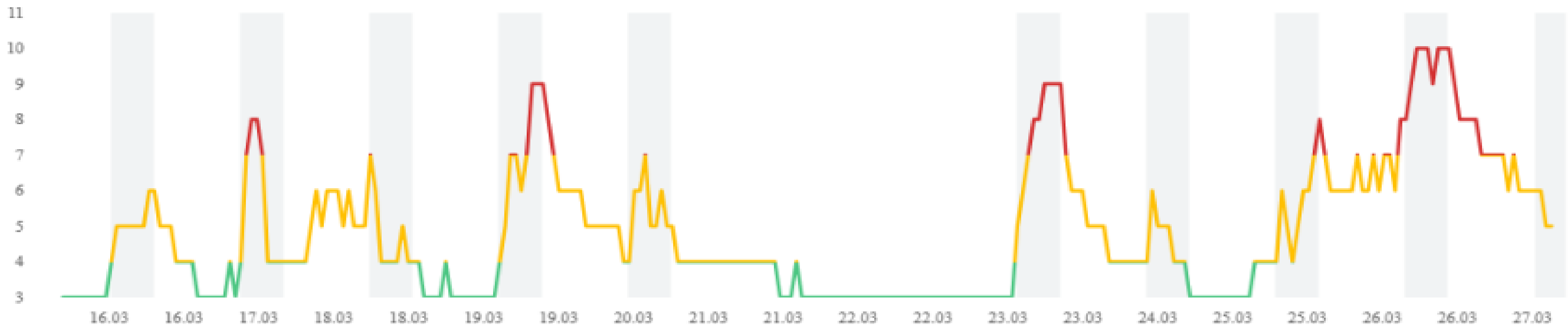
Floor
1

Room type
Office

Average within opening hours
6/10

Contributing risk factors

- Virus survival rate
- Transmission efficiency
- Room occupancy
- Ventilation rate



Solutions

Decrease occupancy

Increase ventilation rate

Figure 12: River Homes Virus Risk Report

The virus risk indicator, where considered alongside this location, supports the interpretation that ventilation and occupancy should remain operational priorities. River Homes therefore presents a profile of generally comfortable indoor conditions, but with targeted risks linked to ventilation and fine particles. For staff, this may affect perceived freshness, comfort, and productivity during busy periods. Recommendations include CO2 triggered ventilation actions, short air flush periods before meetings, improved cleaning controls, HEPA filtration where PM spikes persist, low emission cleaning products, and a possible indoor living wall as a supplementary wellbeing and environmental improvement measure, provided it is maintained properly and does not create dampness or mould risk.

7.4 Roehampton Sports Center

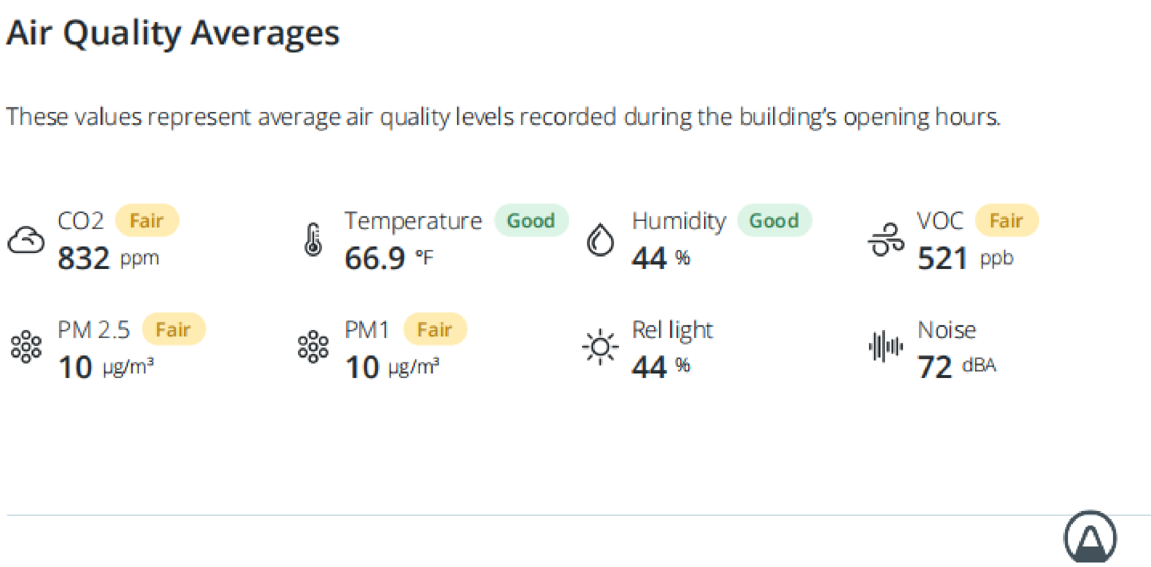


Figure 13: Summary of Air Quality Average

Roehampton Sports Center was monitored as a sports and physical activity environment located at Laverstoke Gardens, London SW15 4JB. The report covered the period from 23 April 2026 to 7 May 2026. The building was classified as an "other" building type with natural ventilation, two floors, and weekday opening hours from 9:00 AM to 5:00 PM. Monitoring was carried out using an Airthings Space Pro device.

Average within opening hours
832 ppm
Fair

Average value
782 ppm
Good

Spaces with overall poor levels
0 out of 1 spaces

Spaces with occasional poor levels
1 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

Floor	Space name	Average	Lowest	Highest
2	Space Pro	832 ppm Fair	438 ppm Good	3773 ppm Poor

Figure 14: Roehampton Sports Center CO_2 Air Quality details

The results show that the Sports Center had several fair rated indicators during opening hours. CO2 averaged 832 ppm, temperature was good at 66.9°F, humidity was good at 44 percent, VOC was fair at 521 ppb, PM2.5 was fair at 10 µg/m³, PM1 was fair at 10 µg/m³, relative light was 44 percent, and noise was 72 dBA. The CO2 result suggests that ventilation was generally acceptable but under pressure at certain times. The report recorded occasional poor CO2 levels, with peak values rising substantially above the poor threshold. In a sports facility, this is especially important because users breathe more heavily during activity, which can increase CO2 generation and perceived stuffiness if ventilation is not sufficient.

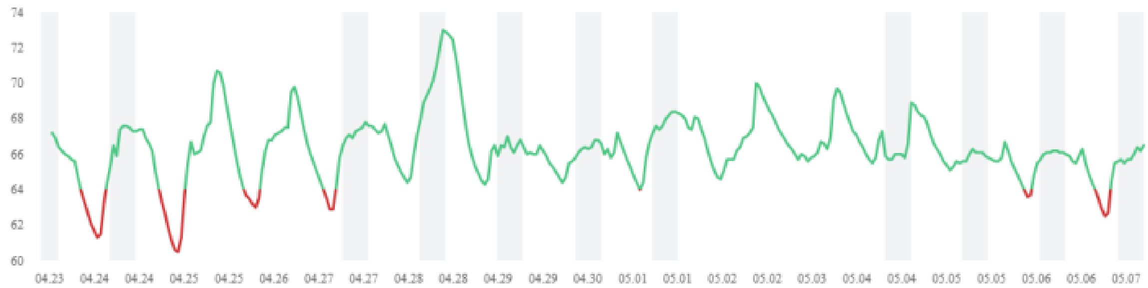
Average within opening hours
66.9 °F
Good

Average value
66.3 °F
Good

Spaces with overall poor levels
0 out of 1 spaces

Spaces with occasional poor levels
0 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



