INSIGHT

FOOD

Superlative food logistics

Coop produces 60,000 tons of bread and baked goods at its new logistics site in Schafisheim. The wholesaler supplies 350 stores with food and other everyday goods from there. Schafisheim is also the starting point for the national distribution of frozen products. In short, a logistical masterpiece is achieved here every day.

"We have big plans," said Leo Ebneter, Head of Logistics at Coop, when planning for a new logistics center began around seven years ago. Today, it is clear what dimensions he had in mind at the time: after three years of construction, a building complex has been created in Schafisheim, Aargau, that sets new standards in food logistics in every respect. "What the new Gotthard Base Tunnel is for Switzerland, Schafisheim is for Coop logistics," says Joos Sutter, CEO of Coop.

PROJECT SCOPE

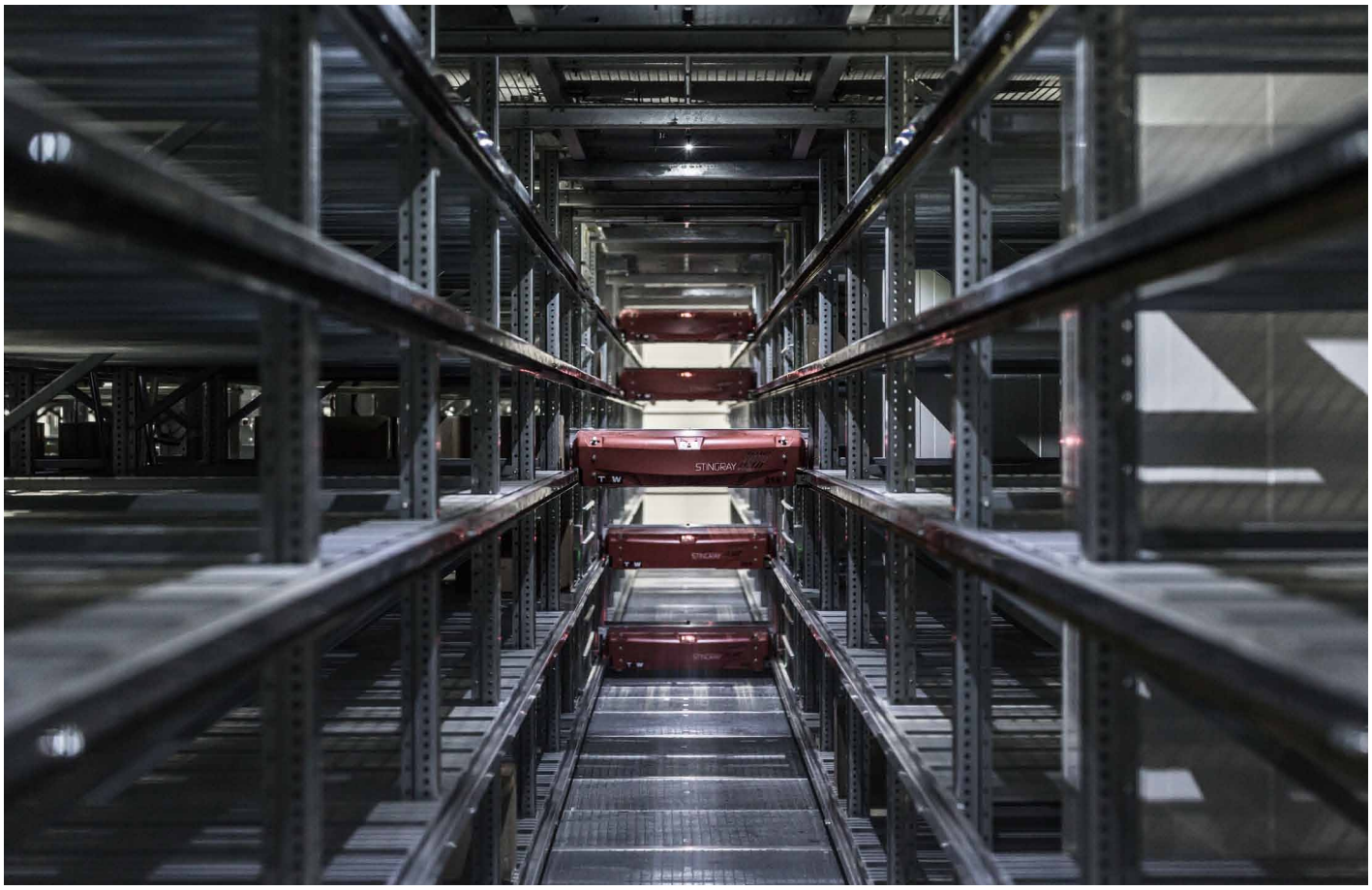
3 KEY FUNCTIONS
- National frozen food distribution center
- Industrial bakery and confectionery
- Regional distribution center

