

# Satisfied guests thanks to healthy indoor air

Humidification and dehumidification for hotels, resorts, spas  
gyms, hot yoga, steam baths and wellness



## Humidification Control for Hospitality

Humidification, Dehumidification and Evaporative Cooling



# Feel the difference with healthy and comfortable humidity

The moisture content of the air surrounding you has a measurable influence on your mood, health and your ability to concentrate. You can feel the benefits of a balanced humidity level for your body during a forest run or a walk on the beach.

It has been medically proven that a temperature of **68 to 75°F (20 to 25°C)** and a relative humidity of **40 to 60% RH** is the optimum range of comfort and health.



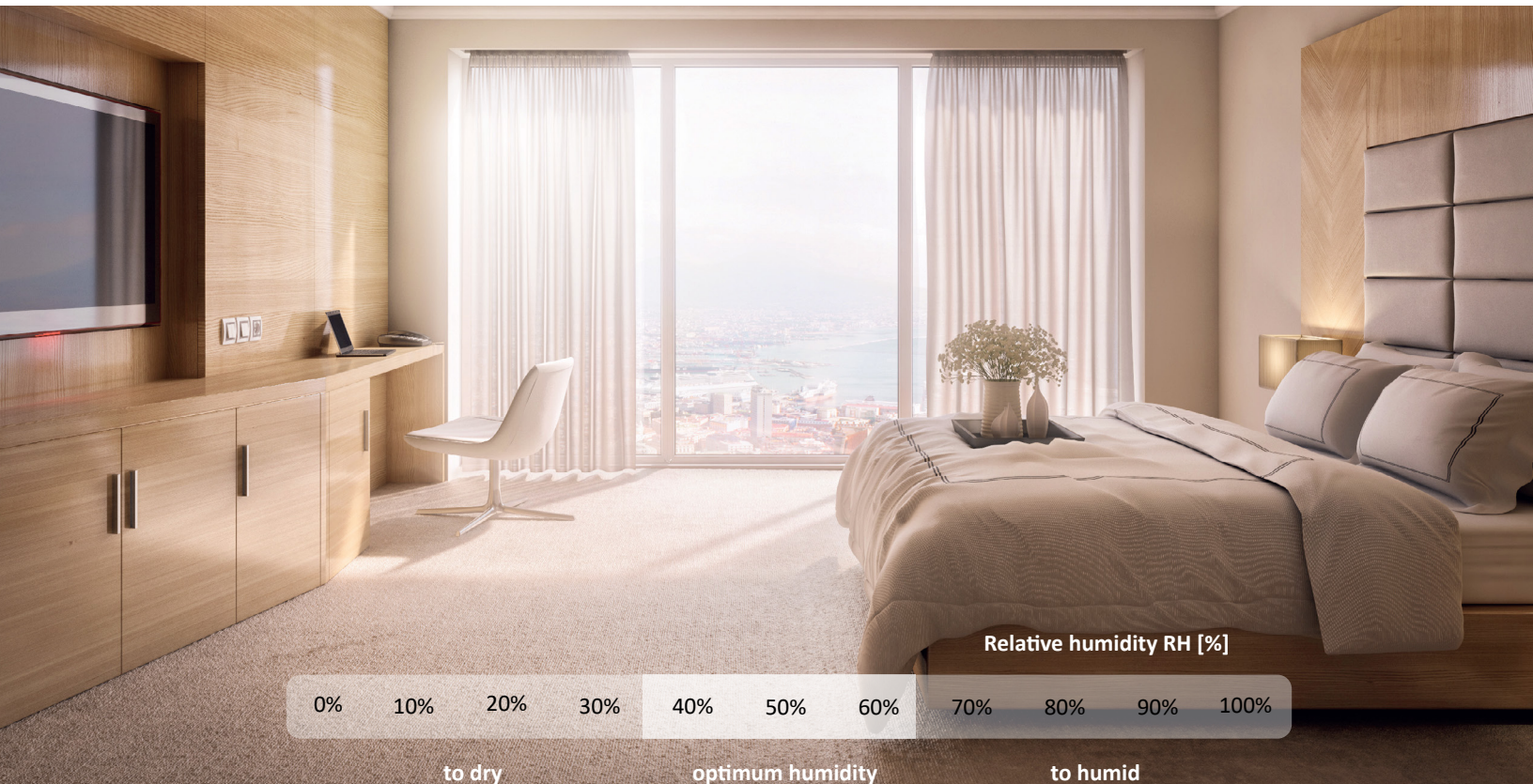
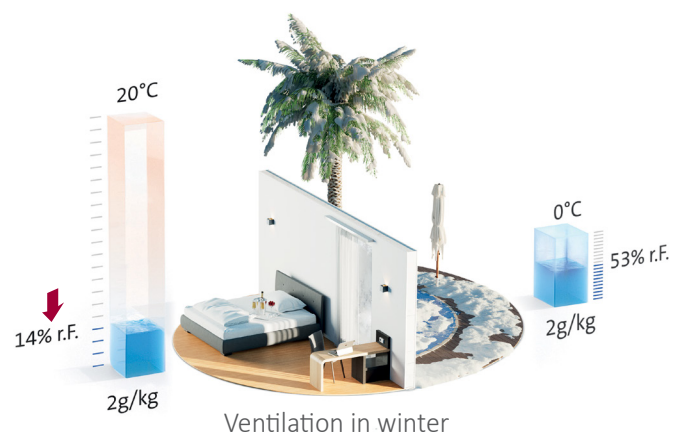
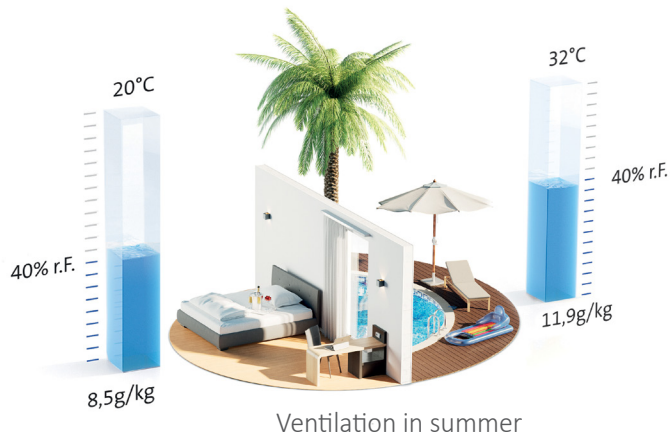
# Dry Air in the Winter