Floor	Space name	Average	Lowest	Highest
2	Space Pro	66.9 °F Good	64.9 °F Good	73.1 °F Good

Figure 15: Roehampton Sports Center Temperature readings

Average within opening hours

10 μg/m³

Fair

Average value

12 μg/m³

Fair

Spaces with overall poor levels

0 out of 1 spaces

Spaces with occasional poor levels

1 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

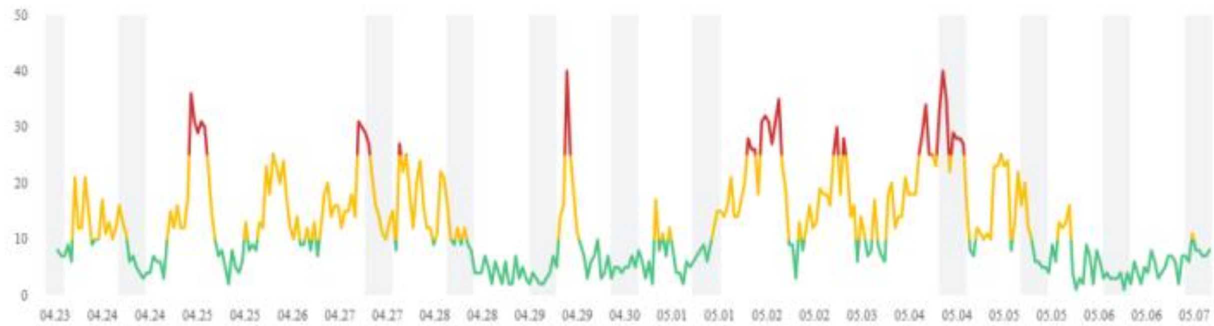


Figure 16: Roehampton Sports Center PM 2.5 readings

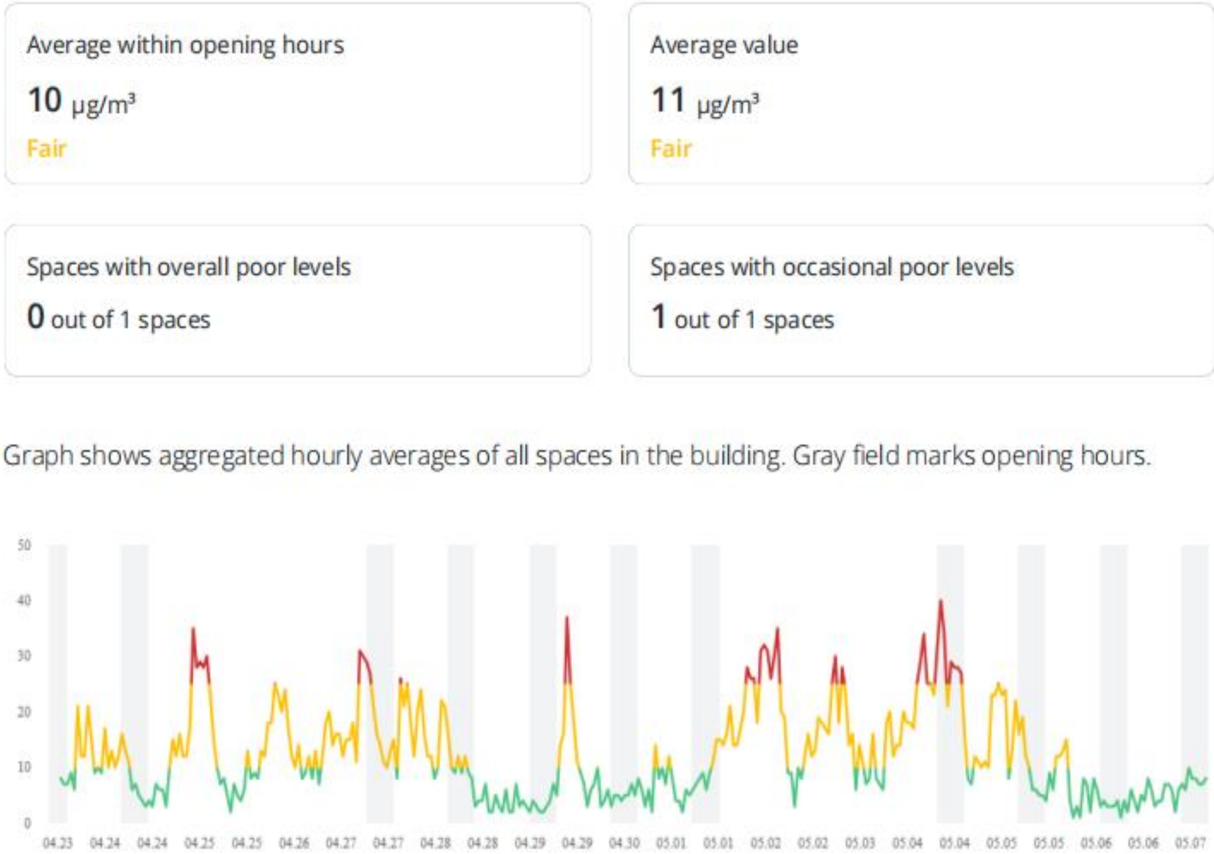


Figure 17: Roehampton Sports Center PM 1.0 readings

PM readings were also fair, with occasional poor PM2.5 levels. This may reflect a combination of outdoor particle infiltration, increased indoor movement, dust resuspension, footwear related particles, and ventilation patterns. VOC levels were fair, suggesting possible contribution from cleaning products, sports equipment, flooring materials, personal care products, or general indoor emissions. The temperature and humidity results were good and within comfort expectations, although the lower temperature may feel cool to some occupants depending on activity level.

Average within opening hours

521 ppb

Fair

Average value

311 ppb

Fair

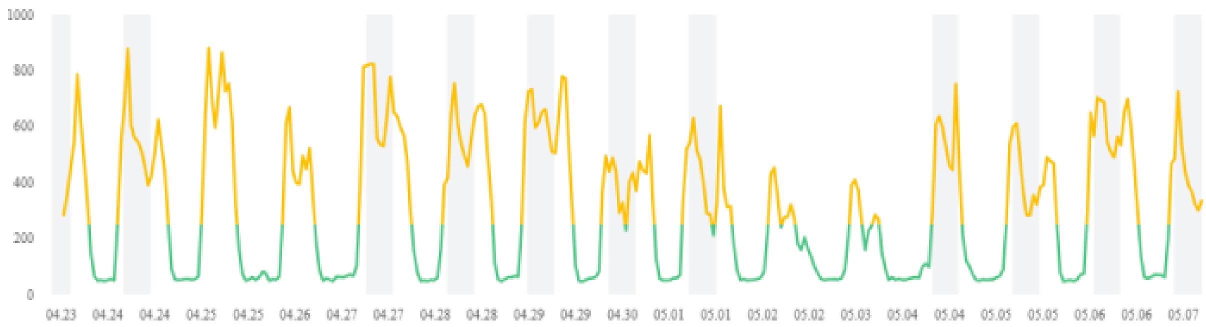
Spaces with overall poor levels

0 out of 1 spaces

Spaces with occasional poor levels

0 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.



