A complex consisting of production buildings for bread and meat, connected by a technical element that integrates and merges the two administrative areas has been constructed at the new operating facility of MPREIS Warenvertriebs GmbH in Völs near Innsbruck (Austria).

By Michael Trautwein

After the destruction of the existing factory by fire in early 2011, ATP architects engineers were commissioned to design a new bread and meat production facility for the Tyrolean food retailers MPREIS. Both productions are self-contained, but connected by shared supply of energy and a boxing wash.

After a short design phase, the first foundations were poured in May 2012. A combined-heat-and-power plant was built below the flight path of Innsbruck airport which powers both production facilities and also produces a surplus which is fed into the public grid. The industrial bakery started operations in April 2013 after 12 months on site and was followed slightly later by the meat production facility.

A new frozen storage building is currently being built next to the bridge to the south – another measure which, together with the existing earth wall will improve noise protection from the neighboring loading facility.

Technical building connecting bakery and butchery

The two production facilities, built on a greenfield site 500 m from the company headquarters speak two different functional and design languages: The Therese Mölk Bakery with its timber skin interlocks at every level with the shiny metal of the meat processing building of the Alpine Butchers via the shared connecting element containing the technical plant.

“Bread – with a crust”: Spruce shingles cover the entire facade like a crusty skin, which is very unusual for a production facility of this scale. Vertical window elements break up and soften the volume, as a contrast to the hardness and monotony common to industrial facades.

“Meat – razor-sharp metal block”: Fully mirrored, bright-annealed, cold-rolled metal panels surround the various parts of the meat production area, including the offices. Here the designers opted for an integrated system: A single external envelope wraps around and integrates all areas of the facility creating a metal block with hard edges.

The technical element is a similarly mirror-clad building which connects the two monoliths at their centers. The whole complex can be served from here even in the event of a later expansion.

And, rounding it off, the area around the production halls is treated as a natural meadow of Alpine flowers.

Process flow and materials

The entire flow of materials in both production areas is linear and on one level – which is slightly raised by 1.2 m (to improve the delivery situation and protection against insects) – and has a goods delivery point in the north and a dispatch point in the south. Employees and visitors reach the central technical element via a suspended bridge. Employees move on to the changing areas which are located in the office wing and then down into the production areas. As said above, the external facade is composed of two materials: timber and metal – spruce shingles on one side and bright-annealed, cold-rolled metal panels on the other.

The bakery has a pre-stressed Cobix slab designed to take live loads of 1,000 kg/m². It is strengthened by haunches along the lines of the structural grid. The high live loads and the large spans led to the use of 32 cm hollow spheres which meant that large quantities of concrete and, hence, cement could be saved. Obviously, it is especially pleasing that it
Planing 31

The site plan illustrates the integration of the Therese Mölk bakery and the Alpenmetzgerei butchery.

contributes to the sustainable use of our limited resources.

**BSE specialities**

A combined TT-panel slab with a suspended steel plant level was built above the meat processing area. The extremely high density of building services equipment (BSE) meant that an unusually high number of unusually large openings had to be made in this slab:

- Meeting of the entire cooling needs of the air conditioning system with the use of available groundwater, leading to an approximate 85% saving of the electrical energy used in the generation of cooling.
- Discharge of the extract air from the industrial cooling also with a 25% groundwater share.
- Use of the groundwater as a fire water reservoir for the fire protection of the bakery.
- Installation of a heat exchanger between meat plant and bakery; heat recovery from the cooling plant, use of exhaust air from the heat generation equipment as steam and heat transfer oil.

Furthermore, the exhaust air from the bakery oven is used: the excess energy is stored in large energy storage units and used at times of high demand. This covers 70-75% of the necessary annual heating requirements. Also the external cantilever of the office element makes the use of solar protection measures completely unnecessary.

The central energy supply to the meat processing plant and bakery happens from the technical element including the use of such alternative energies as photovoltaic equipment (500 kWp) and a combined-heat-and-power plant (897 kW). Moreover, the installed capacity is being reduced by taking into account the simultaneity and the production times of the meat processing plant and bakery. The complete exterior lighting is implemented as dimmable LED, controlled by external brightness sensors with additional brightness reduction at night to increase energy saving between 10 p.m. and 5 a.m. mornings. All of the IP-compatible systems are integrated via MPREISes EDP-network.

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