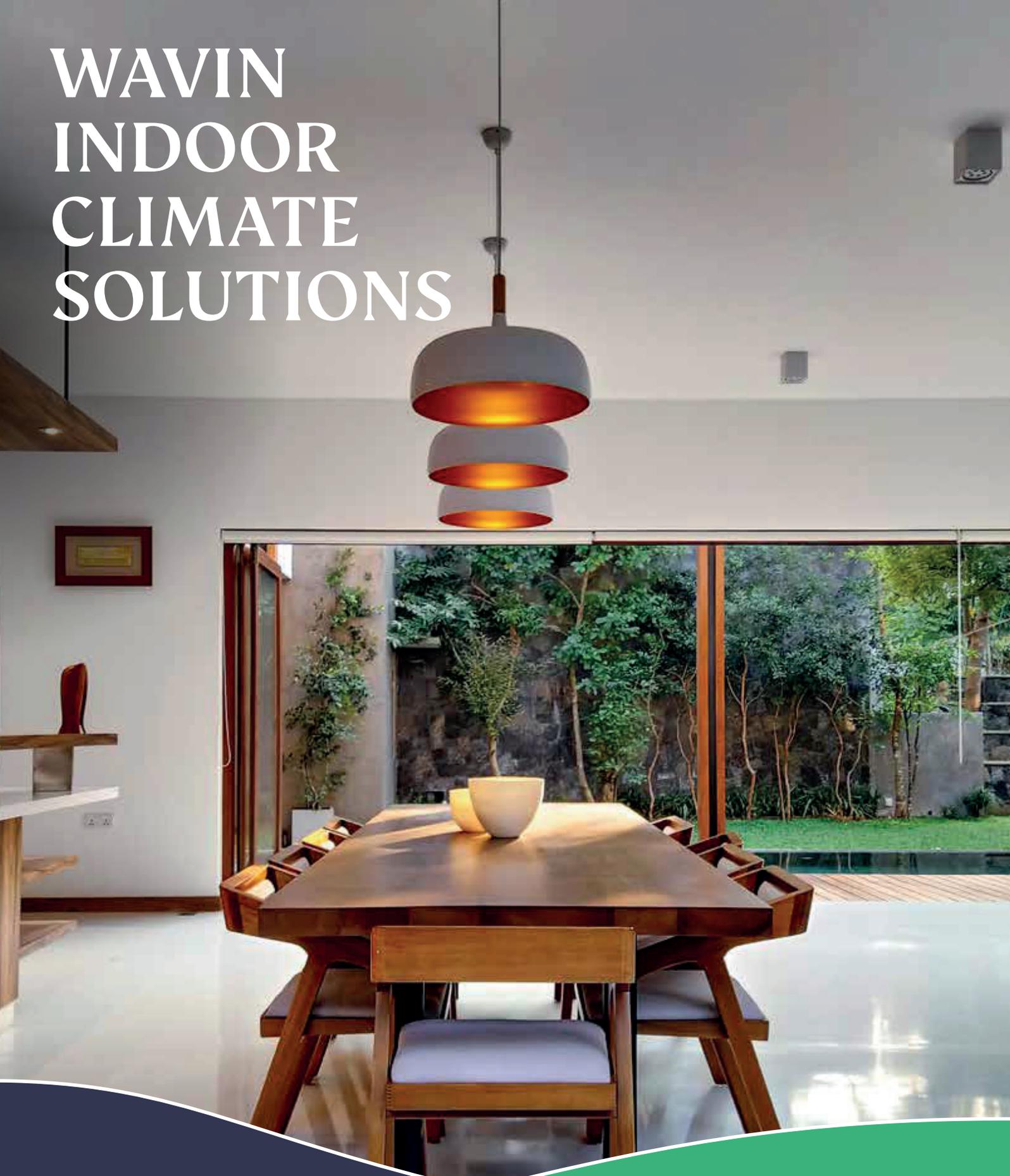


WAVIN INDOOR CLIMATE SOLUTIONS



An Orbia business.



