



Maswes<sup>TM</sup>

for buildings

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**EASIBILITY STUDY** - placement of the  
**MASWES<sup>TM</sup>** solar and wind power plant  
on the roof of the building

“**MASWES™** for Buildings is a high-efficiency energy system designed to provide reliable, uninterrupted backup power for multi-storey buildings, hospitals, schools, and other essential facilities.

Installed on rooftops or integrated into building structures, **MASWES™** harnesses clean energy to reduce grid dependence, lower operational costs, and significantly enhance energy resilience.

Its design ensures stable performance during outages, protects critical operations, and supports long-term sustainability goals — making it an ideal solution for any infrastructure where downtime is not an option. ”

## **Analysis of the possibility of placing and using the MASWES™ solar-wind mobile power plant on the roof of a building:**

### **Application:**

- for hospitals, schools etc;
- for production buildings;
- for a hotel in the mountains;
- for administrative buildings;
- for high-rise residential buildings with a technical floor backup;
- energy source in case of a power outage.

### **Advantages:**

- backup energy source in case of a power outage;
- zero costs for operating elevators, cooling, and lighting the building.

### **Limits:**

- acoustics 55dB;
- statics.

### **Installation requirements:**

- crane, truck crane;
- connected to the network or without a network connection.

## Acoustics



It is necessary to take into consideration the maximum permissible noise levels (e.g., 55 dB during the day and 45 dB at night). Whenever MASWES™ is installed on a rooftop, an acoustic study is required to assess the impact of noise on the building's operation and on the surrounding environment. In Slovakia, the Decree of the Ministry of Health of the Slovak Republic No. 549/2007 defines the permissible noise levels for different types of areas. For Slovak projects, a statement from the Regional Public Health Office is required, as it issues opinions for building permits. A nighttime noise level of 55 dB is already considered the threshold at which, according to WHO and EU guidelines, significant noise exposure to the population may occur.

### **Statics / Structural Assessment:**

- Each installation must be assessed individually, considering factors such as wind zone, building height, structural capacity, and the specific MASWES™ unit type.
- The load of the technology must be considered already during the building design phase.
- The structural assessment of the building should be the responsibility of the client.

### **It is recommended to use:**

- anti-vibration pads;
- anti-vibration installation.

## **Power and use for buildings:**

- elevators 4000-7000kWh / year (12-storey building, depending on m<sup>2</sup>);
- heating 112,000 - 224,000kWh / year (12-storey building, depending on m<sup>2</sup>);
- cooling 8,000 - 16,000kWh/year (12-storey building, depending on m<sup>2</sup>);
- lighting of common areas 300-800kWh depending on the size of the building and the type of lighting.

## **Connection to the Grid**

If excess energy is to be sold back to the grid, a contract with the local distribution company (e.g., ZSE in Slovakia) is required.

## External parameters:



### **noise 55dB**

for buildings where noise levels are permitted



### **weight 5,6t - 22,6t**

5,8t, 6,7t, 10,10t, 11,3t,  
20,8t, 22,6t



### **measurements**

40ft, 20ft, 10ft

## Use for:



### **public buildings**

hospitals, schools, offices



### **factories**

industrial buildings



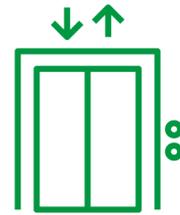
### **high rise apartment buildings**

buildings with technical floor



MASWES™ placed on the roof of a skyscraper with a technical floor

## MASWES™ can provide electricity for:



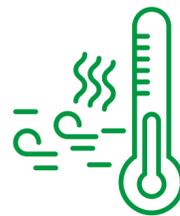
### **elevator operation**

e.g.: 4000 - 7000 kWh/year 12 floors building by type of lighting and type of building



### **cooling**

e.g.: 8000 - 16 000 kWh/year 12 floors building by type of lighting and type of building



### **heating**

e.g.: 112 000 - 224 000 kWh/year 12 floors building by type of heating and type of building

