References

Bayer Qingdao ECB Lighthouse



Uponor involvement

1,000

Bayer Qingdao ECB Lighthouse

ECB Lighthouse, which serves as the administration building of a Bayer MaterialScience plant in Qingdao, is the first building in China of the Bayer Eco Commercial Building (ECB) Program.
Uponor's Partnership with ECB
ECB Lighthouse, which serves as the administration building of a Bayer MaterialScience plant in Qingdao, is the first building in China of the Bayer Eco Commercial Building (ECB) Program. The ECB Program is a global initiative to provide an all-in-one solution through collective work from Bayer and its network of building partners to meet demand in China and across the globe for creating highly efficient and cost effective commercial and public buildings.

Project Facts:

Location	Completion
Qingdao, China	2011
Building Type	Product systems
Office	Radiant Heating & Cooling
Address	Project Type
	New building

Partners

Owner / Developer

Bayer MaterialScience (Qingdao) Co.
Ltd
Architect
Bayer Technology and Engineering
(Shanghai) Co., Ltd.

Bayer office is located in the Economic and Development processing Zone, and it is the city's first zero-emission building. The 1,000 square meter complex holds 60 office workplaces and represents a building system where energy needs are covered through long-term efficiency gains and renewable energy generation.

The ECB lighthouse is a project where the fundamental functions, such as heating & cooling, lighting, hot water and ventilation, are all equipped with state-of-the-art technology to optimize energy usage, which recycles the building's natural resources and utilizes solar energy for minimizing carbon emissions.

Aim of the ECB Lighthouse project is to provide building users with a high quality indoor climate with the lowest possible environmental impact and simultaneously reducing operation cost. Sustainable radiant cooling & heating systems are representing successful and interesting solutions to obtain and re-establish high comfort levels in offices. Their cooling & heating capacity is able to absorb/ cover all sensible loads inside the building and provide highly individual comfort. Therefore the air system can be reduced to provide fresh air at a minimum hygienic air exchange rate. This air system is also dehumidifying the space to cover the latent loads. So we can say goodbye to air systems with high flow rates and velocities which are the reason for local thermal discomfort.

Uponor Radiant Heating & Cooling Systems

Uponor Thermally-active Building System (TABS) Contec, In-situ concrete and OPTI Y were applied to the building. Our project team participated from the building design, installation, supervision to the commissioning progress. Project was completed in September 2012, and in operation till now.

Uponor TABS system (583m^2 Contec modules installed) was applied to the building which prefabricated piping embedded into center of the concrete slabs performing heating and cooling functions, reducing the energy consumption of Air Conditioning. The embedded pipes activate the concrete core in the building mass for storage and discharge of thermal loads. By using favorable night electricity, thermal energy can be stored in the concrete structure overnight. This can be used to compensate the cooling/heating load for the following day via radiation.

Apart from TABS, OPTI Y ceiling installation (173m^2 active panels installed) was utilized at certain area to strength the heating and cooling performance. The radiant heating and cooling ceiling covers the sensible peak cooling/heating load of the office area. The system is fast reacting and adapts to load fluctuations in the office area. This provides unique individual user comfort. The active ceiling panels are distributed by a 4-pipe system which allows cooling and heating in different areas at the same time according to the users need.

Due to supply temperatures close to room temperatures the systems is ideally suited for the use of ground energy or the use of a free cooling system at night time, which is especially beneficial and will consequently decrease the operation costs.

Bayer Qingdao ECB Lighthouse was qualified as LEED Gold certificated in 2013, and awarded as Best Practice of Global Green

Bayer Qingdao ECB Lighthouse









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