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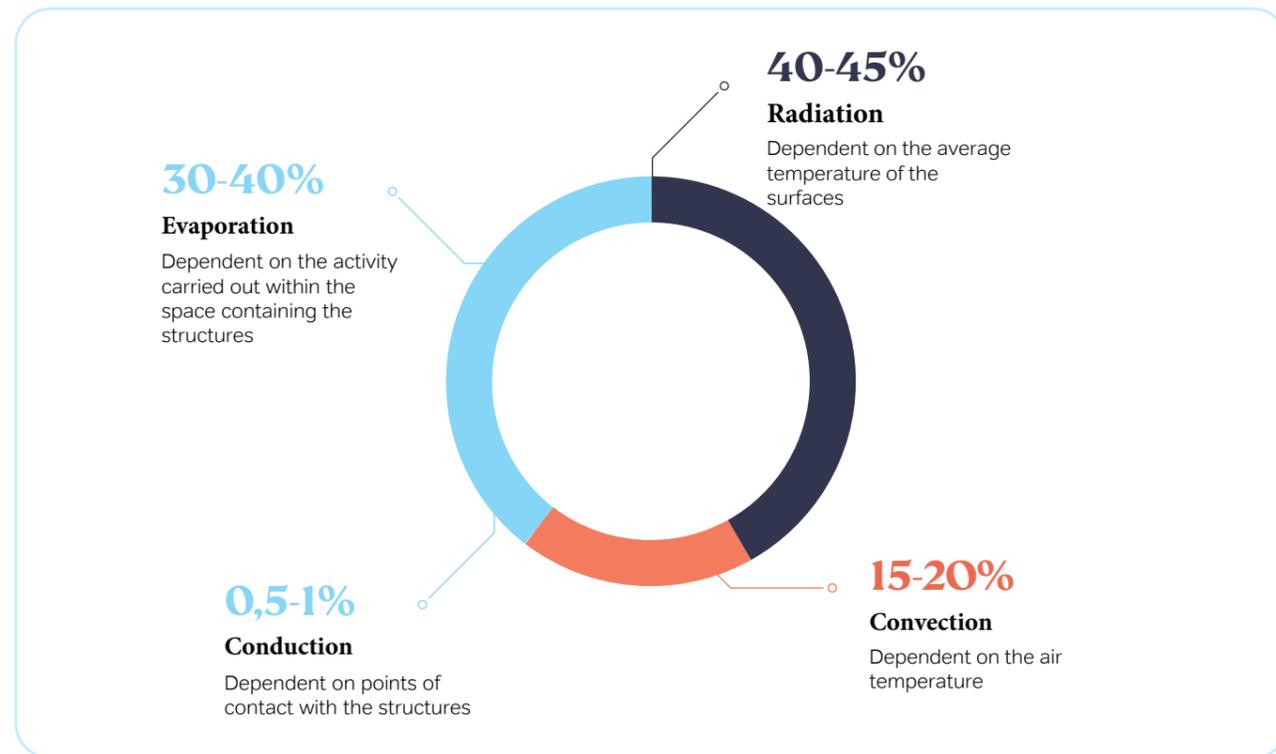


What factors play a part in climate comfort?

Several elements affect the level of comfort that we feel in indoor environments, particularly in our homes. **Excessive humidity, overly high or low temperature, and dry or stale air** are the main threats to our well-being.

Comfort is a question of energy exchange

At a **comfortable temperature and humidity level** inside a room, our body feels a particular sense of well-being, which is dictated by the temperature and quality of the air. This feeling of well-being is achieved **when our body exchanges heat with the surrounding environment in the right proportions.**



All you need to know about climate comfort

Insulated buildings are more efficient, but pollutants build up

Nowadays, buildings are designed to be increasingly efficient when it comes to energy consumption. Our homes are therefore more insulated and sealed than ever before. However, this approach does come with downsides: since air isn't circulating, the pollutants that normally build up in a house are trapped inside the dwelling's walls, jeopardising the health of the building and its occupants.

There are two fundamental types of energy exchange between our body and the environment: physical and environmental.

The physical parameters include

- metabolism, measured in METs, which depends on the type of physical activity the person is doing
- the type of clothing, measured in CLOs, which varies based on the intended use of the space, the role of the person, and the type of activity carried out

The environmental parameters include

- the relative humidity of the environment, measured in %
- the air velocity, measured in m/s
- the air temperature, measured in °C
- the mean radiant temperature in °C



Did you know?

- We spend between 70% and 90% of our time indoors
- According to the WHO, it is our fundamental right to breathe clean air in indoor environments
- Working in a clean and comfortable environment increases productivity by 8%
- Buildings are responsible for 40% of energy consumption
- Asthma and lung conditions cost 96 billion euros (around 83 million pounds) a year in the EU alone

More efficient comfort: the benefits for buildings and people

The UK's climate and energy targets

The combination of radiant heating and cooling systems, mechanical ventilation, and dehumidification ensures the correct balance between the factors that determine comfort indoors: air quality, humidity, and temperature.

However, comfortable living conditions must also meet the energy efficiency requirements set out by the legislator through various regulations, starting with the so-called "Climate & Energy Package". The UK government's Net Zero strategy set ambitious targets for energy efficiency, the reduction of CO₂, and the spread of renewable sources.

The key targets of the 2030 Framework are:

-68%
Cut in greenhouse gas emissions from 1990 levels

-15%
Reduction in energy consumption in buildings and industry

95%
Low carbon electricity mix



Comfort is designed hand-in-hand with efficiency

When designing new buildings or renovation projects, the challenge is to identify the most suitable technical solutions to guarantee **optimum levels of comfort**. At the same time, we need to ensure that these systems are **efficient, both economically and in terms of energy usage**.

This is where smart control and facilities management systems come into play. These systems allow users to set the correct levels of comfort and energy efficiency, with subsequent benefits when it comes to health, energy saving and reduced costs.

The benefits for buildings

When energy efficiency improvement works are carried out on a building, cutting it off completely from the outside world by means of airtight window fixtures and insulated shells, the building no longer "breathes", with serious consequences for the structure and its occupants.

In these scenarios, mechanical ventilation systems are essential: they allow **air to circulate continually and autonomously**, reducing excess humidity and **preventing the formation of surface condensation and mould**.

Thanks to mechanical ventilation, the building therefore remains "healthy" over the years.

The economic & environmental benefits

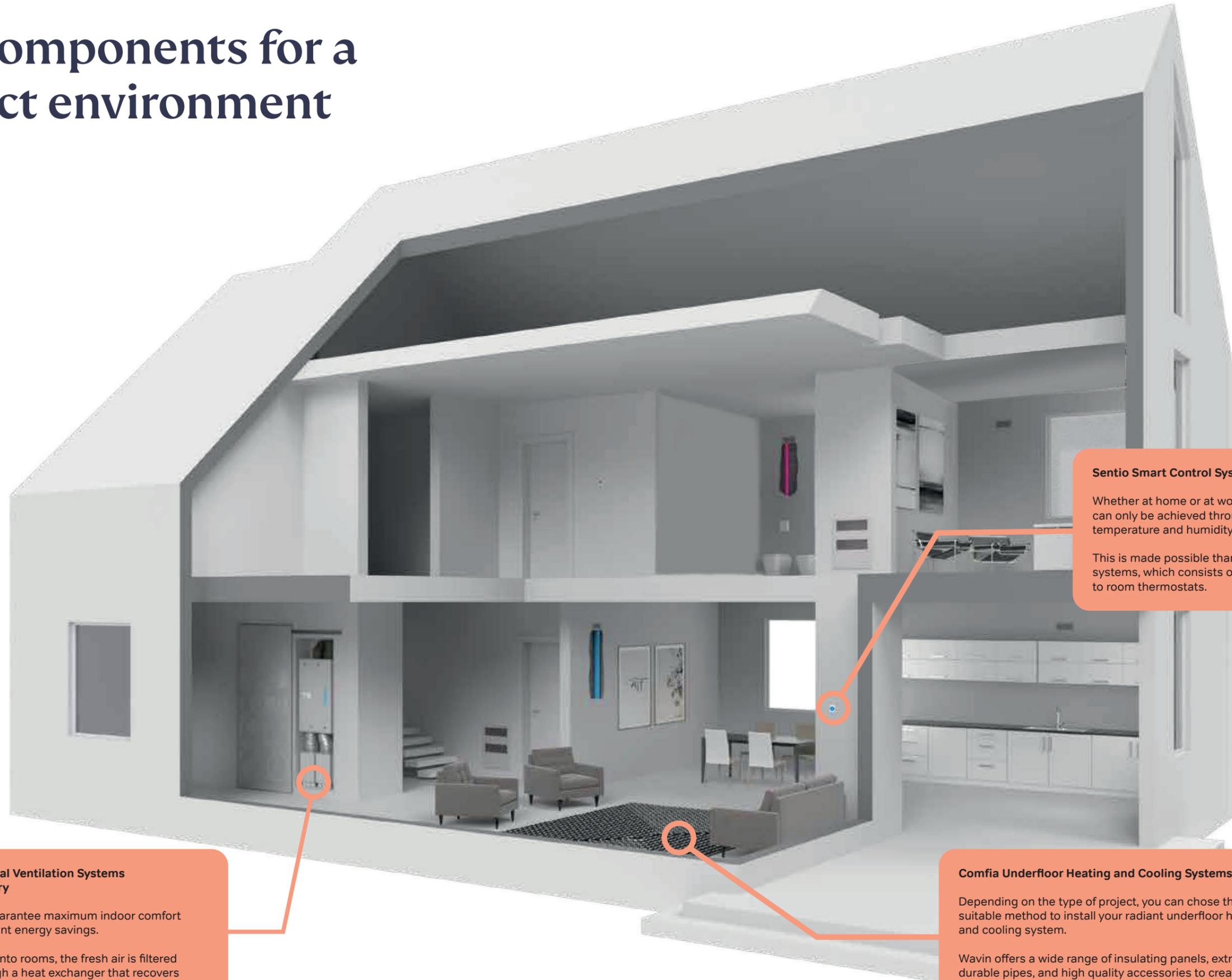
Radiant systems, such as underfloor heating, allow for a more efficient heat generator thanks to lower temperatures when heating and higher temperatures when cooling. In addition, the more uniform distribution of heat enables a reduction of 2 degrees Celsius in the ambient temperature which, translates into a saving of up to 10% on energy costs.

The benefits for people

Mechanical ventilation guarantees filtered air at all times.

- **It gets rid of the polluting substances** produced by materials and people (for example: CO, CO₂, paints, glues, sprays, perfumes, etc.), unpleasant odours and stale air.
- **It prevents allergy breakouts:** pollen, spores and dust are trapped in the filters; dust floating in rooms is sucked in and expelled outside.
- **It avoids draughts** caused by opening windows and inconveniences from the outside world: noise, traffic, insects, etc.
- **It stops the build-up of mould.**
- Radiant systems allow heat to be distributed uniformly and **limit the presence of dust and house dust mites** in the space by reducing air convection currents.

The components for a perfect environment



Sentio Smart Control System

Whether at home or at work, optimum indoor comfort can only be achieved through proper control of the temperature and humidity.

This is made possible thanks to Wavin's Sentio control systems, which consists of control panels connected to room thermostats.

Ventiza Mechanical Ventilation Systems with Heat Recovery

MVHR systems guarantee maximum indoor comfort as well as significant energy savings.

Before it is drawn into rooms, the fresh air is filtered and treated through a heat exchanger that recovers the thermal energy of the extracted air.

Comfia Underfloor Heating and Cooling Systems

Depending on the type of project, you can choose the most suitable method to install your radiant underfloor heating and cooling system.

Wavin offers a wide range of insulating panels, extremely durable pipes, and high quality accessories to create the perfect level of comfort in apartments, offices, and schools.

Comfia underfloor systems

Underfloor systems are undoubtedly the best-known kind of radiant system. They can be installed with various types of products. Depending on their features, these products offer different levels of performance in terms of thermal output, and some are more straightforward to install than others.

Today, regulatory changes governing energy saving and technical advances in screed products have made **thermal inertia** a vitally important parameter. In fact, thermal inertia should be taken into account at the initial design stage in order to choose the system best suited to the needs of the building.

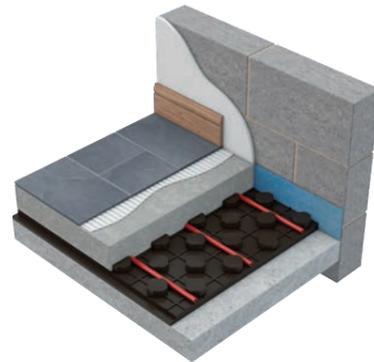
Wavin's flooring system are designed to offer the fastest possible installation for a radiant system.



Castellated systems

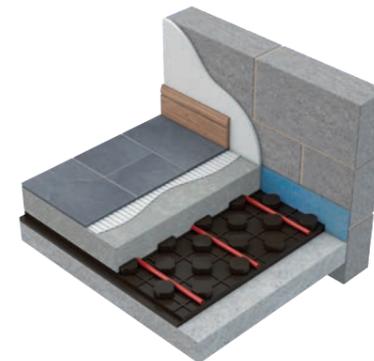
System Plate

A system that uses adhesive to install radiant heating and cooling, using 16mm pipe, with a thin screed. Created for **new build** and **deep renovations**, with applications beyond the re-covering existing floors, its use has now been expanded to new homes, particularly those with low energy usage.



Low Build System Plate

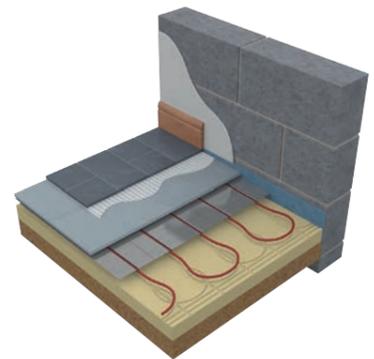
A system designed to install radiant heating with a thin screed, using 10mm or 12mm pipe. Suitable for low build screeded systems in **deep renovations** where height of the floor is a barrier to installation of larger pipe diameters.



Dry systems

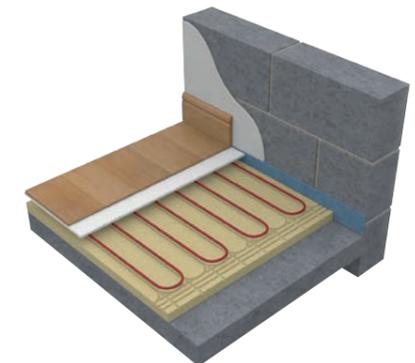
Floating Floor

A panel specifically designed for dry-installed residential use. The panels are 25mm in thickness, with channels for installation of 16mm pipe. The panel construction gives an even spread of heat and can be installed on top of an existing floor.



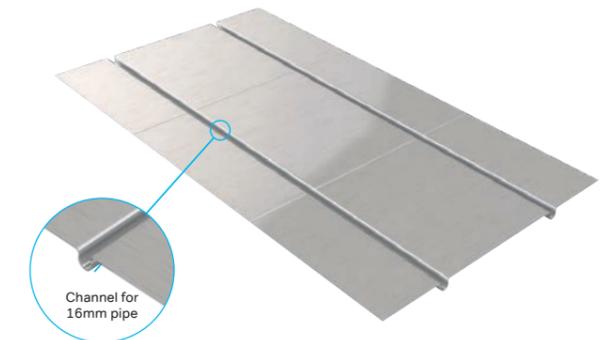
Low Build Panels

A panel specifically designed for dry-installed residential use. The panels are 15mm or 18mm in thickness, with channels for installation of 10mm or 12mm pipe. These panels are used to create an extremely low profile system, on top of an existing floor, with the floor covering laid on top of the panel.



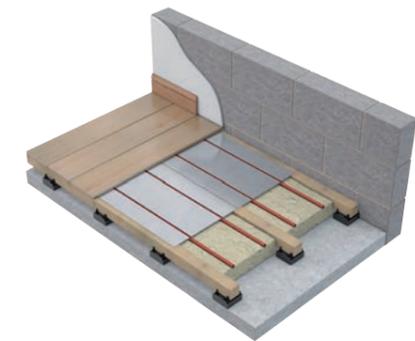
Diffusion Plates

A thin aluminium heat spreader plate, designed to be installed between joists, these are particularly common in houses with a first floor. The plates are attached to the joists, with channels pre-grooved for 16mm pipe. The plate design ensures a spread of heat and add an extremely low or no build up to the floor height



Battens and Cradle System

Battens and cradle systems are used where floors are uneven to create a level sub-floor. Wooden battens are installed within a cradle system, with insulation and diffusion plates. A top flooring system can be added such as cementitious screed-boards.



Comfia Manifolds and temperature control units

Comfia Composite manifold

Made from composite material for radiant heating and cooling systems, the manifold is pre-built to between 2 and 12 circuits with 3/4" eurocone connectors.

The units are fitted with visible flow meters with a memory ring for each circuit. The meter can range up to 64 l/min.



Control Pack

Designed for use in situations where it is required to blend down the temperature from the boiler, to achieve a low temperature to the underfloor heating. The units feature a high efficiency pump to ensure accurate control in using the lowest amount of energy possible.



Wavin Polybutylene Barrier Coil Pipe 16mm

Polybutylene has an unrivalled balance of properties to satisfy the demands of the hot and cold pressurised water pipe market. The main aspects which distinguish it from other candidate materials are its flexibility and superior resistance to stress over long periods of time at high temperatures.

Available in coils from 80m up to 200m, polybutylene pipe speeds installation, enables versatility in, and the optimisation of, coil layout and ensures, in line with industry best practice, that there are no underfloor joints. All our polybutylene barrier coil pipes are British made and come with a 100-year guarantee.



Sentio Controls and thermostats

In recent years, the themes of efficiency and energy saving have been a focal point for all players involved in the construction industry. The desire to reduce our consumption of fossil fuels is paired with a determination to lower emissions of CO₂ and other atmospheric pollutants.

In this scenario, efficient design of buildings and systems is a key lever upon which to act. The **temperature control of a radiant climate control system** is part of a building's efficiency and energy saving capabilities. Thanks to this, it is possible to ensure that a system only delivers the heat that is necessary, when necessary and where necessary, thus limiting energy waste and unnecessary expenditure.

The aim of a **heating control system** is to manage the functions of the system automatically so that it turns on or off when it reaches set temperature and humidity conditions that are considered optimal for the building's occupants. The architecture of the control system mirrors that of the heating system itself. The more rooms there are to control and the more requests the system has to respond to, the more data there will be to analyse and commands to carry out, thus the control system itself needs to be more powerful.

Wavin Sentio smart control system

Wavin Sentio is a smart control and regulation system for radiant heating and cooling, mechanical ventilation, and hot water temperature (with Calefa). Thanks to its ability to monitor, regulate and maintain an optimal temperature in different rooms anywhere in the building, Wavin Sentio guarantees a high level of comfort in indoor spaces and minimal energy consumption. The Sentio family of products includes Central Control Units (CCUs), expansion units, room sensors (with or without a display), an **app** and an intuitive LCD touchscreen, all designed to offer easy-to-install heating and cooling solutions for maximum comfort.



Ventiza Mechanical Ventilation with heat recovery

Residential range

A mechanical ventilation system extracts the correct amount of stale indoor air from humid rooms while at the same time pumping in the correct amount of suitably filtered outdoor air. The ongoing exchange of heat between the two air masses allows for energy savings and thus for cost savings as well. The Ventiza range includes a wide selection of mechanical ventilation units suited to all kinds of housing and all installation methods. All Wavin's Ventiza mechanical ventilation units are equipped with a heat exchanger to ensure maximum energy efficiency. With Ventiza, Wavin aims to create **residential spaces that are healthier and more comfortable than ever before**, guaranteeing significant energy savings.

Mechanical Ventilation with Heat Recovery Systems

Ventiza MVHR HRU220VL/R

The Ventiza HRU 220V model is a perfect solution for small to medium sized dwellings, such as apartments. The unit is capable of 60 l/s max flow and at just 600mm wide and 430mm high, is small enough in size to fit into a typical utility cupboard. The unit area has a high heat exchanger efficiency of 88%, maximising the heat retained whilst air is exchanging.



Ventiza MVHR HRU360VL/R

The Ventiza HRU360V model is a 100 l/s max flow unit, designed for small to medium sized, whole houses. With a heat exchanger efficiency of 89% and specific fan power down to 0.49W/l/s the unit is a solution to meet capacity demands in an efficient way, with excellent acoustic performance.



Centralised residential units

Ventiza MVHR HRU400VL

For larger houses, the Ventiza HRU400V model is a high performing MVHR system, with 91% heat exchanger efficiency. The unit has a 100% summer bypass facility to allow extraction of heat on warm days, protecting homeowners from overheating. The unit accepts 150mm ducting for larger capacities, and comes with G3 filters as standard



Ventiza MVHR HRU300H1/2 Horizontal Unit

Ventiza HRU300V model is a horizontal mounting MVHR unit, for ceiling mounting applications. The unit is 200mm in height enabling it to be installed with minimal impact on the ceiling height, and can deliver up to 83 l/s airflow, through 204x60mm or 150mm ducting.



Wavin Group

Always by your side

Wavin is an Orbia company in the Building and Infrastructure segment and supplies innovative solutions in the construction and infrastructure sector. Backed by over 60 years of experience in developing products, the company handles some of the world's most complex challenges, leading the way as a pioneer in managing water and sanitation, technologies for indoor climate control, and rural and urban infrastructure solutions that are durable, adaptable and efficient.

Wavin strives to bring about positive change, building healthy and sustainable environments for the citizens of the world and collaborating with municipal officials, engineers, contractors and installers to help make communities, buildings and houses future-proof. Wavin has over 11,000 employees spread across 93 production sites around the world and serves over 80 countries through its global sales and distribution network.



Indoor Climate Solutions at Wavin

At Wavin our purpose is to build healthy sustainable environments. Our tailored indoor climate solutions feature our market leading systems and products including underfloor heating, heat interface units, MVHR and single controls (interfacing with all of these technologies).

The provide the following benefits:

- Low maintenance
- More space and design freedom
- Compatible with all floor types and coverings
- Comfortable environments with even heat and less dust
- Full zone control
- Flexible solutions including installation and after sales support
- Design and system selection support
- Wavin's extensive experience in residential projects as market leader in Europe

Services

We add value at every stage of the design and installation process.

	<p>Technical support T.S.C. Technical Support Centre</p>
	<p>Design Consulting Sizing of drainage, water supply, radiant systems, mechanical ventilation and rainwater management.</p>
	<p>BIM https://myportal.wavin.co.uk/bim-centre/downloads</p>

Request advice from one of our technicians



Discover our range of wavin.co.uk products

- Water and gas adduction systems
- Waste water drainage systems
- Radiant Air Conditioning
- Controlled Mechanical Ventilation
- Rainwater management



Wavin is part of Orbia, a community of companies working together to tackle some of the world's most complex challenges. We are bound by a common purpose: To Advance Life Around the World.



Orbia's Building and Infrastructure business Wavin is an innovative solutions provider for the global building and infrastructure industry. Backed by more than 60 years of product development experience, Wavin is advancing life around the world by building healthy, sustainable environments for global citizens. Whether it's to improve the distribution of clean drinking water, to make sanitation accessible for everyone, to create climate resilient cities, or to design comfortable living spaces, Wavin collaborates with municipal leaders, engineers, contractors, and installers to help future-proof communities, buildings and homes. Wavin has 12,000+ employees around 65 production sites worldwide, serving over 80 countries through a global sales and distribution network.

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