Floor	Space name	Average	Lowest	Highest
2	Space Pro	521 ppb Fair	59 ppb Good	1628 ppb Fair

Figure 18: Roehampton Sports Center VOC readings

The main risks for Roehampton Sports Center are ventilation stress during active use, fine particle peaks from movement and resuspension, and moderate VOC levels. These conditions may affect users, staff, and people with asthma or other respiratory sensitivities. Recommendations include increasing ventilation before, during, and after busy activity periods, improving cleaning timing and dust control, reviewing air movement in high use rooms, using low VOC cleaning products, maintaining filters where applicable, and considering portable HEPA filtration in areas where PM peaks continue. Occupancy linked monitoring should also be continued to identify whether spikes align with specific activities or peak use times.

7.5 Shaw Building

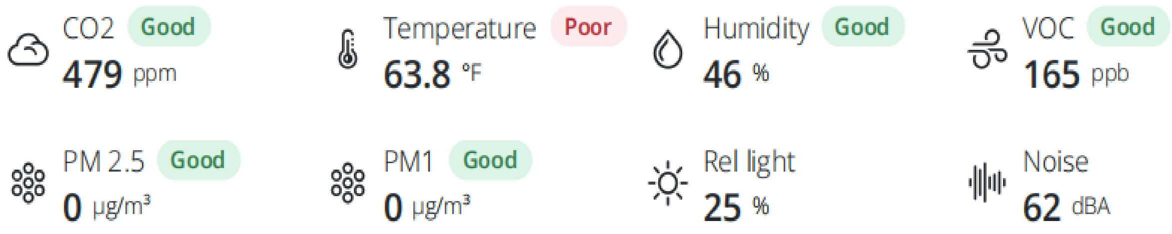


Figure 19: Summary of Shaw Building Air Quality Average

The Shaw Building was monitored as a residential university hostel within the University of Roehampton, London SW15 5PH. This location is different from offices, cafés, and classrooms because students live there and may be exposed to indoor conditions for extended periods, including during sleeping, studying, resting, and social activities. The main usable report covered the period from 1 April 2026 to 16 April 2026. The building was classified as residential, with natural ventilation, three floors, and daily opening hours from 5:00 AM to 11:00 PM. Airthings devices were used to monitor indoor conditions.

Average within opening hours

479 ppm

Good

Average value

473 ppm

Good

Spaces with overall poor levels

0 out of 2 spaces

Spaces with occasional poor levels

2 out of 2 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

Figure 20: Shaw Building CO_2 Air Quality details

The opening hour averages show that most pollutant indicators were good, but temperature was a clear comfort issue. CO2 averaged 479 ppm, which was good, and the average value was 473 ppm. This suggests that overall ventilation conditions were generally effective, although occasional poor CO2 levels were recorded in both monitored spaces. Humidity averaged 46 percent, which was good, and VOC averaged 165 ppb, also good. PM2.5 and PM1 were both reported as good at 0 µg/m³. Relative light was 25 percent and noise was 62 dBA.

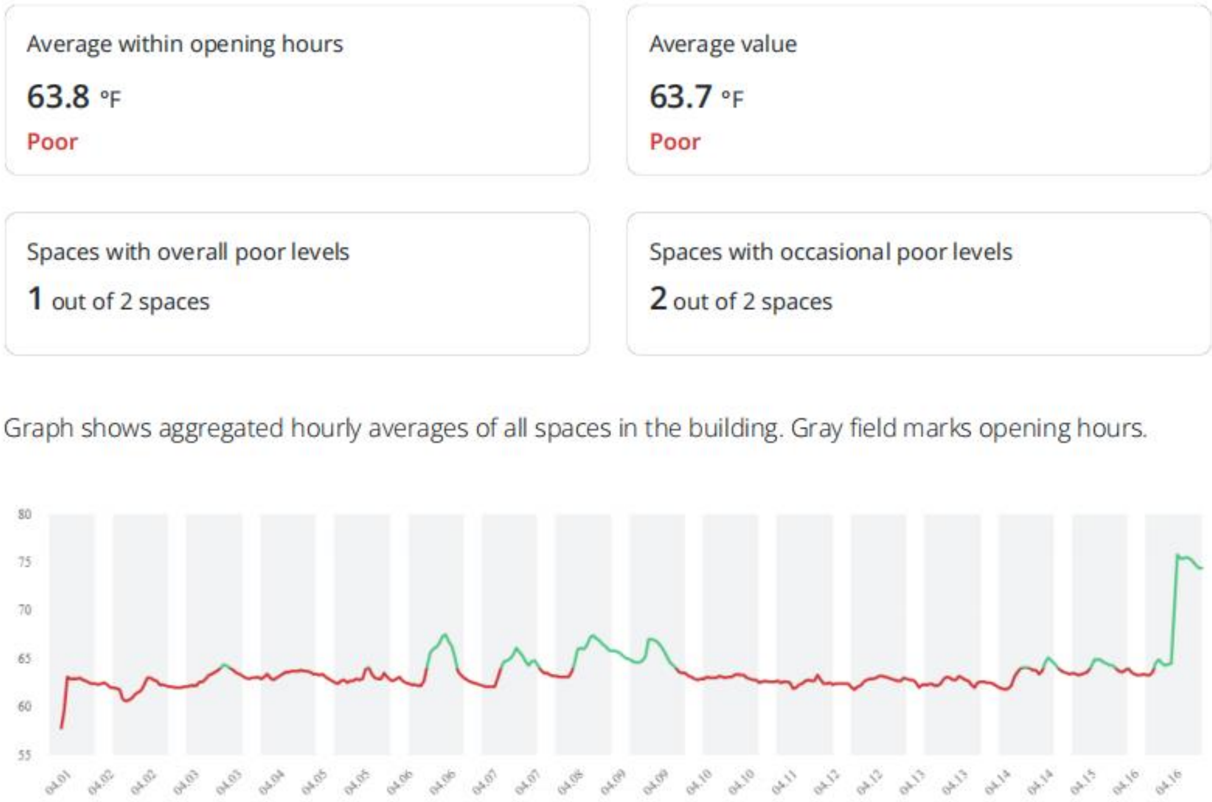


Figure 21: Shaw Building Temperature Air Quality details

The strongest concern was temperature. The opening hour average was 63.8°F, rated poor, with one of two spaces showing overall poor temperature levels and both spaces showing occasional poor levels. This indicates that the building may have been too cool during parts of the monitoring period. In a hostel setting, low temperature can affect comfort, sleep quality, study conditions, and general wellbeing. Unlike short stay spaces, residential accommodation requires consistently comfortable conditions because exposure is longer and more personal.

Figure 22: Shaw Building VOC Air Quality details

The main interpretation is that Shaw Building did not show a strong persistent pollutant problem during the monitored period, but it did show a thermal comfort issue. CO2 peaks should still be monitored because student rooms and shared spaces can become crowded, especially during social or study periods. Recommendations include reviewing heating performance, checking whether cold areas are linked to specific floors or rooms, educating students on safe ventilation practices, continuing CO2 monitoring during peak residential use, and maintaining good cleaning and moisture control to prevent future VOC or humidity related concerns.

7.6 Southland Reef

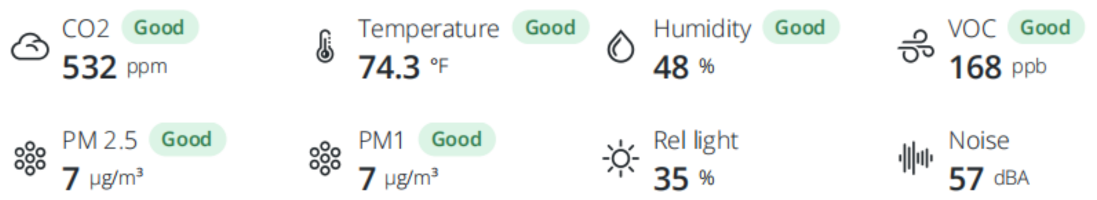


Figure 23: Summary of Southland Reef Air Quality Average

Southland Reef was monitored as a naturally ventilated campus communal environment located at London SW15 5PH. Although the report classifies the building type as a school, the site functions more appropriately as a café or shared communal campus space where students, staff, and visitors may gather for food, study, informal meetings, and social interaction. This makes the location important because occupancy patterns, movement, food related activity, cleaning routines, and ventilation behaviour can influence indoor air quality throughout the day.