Cold air absorbs much less water than warm air. Therefore, in the summer it is much more humid and overall more comfortable. In winter, however, the air contains very little water and the air indoors becomes dry when heated.

The most meaningful indicator of the current humidity state of the air is the Relative Humidity [RH]. This value indicates in percent how far the humidity is from the maximum saturation (100%).

A value in the range of 40–60% RH is considered optimal both for human health and for hygroscopic materials (paper, wood, leather, etc.). In the winter, cold dry air enters our houses through ventilation, where it is heated.

The value of relative humidity drops rapidly and the already dry air becomes even drier.



40-60% RH



# BENEFITS OF HUMIDIFICATION CONTROL

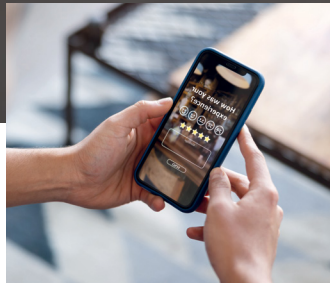


## HAPPY GUESTS

Owners, managers and operators of hotels, spas and resorts are concerned about the well-being of their guests around the clock. Accordingly, they are always looking to expand and improve their range of services to make their stay as pleasant as possible.

This applies not only to the guest rooms but also to the hospitality, conference rooms and other common areas.

A consistent and comfortable pleasant air humidity is an important factor for the overall physical well-being and also for the mood of the guests during their stay.



## INCREASE IN ROI

Evaporation occurs when liquid water is introduced directly into the air. Evaporation is an adiabatic process, which means that the energy required to convert the liquid water into a vapor comes directly from the air. As the water evaporates it draws energy from the air which results in cooling of the air as well as humidification.

With evaporative systems, water is dispersed over evaporator media while air flows simultaneously through the media, becoming enriched with moisture. This simple principle has a major operating cost advantage, particularly when the cooling effect is beneficial to the building.



## REDUCE ABSENTEEISM

Atomization also works based on the adiabatic principle. Fine water droplets are released to the surrounding air using mechanical atomizers or nozzles.

In addition to humidification, high-pressure air humidification systems can also be used for cooling purposes in areas where a lot of heat is generated.



## HEALTHY SLEEP

Hybrid humidification systems combine the advantages of both adiabatic processes (evaporation and atomization) in a single system. Hybrid systems are characterized by a very high degree of efficiency and low energy consumption, which makes them attractive for use in large buildings.



