

Press Release

FEV develops sustainable building technology for “The Dutch WindWheel”

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Aachen, November 2023 – “The Dutch WindWheel” is the prototype of a new generation of sustainable buildings designed by the Rotterdam-based architecture bureau DoepelStrijkers. They are designed to produce virtually no emissions and generate most of the required energy themselves from sustainable sources. With this project, FEV is transferring the expertise it has built up over several decades in the mobility sector to the building market and acts as the exclusive project partner for the planning and realization of the technical building equipment (TBE). This includes the wind and solar power generation systems along with energy and battery management as well as air conditioning.

While wind energy lends the name to the building, you won't find conventional wind turbines in the “Dutch WindWheel”. Instead, the electricity is generated using electrospaying. This technology uses electrodes inside the facade that release charged particles in the form of water droplets into the air through nozzles. This technology requires no moving parts whatsoever, which significantly reduces noise pollution, vibrations, and shadows.

The second energy source for the building is the sun. For this purpose, around 70 percent of the building envelope is fitted with solar panels, which also provide the building with shade. Further photovoltaic capacities were considered when planning the power supply, which FEV carries out using existing models for different loads and applications. This will include, for example, the roofing of the parking areas.

A smart charging and grid control system developed by the FEV engineers utilizes the vehicle batteries of the parked electric vehicles as additional energy storage and enables the necessary load shedding when required. FEV's planning team has also focused on sustainability when it comes to air conditioning: the warm exhaust air is fed through spaciouly dimensioned pipes into heat exchangers located deep below sea level, where it is cooled down.

Patented concept for water supply

The self-sufficiency of the "Dutch WindWheel" also includes the building's water supply. FEV uses a patented concept here in which the drinking water is largely obtained by treating rainwater. When it comes to disposing of wastewater, the engineers rely on recycling and recirculating it back into the building's cycle. FEV has successfully demonstrated the use of wastewater to produce bio-methanol in numerous projects and is now incorporating this concept into the "Dutch WindWheel" ecosystem. The long-term target is to create an ecosystem that has a minimal environmental footprint and can also recycle waste and wastewater from the surrounding buildings if necessary.

Tourist magnet with sustainable aspirations

The distinctive silhouette of the building combines modern design and sustainable features. The underlying idea was initially to create an extraordinary tourist attraction. At the same time, the intention was to show that buildings will be able to make a positive contribution to the climate in the future. As a further aspect, people should be encouraged

to question their own energy consumption and think about potential savings in the building sector. FEV's ultra-modern and innovative solutions offer the technological prerequisites for this.

The inside of the approximately 170 m high building, whose multifunctional rooms can be flexibly used as living space, office space or for gastronomy, is characterized by spacious green areas. They contribute to improving the quality of air and people's quality of life. Regarding the choice of building materials, preference is to be given to local suppliers and sustainable or recycled materials are to be used that are in harmony with the local conditions.

"With the 'Dutch WindWheel', the architects from Rotterdam are laying the foundations for a new generation of low-emission buildings," says Dr. Patrick Hupperich, CEO of the FEV Group. "It makes us proud to underline our position as a driver of innovation in this pioneering project. It shows exactly what we stand for: We drive innovation to help the world evolve."

Footage:



Caption: For the low-emission building "The Dutch WindWheel", FEV develops a holistic, innovative and sustainable technical building equipment

About FEV

FEV has always pushed the limits.

FEV is a globally leading engineering provider in the automotive industry and internationally recognized leader of innovation across different sectors and industries. Professor Franz Pischinger laid the foundations by combining his background in academia and engineering with a great vision for continual progress. The company has supplied solutions and strategy consulting to the world's largest automotive OEMs and has supported customers through the entire transportation and mobility ecosystem.

As the world continues to evolve, so does FEV.

That's why FEV is unleashing its technological and strategic expertise into other areas. It applies its forward thinking to the energy sector. And its software and system know-how will enable the company to lead the way making intelligent solutions available to everyone. FEV brings together the brightest minds from different backgrounds and specialties to find new solutions for both current and future challenges.

But FEV won't stop there.

Looking ahead, FEV continues to push the limits of innovation. With its highly qualified > 7,300 employees at more than 40 locations globally, FEV imagines solutions that don't just meet today's needs but tomorrow's. Ultimately, FEV keeps evolving – to a better, cleaner future built on sustainable mobility, energy and software that drives everything. For the company's partners, its people and the world. [#FeelEVolution](#)