

Case Study 10.6 Kunshan Eastern Health Care Center, Kunshan City, China

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Keywords	Green technology, energy efficiency, water conservation.
Population (Metropolitan Region)	1,647 million (2010)
Area (Metropolitan Region)	921.3 km ²
Income per capita	US\$8,260 (World Bank 2017)
Climate zone	Cfa – Warm temperate, fully humid, hot summer (Peel et al., 2007)

The city of Kunshan lies 37 kilometers west of Shanghai in the Yangtze River Delta area of China. With a population approaching 2 million, including migrant workers, and a gross domestic product (GDP) of US\$32 billion (2010), it is the single richest county in China and aspires to Western standards of education, industry, and health care.

To provide health care services for its growing population, Kunshan is building three new health care facilities. A new hospital in the east of the city will provide Western medical services. A second new hospital to the west will deliver traditional Chinese medicine, whereas the third center will house the Kunshan Center for Disease Control and

Prevention, Health Authority, Red Cross blood banks, health promotion centers, and maternal and child health services.

Kunshan is investing in green technology as part of this next stage of its economic development. The Eastern Health Care Center will include a new 1,200-bed hospital, designed by an international consortium from Scandinavia. Its modular construction, materials, and air system are designed to reduce energy consumption both during construction and in operation, thus contributing to climate change mitigation through reduced greenhouse gas emissions.

Efficient heating will be achieved by recycling heat from shower water, supplemented by solar panels. Passive cooling will be achieved by circulating water to nearby lakes.

The hospital has also been designed to be water-efficient, using 70% less water than hospitals currently operating in China. As one strategy to achieve this, the hospital will use a centralized vacuum system for flushing toilets, similar to aircraft systems. The system will use 1.2 liters per flush instead of the 6 liters that is the U.S. Environmental Protection Agency’s current efficiency baseline, an 80% reduction. Note that the LEED-2009 guideline is only for a 20% reduction (U.S. Green Building Council, 2010). This will reduce the dependence of the hospital on the city’s water supply, increasing its resilience to extreme events, especially drought and flood. It also reduces the need for power-demanding ventilation, reduces hazardous waste storage, and reduces the risk of infection.

As one of the largest public buildings in Kunshan, this new hospital complex will set a standard in environmentally sensitive design and advanced green technology for the city, helping Kunshan follow a sustainable development path.



Case Study 10.6, Figure 1 *Kunshan Eastern Health Care Center.*

Case Study References

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