## DRY EYES

A precondition for long-term, failure free and hygienic operation of a humidification system is the quality of the water used. Consequently, it is important for the water treatment to work perfectly in line with the humidification system.

With our range of water softeners, desalination systems and systems for complete water purification through reverse osmosis, we can provide solutions that meet all needs and requirements.



## FLOORING AND FURNITURE

Using advanced silica-gel desiccant rotors, our dehumidification products rely on the principle of adsorption to dry the air. Silica gel adsorbs water molecules as air passes over it making the air more dry. The water molecules are later released into an exhaust air stream through a high temperature regeneration process which restores the drying capability of the silica gel.

These dehumidification systems can be used in a wide variety of commercial and industrial drying applications, and are especially suitable for applications where very low dew-points are desired.

# How Allergies Vanish Into Thin Air

From a medical point of view, dust is the most common cause of allergies. Anyone who is allergic to dust reacts to either mite constituents or animal allergens with complaints such as sneezing, eye irritations or asthma.

Together with pollen, allergy sufferers, experience symptoms when exposed to airborne, allergy-triggering substances, known as allergens.

## Why does a balanced humidity level help against suspended particles?

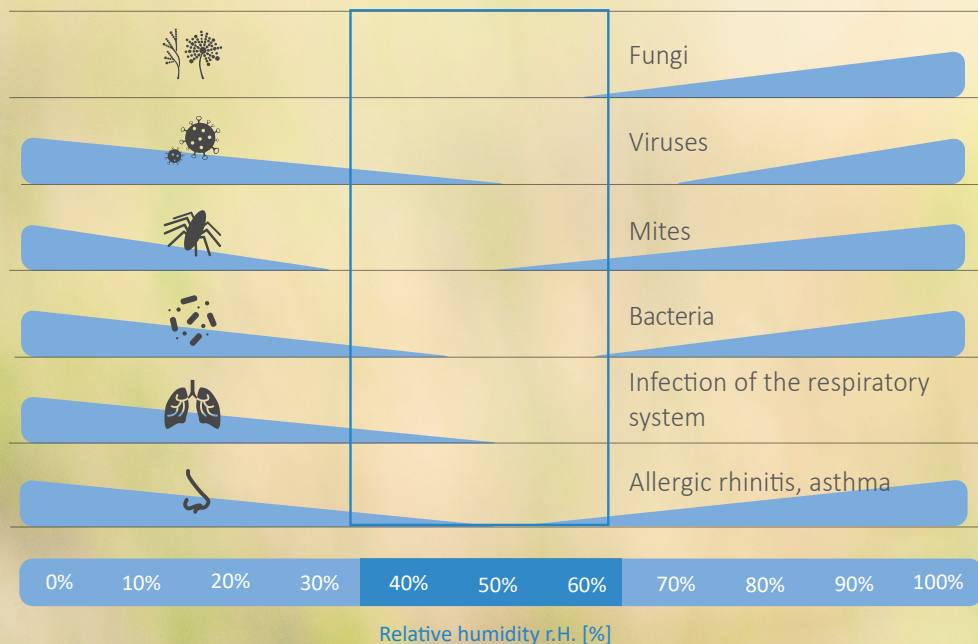
Air humidity plays a major role in the extent of dust turbulence. Experiments show that the adhesion of moistened dust to smooth floor surfaces increases dramatically above approximately 40% RH.

In this area, the weight of dust particles also increase drastically due to water condensation. The allergenic substances stick together, form clusters, and fall to the floor more quickly. On the other hand, the risks of mold problems increase above 60%.

The optimal humidity range for minimizing allergy complaints is therefore between 40 and 60% RH.

The Scofield/Sterling diagram illustrates very clearly that the contamination of the air by undesirable microorganisms is lowest in the range of 40–60% RH.

Scofield-/Sterling-Diagram









Ensuring particles and contagions remain airborne for as little time as possible is crucial to minimizing the spread of illnesses and infections; especially when it comes to large occupancy areas.



Maintaining proper humidity levels can improve the well-being and performance of employees as well as increase ROI of your business.

## Optimal Humidity for Hotel Guests

As a hotel owner or manager, you know that guest comfort is a top priority. However, one factor that is often overlooked is the indoor climate. Dry air can cause unpleasant symptoms for guests, including a scratchy throat and dry eyes, while stale air can make guests uncomfortable and create unpleasant odors. This can make it difficult for guests to sleep well, which can negatively impact their overall experience.

