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Shinsung E&G completes installation of innovative, expandable and mobile negative pressure wards at Korea Cancer Center Hospital.

- Installation of expandable and mobile negative pressure wards developed jointly with KAIST**
- Negative pressure ward development and installation that reflects consultations from medical specialists of Korea Institute of Radiological and Medical Sciences**
- Establishment of environment optimal for convenience and safety of medical staff and patients**

On January 7, Shinsung E&G announced its installation of mobile, expandable negative pressure wards jointly developed with Korea Advanced Institute of Science and Technology (KAIST) at Korea Cancer Center Hospital (KCCH). Following the start of its development in July, the negative pressure wards have now been installed. It is being tested and operated by Korea Institute of Radiological and Medical Sciences(KIRAMS) for stable operation of the negative pressure wards. Shinsung E&G plans to supply it to domestic and foreign medical institutions and local governments in the future.

With the insufficiency of negative pressure rooms due to the re-proliferation of COVID-19, Shinsung E&G and KAIST have installed innovative, mobile and expandable negative pressure wards KCCH. The newly installed negative pressure ward is a system that can accommodate both patients of severe and mild symptoms and features a clear distinction between the zones and movements of medical staff and patients by installing not only equipment store areas, warehouses, waste disposal rooms and detox rooms, but also restrooms in each ward.

In addition, the medical staff of Korea Institute of Radiological & Medical Sciences participated from

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the development stage to provide convenience and effective treatment in the actual treatment process. To this end, Shinsung E&G developed a negative pressure frame that allows safe operation of negative pressure rooms by adjusting the two-way pressure of the air tents. To go on further, Shinsung E&G introduced functional panels for the convenience of medical staff and patients. Currently, functional panels are operated with sinks, medical consoles, air conditioning and heating devices, and can be changed flexibly according to the requests of medical staff and patients.

Mobile and expandable negative pressure wards can be constructed with a variety of combinations such as numerous negative pressure rooms and necessary elements, which allows them to be comparatively less affected by the installation site and allows free organization of the patients' and medical staff's movements. Furthermore, since it provides clean air from the entire surface of the ceiling, it ensures that contaminated air be cleaned and discharged at a faster speed than existing products. The ventilation performance was also maximized so that there will be no stagnant air due to the outflow phenomenon. The entire can be monitored from the nurse's office, and in case of emergency situations, collective control can be executed.

The exterior is made of dome-shaped tents for a comfortable treatment space. It is optimal for responding to extreme environments such as snow, rain, wind, etc., and excellent for managing internal temperature and humidity. In order to address inconveniences of patients who must lie down during the treatment period, indirect lighting was introduced. Detailed attention was given, such as such as applying designs to reduce stress.

From the early stages of COVID-19, Shinsung E&G carried out the design and production of negative pressure wards based on experience and expertise in installing negative pressure rooms and screening clinics at Soonchunhyang University Seoul Hospital and Samsung Medical Center.

Dong-hun Oh, CDO of the Shinsung E&G Institute of Technology, stated, "The country is faced with a national crisis. I believe that it is the duty of businesses and academia to work together and give back to the people through technology." He added, "We will do our best to make sure that the negative pressure wards will be quickly distributed wherever it is needed as soon as possible."



1. Mobile Negative Pressure Wards (Photo credit by KAIST)