



Indoor Air Quality Practical guide

2022



SODECA IAQ,
we treat the air you breathe

Indoor air quality. Practical guide, 2022

As is customary, the start of a new year **marks the start of a new phase**, in all areas and sectors. The year 2022 is **an opportunity to correct past mistakes and guarantee indoor environments are kept healthy and safe**. Enclosed spaces in the leisure and catering sector require suitable ventilation and air quality conditions beyond what is provided by ventilation. A substantial part of maintaining a good air quality depends on **properly filtering, disinfecting and purifying the air, but we should not stop here**.

To accomplish this, at SODECA's IAQ division we have drafted **a practical guide with recommendations** for maintaining environments with an optimum Indoor Air Quality (IAQ). Moreover, the recommendations provided in this guide can be applied in different sectors.



1. PRACTICE RESPONSIBLE OPTIMISM

Towards the end of August or beginning of September 2021, 70% of the Spanish and European population had been fully vaccinated against COVID-19. However, **herd immunity has not yet been reached** and, as of the end of August 2021, the data has not been encouraging enough. For example, on 31 August 2020, 58 people died in Spain as a result of COVID-19. On the same day in the year 2021, 194 people died. During the final stretch of 2021, global infection levels have begun increasing again, as the population longs to return to their normal social activities, hoping that being vaccinated will suffice to keep them safe.

Vaccines are preventing most deaths and hospitalisations associated with the pandemic but they do not prevent certain individuals from getting infected and spreading COVID-19 to someone else. People belonging to groups at risk: seniors, people with compromised immune systems, diabetics, people with serious illnesses or those that are not vaccinated, continue to have a very high risk of getting infected and of suffering severe complications from COVID-19. Moreover, children under the age of 12 have not been vaccinated yet, so the possibility of them getting infected and spreading it is very high if the proper measures are not put in place.

This way, although it is important to enjoy the progress we have made, we must not forget that the SARS-CoV-2 virus responsible for the COVID-19 pandemic continues spreading and is still harmful. Therefore, **in keeping with their social and corporate responsibility**, bars and restaurants as well as businesses in general must remain optimistic as well as responsible; otherwise, we may continue to make mistakes of such magnitude that would cause us to roll back our freedoms and disturb our peace of mind.



2. DO NOT FIGHT IN THE YEAR 2022 WITH WEAPONS FROM THE YEAR 2019

When the pandemic caught the world by surprise at the end of 2019, we did what we could with the information that was available at the time. Hospitals were on the brink of collapse and health authorities could not agree on the measures that needed to be implemented to stop the spread of the virus.

At first, direct contact between people and surfaces were determined to be the main ways in which COVID-19 was spread. Specific cleaning procedures were developed using authorised virucidal products and emphasis was placed on washing your hands, resulting in large amounts of hand sanitiser being distributed and sold.

Catering businesses, schools, office buildings, residences, gymnasiums as well as many other sectors prepared to return to normal activities with a society that was scared and confused after a long period of confinement. Many of these companies implemented COVID-19 protocols that had been developed by large certifying companies, who assured them that by applying the established guidelines, indoor environments would be turned into “safe spaces”. These protocols were (and are) based primarily on disinfecting surfaces and physical elements, the use of masks and maintaining social distancing.

Almost two years after the onset of COVID-19, we now have a lot more knowledge about the disease. We know how it enters the body, the factors that help it reproduce and above all, the main ways in which it spreads.

Now we know that the virus is primarily transmitted through aerosol particles that are capable of remaining suspended in the air inside enclosed spaces for long periods of time. It is, therefore, a very similar mechanism to that presented the common cold and the flu. Transmission can also occur through direct contact but in a much lower percentage than aerial transmission.

Even though this knowledge has been firmly established in society, most businesses still have antiquated cleaning procedures and “safe space” stickers issued by certification companies that granted them using outdated protocols, given the current situation. Of course, cleaning and disinfecting surfaces must be a priority today and always, but **the attention of companies and consumers must always be focused on ventilation and fully treating indoor air.**

The battle in 2022 and beyond will be waged in the air, using ventilation, filtration and disinfection and not so much with hand sanitiser, disinfecting carpets and chemical cleaning products.