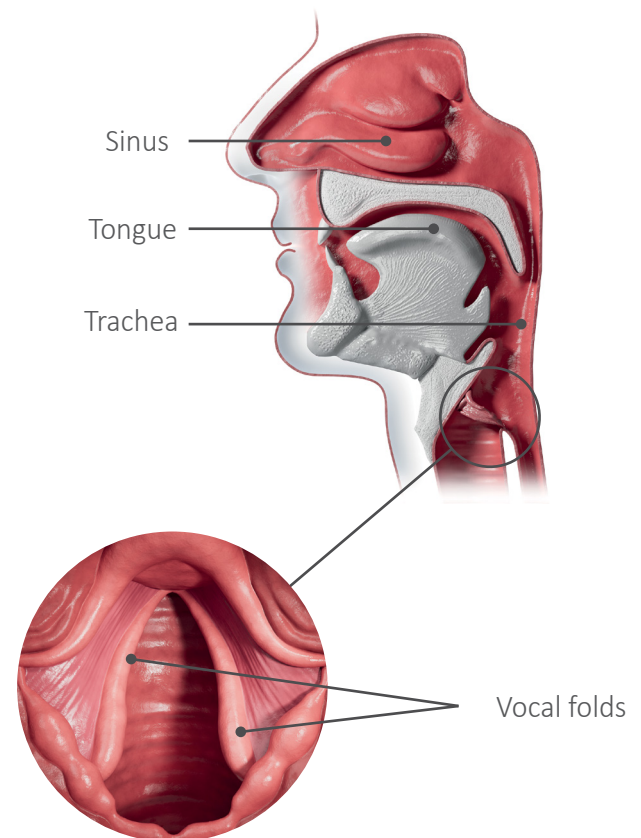
In fact, 50% of all hotel reviews relate to poor indoor climate and poor reviews can lead to fewer bookings. Fortunately, improving the indoor climate through actively controlled humidification can be a simple and effective solution.

## The Ideal Environment for Conferences and Networking

A good room climate with actively controlled humidity is important for congress and meeting rooms. Especially for speakers or presenters, because if the humidity is too low, the throat becomes dry and the voice fails.

An adult human breathes in and out an average of 12 times a minute. Our airways are equipped with mucous membranes that filter and warm the air before it enters the lungs. But when the air is very dry, our mucous membranes release moisture into it so that it can enter the lungs moistened.

However, the moisture also escapes from our body when we exhale. So then, there is less and less moisture mucous membranes, which causes coughing and hoarseness is promoted.



For the well-being of the participants and a pleasant networking atmosphere, an optimal air humidity is the ideal prerequisite. Another advantage is that conference participants remain healthy even after several days in the same room with other participants. This is because healthy air humidity minimizes the transmission of viruses and strengthens the immune system in a natural way.



Taking a steam bath, hammam, caldarium or a steam shower has a positive effect on our health, it eases rheumatic pains and tension.



Low humidity levels in hotels can significantly increase the risk of transmission of viruses. When humidity is low, aerosols containing viruses remain airborne longer, increasing the chances of guests inhaling the virus.

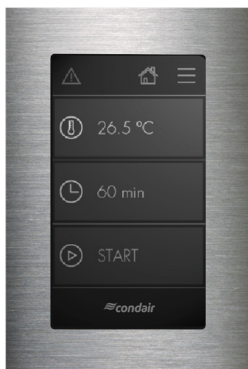
## Optimal Humidity for Spas

Spa guests expect temperature and humidity to be at a healthy and comfortable level. The right relative humidity during the heating season improves the well-being of your guests. Relative humidity between 40 and 60% means a healthy and comfortable indoor climate.

During the winter heating season, the relative humidity is often below 30%. However, low humidity affects the health and well-being of your guests. Without air humidification, the susceptibility to diseases is significantly increased. The reason: aerosols containing viruses remain in the air longer at low humidity, which significantly increases the risk of transmission. Dry nose, throat and skin reduce the body's natural resistance.

Temperature and humidity also play an important role in massage rooms, and beauty salons to ensure your customers are comfortable.

Heated, dry air draws moisture from human skin and hair like a sponge. The result: skin itches, eyes sting, headaches develop and guests are tired instead of relaxed.



**Figure 1: Device Control via Touch Display**

## Steam Bath Systems from Condair

Many hotels and health clubs offer spa facilities for the well-being of their guests and members: A swimming pool, a sauna, and increasingly even a steam bath or steam shower. A steam room takes up hardly any more space than a shower, and Condair steam generators can be adapted to your exact needs in terms of power and equipment. In addition, Condair supplies a whole system of steam-generating components suitable for use in installations of all kinds, including full-scale spas.

