Plant a Sensor

A global air quality monitoring campaign

Participant Manual
Beta version

RESET WORLD GREEN BUILDING COUNCIL

World Green Building Council

The World Green Building Council (WorldGBC) is a global network leading the transformation of the built environment to make it healthier and more sustainable. Collectively, with our Green Building Councils (GBCs) in around 70 countries, we accelerate action to deliver on the ambition of the Paris Agreement and UN Sustainable Development Goals (SDGs). We do this by accelerating critical systems transitions that need to take place across the sectors to achieve our goals for a net zero carbon and sustainable built environment. We are committed to green buildings for everyone, everywhere to build a better future.

RESET AIR

RESET® Air is the world's first sensor-based, performance-driven building standard and certification program where indoor environmental quality is monitored and measured in real-time. In order to attain certification, buildings and interior spaces are required to consistently maintain healthy indoor air quality as defined by the Standard. RESET Air is comprised of a suite of six specific standards outlining sensor performance criteria,a the proper deployment and installation of monitoring devices and how once collected, data is reported and properly communicated. RESET is recognized by leading healthy and green building schemes worldwide.

With thanks to our global partners

Global Campaign Partners

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"Air pollution is now considered to be the world's largest environmental health threat, accounting for 7 million deaths around the world every year"

UNECE [1] & WHO [2]

WHY AIR QUALITY MATTERS

The global air pollution crisis is causing unprecedented damage to human health across the world. One in nine deaths are now attributed to air pollution worldwide[3]. The airborne pollution driving this health crisis is having an equally damaging effect on the natural environment. These short-lived climate pollutants are a substantial contributor to climate change and the global climate emergency.

Buildings account for 40% of the world's energy consumption. The energy required to power our buildings and cities has extremely serious and detrimental consequences, some of the most problematic being their production of greenhouse gases (GHGs) and particulate matter (PM). Both of these by-products contribute to pollution and global warming, rapidly changing and deteriorating the planet as we know it.

Maintaining acceptable levels of temperature, humidity and filtered air in order to keep occupants comfortable, buildings are obligated to increase their heating, cooling and filtration demands.

As a result, a compounding problem emerges; energy consumption increases as buildings attempt to respond to ever-increasing demands. This increased energy consumption then contributes to escalating air pollution and precipitates to even more rapid climate change.

The Plant a Sensor campaign's goal is to increase awareness of the serious role of the building and construction industry in generating air pollution worldwide. In addition, data collection on a global scale can begin to address the internationally challenging issue of a lack of available, accurate data, particularly that which pertains to air quality from and within the built environment. Through this campaign, we will work with our partners and members to shed light on this pressing health and environmental issue and strive to address this global climate emergency.

91%

of the world's population lives in places where air quality exceeds World Health Organisation guideline limits [2]

WHAT IS PLANT A SENSOR?

Plant a Sensor is a global air quality monitoring campaign led by the World Green Building Council (WorldGBC) and RESET, in collaboration with partners at the Earth Day Network, Woodrow Wilson Institute and others. In order to reduce the detrimental impacts of air pollution on human health and the environment, both in and outside of buildings, we need to be equipped with accurate, high-quality data sets through monitoring current air quality. We can't improve what we can't measure.

The fundamental purpose of this campaign is to acquire a global set of accurate data that will empower our network to enhance existing and vital awareness raising, technical work and/or advocacy campaigns. The data collection campaign is aimed at collecting accessible, accurate data about the places we live. A core feature of the campaign is our focus on data transparency, equal and open access, and geographically unanimous contribution opportunity. The data gathered from the air quality monitors around the world will be publicly available on the RESET Earth platform. Data will also be contributed to the Earth Challenge 2020 citizen science campaign, run in celebration of the 50th anniversary of Earth Day in April 2020.

We can't improve what we can't measure
Plant a Sensor will increase access to valuable air quality data

Sources. 1: United Nations Economic Commission for Europe (https://www.unece.org/environmental-policy/conventions/envlrtapwelcome/cross-sectoral-linkages/air-pollution-and-health.html) 2: World Health Organisation (https://www.who.int/airpollution/en/) 3: World Health Organisation (https://www.who.int/sustainable-development/Factsheet-AirQuality-190517.pdf)

WHY CAN'T WE MEASURE IT?

As a global population we remain dangerously unaware of the quality of the air we breathe. Although air quality monitoring around the world has risen in recent years, with the World Health Organisation now recording data from 108 countries worldwide[1], the fact remains that the majority of the population know little of the potential risk posed from the air around us.

Dozens of countries worldwide, many with low levels of economic development are too often unable to monitor air quality in their region. Unfortunatley, many of these regions are prone to the highest levels of dangerous air pollution. Compunding the issue, is the lack of standards to unify the methodologies by which air samples are collected across the world. A variety of differences exist that pose challenges in data comparability and accuracy including the pollutants measured, the sensor technologies used and the frequency with which samples are collected. These differences are not bound by countries and can vary greatly between provinces, states, cities and even neighbourhoods.

Without standardised methods that harmonise these monitoring efforts, there are no means to ensure data consistency, reliability or comparability, particularly on a global level. As a result, much of this data cannot be used academically or politically. In order to empower the global advocacy campaign to drive change towards a cleaner, healthier built environment throughout the world, we need accurate data.

AIR-BORNE POLLUTANTS

The following air pollutants are highlighted as key measurement parameters when assessing indoor or outdoor air quality. The Plant a Sensor campaign allows flexibility in participation, recognising a global disparity in pollutant concentration and allowing participants to measure air quality parameters of their choice. Some of the key pollutants, and their impact on human health, are outlined below.

(PM2.5) Fine particulate matter (PM2.5) can penetrate the deepest portions of the lungs. Particulates can pass into the blood stream or remain in the lungs, and may cause lung disease, emphysema, and/or lung cancer[2].

(VOCs) Volatile Organic Compounds (VOCs) are a class of organic chemicals that can be found in many building materials (eg. particle board, glue, paint and carpet backing). VOCs can cause headaches, rashes, nausea, vomiting, nose bleeding, or eye, nose, and throat irritation. Many VOCs cannot be detected by smell and are often a prominent source of indoor air pollution.

(CO_2) Carbon dioxide (CO_2) can significantly impact productivity and decision-making capabilities. CO_2 is a concern in indoor spaces, especially within air tight spaces. Occupants feel most comfortable and perform best within CO_2 levels of 600 ppm or less[3]. When CO_2 levels reach 1,000 ppm, occupants may start to experience light headaches, slight fatigue, and difficulty to concentrate[4], therefore negatively affecting

(CO) Carbon monoxide (CO) is an odourless, colourless gas that can be lethal when inhaled in large amounts[5]. CO is the byproduct of the incomplete combustion of fossil fuels. The greatest culprits contributing to CO in outdoor air come from vehicles or machinery. Indoors, CO is generated from sources such as unvented kerosene and gas space heaters, leaking chimneys and furnaces or improperly exhausted gas stoves.

(NO_2) Nitrogen dioxide (NO_2 or NO_x) contributes to the formation of smog. The major sources of NO_2 are the burning of fossil fuels from vehicle exhausts, fossil-fuelled electricity generation or manufacturing. Unflued gas heaters and cookers can be a source of NO_2 in homes. Breathing in raised NO_2 levels increases risk of respiratory problems, such as lung infections, and can exacerbate asthma[6].

(SO_2) Sulphur dioxide (SO_2 or SO_x) can damage the human respiratory system through inhalation, can harm trees and plants, and can also cause acid rain. The major sources of SO_2 in cities are from the combustion of fossil fuels for power or transport. SO_2 can react with other compounds in the atmosphere to form fine particles that reduce visibility (haze), causing particulate matter (PM2.5) pollution, as above[7].

(O_3) Tropospheric, or ground-level ozone (O_3) is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOCs). This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and airway inflammation. It can also reduce lung function[8].

HOW CAN WE FIX IT?

We can start by organizing and expanding air quality research. By empowering individual participants to monitor their air quality using recognized and uniformly practiced standards, we can harmonise the data collection.

Next, we harness the power of cloud technology. By using the cloud, we can receive thousands of data points, synthesising them into a manageable collection of data. Using the tools we have at our disposal, we can compile data in a streamlined, harmonised way that will allow for comparability.

With these actions, the Plant a Sensor campaign will tap into live data, allowing it to be made available for a host of different research purposes.

DATA HARMONISATION

Creating a hub of live, global, comparable air quality data requires a common set of standards. These standards include clear guidelines for monitor hardware, data reporting software, best practices for monitor deployment and installation, and guidelines for monitor calibration and maintenance.

This global air quality data will offer value to a world-wide audience and can be used to drive change at the highest levels. Adhering to standards that are widely recognised and uniformly practiced is required to effect this change. To standardise and guide participants through this process, Plant a Sensor requires a series of steps that addresses three key areas:

• **Monitor Standards**

• **Connected Data Providers Standards** and **Maintenance**

• **Installation and Deployment** consistency.

These steps will help Plant a Sensor partners and participants define what a qualified monitor is, outline proper collection and reporting of data and ensure proper deployment of monitoring devices, covering both their location and installation. Each of these areas will be further detailed throughout this manual.