NUMBER OF EMPLOYEES
- 1900

NUMBER OF BAKERY EMPLOYEES
- 600

BAKERY OUTPUT
- 60'000 tons of bread (80 %) and baked goods (20 %) per year

FLOUR CONSUMPTION
- 40'000 tons per year



CONSTRUCTION SCOPE

GROSS FLOOR AREA
› 240'000 m²

CONSTRUCTION VOLUME
› 1,5 million cubic meter

INVESTMENT VOLUME
› 600 million CHF

EXCAVATION
› 350'000 m³ gravel (for concrete)

FOUNDATION
› 282 bored piles, up to 23 meters deep

SCOPE OF THE BUILDING APPLICATION
› 480 federal files with over 2,400 plans

PROJECT TEAM
› 80 - 120 employees

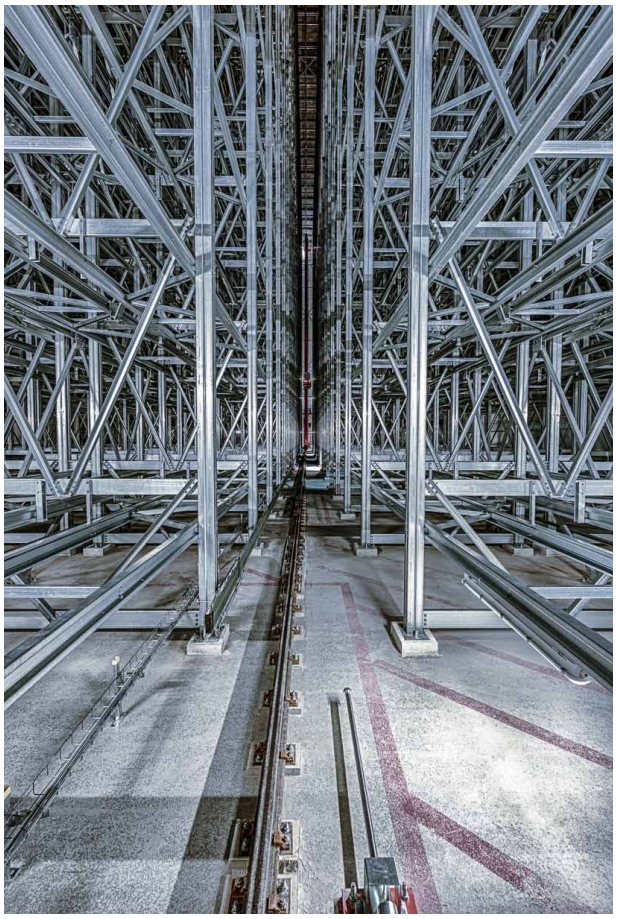
PLANNING TIME
› 5 years (october 2010 - end of 2015)

