Windees wind turbine

Windees – Micro Wind Turbine (Flotier 100)

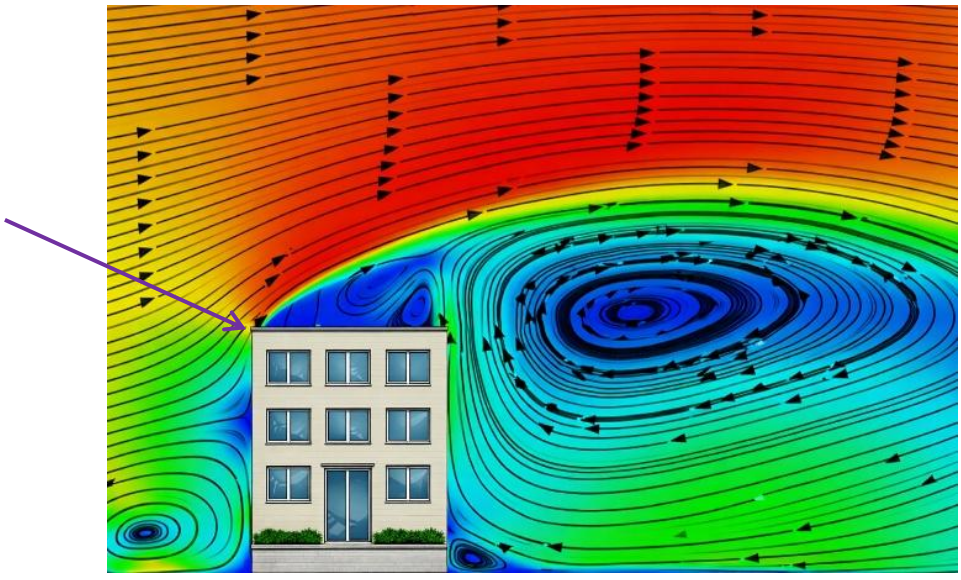
Introduction

Windees is an innovative Czech company developing compact wind energy solutions designed to harness power even from light breezes. Their advanced **Windees wind turbines** are engineered to generate clean electricity from winds, providing a sustainable and efficient complement to traditional renewable technologies like solar panels. Unlike large-scale turbines, Windees systems are quiet, space-efficient, and suitable for installation on buildings without the need for special permits, making renewable energy more accessible for residential and commercial applications.

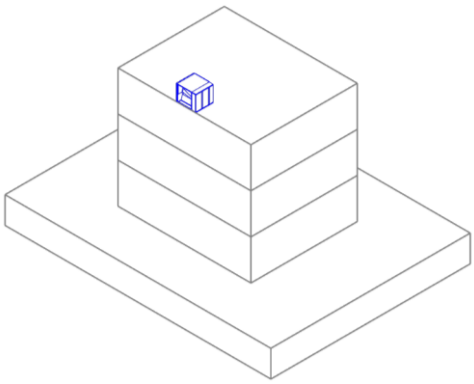
Basics

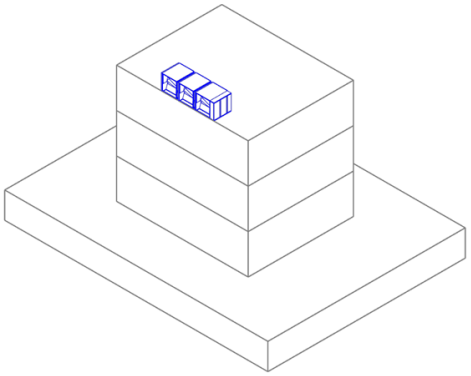
Flotier 100
A basic micro wind turbine designed for installation on building rooftops.

The turbine is installed at the edge of a roof or building façade, oriented toward the prevailing wind direction.



The turbine harnesses airflow along the building edge in the direction of the prevailing wind. Multiple units can be installed side by side along the roof edge, with the total system output being the combined power of all individual turbines.