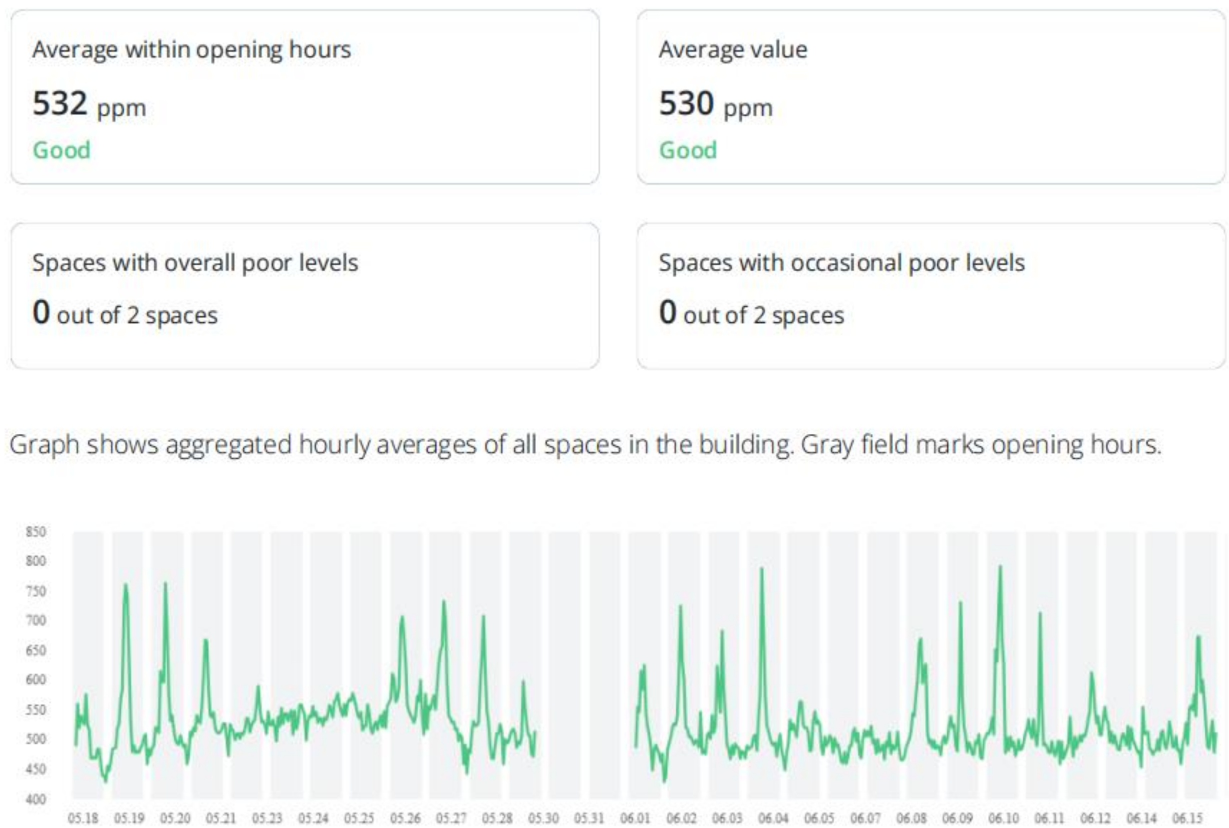


Figure 24: Southland Reef CO_2 Air Quality details

The most recent monitoring report covered the period from 17 May 2026 to 15 June 2026 and provides the strongest basis for interpretation. Monitoring was conducted using an Airthings Space Pro device in a naturally ventilated, one floor space with opening hours from 5:00 AM to 11:59 PM daily. The results show that Southland Reef continued to perform well overall. Opening hour averages were CO_2 532 ppm, temperature 74.3°F, humidity 48 percent, VOC 168 ppb, PM2.5 7 µg/m³, PM1 7 µg/m³, relative light 35 percent, and noise 57 dBA. These values were generally rated good, confirming that the space maintained acceptable ventilation, comfort, and pollutant control during the monitoring period.

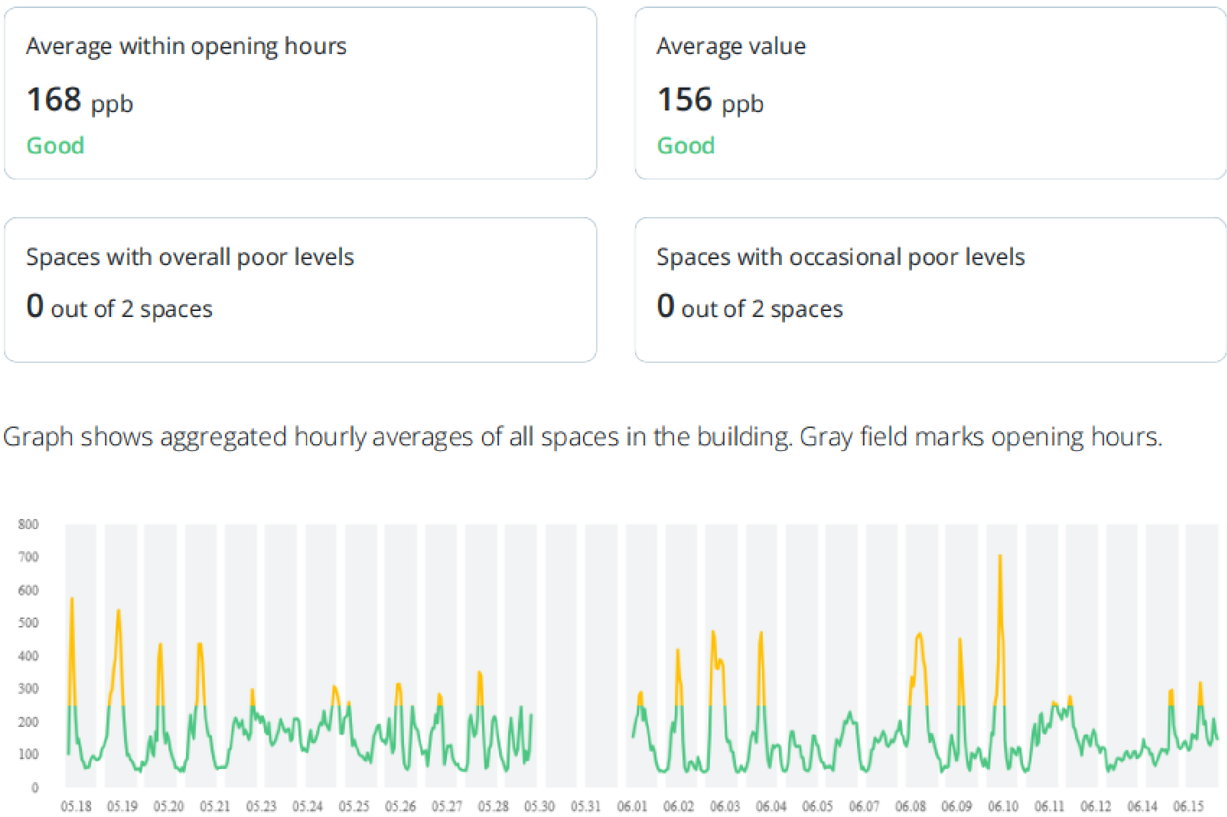


Figure 25: Southland Reef VOC Air Quality details

The CO_2 result is particularly positive because the average remained well below the fair threshold of 800 ppm, with no spaces showing overall or occasional poor CO_2

levels. This suggests that ventilation was adequate during normal use, despite the space being communal and potentially variable in occupancy. Humidity also remained within the recommended comfort range, supporting occupant comfort and respiratory wellbeing.