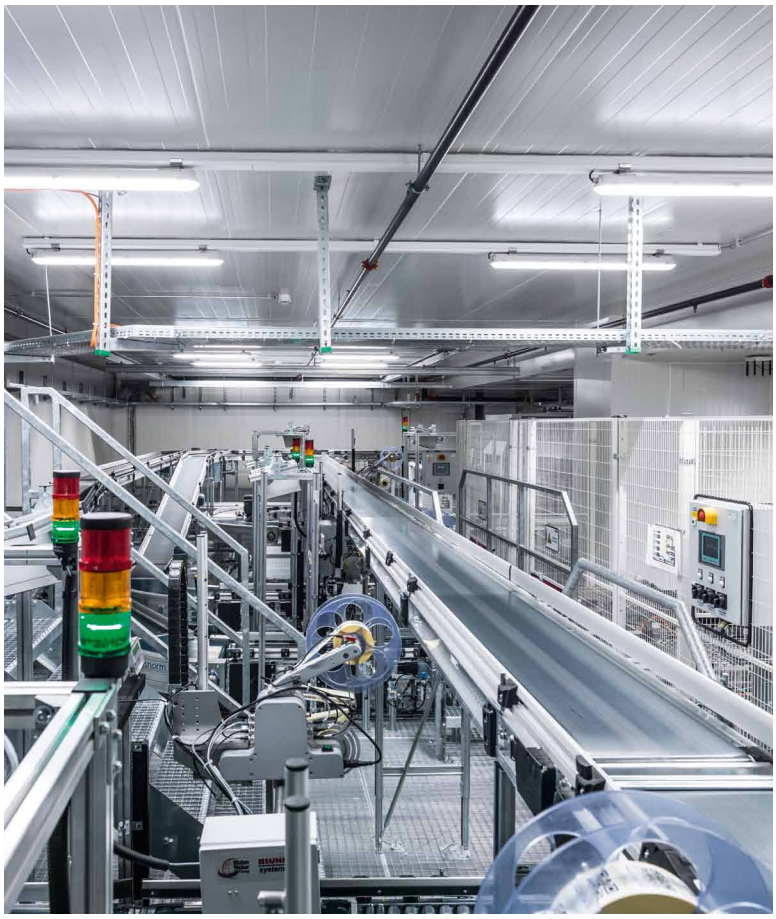
CONSTRUCTION TIME
› 3 years

Concentration of three business areas at one location
Coop has established three areas in the new building complex in Schafisheim, which is ideally located in terms of transport and distribution. Firstly, Switzerland's largest bakery and one of the most modern in Europe has been built here: Around 600 employees work in three shifts, using traditional wood-fired ovens and high-performance, highly automated equipment. During the night, they bake fresh bread, and during the day, they bake cakes, tarts, roulades, and other pastries. Both day and night, dough pieces are produced, frozen on site in the deep-freeze warehouse, distributed to the stores, and baked there.

The second area in Schafisheim is the national distribution center for all kinds of frozen foods with fully automated warehouse management and order picking. From here, Coop supermarkets and Coop Pronto shops throughout Switzerland are supplied. As a third function, Coop has set up a regional distribution center for a large part of the Coop range at the Schafisheim site. It supplies around 360 retail outlets in the greater Zurich area, northwestern Switzerland, and central Switzerland. In addition, the logistics site has an empties center where returns from the stores are collected and sent for further processing.

Size poses a major challenge for all involved
Planning and executing such an ambitious and complex large-scale project requires partners who not only have planning, logistics, and construction expertise, but are also familiar with the specific requirements of the food industry. With a total investment of CHF 600 million, a gross floor area of 240,000 m² and a construction volume equivalent to around 200 single-family homes, there can be no compromise when it comes to the qualifications of the planning partner. Coop decided to collaborate with IE Food Engineering, which has proven its expertise in factory construction in the food sector in numerous projects.





Cooperative planning by experts from various disciplines
For the planning company, the construction of the new Coop logistics center was a major challenge, if only because of its enormous dimensions and logistical complexity. A basic prerequisite for the success of the project was cooperative planning under the leadership and with the participation of specialists from the client's side and the engineers and architects from IE Food. TGW Logistic Group, which specializes in internal logistics solutions, was brought on board as another important partner. A total of around 200 experts from a wide range of disciplines were involved in the project organization. A master plan was developed for the planning and execution, in which the individual construction stages were defined and scheduled and had to be reconciled with operational requirements.

The Coop logistics center in Schafisheim, with the construction of the new building for the large bakery and the frozen food warehouse, is a prime example of the successful mastering of the diverse and complex challenges that can arise in factory construction:

1. High production volumes on a limited construction area
In order to ensure the planned capacities on the 40,000 square meters available, vertical planning was necessary - with corresponding effects on the planning of the process organization. After the building height was increased from 18 to 25 meters with the blessing of the authorities, it became possible to construct an eight-story building: 25 meters high and 25 meters deep. This solution is the result of a large number of computer simulations used to evaluate various planning options.

2. Building structure developed from function
The proven IE planning approach "from the inside out" was also applied in Schafisheim. The deep-freeze center is located at the same height at the end of the bakery's production lines. The baked goods are transported directly to the deep-freeze warehouse via a short route and then to the distribution center via a walkway.