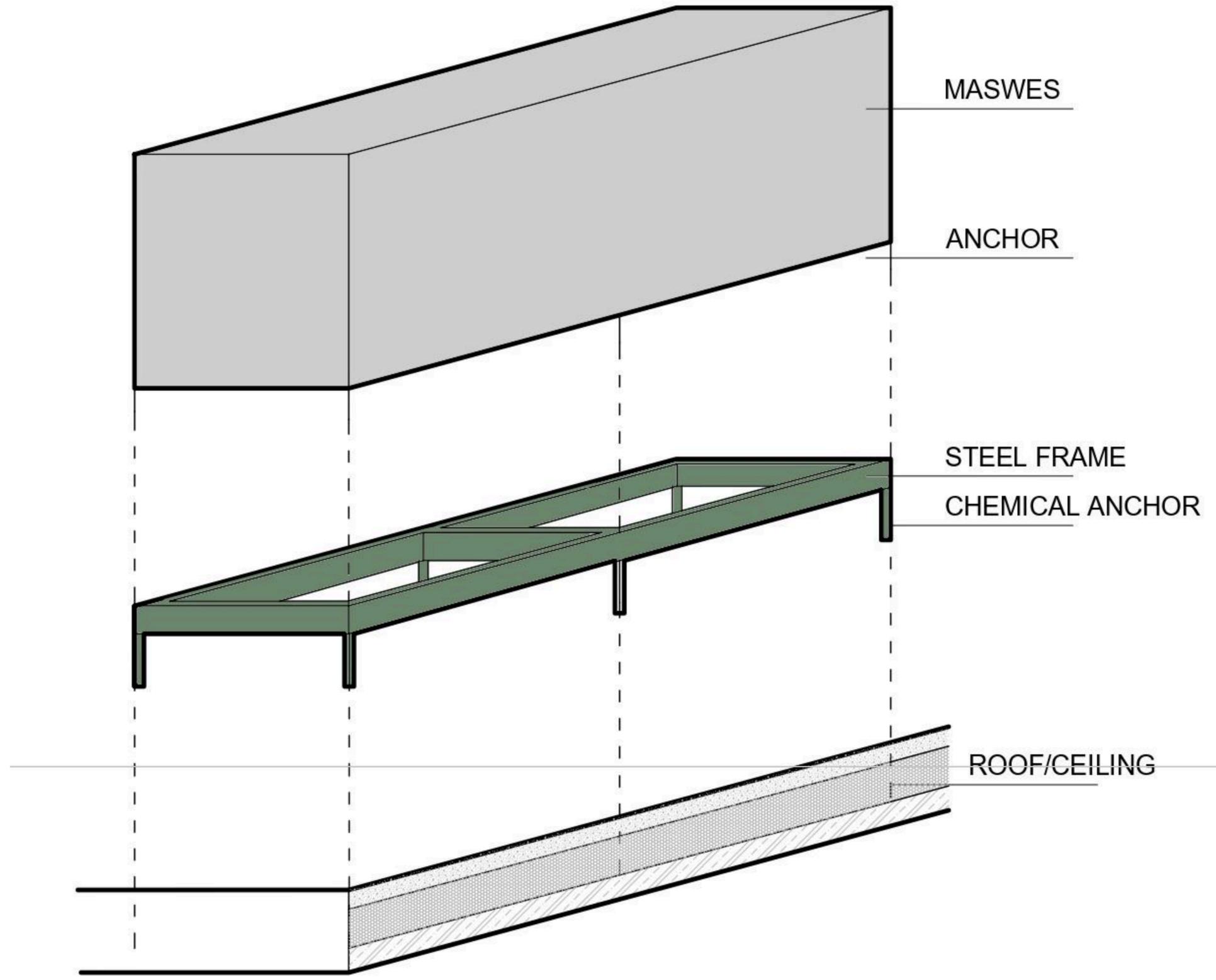


### **lighting**

e.g.: 300 - 800 kWh/year by type of lighting and type of building



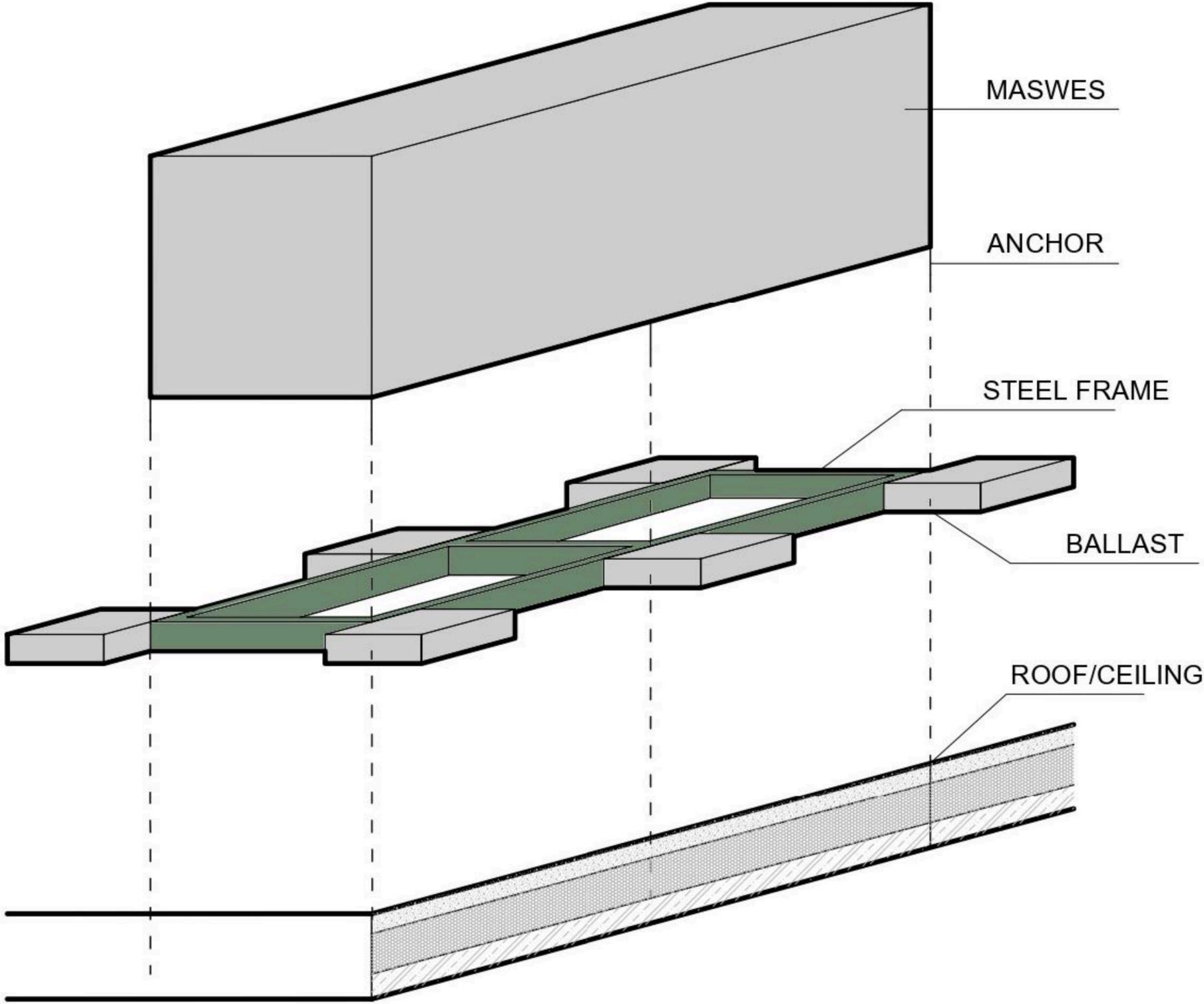
MASWES™ is a source of electricity for a building in a rural or remote location in nature



FIXED ANCHORAGE



MASWES™ provides electricity for a hotel resort in the countryside



BALLAST ANCHORAGE



A MASWES™ unit installed on the roof of an industrial building

## **Fixed Mechanical Anchoring:**

- Firmly anchored system, but not necessarily providing higher wind resistance.
- Anchoring is performed onto a steel frame, which is then fixed to a concrete roof or to steel beams.
- The anchoring must not compromise the waterproofing layer (use proper penetrations with detailing and protective sleeves).
- Roof drainage must remain unobstructed; the installation must not impede water flow.

### Advantage:

- Lower weight load on the building.

### Disadvantage:

- Penetration through the waterproofing layer is required.

## **Ballast Anchoring**

Ballast anchoring is a method of securing rooftop systems without penetrating the roof covering. It relies on the system's own weight—most commonly in the form of concrete blocks—to provide stability against wind and other forces. This method is easy to install, but it increases the overall load on the roof, which must be considered during the structural design of the building.

## **How Does Ballast Anchoring Work?**

- The system uses weight placed on the roof to apply downward pressure on the roof surface, creating sufficient friction and resistance to movement.
- The most common ballast elements are specially designed concrete blocks.

## Advantages of Ballast Anchoring:

- Easy installation: no drilling or penetration into the roof covering, which simplifies installation.
- Roof integrity maintained: the roof membrane remains undamaged, reducing the risk of water leaks.

## Disadvantages of Ballast Anchoring:

- Increased roof load: the system adds significant weight, which may require additional reinforcement of the supporting roof structure.
- Best suited for flat roofs: typically used on flat roofs where the surface can accommodate the required ballast.

## Indicative Ballast Requirements

A precise structural calculation is required for each installation, depending on wind zone, roof type, floor height, and other conditions.

## Examples for a wind speed of 40 m/s:

- 5.8 t → requires 0.5–1 t of ballast;
- 6.7 t → requires 2.5 t of ballast or mechanical anchoring;
- 10.10 t → no ballast needed, but the building structure must support the load;
- 11.3 t → no ballast needed, structural capacity required;
- 20.8 t → no ballast needed;
- 22.6 t → no ballast needed.



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