At the push of a button, steam generation can be started and the cabin heated up. The steam can be seen and felt through the fresh air circulating in the room. The autosensitive control system adjusts the temperature to the set point entered, increasing or decreasing steam production accordingly without the bather being aware of it.

The Condair Spa Control is a flexibly designed touch display (figure 1) for the control of one, several or the parallel control of several cabins. It offers the possibility to control not only the steam bath generator but also various accessories such as light, fragrance, fan, seat heating and additional relays. The customer's logo can be individually uploaded to the display and an innovative "Keep-warm function" helps to to save energy.



Water makes up about 60% of the human body. Maintaining this level of moisture is crucial to our health and well-being as nearly every major system in our body relies on water to function properly.

Condair humidifiers respond quickly to these changes while maintaining the relative humidity set point.

## Optimal Humidity for Fitness Centres

Proper humidity can ease breathing and relieve symptoms of asthma and other respiratory diseases. Dry air can cause mucous membrane irritation and coughing. If the air is too dry, it can draw moisture from the body and cause dehydration and discomfort. This can cause muscles to fatigue more quickly and decrease performance in the gym.

With the optimal relative humidity (40-60%), you will provide your visitors with perfect training conditions, which will lead to faster fitness build-up and more satisfaction among your customers.

Lack of humidity is probably the most common cause of member complaints, yet many studios continue to use simple portable humidifiers that simply do not meet the needs of a workout room. This is because dry air promotes the transmission of diseases, especially respiratory infections.

It has been proven that the intensity of sports in the gym influences the risk of infection. Those using the facilities appreciate that, in addition to maintaining the highest standards of hygiene, active measures are taken to keep them not only fit but also healthy.

## The Ideal Environment for Hot Yoga

After installing a Condair humidifier in your hot yoga studio, you will notice the difference almost immediately. Condair humidifiers are ideal for changing environments like yoga studios, where each student's body generates heat and humidity. They respond quickly to these changes while maintaining the relative humidity set point. This helps students break a sweat immediately so their muscles can relax and they can practice without injury.

For many Condair customers, just having a system they can rely on makes all the difference. They report fewer breakdowns and maintenance problems with Condair humidifiers, which are known for their outstanding quality and customer service.

And they love the fact that they can turn on the Condair unit just 30 minutes before class to get the room to the right humidity level.

Whether hundreds or thousands of customers come through your doors each month, optimal humidity is key to securing new and repeat business.





Humidity is important in senior living facilities and retirement homes because it can help promote the health and comfort of the residents.



Common viruses, such as influenza, can't transmit as well in moist air. Keeping a humidity level above 40%RH will significantly reduce your risk of getting infected. Your immune system is weakened in a dry environment.

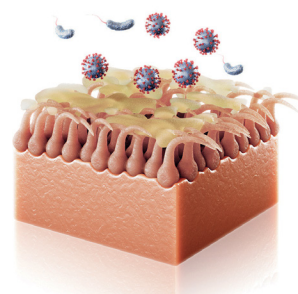
## Healthy Humidity for Care Centres

Nursing facilities of all types play a critical role in maintaining the health and well-being of patients. To ensure a faster recovery of patients and a safe and healthy working environment for staff, it is important to provide a comfortable and healthy indoor climate. Here, optimal humidity plays a crucial role, as it curbs the spread of germs and bacteria.

Improperly hydrated indoor air has serious effects on well-being and health. A 2018 study of indoor humidity in a geriatric care facility clearly showed that respiratory (bacterial and viral), gastrointestinal (e.g., norovirus), and eye infection rates were lowest when indoor relative humidity was 40-60%.

Classic effects of too high or too low humidity are: Fatigue, lack of concentration, headaches, burning eyes and irritation of the respiratory tract. Humidity is of particular importance for the functioning of the immune defense in the nasal mucous membranes, because the drier the nasal mucosa, the more susceptible the body becomes to bacteria, viruses and pathogens.

In summary, humidification is an essential part of maintaining a healthy and comfortable indoor environment and should be considered at the design stage of new buildings. By promoting wellness, speeding patient recovery, and providing a safe working environment for employees, humidification is an important investment for any healthcare center.