Average within opening hours
7 µg/m³
Good

Average value
7 µg/m³
Good

Spaces with overall poor levels
0 out of 2 spaces

Spaces with occasional poor levels
1 out of 2 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

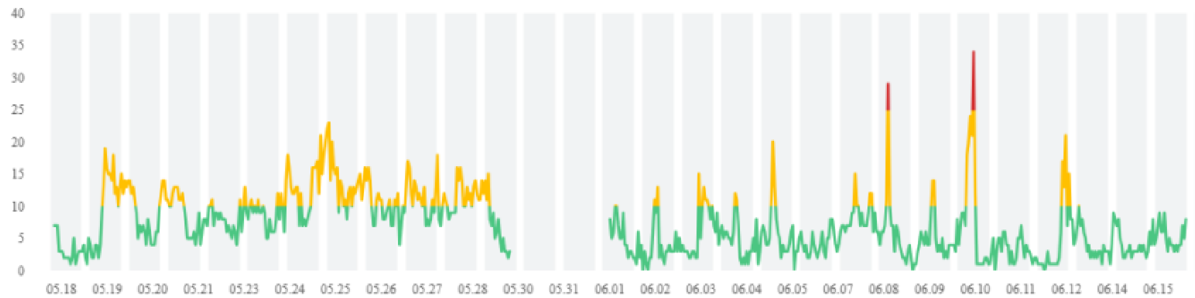


Figure 26: Southland Reef PM 2.5 Air Quality details

Average within opening hours

7 µg/m³

Good

Average value

7 µg/m³

Good

Spaces with overall poor levels

0 out of 2 spaces

Spaces with occasional poor levels

1 out of 2 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

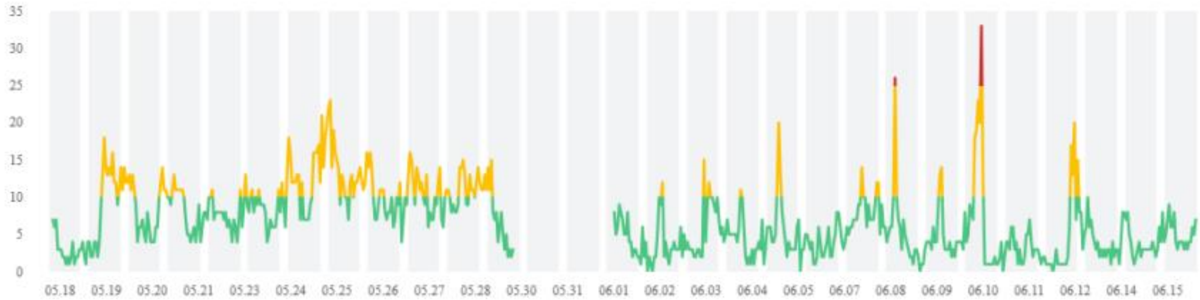


Figure 27: Southland Reef PM 1.0 Air Quality details

However, the report adds an important nuance to the previous interpretation. Although average PM2.5 and PM1 levels were good, both indicators recorded occasional poor peaks, with PM2.5 reaching 79 µg/m³ and PM1 reaching 71 µg/m³. This suggests short term particle events, possibly linked to outdoor infiltration, occupant movement, cleaning, food related activity, or local activity peaks. VOC levels remained good on average, although the highest VOC value reached a fair level, indicating occasional but not persistent chemical emission events.

Space Pro

Device type: Space Pro
Serial number: 2969045615

Floor
1

Room type
Not set

Average within opening hours
2/10

Contributing risk factors

- Virus survival rate
- Transmission efficiency
- Room occupancy
- Ventilation rate

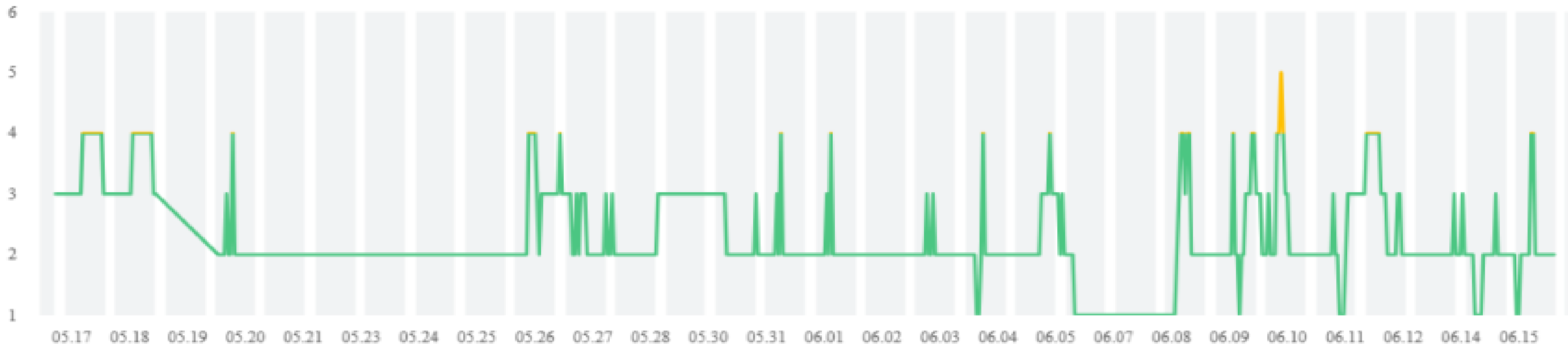


Figure 28: Southland Reef Virus risk report

The updated virus risk report also showed strong performance, with all devices within the recommended level and an average virus risk score of 2/10. Overall, Southland Reef remains one of the better performing locations, but continued monitoring should focus on identifying the causes of short term PM spikes, maintaining natural ventilation, reviewing cleaning and activity patterns, and using outdoor comparison data to understand how weather and external conditions influence indoor air quality.

7.7 Venture X Business Center

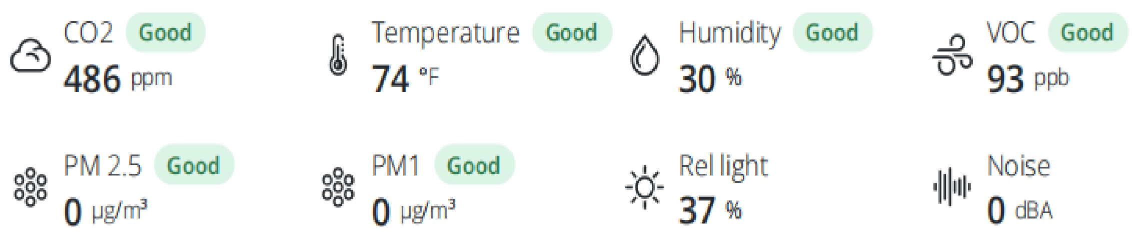


Figure 29: Summary of Venture X Air Quality Average

Venture X Business Center was monitored as a modern office and coworking environment located at Ariel Way, London W12 7SL. The report covered the period from 16 April 2026 to 30 April 2026. The building was classified as an office with mechanical ventilation, six floors, and daily opening hours. Monitoring was carried out using an Airthings Space Plus device on the fifth floor. This location is important because coworking and business centers often experience flexible occupancy, meeting room use, visitors, and varied working patterns.

Average within opening hours

486 ppm

Good

Average value

476 ppm

Good

Spaces with overall poor levels

0 out of 1 spaces

Spaces with occasional poor levels

0 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

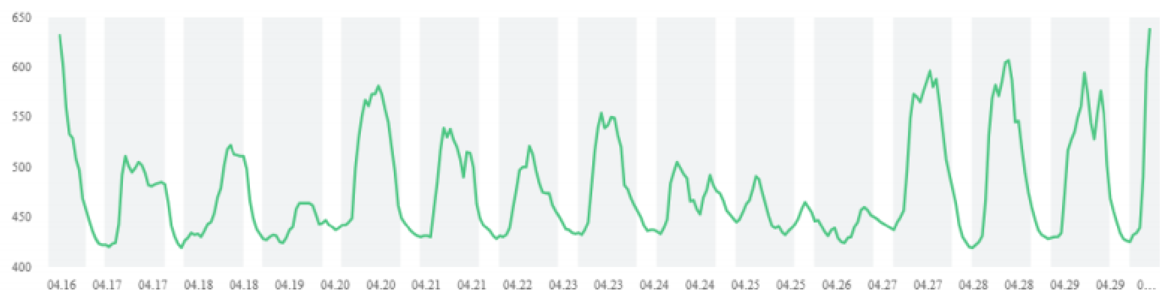


Figure 30: Venture X CO_2 Air Quality details

The results show strong overall air quality performance. CO2 averaged 486 ppm during opening hours, with an average value of 476 ppm, both rated good. There were no overall or occasional poor CO2 levels, and the recorded CO2 range remained within good conditions. This suggests that mechanical ventilation was effective in maintaining fresh air supply relative to occupancy during the monitoring period. Temperature averaged 74°F and was rated good, although the report recorded occasional temperature levels above the comfort threshold. Humidity averaged 30 percent, which was rated good but sits at the lower boundary of the recommended comfort range. VOC averaged 93 ppb, also good, while PM2.5 and PM1 were both reported as 0 µg/m³. Relative light was 37 percent and noise was reported as 0 dBA.

Average within opening hours

74 °F

Good

Average value

73.8 °F

Good

Spaces with overall poor levels

0 out of 1 spaces

Spaces with occasional poor levels

1 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

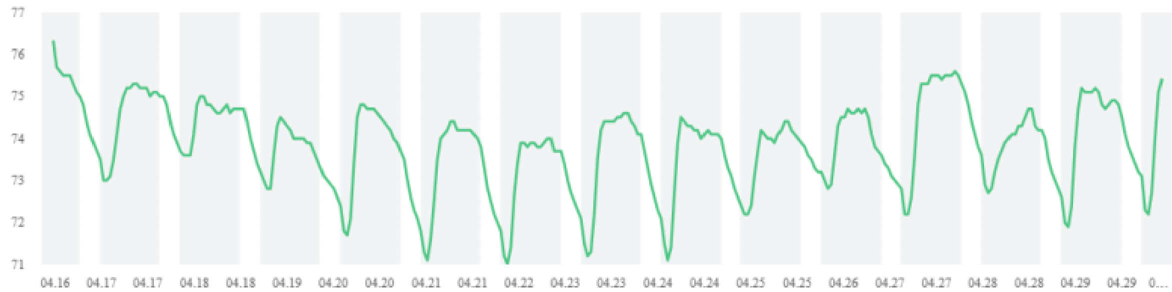


Figure 31: Venture X Temperature Air Quality details

The low CO2 and VOC values suggest a well managed office environment with good ventilation and limited indoor chemical emissions. The PM results also indicate minimal fine particle accumulation during the monitoring period. However, the low humidity boundary should be watched because dry indoor air can contribute to discomfort, dry eyes, throat irritation, and reduced perceived air quality, especially in mechanically ventilated offices. Occasional temperature exceedances may also affect productivity and comfort during warmer periods or in enclosed meeting areas.

Average within opening hours

93 ppb

Good

Average value

91 ppb

Good

Spaces with overall poor levels

0 out of 1 spaces

Spaces with occasional poor levels

0 out of 1 spaces

Graph shows aggregated hourly averages of all spaces in the building. Gray field marks opening hours.

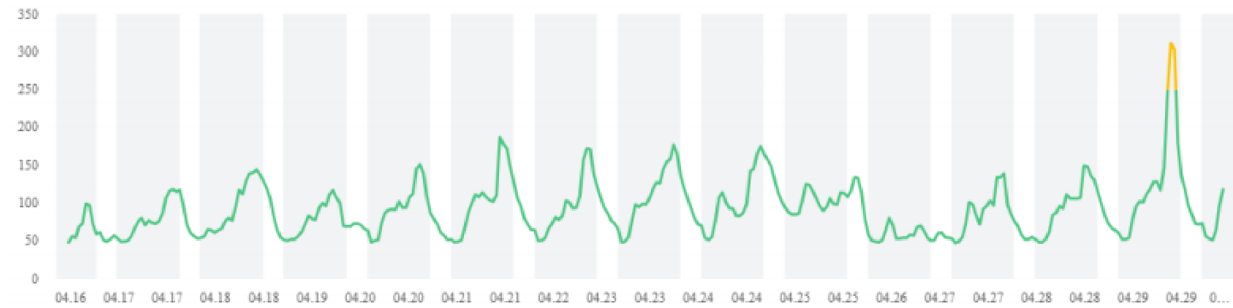


Figure 32: Venture X VOC Air Quality details

The main implication is that Venture X performed among the strongest monitored indoor locations, particularly for ventilation and pollutant control. Recommendations include maintaining mechanical ventilation performance, checking meeting rooms separately during high occupancy periods, monitoring humidity during dry seasons, reviewing thermal comfort during warmer days, and continuing periodic IAQ checks to ensure that coworking activity patterns do not create localized air quality issues.

8 Comparative Analysis Across All Locations

The comparative analysis shows that air quality performance varied across the seven monitored locations, mainly because of differences in building type, ventilation system, occupancy pattern, activity level, and exposure context. Overall, the best performing locations were Venture X Business Center and Southland Reef. Venture X showed the strongest pollutant control, with good CO_2, VOC, PM2.5, and PM1 readings, supported by mechanical ventilation. Southland Reef also performed well, with consistently good CO_2, VOC, PM, temperature, and humidity readings across repeated monitoring periods. These two locations therefore represent the strongest overall air quality profiles in the study.

River Homes and Roehampton Sports Center showed the greatest need for closer air quality management. River Homes recorded the highest opening hour CO_2 average at 889 ppm, rated fair, while Roehampton Sports Center followed with 832 ppm, also rated fair. These results suggest that both naturally ventilated spaces experienced ventilation pressure during occupied periods. River Homes also had the highest PM2.5 average at 11 $\mu g/m^3$, followed by Roehampton Sports Center at 10 $\mu g/m^3$. Although these levels were not persistently poor, they indicate that fine particle exposure was more relevant in these two locations than in the other monitored environments.

