

RENSAIR

— GUIDE

How to conduct a real-life IAQ trial

rensair.com



Many air purifier companies make wild claims about product performance, with no substantiation of merit.

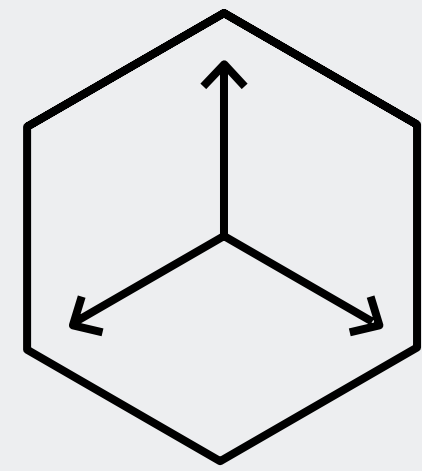
Since the purpose of air purification is to protect people from viruses, bacteria, allergens and air pollution, the issue of performance validation is critical. Buyers of air purifiers – whether for business or residential premises – should be encouraged to seek credible evidence of independent test results from recognised institutions.

Some manufacturers, like Rensair, have a series of authentic independent tests from leading scientific laboratories to back up performance claims. However, many people - including some renowned indoor air quality experts - are sceptical about the ability to replicate such lab results in a real-world environment.

At Rensair, we accept that view and are more than happy to put our units to the test. A recent independent real-world office trial demonstrated that the air quality on the premises was substantially better with the Rensair units switched on and almost 100% occupancy than with the Rensair units switched off and only 6% occupancy. We are confident that such results can be achieved in any real-world environment.

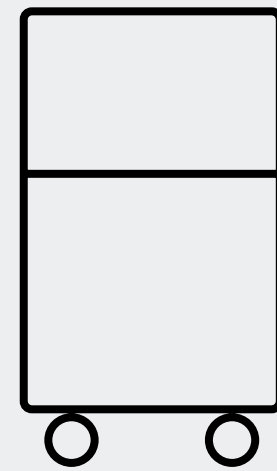
If independent validation is not sufficient to convince you, we encourage you to conduct your own trial. This paper is intended to provide guidance on how to ensure the validity and reliability of your trial results.

6-STEP TRIAL PROCESS



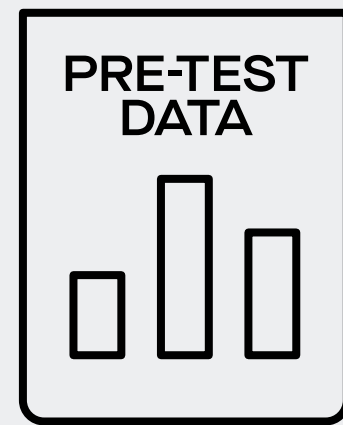
ONE

Select suitable
75-200m³
trial space



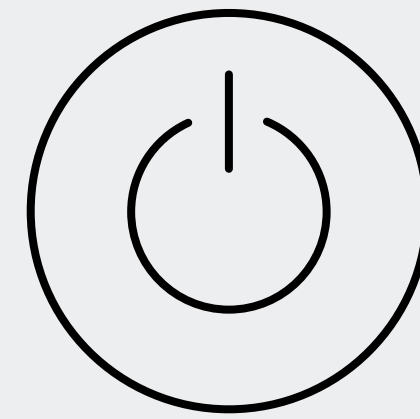
TWO

Install air purifiers
to meet 10 l/s/p
+ sensors



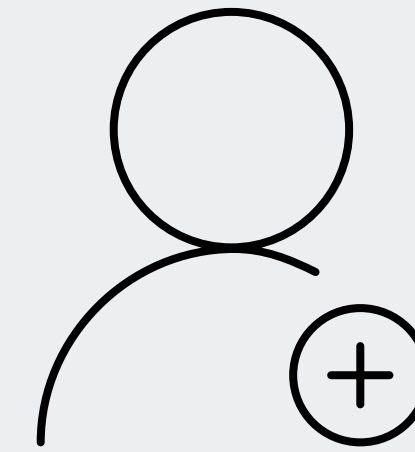
THREE

Conduct pre-test
to collect
baseline data



FOUR

Switch on air
purifiers and
commence trial



FIVE

Increase trial space
occupancy as the
only variable



SIX

Monitor dashboard
and take average
readings

— DO'S



OBJECTIVE:

Be clear about what you want to measure. Rensair's prime purpose is to remove fine PM2.5 and ultrafine PM1 airborne particulate matter, which includes viruses, bacteria, allergens, pollen, mould and vehicle emission particulates. The Rensair unit is not designed to capture VOCs or CO2, although the filter has a carbon surround that will to some extent absorb them.



