

A photograph of a modern, multi-level retail store interior. The ground floor has a polished, reflective floor. In the background, there are glass-fronted retail stores, including one with a "CHARLES KJURDM" sign. A balcony with a decorative metal railing is visible on the upper level. The ceiling features recessed lighting and circular air vents. A large, dark blue diagonal graphic element is overlaid on the right side of the image.

Ventilation solutions for Retail stores

Maximum indoor air quality – Tailor-made ventilation systems

Your strong partner for fresh air and comfortable shopping experiences

Retail properties such as shopping centers, supermarkets, or DIY stores pose specific requirements for ventilation systems that go far beyond simple temperature control. They must provide a demand-controlled, pleasant, and healthy indoor climate for customers and staff while ensuring product quality. In addition to sales areas and entrances, there are storage rooms, cold rooms, food service areas, and goods receiving zones.

Each of these areas has its own requirements for temperature, humidity, and air quality. Ventilation technology must take these differences into account while delivering an efficient overall concept that ensures comfort for people. Open doors, diverse usage zones, high thermal loads, and fluctuating visitor numbers can lead to excessive energy consumption if these factors are not considered during planning. At the same time, finding a suitable installation location for an AHU in existing buildings often presents a challenge.

To significantly reduce carbon emissions as part of the energy transition, energy-efficient and networked systems are required that lower the building's future Global Warming Potential (GWP) and comply with strict sustainability and efficiency standards such as VDI 6040 for indoor air quality. Our goal is to optimize temperature, humidity, and low-turbulence, low-noise air circulation across all retail property zones so that energy efficiency, safety standards, hygiene, and comfort are perfectly aligned.



Standards-compliant, adaptive and intelligent ventilation systems

Flexible, energy-efficient WOLF ventilation concepts for retail properties are based on recognized standards and guidelines such as DIN EN 16798 (Indoor Air Quality), VDI 6022 (Hygiene), VDI 6040 (Air Quality), and GEG (Energy Efficiency).

Air quality is always at the core of planning because it plays a decisive role in customer and employee well-being, influences product shelf life, and ensures a pleasant shopping and working environment. This includes draught-free and virtually silent air distribution. High-performance filtration systems with long service life remove pollutants, allergens, and germs for hygienically fresh air.

WOLF provides a holistic AHU concept tailored to each project, flexibly adapting to occupancy levels and retail formats. Intelligent controls continuously monitor CO₂ concentration in real time to enable demand-driven climate control – precisely matched to room geometry and usage. Seamless inte-

gration into building management systems allows centralized monitoring and control.

Thermal stratification – the accumulation of warm air near the ceiling and cold air at floor level – is effectively prevented through air curtain systems and zoning concepts. State-of-the-art fan technology and highly efficient heat recovery minimize energy costs and reduce the carbon footprint.

Durable, corrosion-resistant WOLF air handling units are suitable for new builds, refurbishments, or retrofits and can be installed in various configurations and performance classes, both indoors and outdoor.



WOLF for comfort and efficiency

The key to demand-oriented ventilation is the individual climate control of the different areas within retail stores, shopping centers, etc., and their separation from one another. The entrance area, non-food section, groceries, storage, small gastronomy, and goods receiving each require tailored ventilation concepts.

Entrance Area

Air curtains are essential at frequently used entrances to keep cold or heat outside and maintain the conditioned air inside the building. They balance the temperature in the entrance area with the indoor climate so customers do not experience an abrupt temperature change. A slight overpressure in the entrance prevents unfiltered outside air or odors from entering. This minimizes energy losses, keeps humidity levels in the store constant, and ensures that no unwanted smells from outside penetrate the building.



Non-food areas

Ventilation systems for non-food retail areas protect both people and products. They supply fresh air adjusted to customer frequency, but in furniture stores or DIY markets, the VOC content emitted by materials and goods is decisive. In clothing stores, especially in winter, excessively dry air must be avoided to ensure the well-being of staff and customers and to protect merchandise from static charge. High-quality filters keep products free from contamination. Depending on usage (e.g., fitting rooms, storage, sales floor), different temperature zones are implemented within the store.



Food Areas: Refrigerated Zones & Dry Goods

A ventilation system for food retail must deliver significantly more than for non-food areas because it must also meet hygienic and food safety requirements according to HACCP standards. For example, efficient odor management is essential to prevent smells from a fish counter transferring to baked goods. Filters must comply with ISO ePM1 \geq 50%.

Despite large floor areas and open doors, conditions must remain comfortable for customers and staff. In fruit and vegetable sections, humidity control is critical to prevent produce from drying out and wilting.

Different product categories (fresh, frozen, fruit and vegetables, dry goods) require zoning of the sales floor into distinct climate areas.

Refrigerated cabinets and cold rooms must not be exposed to heat, and condensation must be avoided in these zones.

Storage Areas

In the storage areas of retail stores, the requirements for ventilation systems differ from those for sales floors, as there is less customer traffic but specific conditions for goods and employees must be maintained. The ventilation system must remove CO₂, dust from packaging and goods movement, as well as pollutants, while supplying sufficient fresh, odor-free air.

Temperature control and regulation of relative humidity are based on the stored goods and must be kept as constant as possible. Condensation must be avoided to protect foil-wrapped and cardboard-packaged goods, as well as mold formation through adequate air circulation.

Cold rooms and dry-goods storage areas must be kept separate.



Food Service Areas

Areas with small gastronomy in shopping centers or large stores require a dedicated ventilation solution, as they must meet very specific requirements. Cooking, heat sources, and odors occur in a confined space and must not spread to other retail areas. This means effectively removing cooking fumes, grease particles, and odors through exhaust air. The same applies to heat loads from cooking equipment and moisture to prevent condensation on walls and ceilings.

The quality of the supplied air must comply with HACCP standards for food areas. Particularly important for efficient operation is demand-based control aligned with operating hours and cooking processes.



Goods Receiving Area

In the goods receiving area of retail stores, the ventilation system plays a primarily functional role, but it is crucial for hygiene, occupational safety, and energy efficiency. For this dusty environment, often damp due to weather conditions, particularly robust and demand-oriented HVAC technology is required. To prevent unconditioned air—possibly contaminated with vehicle exhaust fumes, dust, and odors—from entering the sales areas, this HVAC system operates with a slight negative pressure.

Robust filters (at least ISO ePM10 50%) must be used to protect against dust and particles. To improve working conditions for employees, air curtains block summer heat or winter cold and regulate drafts caused by open doors.



Health, comfort, and future-proofing

WOLF air handling technology not only regulates temperature and humidity but also minimizes concentrations of viruses, bacteria, and aerosols in indoor air.

It removes unpleasant odors and dust, ensuring consistently high air quality around the clock. This quality is often perceived subconsciously but strongly influences customer experience, dwell time, and loyalty. AHUs also help reduce sickness-related absences.

You won't see or hear WOLF ventilation solutions. They do not disturb your customers or employees. Products on the sales floor and in storage remain in excellent and attractive condition. WOLF ventilation technology uses heat from exhaust air to preheat fresh air and employs state-of-the-art fan technology. The system is controlled to match the store's individual requirements, such as opening hours or the

number of customers present. In line with the EU Green Deal, this reduces the overall CO₂ footprint of your property, making it future-proof, preserving its structure, and increasing its value. And the best part: HVAC systems with heat recovery save up to 25–30% on heating costs and up to 50% on cooling costs. In addition, there are attractive subsidy programs for energy-efficient ventilation systems through EU initiatives.



WOLF is one of the leading international suppliers of innovative solutions for indoor climate control. Here's what matters most to our customers:



German Know-how

We develop our products at our headquarters in Mainburg, Bavaria - and manufacture them with the highest precision and vertical integration. WOLF Campus training programme offers you in-depth expert knowledge on professional installation, maintenance, etc. with seminars and in-house training courses.



Partnership at eye level

A nationwide and international network of personal contacts at our locations ensures fast and uncomplicated support. The WOLF Service Team provides you with expert advice and support during commissioning and maintenance. A network of wholesale partners facilitates the procurement of spare parts.



Simply powerful solutions

WOLF ventilation systems combine efficiency, durability and ease of operation. The wide-ranging air handling product portfolio is complemented by digital services that save time, money and CO₂.



For an intact environment and diversity

We consciously prioritise durability and sustainability in our design and choice of materials. At WOLF, different generations and nations work hand in hand and benefit from each other.

WOLF Air handling

A suitable solution for every demand



Hotel and accommodation



Professional kitchen



Production and industrial buildings



Offices



Agriculture



Transport & traffic



Pools and spa



Logistics and warehouses



Experience, culture and sports buildings



Healthcare



Educational institutions



Data centers

Get in touch for more details

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