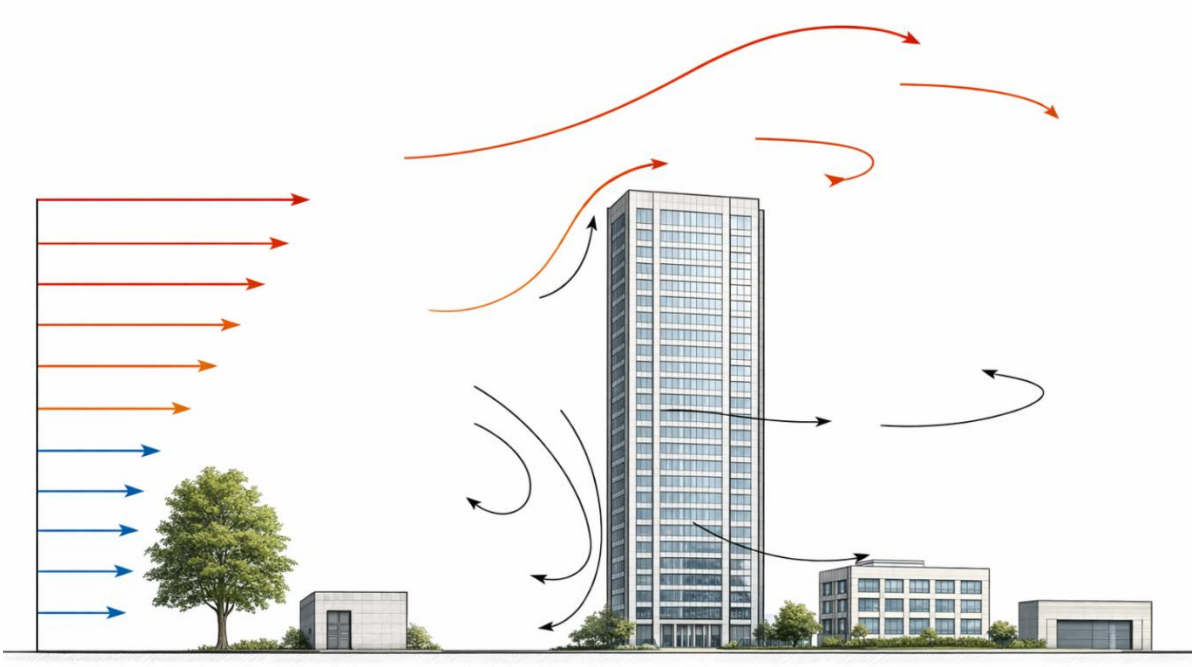


At the building edge, airflow velocity is slightly higher than the average ambient wind speed. The blade geometry and turbine design are optimized to capture this accelerated airflow and efficiently convert it into rotational motion, which is then transferred to the generator.

The power output of wind turbines depends on the effective swept area (the volume of air entering the turbine) and the airflow velocity. For efficient operation, careful site selection is essential—specifically locations with strong, unobstructed airflow where the separated air stream from the building edge can freely enter the turbine.

Airflow velocity around buildings is strongly influenced by the surrounding environment.

Close to the ground, wind speed is reduced by obstacles such as shrubs, vehicles, and low trees. At higher elevations, airflow is mainly affected by surrounding buildings or the canopies of tall trees. The higher the turbine is installed, the fewer obstacles the wind encounters, resulting in higher effective wind speeds.



A turbine installed at an elevated position on a building, oriented toward an unobstructed wind direction, will therefore achieve higher power output compared to lower installations—assuming the same average wind speed measured at 10 m above ground level. For this reason, higher installation positions represent a significant advantage.

Since the system utilizes existing buildings, there is no need for separate support towers or masts; the turbine is simply mounted at the edge of the building.