ROOM SIZE:

Choose a location with a minimum room size of 20 cubic metres that represents a typical work environment. 75-200 cubic metres is ideal for a controlled and realistic test area.



AIR CHANGE RATE:

The WHO recommends to deliver 10 litres of fresh/purified air per second per person (l/s/p) in a space to mitigate pathogen risk. This is equal to 36 cubic metres per person per hour (m³/p/h), which should be the target air change requirement for a trial. As a rule of thumb, allow one Rensair unit per 10 people (see air change calculation method below).



VENTILATION:

Ideally run the trial with the HVAC system and any other climate control devices switched off. Rensair has independent data demonstrating that it works very well in conjunction with an HVAC system but outside air can bring in particles that can adversely impact the readings on the air quality sensors. Preferably, keep windows closed throughout.



PRE-TEST:

With HVAC switched off, start the trial with low occupancy to ensure employee safety and to collect baseline data for comparison with heavy occupation. Keep the Rensair units switched off.



TRIAL:

Switch the Rensair units on after the first week and run on the low setting to ensure consistent operation with no fluctuating airflow. Rensair will happily assist you in determining the best places to install the Rensair units and air quality sensors.



OCCUPANCY:

Occupancy levels can be staggered over several weeks, preferably ending with a high level to ascertain the impact of air purification under the most demanding conditions.



SENSORS:

Use an established brand of sensory equipment positioned at regular intervals around the trial site. The sensors should be wall mounted where they measure the ambient environment, ideally around breathing height.



READINGS:

Take average values, as there are many potential reasons for spikes to occur eg. during office cleaning.



ACCESS:

Grant Rensair access to the live monitoring dashboard so that we can follow progress, identify any unusual trends and contact you to take any appropriate corrective actions such as the removal of an unintended variable.



RECORD:

Keep an accurate recording of exact occupancy levels throughout the trial, both in terms of absolute numbers and the percentage of the total maximum occupancy rate for the designated area.



MAINTENANCE:

If the trial area is particularly dusty, the pre-filters on the Rensair units can be vacuumed periodically. Otherwise the units should be left alone.



HUMIDITY:

If possible, measure humidity levels as virus particles are more transmissible with lower levels of humidity in the office.



ADVICE:

Do refer to recognised laboratories for further advice on testing methodologies. Rensair can provide information from our experienced laboratory testing partners.

— DONT'S



ON AND OFF:

Do not switch the Rensair units on and off at irregular intervals. We recommend running them continuously or switching them off overnight.



HVAC:

Decide if you want the HVAC system to be used at any time during the trial. If you run it, make sure to run it consistently throughout the trial period to generate consistent data.



MOVE THE UNIT:

Do not move the positions of the Rensair units or sensors during the trial.



WINDOWS:

Do not open and close windows. If windows are opened, record the position and duration. Also record the location of the trial site eg. near a main road can bring in extra air pollutants.



FILTERS:

Do not use Rensair units that indicate the need for a replacement HEPA filter.



ACTIVITY:

Do not permit unusual activity during the trial, such as out of hours office refurbishment.

Next steps

At Renair, we appreciate the value of real-world trials and are keen to help, as we have the utmost confidence in our product. If you intend to conduct a trial, please get in touch. We can either arrange to loan our units or offer a special commercial package if you intend to retain them (subject to satisfaction with the trial results).

In return, all we ask is access to the resulting data and PR rights.

Call us on +44 (0)20 3973 8927
or email contact@rensair.com
to register your interest.

— APPENDIX

Example: air change calculation method

CLIENT REQUIREMENT

Room Area	93	m ²
Room Volume	208	m ³
Occupancy	7	people
Purification Requirement	36	m ³ per person per hour
Total Room Purification Requirement	252	m ³ per hour

RENSAIR SOLUTION

Number of Units	1	
Fan Setting	Low	
Purification Delivered	300	m ³ per hour
Delivered Air Changes per Hour	1.4	
Time Between Air Changes	42	Minutes

— APPENDIX

Example: trial space using Rensair air purifiers and Airthings sensors



RENSAIR

For more information

- TYPE

contact@rensair.com

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+44 (0)20 3973 8927

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Read about Rensair real-world trials: