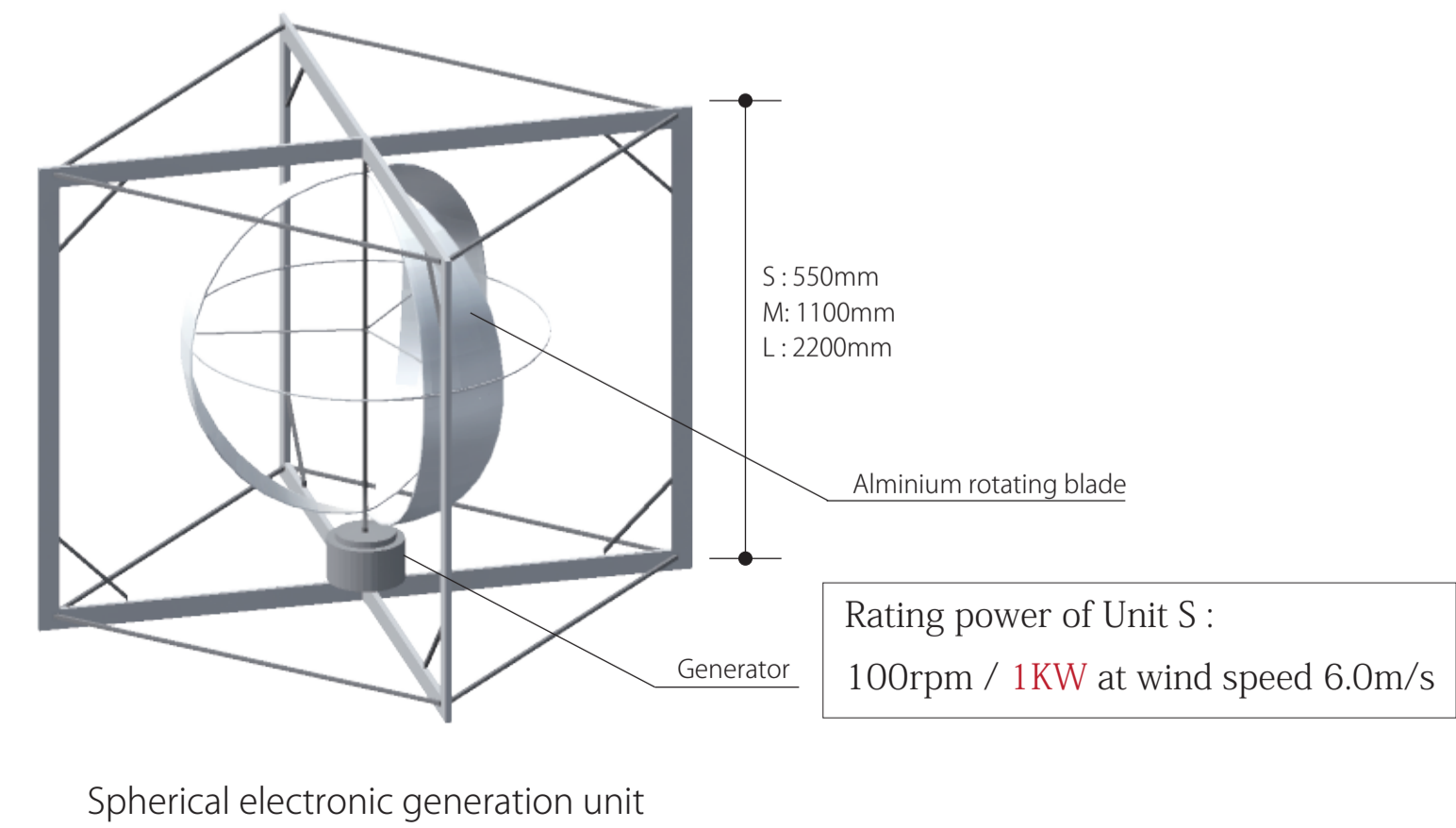
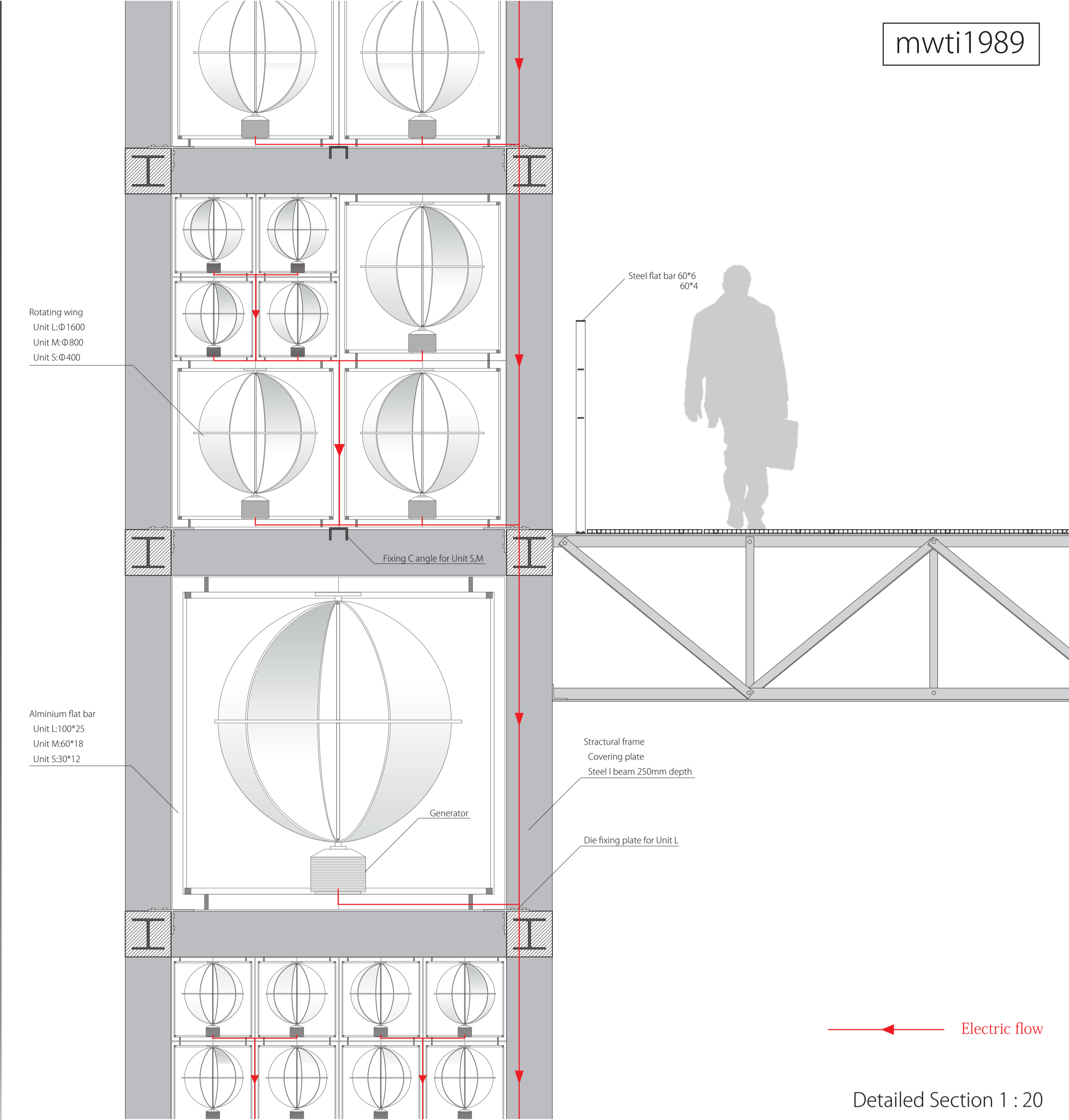
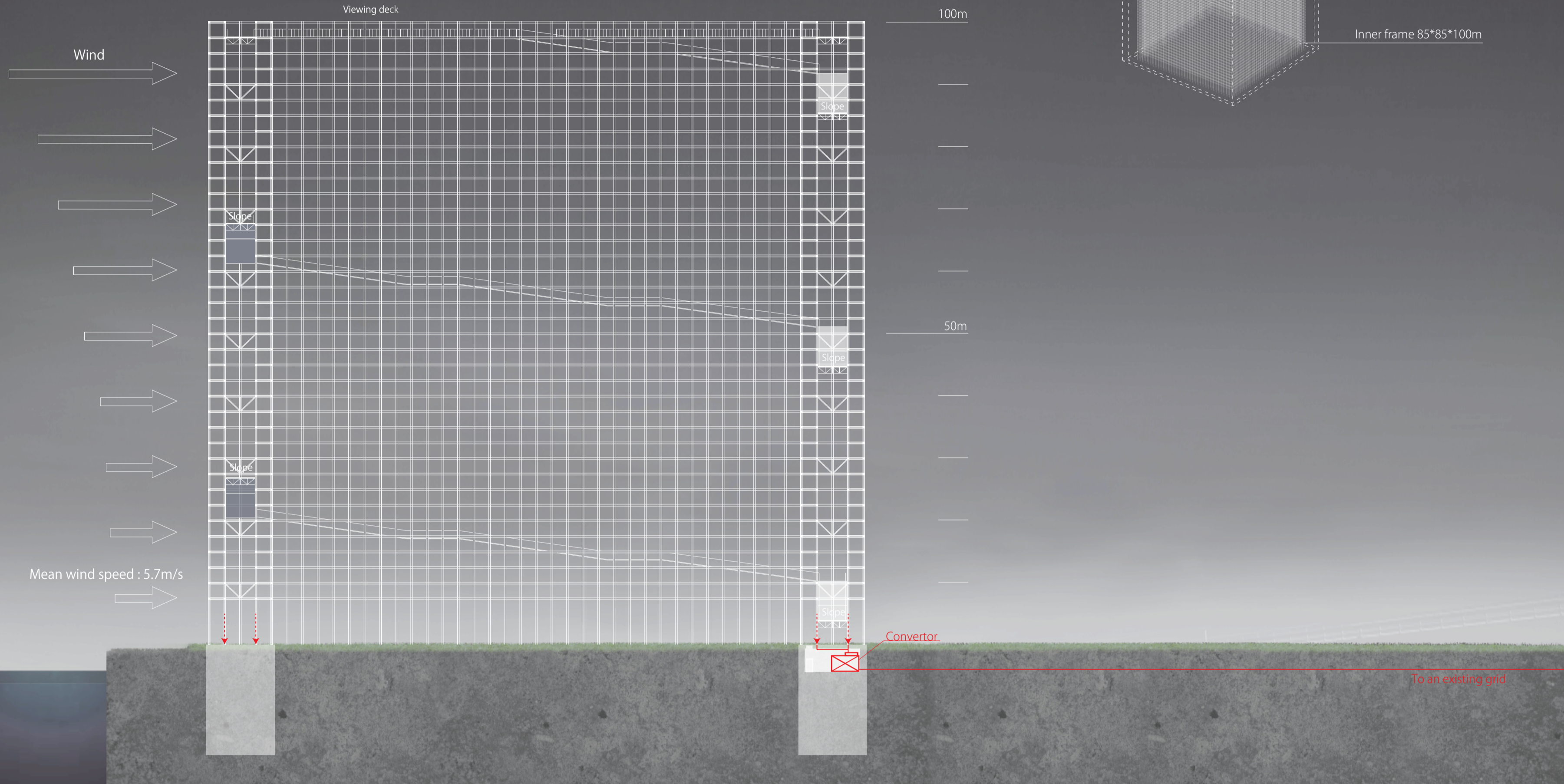
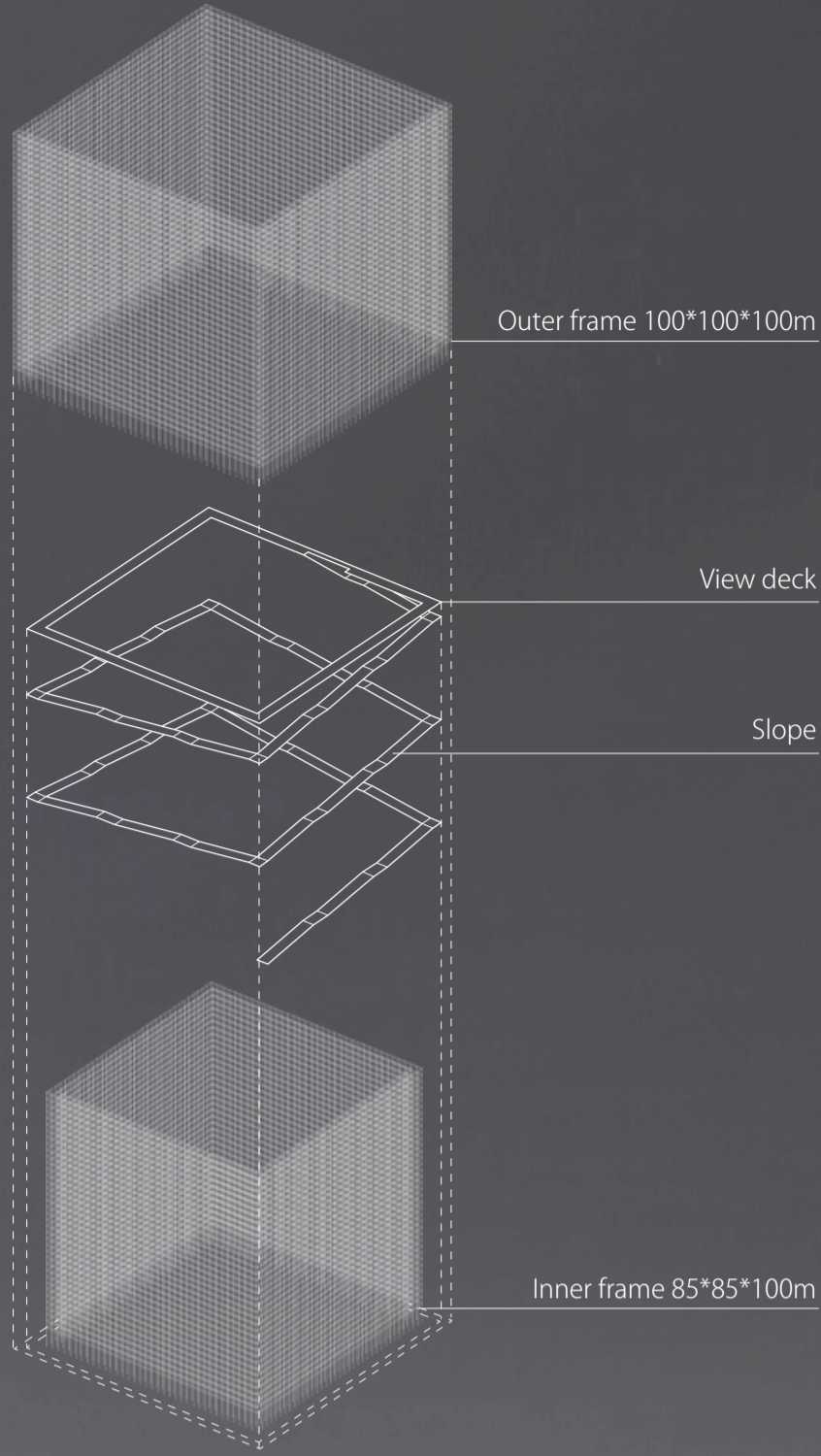
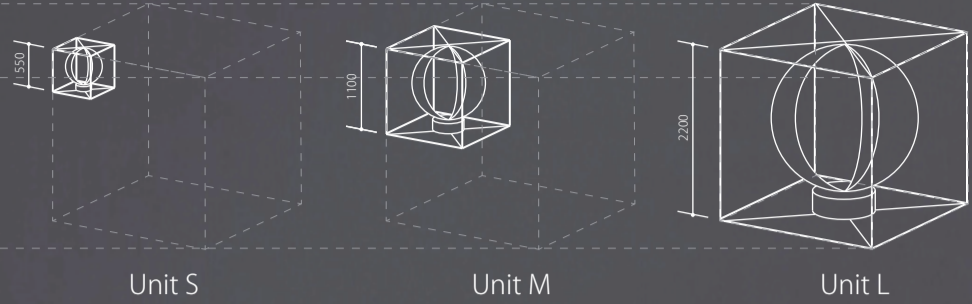


Develop the units of three kinds of different sizes. These units are being inserted into the frame of 2500mm square one by one. The energy for transportation and construction is saved by adopting the unit assembling system.



**+Electrical output**

Assume that the frame are filled with three different sized units (S,M,L) in the same ratio.

- By concerning,
- Mean wind speed : 5.7m/s at 10m height
  - Distribution of the direction of wind on Copenhagen
  - Effective aria of the tower according to direction
  - Loss of wind energy by overlapping units

Electrical output = **36MW**

**- Embodied energy**

From the amount of the steel (energy consumption : 25000MJ/ton) used for construction of the frame,

Embodied energy = **193TJ**

$$\frac{\text{Embodied energy}}{\text{Electrical output}} = \frac{193\text{TJ}}{36\text{MW(J/s)}} = 62.05 \text{ days}$$

It can be estimated that, when this tower is completed, time for paying back their embodied energy will be around 2 months. This is less than the energy pay back time of the usual wind mills.

