

December 19, 2019

KANEKA CORPORATION

TAISEI CORPORATION

Kaneka announces development of T-Green® Multi Solar, an exterior system that generates electricity by the outer wall and window surfaces of buildings

-Realizes multi-functional and exterior design-friendly solar power generation integrated into building materials-

Kaneka Corporation (Headquarters: Minato-ku, Tokyo; President: Mamoru Kadokura) has developed in partnership with Taisei Corporation (Headquarters: Shinjuku-ku, Tokyo; President: Yoshiyuki Murata) the exterior system “T-Green Multi Solar”, which generates electricity through photovoltaic laminates integrated into the wall and window surfaces of buildings. Along with its high efficiency in generating electricity, its multi-functionality (providing natural light, high visible light transmission, heat shielding and thermal insulation), and the flexibility it provides in building design, the system also functions as an independent emergency power source for during times of disaster.

With awareness of the environment rising in recent years, there is an increase in companies taking measures to reduce their impact on the environment through incorporating renewable energy as a part of initiatives towards their SDGs (Sustainable Development Goals). On top of this, as measures against natural disasters that have been occurring more frequently in recent years and the long-term power outages that have been caused due to such disasters, demand for securing independent sources of power is growing, including from the point of BCPs (Business Continuity Plans) and LCP (Life Continuity Performance).

However, adoption of solar power generation equipment has been faltering, due to the limited space available for installation in areas such as the roofs of buildings. To solve this, Taisei Corporation has been working on verifying and improving solar power generation performance through researching and applying photovoltaic units that use external vertical elements, such as outer building surfaces, in the ZEB Demonstration Building within Taisei Technology Center, which was built in 2014. However, there were issues in the technology to both improve power generation efficiency and be workable in terms of architectural design.

Thus, by bringing together Taisei Corporation’s expertise in planning and constructing photovoltaic system that integrate into building materials with the photovoltaic laminates of Kaneka, a company that possesses technology to manufacture the world’s most efficient* power generation modules, the two companies developed the multi-functional and design-friendly “T-Green Multi Solar” exterior system that generates electricity via the outer wall and window area of buildings.

The merits of this exterior system are as follows (please refer to figures 1 and 2).

(1) The two types combined allow it to be applied to a number of different building exteriors

This system has two types: a solid type where photovoltaic laminates are turned into vertical exterior panels(walls); and a see-through type that achieves transparency through stripe-shaped solar cells that are integrated into window glass. With these two types combined, the system can be applied to a variety of building exteriors.

(2) As an exterior material, it has durability, excellent workability, and can maintain long-term power generation

This system provides for the same level of durability as general exterior materials, outstanding workability due to the photovoltaic laminates being integrated into the exterior materials, and continuous power generation for over 30 years.

(3) Functions as an independent emergency power source when disaster strikes

This system can be used as an independent emergency power source during power outages in times of disaster. In addition, by combining with an energy storage system, the scope and period of use can be set at will.

From here on, the two companies will actively propose this system as an energy-creation technology that helps in the realization of urban-type ZEBs (Zero Energy Buildings) to companies actively working on environmental management, companies reinforcing their BCPs, public facilities that act as bases during disasters, and condominium residences that wish to strengthen their LCP.



- 1. Solid type
(for outer surfaces
(wall))
- 2. See-through type
(for windows)

Sample of utilization

(The exterior of a small-to-medium-sized building)

Figure 1: A conceptual image of T-Green Multi Solar

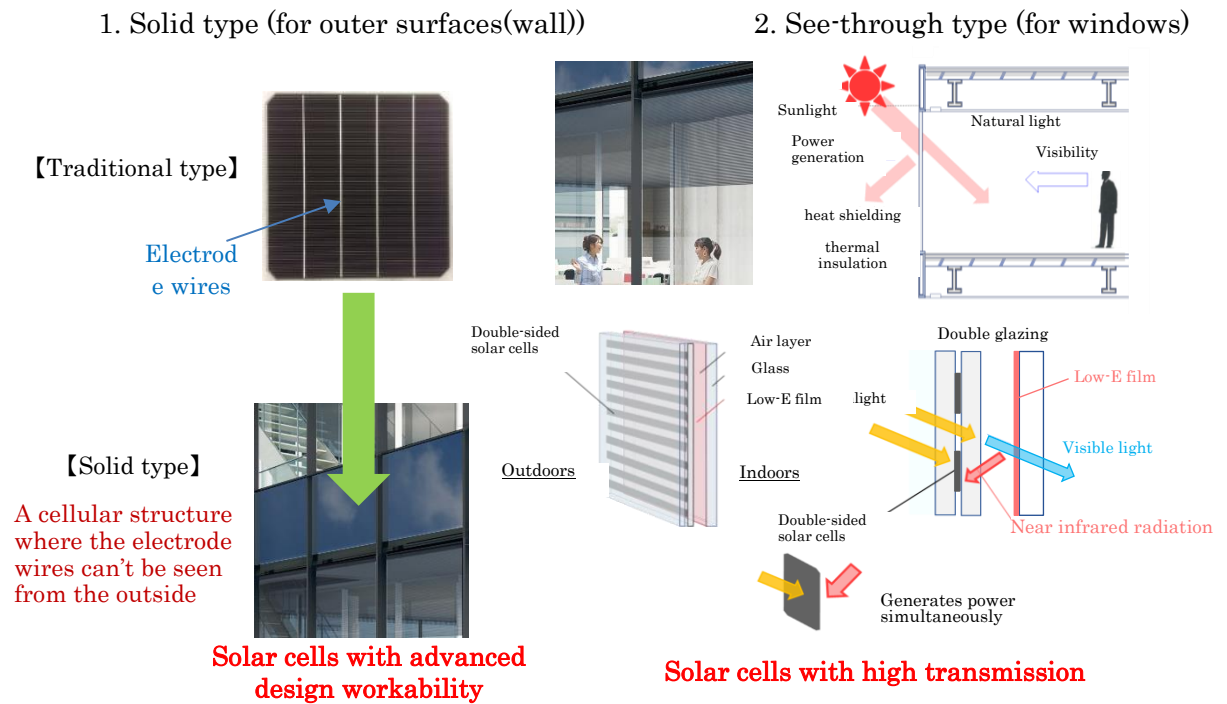


Figure 2: The merits of the solid type (for outer surfaces(wall)) and the see-through type (for windows)

* Achieved the world's highest conversion efficiency of 24.37% as a crystalline silicon photovoltaic module (according to our research).

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