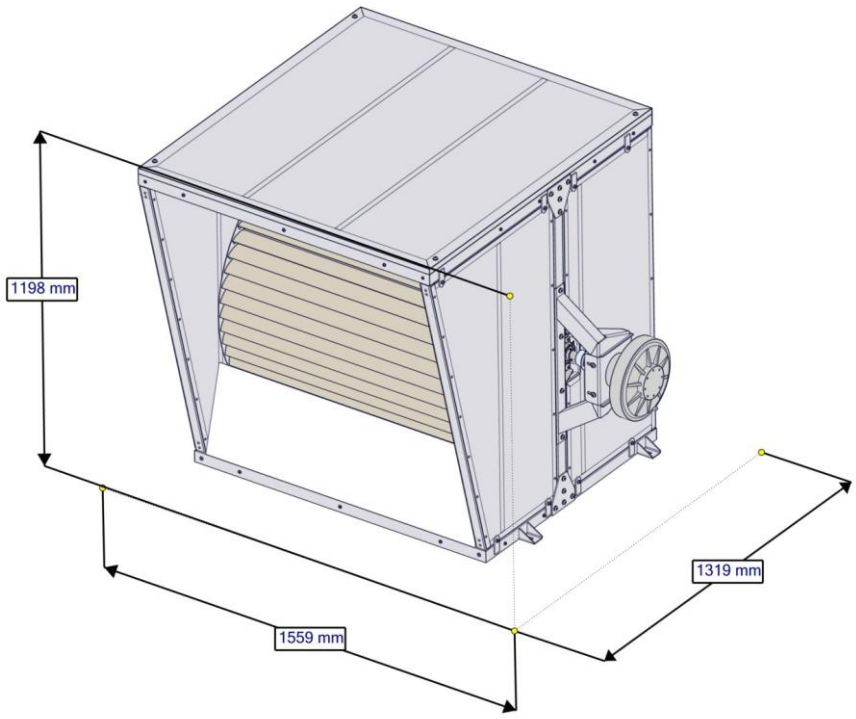
Typical Use Cases

- Rooftop installations on residential and commercial buildings
- Supplementary power generation alongside photovoltaic systems
- Buildings with limited roof space but favourable airflow conditions
- Decentralized energy generation for increased energy independence
- Modular installations where power output can be scaled by adding units

Technical Parameters of the Turbine

Dimensions

Overall unit dimensions		
Width	1450	mm
Height	1205	mm
Depth	1320	mm
Footprint / occupied area	1,4	m^2
Weight of a single unit	110	kg
Weight including mounting components	160	kg
Approximate roof load	115	kg/ m^2



Installation

Installation varies depending on the roof type and structural design.

The basic roof configurations include:

- Pitched roof
- Flat roof
    - Without parapet
    - With parapet

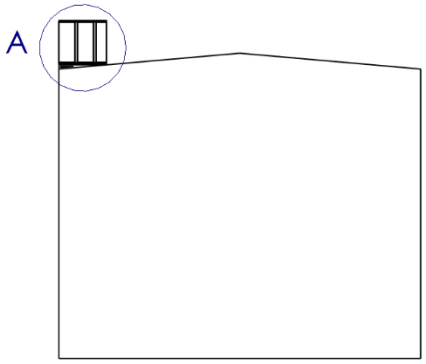
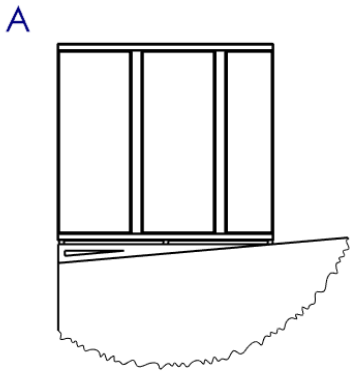
Roof Mounting

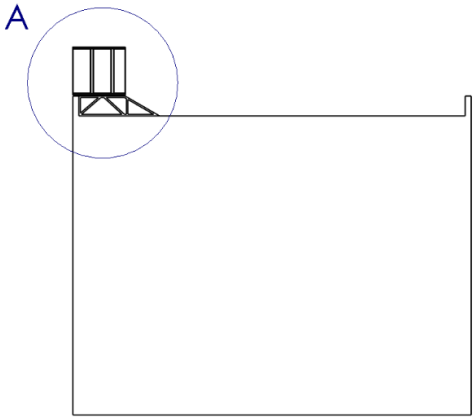
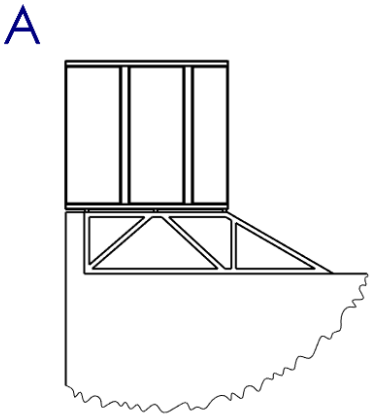
A mounting base is first installed on the roof.

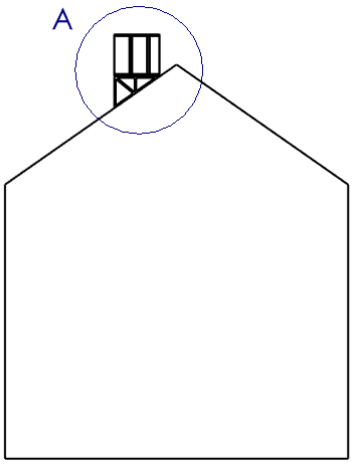
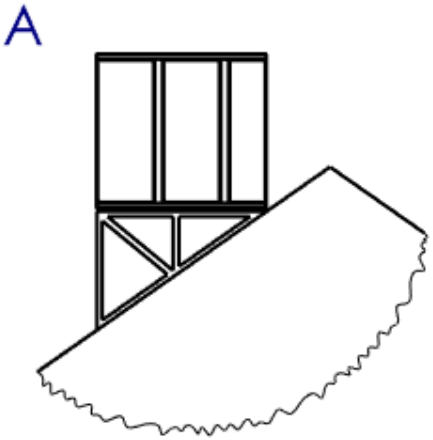
The base is either fixed directly to the roof slab using anchors or, in the case of flat roofs with a parapet, can be secured using ballast weighting.

