

58-metre-high shell structure for Systematic's headquarters

Delivery of shell structure for 15-storey office building in trade contract



AARSLEFF

The client, Byggeselskabet Olav de Linde, has constructed a new 15-storey and 58-metre-high office building to house the IT company Systematic at Søren Frichs Vej in central Aarhus. Systematic's old offices were located on both sides of Søren Frichs Vej, so to be able to unite the company's activities, the new headquarters was built next to one of the existing office buildings. Systematic chose a high-rise building because of the limited space. Per Aarsleff A/S carried out the shell structure as a trade contract.

Founded on concrete and steel piles

The project began with pile driving in September 2018. The initial plan was to support the building on concrete piles only, but due to the challenging soil conditions in the area, this proved not to be the right solution for a high-rise building, as it would result in large soil displacement. Instead, we decided to use steel piles.

The building is supported on 297 concrete piles, 106 steel piles and a two-metre-thick base slab, which all together form a solid foundation for the 58-metre-high building.

Cast in situ

A large part of the shell structure was cast in situ, including the stabilising cores, columns and slabs. The building is designed in such a way that the 3rd to the 14th floor is partly cantilevered over the lower floors. So here, we cast a one and a half metre high horizontal division of the floor structure with a built-in prestressed reinforcement. The horizontal division and walls around the two stabilising cores and columns along the facades were all cast in situ. However, steel was used for the upper floor, except for a few walls, which were cast in situ. A total of 31 tons of steel was installed for the top floor. Also, we constructed a three-storey side wing next to the office tower containing a lecture

hall among other facilities. Precast concrete elements were primarily used for the side wing, whereas the stairway of the lecture hall was cast in situ.

Focus on planning

In addition to the soil conditions, the overall site conditions were challenging and required careful logistic planning. Especially as the site was located on a very small plot in between Systematic's existing office facilities, a busy pedestrian and cycle path and a wastewater treatment plant. Moreover, Søren Frichs Vej is a busy road in Aarhus – particularly during rush hours. Nevertheless, we had a tight schedule and had to deliver a new floor every second week, so our team was pressed for time. However, we completed the shell structure on time at the end of November 2019.

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Data

- 297 concrete piles, 300×300 mm in lengths ranging from 21-30 m
- 106 steel piles, HEB300, 28 m long
- 4,000 m³ of concrete
- 770 tons of reinforcement
- 500 concrete elements (walls, composite beams, voided slabs and stairways)
- 31 tons of steel
- 7,000 m² of office space.

Clients

Byggeselskabet Olav de Linde
(overall client)
Base Erhverv A/S
(Aarsleff's client and main contractor on the project)

Contractor

Per Aarsleff A/S

Type of contract

Trade contract

Consulting engineer/ Architect

NIRAS A/S
(consulting engineer)
ERIK arkitekter A/S
(Architects)

Construction period

August 2018-December 2019

Contract value

DKK 40 million

Contact

Per Aarsleff A/S
Construction
Estimation & Tender
kalkulation@arsleff.com
Tel +45 8744 2222

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