ENERGY GENERATION

BIOMASS POWER PLANT
› approx. 14 gigawatt hours per year

SOLAR POWER PLANT
› 250'000 kilowatts per year

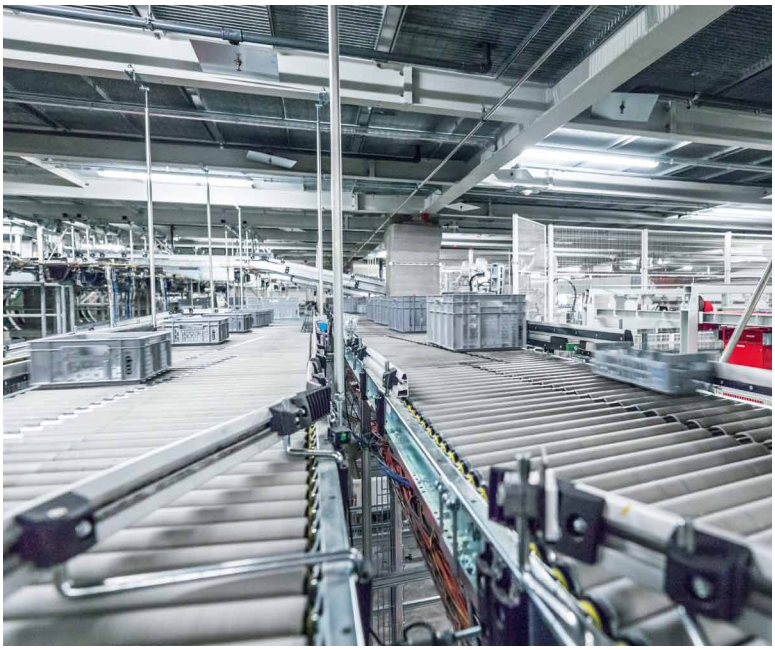
LOGISTICS

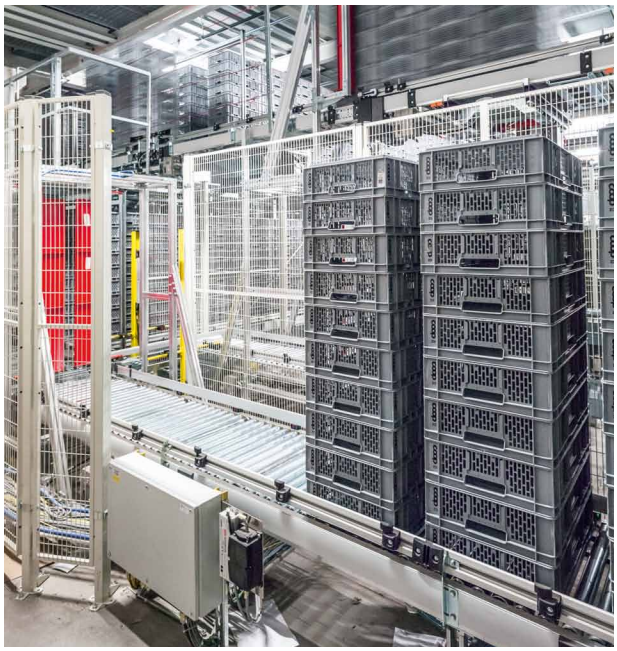
COMMISSIONING PERFORMANCE
› 480'000 – 500'000 col. per day 18'000 RB per day
(equivalent to approx. 9,200 pallets)

TRUCK TRANSPORT
› 760 per day in goods receiving/issuing

RAILWAY TRAINS
› 40 per day

FORKLIFT IN USE
› 270





3. Well thought-out design principle
On both production floors, the concrete supports of the building's load-bearing structure were fitted with brackets. These made it possible to arrange two production lines one above the other. The upper production line rests on the brackets of the concrete supports.

4. Linking intralogistics with the external logistics concept of the large distributor
The schedules for truck deliveries and pickups, calculated down to the minute, set the pace for the internal logistics systems. In Schafisheim, the conveyor processes, warehouse management, order picking, and provision of goods have been automated as far as possible. The processes are organized according to the "first in, first out" principle. State-of-the-art storage systems, shuttle vehicles, robotics, and buffer systems are used.

5. Building services with ecological added value
Seventy percent of the energy used to heat the ovens at the industrial bakery comes from the company's own biomass heating plant. The main energy source is organic grain waste from the Swissmill grain mill in Zurich.
Seventy percent of the energy used to heat the ovens at the industrial bakery comes from the company's own biomass heating plant. The main energy source is organic grain waste from the Swissmill grain mill in Zurich. Coop's sustainable energy production reduces CO2 emissions by around 10,000 tons per year. Process heat from the bakery and the biomass power plant is also used in Schafisheim. It is used to heat the rooms and generate steam, and completely covers the energy requirements for space heating in the two largest buildings on the site.

6. Construction with simultaneous installation of equipment and ongoing production
To save time, the logistics and bakery facilities had to be installed during the shell construction phase. In addition, operations at the existing logistics center on the site had to continue uninterrupted. This made organizing the construction site logistics particularly challenging. Despite having its own concrete plant on site, up to 100 truckloads of materials were transported daily during peak periods.
On June 22, 2016, after a construction period of three years, the Coop logistics center in Schafisheim was officially opened in the presence of Federal Councilor Doris Leuthard and other prominent guests. It stands as a symbol of how large-scale projects can be implemented on time, on schedule, and within budget. This was made possible by meticulous controlling on the one hand and, on the other, by all those involved pulling together and working in partnership.

Engineered by IE.

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