

## Green Trends in the Construction of Residential Buildings:

As the leading "Solar Energy and Building Design Integration" enterprises of the construction force, Norit conducted in-depth study and exploration of the many technological achievements, and mastered the combination of solar energy and building technology. Solar Energy, the clean, green energy is used in the residential buildings. Norit proactively put forward the "integration of construction and solar energy" concept on the sights on the roof, wall facades, balconies and other locations. How to better integrate solar energy and architecture, to conserve residential energy is of grave concern.

Solar energy has made remarkable achievements after several years of research and development. In China, more than 1000 solar water heaters are being manufactured to promote the application. During World Solar Congress in 1999, which looked into the solar energy technology development of the contemporary world, some experts believed that there are **two basic trends**:

1. The combination of light and heat, and
2. The combination of solar energy and architecture.



Solar Building Systems is the intersection of two major revolutions and a new architectural concept of green energy. The experts have predicted that solar energy, being the most suitable, safe and the best alternative energy sources is the future of mankind. At present, solar energy conversion rate being about 10% -12%, development and

utilization of solar energy potential is huge. It is reported that many countries in the world are implementing solar energy in buildings. Last year, the German government announced the implementation of "million roofs" program, which lay in the building at the top of large-scale installations of solar power, saving electricity, also in favor of environmental protection. So building using solar energy as done by the developed countries was strongly advocated by the government, mainly using solar PV with architecture integration.

### Advantages and Characteristics:

1. Completely replace the use of solar energy facilities to replace the roof or in part, cover, reduce costs and improve efficiency.
2. It is available for flat roofs and sloping roofs (with a mosaic on the sloping roofs)

3. The technology is a comprehensive technical tool, involving solar energy, construction, fluid distribution and other technical fields.
4. The use of solar energy into the overall design environment and the construction, technically and aesthetically.

Energy Agency of the United Nations survey has foreseen that building integrated with solar energy and will be the hot market of the 21st century. The use of solar Hot water system in China was to promote and stimulate domestic solar energy and construction combined with technological development.

**Disadvantages:**

1. High-rise buildings cannot install solar hot water split into the balcony façade in oblique ridge positions
2. It becomes difficult to prevent solar damage to the building structure to solve the mine, water and other safety hazards;
3. Solar energy promotion achieved industrialization so that owners install solar energy in the process of saving costs and ensuring quality

Presently, the building air temperature control consumes large quantities of energy. Using air conditioners and coal to control the room temperature not only consume energy, but also cause environmental pollution. In China, it accounts for the building to about 70% of total energy consumption. At present, the active solar energy supply costs higher because of no large-scale use. This situation cannot meet China's economic development. Therefore, based on building for energy combination of active and passive solar energy combined with the conventional idea of building energy conservation program, we can greatly reduce investment in solar energy for construction and operation costs, which will be captured solar water heater manufacturers.