

October 11, 2022

KANEKA CORPORATION

Kaneka Develops T-Green Multi Solar for Balconies

—Multifunction Photovoltaic Power Generation System with Integrated Glass Balustrades—

Kaneka Corporation (Headquarters: Minato-ku, Tokyo; President: Minoru Tanaka) and Taisei Corporation (Headquarters: Shinjuku-ku, Tokyo; President: Yoshiro Aikawa) have developed a new power generation system that can be installed in stand-alone house and condominium balconies. Combining the T-Green Multi Solar photovoltaic power generation system integrated with building external walls and windows, developed by the two companies in 2019, with new glass balustrades. Not only does this system provide a high level of power generation efficiency, but it also comes in several varieties, including one that protects privacy and one that secures the view from inside the room. It offers appealing design while also functioning as an emergency power supply in the event of a disaster.

In September 2022, the Tokyo Metropolitan Government announced its basic policy on the revision of its ordinances with the aim of achieving “Carbon Half”, a plan to halve greenhouse gas emissions, by 2030. The revised ordinances will mandate the installation of renewable energy equipment, including photovoltaic power generation equipment, in new buildings such as homes and condominiums. The introduction of photovoltaic power generation systems is expected to rapidly accelerate in the future. Furthermore, in recent years natural disasters and other incidents have caused power outages in ultra-high-rise condominiums. Implementing flexible and reliable measures for supplying emergency power, such as power for lighting in shared areas and for charging phones, has become a vital task. In general, in the case of ultra-high-rise condominiums, photovoltaic panels are installed on the roof, but the roof is also used for the installation of various equipment and machinery, so the space available for installing photovoltaic panels is limited, and, as a result, the amount of power that can be generated is also limited. Therefore we developed photovoltaic systems with built-in glass balustrades for residential balconies. These systems equipped with T-Green Multi Solar make maximal use of the wall area provided by tall buildings.

Features of the system are as follows. (Please refer to figures 1 and 2)

(1) Exceptionally durable and easy to install glass balustrades, capable of sustainable long term, high efficiency power generation

This system offers a level of durability and strength equal to or superior to conventional glass balustrades for balconies. It can be installed easily, from inside the balcony, and can generate power with a high level of efficiency for 30 years or longer.

(2) Independent emergency power source in the event of a disaster

The system can be used as an independent power source in the event of a power outage caused by a disaster. It can also be combined with storage batteries to power lighting in common areas and to charge mobile phones, helping guarantee safe and comfortable living environments.

(3) Three types are available, combining quality views and privacy with appealing design

Three types are available in order to flexibly meet customer needs: the basic "solid type"*1 and the transparent "see-through type"*2, together with the "half type"*3.

Kaneka and Taisei Corporation will actively propose the use of these systems not only in houses and condominiums, but also in hospitals, hotels, commercial facilities, and other buildings, in line with how the buildings are used, helping to realize a carbon-free society by contributing to the creation of ZEHs and ZEBs.

*1. A type that blocks line of sight from outside the balcony and protects privacy

*2. A type with photovoltaic modules placed in stripe to capture views and brightness from inside the room

*3. A type that has half size of solid type to block line of sight from below the balcony and secure views from inside the room

inside the room[↙]



Figure 1: Image of "T-Green Multi Solar" glass balustrades installed on ultra-high-rise condominium



Solid type”



”See-through type”



