



**FE** FOOD

The specialist for industrial buildings.

COOP

INSIGHT



## 60,000 tons of baked goods annually: efficient, sustainable, space-saving

As little CO<sub>2</sub> emissions as possible, but at competitive costs - and that for one of the largest private construction projects in Switzerland: a challenging task for which IE was awarded the contract by Coop. The contract included the complete planning and construction of the food retailer's new large-scale bakery, with an adjacent logistics center. Coop was impressed by IE's holistic approach to this gigantic project. Many pieces of the puzzle come together to form a thoroughly efficient and sustainable industrial building.

The energy requirements of the large bakery, with a production capacity of 60,000 tons of baked goods per year, are considerable. A solution was therefore needed that would both ensure a reliable energy supply and use energy as efficiently and environmentally friendly as possible.

### Waste recycling: Grain residues fuel large-scale bakery

In parallel with the analysis of the facility's energy requirements, Coop and IE therefore set out to find alternative energy sources. The experts found what they were looking for at a Swissmill grain mill in Zurich, a Coop subsidiary. Large quantities of

### TOTAL CONSTRUCTION COSTS

- › CHF 600 million, of which:
  - CHF 100 million logistics
  - CHF 100 million bakery

### SCOPE OF CONSTRUCTION

- › 240.000 m<sup>2</sup> gross floor area
- › 1,5 mil. m<sup>3</sup> volume

### PLANNING AND CONSTRUCTION PERIOD

- › 5 years (October 2010 to end of 2015)
- › Q1 2012: Building application for main project
- › Q2 2012: Start of initial construction work
- › January 2013: Building permit
- › End of 2015: Commissioning of new logistics facility
- › Early 2016: Commissioning of bakery
- › June 2016: Inauguration of entire project



## SERVICES IE

- › Planning and execution of the renovation and new construction as general planner
- › Approval planning and coordination with the authorities
- › Implementation and detailed planning
- › Hygiene coccept
- › Logistics planning
- › Interface between bakery, construction, and logistics planning
- › Tendering and awarding of construction contracts
- › Construction supervision of structural and finishing work and coordination with building services until commissioning

organic milling by-products are generated here every day. This gave rise to the idea of converting these grain residues into energy with the help of a biomass power plant. Calculations showed that the energy yield from 3,500 tons of this waste material per year, mixed with wood chips, was large enough to cover the base load of heat generation for the industrial bakery. Fossil fuels are only required to cover peak loads. Coop avoids around 10,000 tons of CO<sub>2</sub> per year in total. This corresponds to approximately two million liters of heating oil. On the one hand, Coop saves energy and disposal costs with the biomass power plant. On the other hand, this logistics project significantly reduces truck journeys, saving 4,800 tons of CO<sub>2</sub> annually. A win-win situation for businesses and the environment.

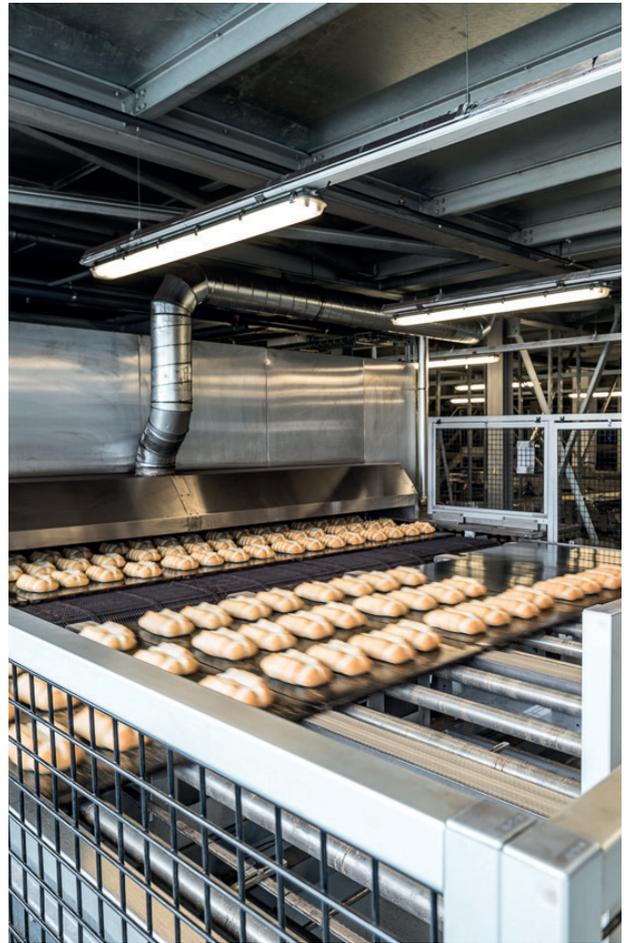
### Energy recycling: Heating with process heat

The energy generated in the biomass power plant can be used particularly efficiently in an integrated system: IE therefore decided to recover process heat from the bakery and the power plant for the other new buildings being constructed on the site. This means that the waste heat generated during baking is used for space heating and steam generation. This allows the energy requirements for space heating in the two largest buildings to be completely covered.

### Excavation recycling: Gravel becomes concrete

Even the construction process for a project of this magnitude consumes considerable amounts of energy and pollutes the environment with emissions. That is why IE tried to reduce the demand for gray energy as much as possible right from the initial planning stages.

With the help of sophisticated mass management, IE planned the elevation of the buildings so that a minimum of earthworks were required. Nevertheless, 350,000 cubic meters of gravel still had to be excavated. Instead of disposing of it with thousands of truckloads, IE



relied on a specially set up concrete plant right next to the construction site. This allowed most of the excavated gravel to be moved to the right places and used on site for the new building in the form of backfill or concrete.

### **More space in the same area**

Land in the area is extremely scarce and expensive. IE's very first step was therefore to review the existing rough plans for available space and room heights. The analysis showed that Coop's project could not be adequately accommodated. If all the planned functions with the necessary dimensions were to be located here, the only option was to build taller buildings. However, this was not compatible with the existing building and usage regulations.

In dialogue with the relevant authorities, the project team achieved a change in the building regulations for the site IE's many years of experience in approval management and dealing with the authorities paid off: instead of a maximum building height of 18 meters, the new building regulations now allowed for 25 meters. This meant that all functions could be optimally accommodated on the site, and Coop now even has a reserve for possible future expansions.

The scope of the project is illustrated by the building application: 480 federal files with over 2,400 plans were submitted to the municipality. Nine months later, at the beginning of 2013, the building permit was granted. The large-scale project was able to be tackled quickly.



### The largest construction site in Switzerland

- ✓ The excavation yielded 350,000 cubic meters of gravel. Most of it will be used for the new construction.
- ✓ The floor slab is 1.1 meters thick, has a volume of 30,000 m<sup>3</sup> and stands on 282 piles. These extend 10 to 23 meters into the gravelly subsoil.
- ✓ A diaphragm wall secures the 25-meter-deep excavation pit. This includes 910 steel anchors, which are on average 14 meters long and tensioned with 40 tons.
- ✓ The movement of the pit is constantly monitored: a high-pressure gas pipeline and data cables are located directly adjacent to the construction site. eine Hochdruckgasleitung und Datenkabel.

---

## Contacts

---

### IE Food Zurich

Wiesenstrasse 7  
8008 Zurich | Switzerland  
T +41 44 389 8600  
zuerich@ie-group.com

### IE Food Munich

Paul-Gerhardt-Allee 48  
81245 Munich | Germany  
T +49 89 82 99 390  
muenchen@ie-group.com