3. NATURAL VENTILATION IS NOT THE SOLUTION

In September of 2020, when all the scientific data indicated that airborne transmission was the primary way in which COVID-19 spread, the Spanish Ministry of Health stated that natural ventilation was the preferred option to fight the pandemic. The objective was to constantly renew the air inside building, replacing the stale internal air with fresh air. But, at what cost?

This statement instilled a false sense of security in society and the belief that natural air was best to prevent the spread. The statement ignored that, especially in highly populated urban areas, **outdoor air can be as or even more contaminated than the air inside enclosed spaces**. Outdoor contaminants are different than those found indoors: nitrous oxides, suspended particles of industrial origin and the chemical compounds associated with transportation are predominant in outdoor air. Daily contact with these contaminants may cause severe respiratory ailments, headaches and even impair the pulmonary and cognitive development of children.

In addition to the health problems associated with natural ventilation, opening windows to ventilate spaces had a **very severe impact on the energy efficiency of buildings and on the thermal comfort its users**. The images we saw in the past of children wearing winter coats and shivering from the cold while at school must not be repeated, nor those of customers in outdoor dining areas of bars and restaurants despite the bad weather. Also, the increase in the price of electricity and natural gas underscores the need to **invest in mechanical ventilation technologies that increase energy efficiency and saves in the electricity bill**.

The installation of **heat recovery units** must become the main tool **for fighting the pandemic, improve the air we breathe, increase energy efficiency and save money each month**. These units are the latest state of the art in traditional mechanical ventilation. In addition to ventilating, filtering and disinfecting the air indoors, these devices allow recovering a large part of the heat that is generated inside buildings and use it to improve the heating process. Also worth mentioning is that **the installation of these units is mandatory** in buildings or spaces that expel more than 0.28 m³/s (1,008 m³/h) of air to the exterior, as per the latest revision of the Regulation for Thermal Installations in Buildings (RITE is the Spanish acronym).



4. LEARN MORE AND DECIDE WHICH IS THE BEST SOLUTION. NOT EVERYTHING IS ACCEPTABLE

When choosing a solution for treating the air inside a premise, many factors should be considered: the concentration of contaminants inside, the microbiological risk factors, the maximum occupancy, the activity that is going to be carried out, whether or not mechanical ventilation is available and for example, if the premise is your own or leased. Only by knowing all these factors can we design a strategy for effectively treating indoor air that does not overestimate nor underestimate the risk.

For this reason it is very important to **trust companies and professionals that apply the proper protocols** when proposing the proper treatment solution.

- ✓ Firstly, **it is essential for a proper monitoring to be carried out of the space to be treated**, for the purpose of finding out the concentration of the main contaminants that are present in indoor environments and associate these values to deficiencies present in the pre-existing air treatment systems (or the absence thereof).
- ✓ Secondly, we must **not trust devices that claim to treat all contaminants using a single technology**. The separate use of ventilation, HEPA filters or UVc lamps alone cannot guarantee the indoor air will be fully treated.

Therefore, the treatment of air inside premises and buildings must be based on an analysis and monitoring of the quality of the air and a proposal including specific, specialised and hybrid solutions that properly combine ventilation, filtration and disinfection technologies.



5. THE IMPORTANCE OF IAQ GOES BEYOND THE PANDEMIC

A poor indoor air quality is related to multiple health problems: from headaches, dry eyes and discomfort in the throat, to pulmonary and cardiovascular diseases. Poor air quality has also been unequivocally related with poor performance. Before the pandemic, these problems were already affecting thousands of people that lived, worked or studied inside buildings with air treatment systems that are deficient or non-existing.

Thus, there are many unhealthy buildings as well as health illnesses associated with these spaces grouped under the term **Sick Building Syndrome (SBS)**. These are environments with at least **25% of its occupants suffering from an illness and symptoms associated with poor indoor air quality**. These symptoms commonly occur with more frequency in new or newly remodelled buildings. Some materials like silicone and certain plastics are responsible for emitting Volatile organic compounds (VOCs). These emissions may be present for months and even years and cause serious health problems if the air ventilation and treatment system is not properly designed. Torre Agbar in Barcelona or the Telefónica building in Madrid are examples of buildings that have been related with SBS in recent years.

Occurrences such as school absenteeism, lost work days, lack of concentration or low performance are caused, among other things, by poor indoor air quality. For this reason, **treating indoor air is paramount regardless of the current pandemic and should be considered an issue of maximum priority**.