THREE SETS OF STANDARDS FOR AIR QUALITY MONITORING

Monitor Standards   Maintenance Standards   Data Provider Standards

Sources. 1: World Health Organisation [Website] https://www.who.int/airpollution/data/cities/en/; 2: Yu-Fei Xing-Yue-Hua Xu-Min-Hua Shi-Yi-Xin Lian. The impact of PM2.5 on the human respiratory system. [Journal]. 3: Satish, U. et al. Is CO2 an Indoor Pollutant? Direct Effects of Low-to-Moderate CO2 Concentrations on Human Decision-Making Performance. [Website]. December 2012. 4: Bierwirth, P.N. Carbon dioxide toxicity and climate change: a serious unapprehended risk for human health. [Website]. December 23, 2016. 5: Environmental Protection Agency. National Ambient Air Quality Standards. 40 CFR Part 50. [Website] Updated December 14, 2012. Accessed September 16, 2014.6: Australian Government Department of Environment and Energy [Website] https://www.environment.gov.au/protection/publications/factsheet-nitrogen-dioxide-no2

In New York City on 21st September 2019, the World Health Organisation launched a commitment at the United Nations Secretary General's Summit for national and subnational governments to clean up their outdoor air. By November 2019, over 50 countries and 80 cities had committed to achieve pollution reduction to within WHO

With the data we acquire focused on buildings and cities we hope to enlighten our policy makers on the need for radical interventions within the built environment to meet these ambitious and necessary commitments.

It's a green light from global leaders towards clean air for all.

PARTICIPANT PATHWAYS

The Plant a Sensor campaign aims to gather data on both indoor and outdoor air quality. The indoor air quality focus area aims to increase awareness and understanding of how human behaviours and activities impact air quality. Outdoor air quality measurements are alternatively a reflection of the levels of ambient air pollution in a particular environment, which may be susceptible to daily, seasonal or political fluctuations. A further look involves investigating the effectiveness of a building's HVAC/ventilation system, in other words the air being delivered to building occupants.

INDOOR AIR QUALITY MONITORING

The first approach, monitors indoor air quality and is used in order to collect and analyze pollutants that are found inside our built environments. This approach employs monitors placed indoors, within enclosed spaces such as offices, conference rooms, homes and school classrooms.

This data helps us understand how human behaviours and activities impact air quality and gives insights into the pollutants that we, as building occupants, are often culpable for.

For example, some common indoor pollutants include fine particulate matter generated from second-hand smoke, burning incense or cooking, VOCs released from cleaning products, air fresheners or fragrances, or even ozone that can be generated from some older models of copy and printing machines. Additionally, building materials and interior finishes that are installed in the built environment can contribute to poor indoor air quality. Furniture, millwork, textiles, insulation, substrates, paint, sealants and other finishes, if not specified with careful vetting, can often contain chemicals of concern that potentially off-gas over time.

OUTDOOR AND IN-DUCT AIR QUALITY MONITORING

Outdoor, or, ambient air quality monitoring, considers outdoor air pollution levels either as a standalone measurement or as a comparative tool for the purpose of better understanding the effectiveness of a building's HVAC/ventilation system. Outdoor sensors can be deployed as the primary monitoring strategy (with or without in-duct), or alongside indoor air quality monitoring.

In-duct monitoring, employs the installation of continuous monitors placed within the building HVAC system. This method is optimized by deploying outdoor monitors to collect air quality data from the projects' ambient air conditions so that a baseline can be created. In-duct monitors are then deployed in the project's ductwork. By having both the outdoor baseline data and the in-duct data, project teams are able to make comparisons to better understand how a building's HVAC and air filtration systems are performing.

MAXIMISING MONITORING

The optimal monitoring approach, and one that yields the most robust data, is one that employs all three monitor types; indoor, outdoor and induct. However, in cases where induct monitor deployment is not feasible (access to the building's ductwork is not possible, and/or the building is devoid of a mechanical ventilation system), participants are encouraged to use outdoor monitors so that ambient pollution levels may be compared to indoor air quality levels.

With the installation of multiple monitor locations, Plant a Sensor participants will have a more complete set of air quality data points to review and analyse. By decoupling indoor air quality data from air quality data provided from the outdoor environment, and/or by the mechanical system, participants will be better equipped to identify specific air quality issues and hence can employ more informed approaches to remediate them.

Deploying more than one monitoring approach is optional for participation in the Plant a Sensor campaign as this strategy will provide the most complete picture of a project's air quality. This can be of great assistance in areas known for having poor air quality, seasonal air quality events, such as wildfires, or areas that fail national and/or international attainment criteria.

It's important to keep in mind any limitations your project typology might have when it comes to monitor deployment. Participants should perform a feasibility study to determine if proper access to areas intended for monitor installation is possible. For example, rooftops for outdoor monitors should be reviewed prior to deployment, as should areas of access to HVAC duct work, in the case of in-duct monitors.

PARTICIPANT REQUIREMENTS

✓ The project uses Grade A, B or C indoor, in-duct or outdoor air quality monitor(s)

✓ Monitor(s) are able to connect to the internet and reporting software

✓ The data can connect to Plant a Sensor and RESET Earth

✓ The project commits to a minimum of one year of participation

Note: If your project would like to explore options to contribute data using manual data collection and reporting methods, or in other custom ways, please reach out to us to discuss further. Due to limited capacity for data processing and analysis, data collected from such manual participants potentially may not be included in the Campaign reports.

MONITORS

The Plant a Sensor campaign is committed to acquiring accurate, high-quality data to serve the purposes of a global network that will utilise it. Data will be publicly accessible and participants will be able to access global air quality data sets from the Plant a Sensor platform, RESET Earth. All monitors used by participants will be graded as either Grade A, B or C for the purpose of data collection. This grading scale refers to Reference, Commercial or Consumer Grade monitors respectively.

Participants are welcome to contribute data to the campaign using any monitor, however to improve data accuracy, we recommend participants utilise a monitor that has received a third-party accreditation, such as RESET Air, UL2905 or market equivalent. The use of an accredited monitor will be reflected within the data grading, as will untested devices. Connectivity capabilities are also required. The monitor must be able to connect to software recognised by the Plant a Sensor campaign (see Data Provider chapter).

If you are a monitor manufacturer and would like your device reviewed for the campaign please contact: info@reset.build

DEPLOY THE PROPER DEVICE FOR YOUR SITE

The three main types of devices for air quality monitoring deemed appropriate for the Plant a Sensor campaign include indoor, in-duct and outdoor monitors. Participants are permitted to employ any of these monitor types and do not need to have all three types in order to participate in the campaign. Only one monitor is needed to participate.

Monitors are designed for specific purposes and should not be considered interchangeable; an outdoor monitor is designed for outdoor use, induct monitors are designed for induct use and indoor monitors are designed for indoor use.

Indoor

In-duct

Outdoor

Campaign participants should study how their project will approach air quality monitoring and come up with a deployment feasibility plan prior to monitor purchase or installation. Monitors must be installed as per Best Practice Deployment guidance and follow manufacturer requirements.

FIT FOR PURPOSE CRITERIA

✓ Monitors are designed for specific purposes and are not interchangeable

✓ Outdoor monitor(s) require protection from the elements (follow manufacturer guidance)

✓ Induct monitors are designed with special components to enable the device to extract air from the ventilation system on the supply side

✓ Indoor monitors are intended for mounting on interior walls and typically come with fasteners compatible for use on most interior walls

✓ Monitors must be protected from human error (for example, accidentally unplugging the device or tampering with it in any manner)
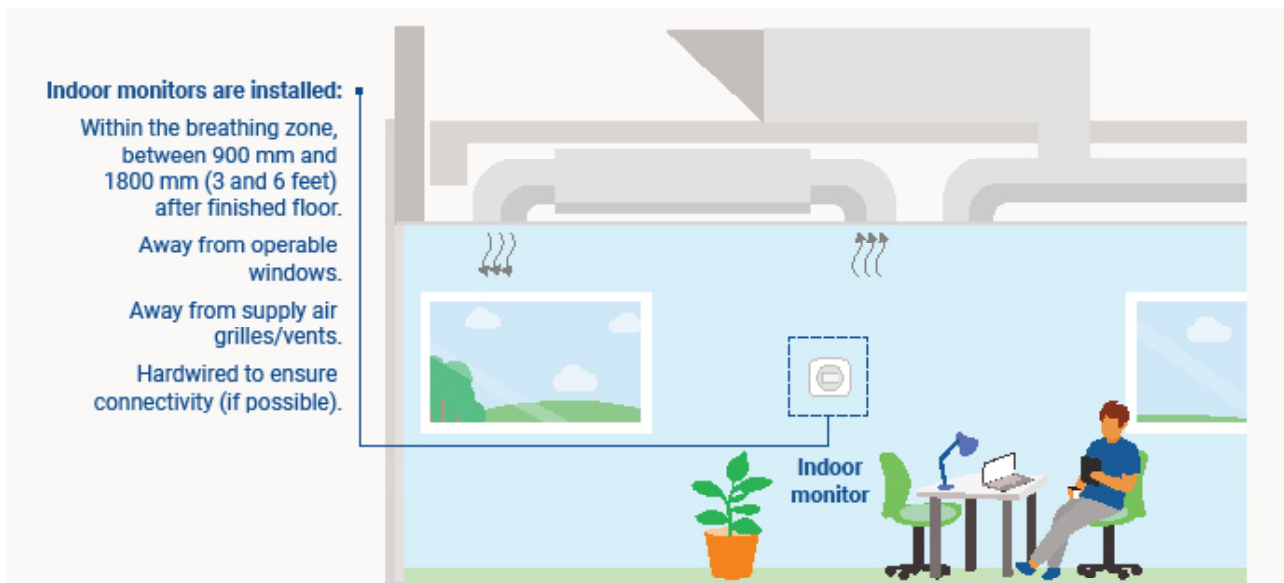
For a current list of connected indoor and outdoor monitors (Commercial Grade B) visit: https://reset.build/monitors

