Sustainable heat recovery for wellness oasis

A CO_2-neutral hotel with HUBER technology? Yes, Valsana

Fig. 1: Valsana hotel, Arosa (courtesy of Valsana)

The Valsana Hotel & Apartment Arosa sets new standards for its sustainable energy concept and is heated 100% without fossil fuels. The lifestyle boutique hotel in the popular holiday destination of Arosa in the Swiss Alps has already proven in 2017 that sustainability can be successfully accomplished in harmony with nature and customer needs with an integrated approach in the upscale hotel industry. This pioneering achievement by the Tschuggen Hotel Group as owner of the Valsana was implemented long before the climate debate became omnipresent. The balance after two years of operation is extremely positive and expectations have been clearly exceeded.

The entire heating output of the hotel complex with 40 rooms and a total of 20 apartments is obtained both from the hotel's own waste heat from various sources and from geothermal probes. The core element of the energy concept is an 850 m³ ice storage tank (latent storage unit), which in combination with the heat pumps ensures the heat balance of the building complex. If the heat pumps draw large amounts of energy, the water in the storage tank can be cooled down to such an extent that it freezes. If more waste heat is available than energy is extracted from the storage tank, the surplus is fed into the water basin, thus thawing the ice again. The water can then heat up to 15 °C.

The HUBER Heat Exchanger RoWin plays a key role in heat recovery. It recovers 50% of the waste heat from wastewater, which has a temperature of about 23 °C, from the huge amount of water required for the kitchen and especially the wellness area. The wastewater is discharged into the sewerage system with a temperature of approx. 10 °C. With over 15%, the contribution of the wastewater heat to the total heat requirement of the hotel complex is very significant and contributes to an important CO_2 reduction.

The entire installation for waste heat recovery with the HUBER Heat Exchanger RoWin is located in the technical equipment room and is an encapsulated, odourless installation. The plant is accessible at any time and operation is fully automatic. Before the wastewater is fed to the RoWin heat exchanger, it is pre-screened with a 6 mm perforated screen (modified HUBER Wash Press WAP® 4).

Fig. 2: Pre-screening (6 mm) of wastewater with HUBER Wash Press WAP®

Fig. 3: HUBER Heat Exchanger RoWin in the technical equipment room of the Valsana hotel

In the Valsana project, only the hotel's own wastewater is used, the public sewerage system is not used for heating purposes. This example clearly shows that even with low wastewater flows of 1 litre per second on average, the HUBER Heat Exchanger RoWin can be applied successfully. For optimum heat yield, batch operation was implemented in the project.

The HUBER Heat Exchanger RoWin is suitable for new construction projects and for the rehabilitation of existing heat generation plants. In combination with alternative energy systems, this technology can be used to tap a significant, previously unused energy source.

Many thanks go to the owner of the Valsana (www.valsana.ch), the Tschuggen Hotel Group, the energy planner Broenner AG (www.broenner.ch) and to all those involved who made it possible that this pioneering project could become reality.

Related Products:

- HUBER Heat Exchanger RoWin

Related Solutions:

- Wastewater Heat recovery: HUBER Solutions for Local and Short Loops
- HUBER Solutions for Wastewater Heat Recovery from Sewers

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