Hurlingham School performed well overall, with good average CO_2, humidity, VOC, and PM results. However, the report recorded occasional poor CO_2 levels in both monitored spaces, meaning that ventilation should still be managed carefully during periods of higher occupancy. Putney High Street showed good CO_2, temperature, and humidity conditions, but the available dataset did not include PM2.5, PM10, NO_2, or ozone. This limits the interpretation of traffic related roadside exposure. For a high street location, those pollutants would be necessary for a fuller outdoor air quality assessment.

Shaw Building showed good pollutant readings, including CO_2, VOC, PM2.5, and PM1. However, it had the weakest thermal comfort performance, with an average temperature of 63.8°F, rated poor. As a university hostel where students live and spend extended periods indoors, this is important because thermal discomfort may affect sleep, study, and general wellbeing.

Table 1. Summary of Monitored Parameters by Location

Location	Environment type	CO2	Temperature	Humidity	VOC	PM2.5	PM1	Overall pattern
Hurlingham School	School	713 ppm	75.6°F	46%	197 ppb	0 µg/m³	0 µg/m³	Good overall, occasional CO2 peaks
Putney High Street	Roadside high street	492 ppm	70.1°F	40%				Good comfort readings, limited traffic pollutant data
River Homes	Office	889 ppm	22.5°C	40%	238 ppb	11 µg/m³	11 µg/m³	Fair CO2 and PM, good comfort
Roehampton Sports Center	Sports facility	832 ppm	66.9°F	44%	521 ppb	10 µg/m³	10 µg/m³	Fair CO2, VOC, and PM
Shaw Building	University hostel	479 ppm	63.8°F	46%	165 ppb	0 µg/m³	0 µg/m³	Good pollutants, poor temperature
Southland Reef	Café / communal campus space	532 ppm	74.3°F	48%	168 ppb	7 µg/m³	7 µg/m³	Good overall, , occasional poor PM2.5, PM1, and temperature peaks.
Venture X Business Center	Office and coworking center	486 ppm	74°F	30%	93 ppb	0 µg/m³	0 µg/m³	Best pollutant control, low humidity boundary

Table 2. Good, Fair, and Poor Rating Comparison

Location	Main good indicators	Main fair indicators	Main poor indicators
Hurlingham School	CO_2, temperature, humidity, VOC, PM	Occasional CO_2 peaks	No poor average
Putney High Street	CO_2, temperature, humidity	Virus risk action level in one device	No poor average in available data
River Homes	Temperature, humidity, VOC	CO_2, PM2.5, PM1	Occasional CO_2 peaks
Roehampton Sports Center	Temperature, humidity	CO_2, VOC, PM2.5, PM1	Occasional CO_2 peaks
Shaw Building	CO_2, humidity, VOC, PM	None significant	Temperature
Southland Reef	CO_2, temperature, humidity, VOC, PM	Occasional VOC peak, occasional humidity peak	Occasional PM2.5 peak, occasional PM1 peak, occasional temperature peak
Venture X Business Center	CO_2, temperature, VOC, PM	Humidity at lower comfort boundary	Occasional temperature exceedance

Table 3. Highest Reported Pollutant or Comfort Concerns

Indicator	Location with highest concern	Interpretation
CO2 average	River Homes	Highest average ventilation pressure
CO2 peak concern	Roehampton Sports Center, Hurlingham School, River Homes	Occasional poor ventilation events
PM2.5 average	River Homes, Southland Reef	Highest fine particle average
PM1.0 average	Southland Reef	Highest fine particle average
VOC average	Roehampton Sports Center	Highest VOC average, rated fair
Temperature concern	Shaw Building	Average temperature rated poor
Humidity boundary	Venture X	Humidity good but close to lower comfort limit
Virus risk	Putney High Street and Hurlingham School	Action level recorded in at least one device

Table 4. Key Risks and Recommended Actions

Location	Key risk	Recommended action
Hurlingham School	Occasional ventilation stress	Maintain CO_2 monitoring and improve ventilation during peak occupancy
Putney High Street	Limited traffic pollutant evidence	Repeat monitoring with $PM_{2.5}$, PM_{10}, NO_2, and O_3 capable outdoor sensors
River Homes	Fair CO_2 and PM levels	Use CO_2 triggered ventilation, HEPA filtration, cleaning controls, and living wall trial
Roehampton Sports Center	Activity related ventilation and PM pressure	Increase ventilation during busy periods and reduce dust resuspension
Shaw Building	Poor thermal comfort	Review heating, room temperature balance, and student comfort feedback
Southland Reef	Occasional thermal variation	Maintain current ventilation and monitor during high footfall periods
Venture X Business Center	Low humidity boundary	Maintain mechanical ventilation and monitor humidity during dry periods

Indoor locations generally performed better for controllable comfort and pollutant management than the roadside context, but the Putney High Street dataset requires additional traffic pollutant monitoring before firm conclusions can be made. Offices showed different patterns: Venture X performed strongly under mechanical ventilation, while River Homes showed fair CO_2 and PM under natural ventilation. The school environment performed well but still required attention to short term CO_2 peaks. The sports environment showed expected pressure from activity and occupancy, while the hostel environment showed that comfort issues can be as important as pollutant levels. Overall, the study shows that air quality management should be location specific rather than uniform across all buildings.

Evidence base used for the comparative values: Hurlingham School IAQ and virus risk reports, Putney High Street corrected IAQ and virus risk reports, River Homes IAQ report, Roehampton Sports Center IAQ report, Shaw Building IAQ report, Southland Reef IAQ and virus risk reports, Venture X IAQ report, and outdoor comparison reports for Hurlingham School and Southland Reef.

9 Discussion of Findings

The findings show that indoor air quality across the monitored locations was generally acceptable, although each site presented a different pattern of concern. Venture X and Southland Reef showed the strongest overall performance, with good CO_2, VOC, $PM_{2.5}$, PM_1, temperature, and humidity readings. This suggests that controlled ventilation, lower pollutant sources, and stable occupancy patterns can support healthier indoor environments. In contrast, River Homes and Roehampton Sports Center showed fair CO_2 and particulate matter readings, indicating that naturally ventilated spaces may experience greater pressure during occupied periods. This agrees with previous studies which identify ventilation, occupancy density, and indoor activities as key drivers of indoor air quality variation (Persily & de Jonge, 2017; Wargocki, 2021).

When compared with UK guidance, the CO2 findings suggest that none of the locations showed persistent dangerous exposure. HSE workplace exposure limits for CO2 are much higher than the levels recorded in this study, with an eight hour workplace exposure limit of 5,000 ppm and a fifteen minute short term exposure limit of 15,000 ppm. However, HSE also explains that CO2 levels consistently above 1,500 ppm in an occupied room indicate poor ventilation and require action. On this basis, the average CO2 levels were mostly acceptable, but the occasional peaks recorded at River Homes, Roehampton Sports Center, Hurlingham School, and Shaw Building are important operational warning signs. These peaks suggest that ventilation may become inadequate during certain periods, especially when occupancy increases or airflow is reduced.

The particulate matter results were also generally within manageable levels, but River Homes and Roehampton Sports Center require closer attention. River Homes recorded PM2.5 at 11 $\mu g/m^3$, while Roehampton Sports Center recorded PM2.5 at 10 $\mu g/m^3$. These values are below the WHO twenty four hour guideline value of 15 $\mu g/m^3$ for PM2.5, but they are above the stricter WHO annual guideline value of 5 $\mu g/m^3$. This means that the results should not be interpreted as regulatory exceedances, because the study did not measure annual exposure, but they still show that fine particles should be reduced where possible. Previous studies have shown that PM2.5 is associated with respiratory and cardiovascular risks, especially among children, older adults, and people with asthma or existing heart and lung conditions (WHO, 2021; Kelly & Fussell, 2020; Schraufnagel et al., 2019).