BEST PRACTICE MONITOR DEPLOYMENT

A core focus of the Plant a Sensor campaign is data quality and comparability. A critical piece of that is to ensure monitors are placed (deployed) in projects consistently to collect air samples representative of what is being measured. Participants are kindly requested to take note of best practice monitor deployment recommendations.
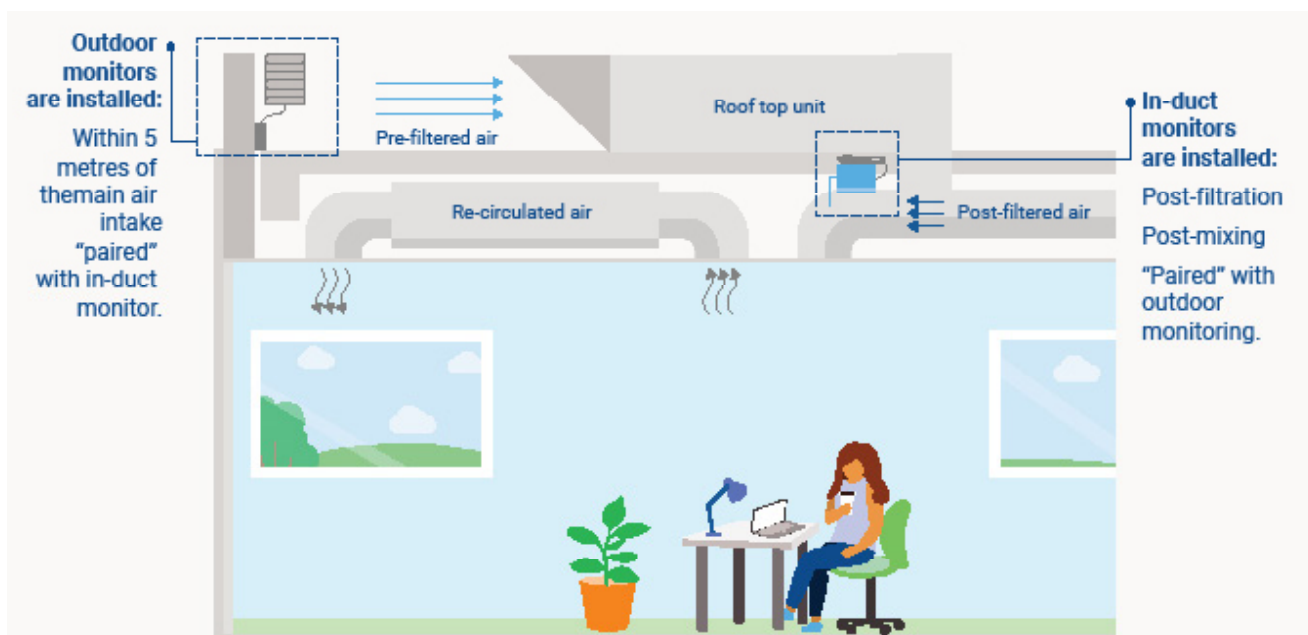
INDOOR AIR QUALITY MONITORING

For indoor deployment, monitors must be placed properly in areas best representative of the air being breathed by building occupants (the breathing zone). The breathing zone for most projects is between 900 mm and 1800 mm (three and six feet) above the finished floor level. Additionally, the monitor must be installed away from operable windows and supply air vents or registers as these conditions can skew the accuracy of indoor air quality data being collected.

Indoor monitors are installed:

Within the breathing zone, between 900 mm and 1800 mm (3 and 6 feet) after finished floor.

Away from operable windows.

Away from supply air grilles/vents.

Hardwired to ensure connectivity (if possible).

Indoor monitor

OUTDOOR AND IN-DUCT AIR QUALITY MONITORING

For outdoor monitors, the purpose is to understand the outdoor air by collecting data within a defined proximity of the building being evaluated. The outdoor monitor is required to be placed within five meters (16 feet) of the building's main air intake, prior to any air filtration. In-duct monitors are required to be placed after air filters (post-filtration) and ideally paired with the outdoor device along the same ductwork so that a direct comparison between outdoor air and in-duct (filtered) air can be derived.

Outdoor monitors are installed:

Within 5 metres of the main air intake "paired" with in-duct monitor.

Pre-filtered air

Re-circulated air

Roof top unit

In-duct monitors are installed:

Post-filtration

Post-mixing

"Paired" with outdoor monitoring.