The turbine is then mounted to the base via vibration-damping elements (silent blocks), which minimize the transmission of vibrations to the building structure.

Roof Type

Flat roof	
	

Parapet / roof edge	
	

Pitched roof	
	

Performance Characteristics

Expected Power Output

The rated power output of the **single basic unit** turbine installed on a flat roof is 150 W at a wind speed of 12 m/s.

Noise level (dB) is 40dB at a wind speed of 10 m/s

Power output at different wind speeds of **SINGLE UNIT**

Average wind speed (m/s)	Turbine production (kWh/year)	Annual household consumption coverage per turbine (4000kWH/year)
6	298	7%
8	649	16%
10	1078	27%
12	1542	39%
14	1909	48%
16	2146	54%
18	2305	58%
20	2409	60%

Suitability for combination with photovoltaic (solar) systems

The turbine design allows photovoltaic panels to be integrated directly onto the turbine housing. This hybrid configuration enables simultaneous utilization of wind and solar energy within a single compact system footprint. While the wind turbine generates power primarily during windy conditions and at night, the integrated solar panels contribute energy during daylight hours, improving overall energy availability and system utilization.

By combining both energy sources in one installation, the system enhances energy stability, reduces dependence on a single renewable source, and maximizes the use of available rooftop space. The shared mounting structure also simplifies installation and electrical integration, making the solution particularly suitable for buildings aiming to increase on-site renewable energy generation without additional structural complexity.

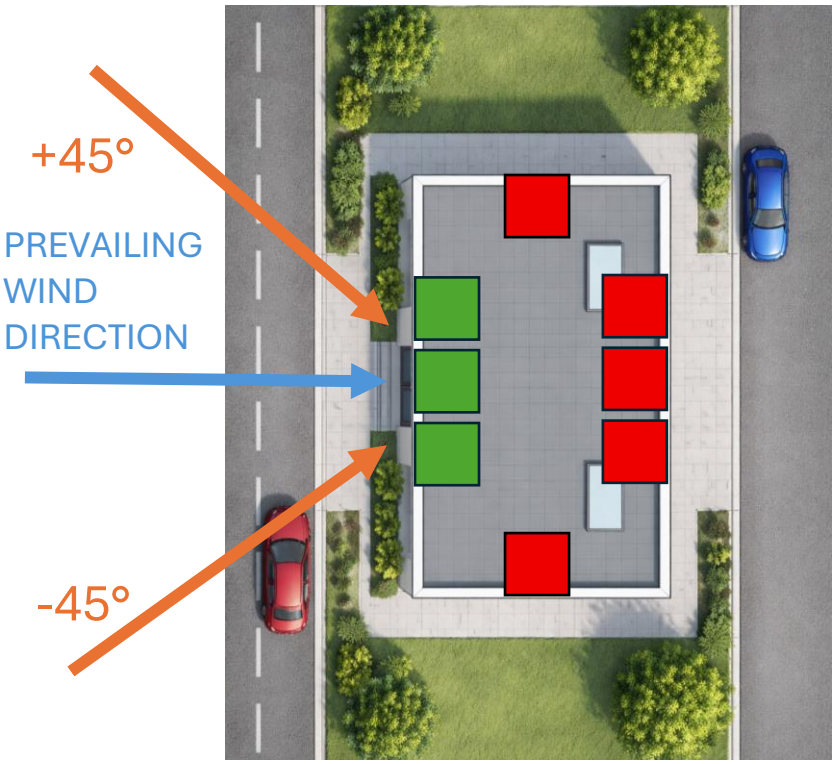
Ideal Property

Property Type

- Residential buildings
- Commercial buildings
- Industrial facilities
- Logistics and warehouse halls