Example of ”See-through-type” window installation

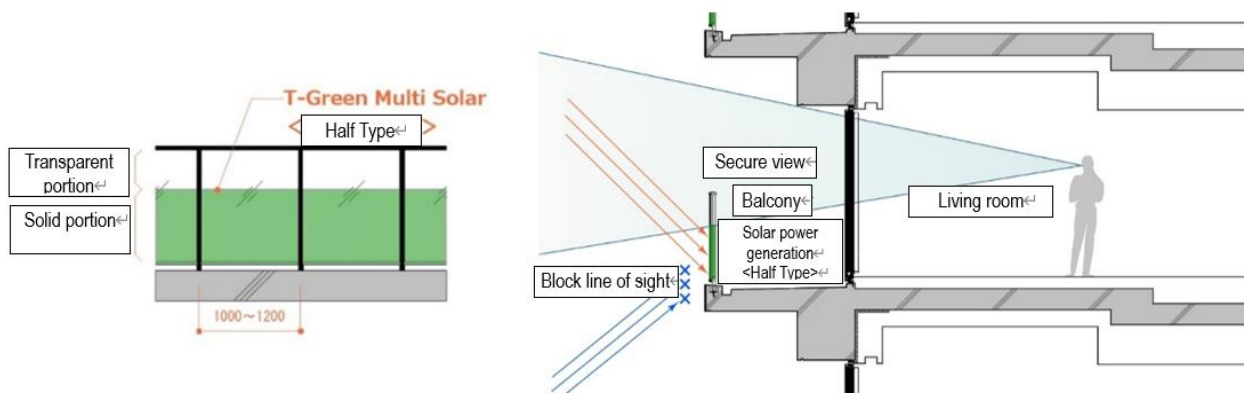
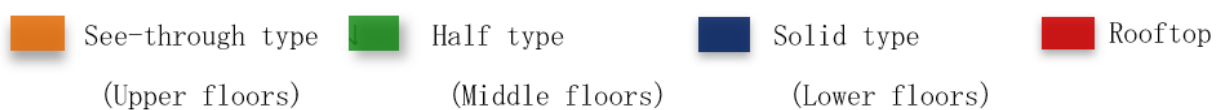
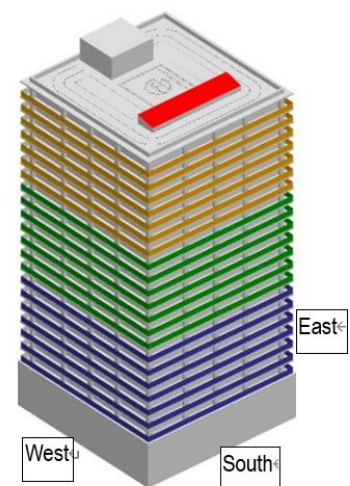
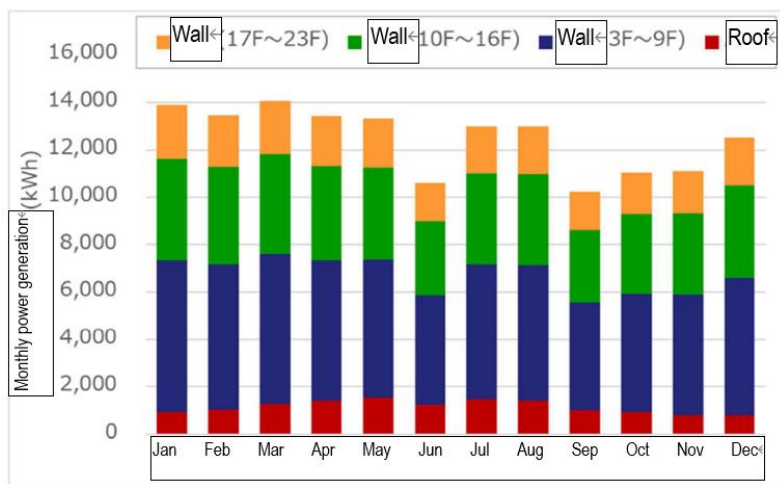


Figure 2: “Half type” with half size of solid type installed on the bottom half (Blocking line of sight from below and securing view from inside the room)



Power is generated not only on the roof, which generates little power, but also on the sides of the building (balustrades), thereby providing stable power all year long.

* The above figure does not reflect the effects of shadows from nearby buildings, etc. Rooftop photovoltaic panel installation may not be possible in some cases.

Figure 3. Simulation example of total power generation by an ultra-high-rise (23 stories) condominium (reference values)

“T-Green” is a registered trademark of Taisei Corporation.