

Renovation: Meng Joss House - Italian Style Street



Latest heating technology in classical building saves over 50% of heating costs

The Meng Joss House, an Italianate building in the "Italian Style Street" in Tianjin, had seen better days. The former barracks for Italian soldiers, consisting of two three-storey buildings of different heights, was in a desolate condition. Now, after renovation, it serves as a modern office building. The original form of the building was preserved. The newly installed heating equipment is innovative and extremely efficient: more than 50% of the heating costs are saved.

As part of this renovation project at No.12, Boai Street in Tianjing, ELCO designed and implemented a particularly ecological solution. The building was fitted with an integrated heat pump, a solar installation for warm water processing, and a photovoltaic system. It was possible to preserve the historic substance of the building, which was technically modernised with great care to meet



the requirements of sustainable, environmentally friendly construction.

Customer

Tianjin Construction Engineering Main Contracting Co., Ltd., No. 1 Kaihua Road, Huayuan Industrial Zone, High-Tech Industrial Park, Tianjin, PR China

Planning and construction

Tianjin Construction Engineering Main Contracting Co., Ltd., PR China

BENEFITS

Savings

- Reduction of heating costs by more than 50%
- Annual energy savings: 10,000 kWh
- Approx. 10 tonnes less CO₂ emissions a year

Convenience

- Controls for all three system installed in one room
- Central, clear energy monitoring system
- Simple, reliable control equipment

- The combination of warm water system and integrated cooling system improves the quality of comfort and utility

Reliability

- Reliable protection from overheating
- Active, automatic frost-protection function

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A combined system makes it possible: Higher efficiency, more convenience

The new system

ELCO designed an environment-friendly solution that combines three completely sustainable systems: a heat pump system with air-conditioning and cooling systems and a heat recovery system; a solar installation for warm water processing; and a photovoltaic system that provides electricity for the lighting in the building. All the control units are concentrated in one part of the building. The three systems together make it possible to save more than 50 % of the energy costs, and reduce the CO₂ emission by about 10 tonnes a year.

The solar installation comprises five AURON 20 DF solar collectors and a water tank. An electric auxiliary heating system is also integrated. The system offers a number of functions, such as time-dependent disinfection of the system, intelligent auxiliary heating, and protection from overheating and overpressure. The warm water processing is thus reliable, perfectly hygienic and very convenient.



Environment-friendly ELCO heating technology for a more comfortable building

The geothermal heat pump provides cold and warm water for the air-conditioning and, thanks to the innovative 4-way valve system, also serves as a source of cooling and heating. Depending on the season, the system automatically switches between cooling and heating. In winter, the system utilises the stored warmth for heating; in summer the warmth is dissipated. Thanks to a COP value of over 4, operating costs are reduced significantly - and the integrated ceiling cooling convectors increase the building's comfort.



Italian flair in Tianjin: The Italian Style Street

This former military barracks, built in 1902, is the largest building in the "Italian Style Street" in Tianjin. It consists of two three-storey wings forming an L-shape. However, over the years, the striking arched windows and the open corridors were destroyed. In the course of major renovation work, it was possible to preserve the original style of the architecture completely. In addition to its historic significance, the building serves future generations as a reminder of the hundred-year history of modern Tianjin.

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