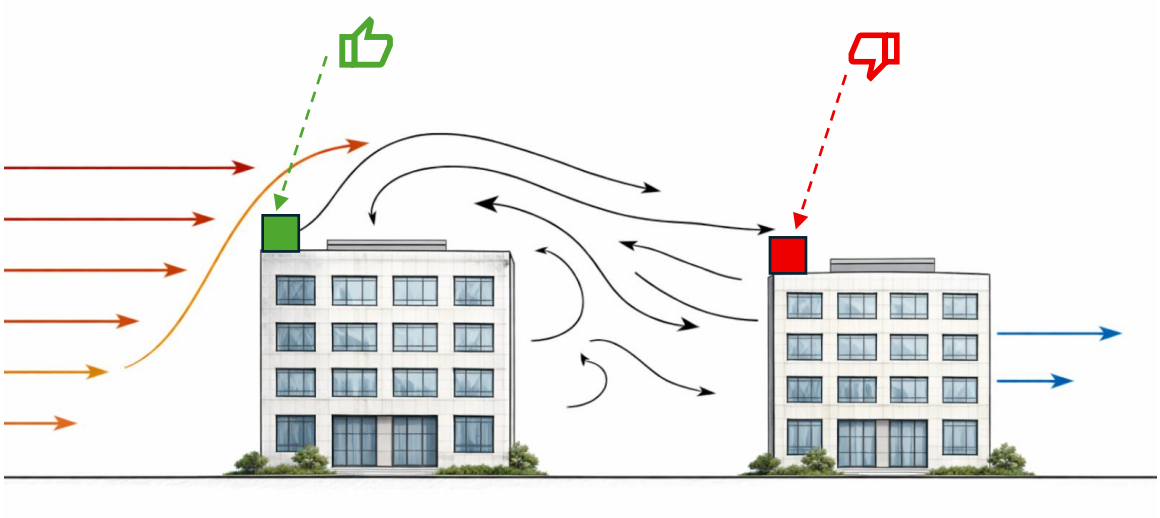
Building Location

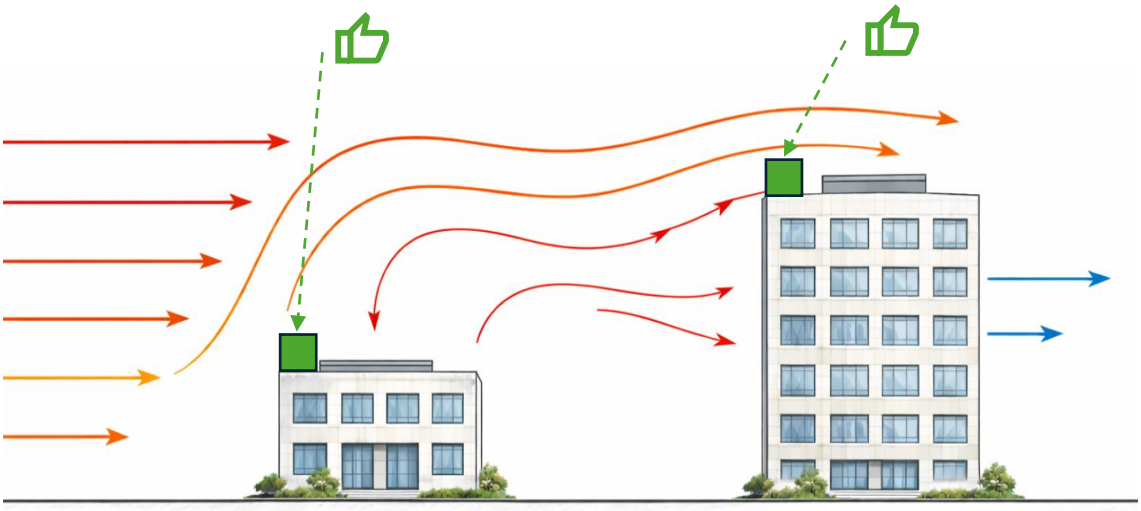
- Orientation relative to prevailing winds



Minimum and Recommended Wind Conditions

- Minimum operating wind speed 6m/s
- Recommended average annual wind speed 8m/s
- The roof edge where the turbine is installed must be oriented toward the prevailing wind direction. The area in front of the turbine inlet should be free of airflow obstructions such as trees or nearby buildings to ensure unobstructed wind flow.





Electrical Interface

- The turbine generator produces a three-phase AC output. The voltage level and frequency depend on the instantaneous rotational speed of the turbine.
- The generator output is routed to a controller, which converts the three-phase AC power into a stabilized 48 V DC output.
- The 48 V DC output is compatible with battery storage systems and DC-coupled inverters, enabling integration into hybrid renewable energy systems. This allows the generated energy to be stored, converted to AC power for on-site consumption, or fed into existing energy management systems, depending on the system configuration.

Contact Information

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