The outdoor exposure implication is most relevant to Putney High Street. The available Putney High Street dataset showed good CO2, temperature, and humidity conditions, but it did not include the key outdoor traffic pollutants needed for a full roadside assessment, especially NO2, PM10, PM2.5, and ozone. This limits direct comparison with outdoor air quality standards. However, UK air quality management guidance identifies NO2, PM10, PM2.5, and related pollutants as key concerns for local authorities, particularly in traffic affected urban areas. Therefore, Putney High Street should be prioritized for repeat monitoring using outdoor capable sensors that can capture road traffic pollutants.

Comfort conditions were mostly good, but Shaw Building had poor temperature performance, while Venture X had humidity at the lower boundary of the comfort range. Temperature and humidity are not only comfort indicators, they also influence productivity, perceived freshness, respiratory comfort, and building user satisfaction. Previous research on green and healthy buildings has linked improved indoor environmental quality with better cognitive performance, productivity, and wellbeing (MacNaughton et al., 2017; Wargocki, 2021). This is particularly important in schools, offices, student accommodation, and shared workspaces, where people spend long periods indoors.

Overall, the findings confirm that air quality management should be site specific. Schools require ventilation attention during crowded periods, offices need balanced ventilation and particulate control, sports facilities require activity responsive ventilation, hostels require thermal comfort management, and roadside locations need traffic pollutant monitoring. The results also support sustainability and green infrastructure planning. Measures such as improved ventilation, HEPA filtration, low emission cleaning, anti idling controls, urban planting, and carefully maintained living walls can contribute to healthier indoor and outdoor environments. Green infrastructure should not replace source control or ventilation, but it can support wider public health, comfort, biodiversity, and climate resilience goals across Wandsworth Council.

10 Recommendations and Action Plan

The findings from the monitored locations show that air quality improvement should be practical, site specific, and focused on the main issues identified across the study. Overall, the key concerns were short term CO2 peaks, fair PM levels in some locations, temperature discomfort in Shaw Building, activity related air quality pressure in Roehampton Sports Center, and the need for better outdoor pollutant monitoring at Putney High Street. The following action plan is recommended.

Immediate Actions

The first priority is to improve ventilation during periods of peak occupancy. This is especially important for River Homes, Roehampton Sports Center, Hurlingham School, Shaw Building, and any other space where CO2 levels rise during busy periods. Staff should use CO2 readings as a simple operational guide. When CO2 begins to move toward the fair or poor range, windows, vents, or mechanical fresh air systems should be adjusted immediately, where safe and practical. Short air flush periods should also be introduced before meetings, classes, sports sessions, and high use periods.

Windows, vents, air grilles, and internal air pathways should be kept clear at all times. Furniture, storage items, signage, or equipment should not block airflow. In naturally ventilated spaces, window opening routines should be reviewed so that fresh air is introduced without creating unacceptable cold discomfort. In mechanically ventilated spaces such as Venture X, facilities teams should confirm that ventilation settings, filters, and air supply systems are functioning properly.

Particulate matter spikes should be reduced through improved cleaning controls. Cleaning should be scheduled during low occupancy periods where possible, and HEPA filtered vacuum cleaners should be used to reduce dust resuspension. Dry sweeping should be avoided in offices, classrooms, corridors, and sports spaces because it can increase airborne particles. High VOC cleaning products, air fresheners, and strong fragranced products should not be used during occupied hours. Low emission alternatives should be prioritized.

Short Term Actions

Over the next one to three months, continued monitoring should focus on higher risk locations, especially River Homes, Roehampton Sports Center, Shaw Building, Hurlingham School, and Putney High Street. River Homes and Roehampton Sports Center require closer review because both showed fair CO2 and PM patterns. Shaw Building requires follow up because temperature comfort was poor. Putney High Street requires additional monitoring using outdoor capable devices that can measure PM2.5, PM10, NO2, and ozone, as these pollutants are more relevant for a roadside environment.

HEPA filtration should be considered where PM2.5 or PM1 levels remain elevated after cleaning and ventilation improvements. Portable HEPA units may be useful in meeting rooms, offices, classrooms, or sports center areas with repeated particle spikes. However, filtration should support ventilation, not replace it.

Each location should maintain a simple activity log to explain pollutant peaks. The log should record occupancy level, cleaning times, window opening, deliveries, sports activity, food related activities, weather conditions, and unusual events. This will help determine whether peaks are caused by occupancy, traffic infiltration, cleaning, physical movement, or ventilation changes.

Indoor living walls should be trialed in suitable spaces as a complementary wellbeing and environmental intervention. River Homes, Southland Reef, Venture X, and selected communal university areas may be appropriate pilot sites. Living walls should be used carefully, with proper maintenance to prevent dampness, pests, or mould. They should complement ventilation, filtration, and source control, not replace them.

Longer Term Actions

Over the next three to twelve months, monitoring should be expanded across seasons to understand how winter heating, summer heat, humidity changes, traffic patterns, and occupancy affect air quality. Permanent or semi permanent IAQ monitoring should be considered in high occupancy buildings such as schools, hostels, coworking spaces, and sports facilities.

The findings should also be integrated into wider sustainability planning. Outdoor findings, especially from Putney High Street and future roadside monitoring, should support green infrastructure decisions, including urban planting, street greening, living walls, and exposure reduction strategies. Finally, partner sites should develop a wider air quality improvement framework with clear monitoring routines, response thresholds, maintenance responsibilities, and annual review procedures.

11 Conclusion

This report assessed indoor and outdoor air quality conditions across selected locations in Wandsworth Council, London, including Hurlingham School, Putney High Street, River Homes, Roehampton Sports Center, Shaw Building, Southland

Reef, and Venture X Business Center. Overall, the findings show that most monitored locations had generally acceptable air quality, with several indicators falling within good or manageable ranges. Venture X Business Center and Southland Reef demonstrated the strongest overall performance, particularly for CO2, particulate matter, VOC, temperature, and humidity. These locations suggest that effective ventilation, stable occupancy patterns, and well managed indoor environments can support healthier and more comfortable spaces.

However, the study also identified specific areas of concern. River Homes and Roehampton Sports Center showed fair CO2 and particulate matter levels, indicating the need for improved ventilation management and particle reduction strategies. Hurlingham School performed well on average but recorded occasional CO2 peaks, showing that short term ventilation stress can occur even in generally well performing buildings. Shaw Building showed good pollutant control but poor temperature comfort, which is significant because it is a student residential building where occupants spend extended periods. Putney High Street highlighted the need for stronger outdoor monitoring, especially for traffic related pollutants such as PM2.5, PM10, NO2, and ozone.

The findings confirm that air quality varies by building use, occupancy, ventilation type, activity pattern, and outdoor exposure. Continued monitoring is valuable because single period measurements cannot fully capture seasonal changes, peak occupancy effects, weather influences, or traffic patterns. Future monitoring should therefore be expanded across seasons and supported with activity logs, outdoor pollutant measurements, and repeated checks in high occupancy spaces.

The report recommends practical interventions, including CO2 guided ventilation, improved cleaning controls, HEPA filtration where needed, low VOC products, thermal comfort improvements, and carefully maintained living walls or green infrastructure. These actions will support healthier buildings, better occupant comfort, and stronger sustainability planning across the selected sites.

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