Dry cilia allow germs to penetrate



Moist cilia bind and filter germs

# Dehumidification for Swimming Pools

A high degree of water evaporation in indoor pools and, especially in combination with the high ambient temperatures, leads to enormous humidities and an unpleasant feeling of being oppressively hot. For those using the swimming pool, these climatic conditions not only detract from personal well-being, but also pose a serious risk to the health of visitors and swimming pool staff in the form of circulatory problems. The damp air provides germs and bacteria with the perfect breeding ground. Given the bathing guests' light clothing, these can very quickly get into contact with human skin and, in the worst case, cause infections or diseases.

Alongside the potential health hazards, warm humid air also has an impact on the structural elements of the building. In so-called "cold spots" in particular, such as glass surfaces, metallic components, or exterior walls, the evaporated water condenses and can lead to the formation of mold and corrosion over longer periods. The resulting damage leads to shorter maintenance and repair cycles of the building's infrastructure, entailing operating interruptions and therefore, and above all, higher costs. Operators of swimming pools should therefore insist on a contemporary dehumidification system being installed.

The simplest version is supposed to be intuitive ventilation of the indoor swimming pool using windows and doors or by means of ventilation. However, it is just as expensive as intuitive ventilation of living spaces during a heating period (e.g. in the form of a permanently open window). The dilemma is that significant energy is expended to bring the air fed from the outside to the temperature required inside.

Condair's dehumidification systems, developed especially for use in swimming pools, by comparison, work significantly more efficiently and sustainably. Available in a variety of capacities and comfort levels, their technology is based on a cooling circuit, in which a compressor compresses the refrigerant within and is throttling expanded on a Valve.

The advantage is that with this technology, dehumidification and tempering operations are carried out up to 60 percent more economically compared with conventional systems working with outdoor and exhaust.



Preventing mold, rust or damage to the building



A comfortable ambient atmosphere instead of unpleasant sticky heat



Secure, dry running surfaces







# Everything from a single source: From professional planning to carefree maintenance.

Leading hospitality companies around the world put their trusted in Condair to keep their facilities healthy and comfortable for guests and employees.

Condair will stand by you in all phases of your project from planning to installation and startup. With a broad product and service portfolio we can help you find a suitable solution.

How must the system be to meet the specific requirement profile on site? Which technologies make the most sense for this requirement profile for air humidification (adiabatic, isothermal) or for dehumidification (adsorption, condensation)? And how should the system be set up to keep operating costs as low as possible?

In order to get precise answers to questions about scope, technical equipment and cost-efficiency, appropriate experts should be consulted early in the planning process.

Our experts have extensive expertise in the areas of humidification and dehumidification, adiabatic cooling and water treatment. They support you in adapting the required systems precisely to the required conditions size and adjust.

Our employees always pay attention to identifying and demonstrating the most energy-efficient and therefore economically most sensible solution.

Our specialist consultants are always on site quickly and will be happy to help you as early as the planning phase, because professional planning is always the basis for flawless, safe and energy-efficient operation.

# Condair Product Solutions

## ISOTHERMAL HUMIDIFICATION (VAPORIZATION)



### Electrode steam humidifiers

Clean steam technology with a reliable design and touch screen controller.



### OEM consoles

Ideal solution for air handling equipment.



### Resistive steam humidifiers

Accurate, clean atmosphere steam with scale management.



### Gas-fired steam humidifiers

Pure, clean atmospheric steam with energy efficient operation.



### Pressurized steam distribution systems

Reliable humidity from the facility steam boiler.



### Atmospheric steam distributors

Clean steam, precisely controlled, uniformly into the air.

## DEHUMIDIFICATION / DESICCANT DRYERS



### Desiccant Dehumidifier

Designed to be used especially when an extremely low relative humidity of 10 - 20% RH is needed, such as in industrial drying processes.

## EVAPORATIVE COOLING AND ADIABATIC HUMIDIFICATION (EVAPORATION AND ATOMIZING)



### Surface evaporators/ Evaporative coolers

Efficient solution to provide humidification and cooling while reducing building energy usage.



### Hybrid humidifiers

Benefit from the advantages of atomization and evaporation.



### High-pressure nozzles

Low energy, precise, customizable modular design.



### Compressed air nozzles

Accurate humidity control with directional spray aerosols.



### Mobile comfort evaporators

Portable solution that is easy to adapt to many applications.

## CONDAIR HUMILIFE



### Whole-home Steam Humidifier

Condair HumiLife steam humidifiers generate hygienic, atmospheric steam by boiling water at 212°F (100°C).



### Whole-home Flexible Room Solution

A standalone residential humidification system with powerful features and benefits for modern, comfortable living



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