Post-filtered air

OPTIMAL DEPLOYMENT: INDOOR, OUTDOOR AND IN-DUCT AIR QUALITY MONITORING
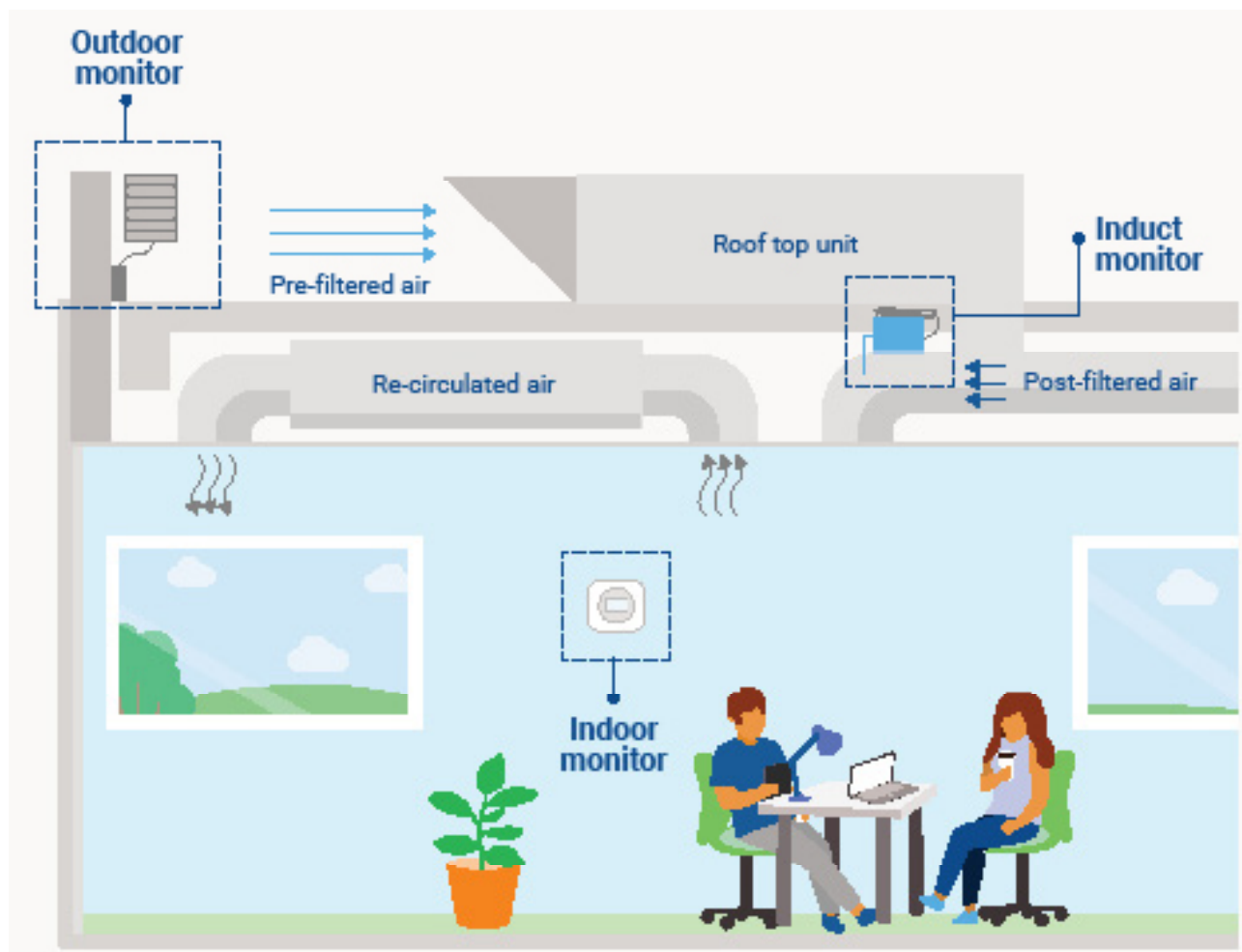
POWER AND CONNECTIVITY

In all cases, it's important to keep in mind the electrical source that will power the monitoring devices. Hard-wiring will reduce the risk of accidental disconnection as well as provide more consistent network connectivity. Hardwired installations are the most fail-safe option for monitor deployment as wireless connectivity could be intermittent and may result in missing data.

INSTALLATION

Plant a Sensor participants are requested to deploy monitoring devices in accordance with the campaign's best practices, in conjunction with the device installation guidelines outlined in each manufacturer's specifications. Once the monitoring device is received, it is important to note that each will come equipped with specific installation instructions. Each device's instructions will vary, both due to the device itself and depending on the fit for purpose application of use.

GET CONNECTED

DATA PROVIDER CRITERIA

Data providers are a third-party service that aggregates the data from participant monitors and prepares it for transfer to the Plant a Sensor campaign portal.

Data providers serve a critical role in the ecosystem. They agree to abide by a common set of rules, such as data reporting frequency, protocols around data loss, and data security. Recognised data providers must be in place in order for data to be reported consistently and with safeguards in place to protect against data manipulation or data fraud.

For the Plant a Sensor campaign, there are several recognised data providers that are already equipped with the necessary API and connectivity requirements to allow for proper data transfer.

The data collection and reporting process is comprised of a three step process of best practices and harmonised methodologies.

1 Participants utilise monitors (Grade A, B or C) that push data to a recognised data provider.

2 The data provider collects and analyses data from monitors. Data at this level belongs to the project owner and is typically kept private.

3 Data is contributed to Plant a Sensor, publicly or anonymously. The Plant a Sensor campaign is run on the RESET Earth Cloud.

DATA PROVIDERS

The listed data providers are available for immediate use in the Plant a Sensor campaign:
• AUROS Group
• Awair
• Carbon Credentials
• Gams
• QLEAR

Similar to monitor manufacturers having their own installation instructions, each data provider will have their own means to collect data from recognised monitors and transfer the data to the RESET Cloud.

To find out which data providers have compatibility with recognized monitors, visit reset.build/monitors. Participants can find contact information for each data provider at https://reset.build/dp. To become an accredited data provider, please contact RESET at: info@reset.build

GET STARTED COLLECTING DATA

All participants can get started in the campaign by purchasing their recognised air quality monitor(s) and collecting data with recognised data providers. Data will be collected and readied for display on RESET Earth.

The link to contribute data to Plant a Sensor will be available in late 2019.

RESET Earth currently displays only RESET Air certified projects. By end of 2019, all participating projects will be displayed. Please sign up to the WorldGBC mailing list to be informed when data can be made available to the Plant a Sensor campaign platform.

A Frequently Asked Questions section will also be compiled based on participant feedback and made available through the WorldGBC website, with relevant information incorporated into later versions of this Participant Manual.
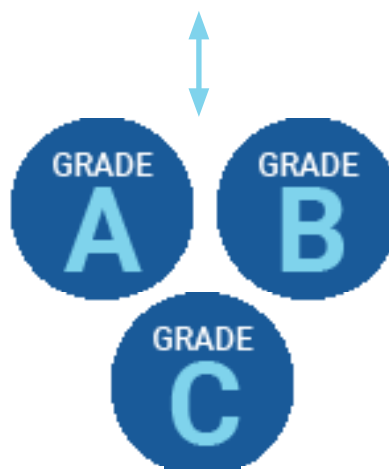
Data will be collected and readied for display on RESET Earth, where it will be publicly accessible through name and location provided by participant.

Follow instructions from recognised data provider to set up account for data monitoring.

Participants collect air quality data, preferably utilising recognised monitors.

DATA SHARING ON RESET EARTH

RESET Earth is a publicly-accessible, interactive, global, air quality database that was developed by RESET Air to help advance data quality for certified projects. RESET Earth is used as the official platform for Plant a Sensor. The WorldGBC and RESET Earth maps serve to build awareness to global indoor and outdoor air quality levels by transforming our built environment into global references of human and environmental health. The maps also serve to help building occupants and tenants identify participating buildings and discover best-in-class health, safety and wellness initiatives.

Participant data will be aggregated and made available for research via RESET Earth. Collected data may also be used by the WorldGBC global network to create future data-based deliverables, such as white papers and research reports.

RESET Earth currently only displays RESET Air certified projects. As of end of year 2019, RESET will display all Plant a Sensor participating projects. Participants who choose to publicly disclose their data on the Plant a Sensor platform will be able to communicate their participation via RESET Earth, namely their air quality data will be communicated live and visible on the platform.

RESET Earth is available now, in beta, at resetearth.com. Sign up to our mailing list to be alerted to Plant a Sensor updates at worldgbc.org/plant-a-sensor.
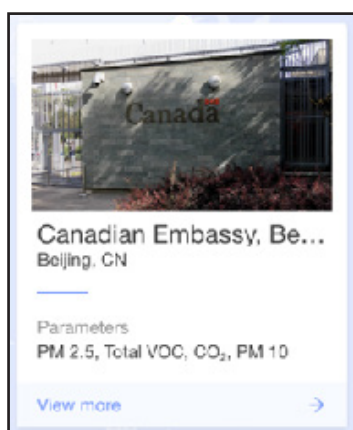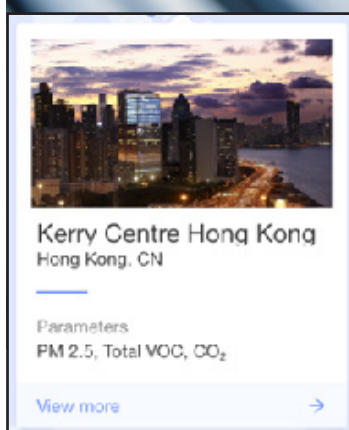
DATA PUBLICATION AND SHARING

When publishing to RESET Earth's public map, participants can choose to display their name or remain anonymous. Participants can also choose to share their data to RESET Earth for Plant a Sensor analytics without publishing on the public map.

For projects that choose to remain anonymous, basic information such as project type and city would appear on the RESET Earth map, with no specific identifiers. The below examples show different methods of project participants disclosing their data with varying levels of anonymity.
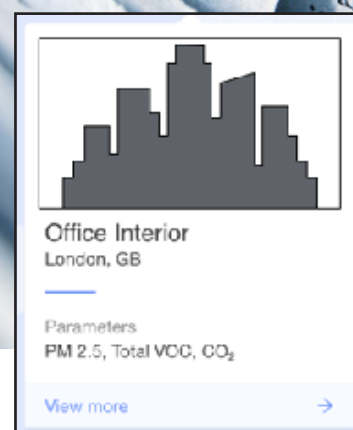
PARTICIPANT IDENTIFICATION EXAMPLES

Canadian Embassy, Be...
Beijing, CN

Parameters
PM 2.5, Total VOC, CO₂, PM 10

View more →

Full identification

Kerry Centre Hong Kong
Hong Kong, CN

Parameters
PM 2.5, Total VOC, CO₂

View more →

White-labelled/partial anonymity

Office Interior
London, GB

Parameters
PM 2.5, Total VOC, CO₂

View more →

Full anonymity

DATA PRIVACY

Data privacy is of the utmost importance and the Plant a Sensor campaign respects this very real concern.

All outdoor data collected from the campaign will contribute to the overall goals of Plant a Sensor and will appear on the RESET Earth map. The data will help establish public, global baselines for indoor and outdoor air quality. However, while all data contributes to the campaign, projects themselves will remain private and/or anonymous at the discretion of campaign participants.

Data collected from participants reporting indoor (and in-duct) monitoring remains private until participants release the data to the Plant a Sensor campaign. Once deemed ready to be shared, participants can elect to post their data publicly or anonymously, and may follow one of the participant identification examples presented above.

In all cases, data belongs to project participants and publication of that data is optional. Further, project names and/or any project information is not permitted to be sold to a third-party.

COSTS

There are both hard and soft costs to take into consideration when designing an air quality monitoring program. Monitor prices vary from manufactuer and will depend on both the monitor model and type.

Data Provider fees will vary in price depending on project scenario. In some instances, monitor manufacturers are equipped with recognized software inclusive with purchase of the monitoring device. Listed below is a range of pricing that reflects today's market.

HARD COSTS

Monitor Price Range

Monitor prices will varying depending on both monitor type as well as manufacturer. Listed below is a range of pricing that reflects today's market, however participants are expected to conduct their own pricing exercises to receive information for their region. Prices in USD ($).

* **Indoor: $200 - $1200**

* **In-duct: ~ $2000**

* **Outdoor: $3,400 - $8,500**

Data Provider Price Range

* **Per monitor, per year: $0 - $360**

SOFT COSTS

There are also soft costs to take into consideration:

* **Shipping and delivery costs** of monitors.

* **Installation fees:** may include hiring a contractor to install the monitors in your building, ensuring that there is proper cabling for both data and electrical connectivity.

* **Internet and connectivity fees**: WiFi costs and connecting to software/data provider (the one you use may charge a fee).

* **General upkeep costs** of monitors, maintenance and calibration.

SHARE YOUR AIR

One of the fundamental goals of Plant a Sensor is to increase universal access to accurate air quality data. To increase data quantity and worldwide participation, we encourage Plant a Sensor participants to communicate their engagement with this campaign. A series of graphics have been produced to raise awareness of the Plant a Sensor campaign that will be provided to all campaign participants for no cost.

The assets are available on the WorldGBC website for campaign participants to use for communication and marketing purposes. Assets may be downloaded and utilised in line with Participant Communication Guidelines.

See worldgbc.org/plant-a-sensor for more information.

PARTICIPANT COMMUNICATION GUIDELINES

- Participants may not use the WorldGBC logo, affiliated imagery or branding without the express permission of the WorldGBC. These permissions have been granted to Plant a Sensor supporters under the terms and conditions of supporter contractual agreement engaged with WorldGBC.

- Participants may not use the RESET logo, affiliated imagery or branding without the express permission of RESET.

- Participants may use provided social media assets for digital communications and marketing on all social and digital channels. For permissions about additional asset use (including printing) please contact WorldGBC.

- Participants may not adapt provided social media assets without express permission from WorldGBC.

- Participants may communicate directly with WorldGBC and RESET through social media channels to indicate participation in the Plant a Sensor campaign.

- Participants may not use the Earth Challenge 2020 title, logo, branding or imagery in any communications without the express permission of the Earth Day Network and/or associated partners.

- Participant data, if opted to disclose, will be available to view publicly on RESET Earth platform. Participants are at liberty to communicate this participation.

- Participants will be offered the opportunity to be listed as a 'Participating Organisation' on RESET Earth web page. The company name can be listed even if the data provided is anonymised, not disclosed or white-labelled. Company titles or logos of participating organisations will not be showcased on the WorldGBC website unless engaged as partner or campaign supporter.

MORE INFORMATION

World Green Building Council

- For more information about the WorldGBC Plant a Sensor initiative please see worldgbc.org/plant-a-sensor

- For more information about the WorldGBC Air Quality in the Built Environment campaign please see worldgbc.org/clean-air-buildings

- Please direct communication and participation queries to office@worldgbc.org

- To discuss supporter opportunities with WorldGBC please contact Catriona Brady, Head of Better Places for People at cbrady@worldgbc.org

RESET

- For more information about RESET please see reset.build

- Please direct queries to info@reset.build

Earth Challenge 2020

- For more information about Earth Challenge 2020 see earthchallenge2020.earthday.org/

Thank you for your support of Plant a Sensor

With thanks to our global partners

Global Campaign Partners

SAINT-GOBAIN

UL

Gold Campaign Supporters

we
The We Company

Tongdy

Silver Campaign Supporters

VERDEXTRA

NGO Campaign Partners

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

EARTH DAY NETWORK