



APPARTEMENTEN EXPO WIJK

Deurne

New construction 145 apartments - social housing



Status

2017 - 2020



Services:

Building Services, Structural



Sectors:

Residential: Social housing



Client:

BV WOONHAVEN ANTWERPEN



Architect:

Tom Thys Architecten en Gestalt
architecten bvba



Area:

15884 m²



General

The project "Apartments EXPO District" in Deurne comprises the new construction of social housing and apartments distributed across three building blocks, totaling 145 residential units. BM Engineering was responsible for the complete design of the technical installations and the structural stability of all buildings. The technical systems include heating, ventilation, electricity, plumbing, and elevators, each tailored to the specific needs of each block. The provisions in the apartments are designed according to the guidelines for social housing and linked to the building management system of the housing association.

Blocks A, B, and C together comprise 145 apartments:

- 27 apartments with 1 bedroom
- 43 apartments with 2 bedrooms
- 37 apartments with 3 bedrooms
- 27 apartments with 4 bedrooms
- 11 apartments with 5 bedrooms

Technical Systems

For block A, a heating concept with individual wall-mounted boilers for the houses and a central boiler room for the apartment section was chosen. Blocks B and C are equipped with a combi-boiler system with heating satellites per residential unit, connected to a central boiler room. These installations are supported by thermal solar panels to reduce energy consumption and costs. Local production of domestic hot water is achieved via plate heat exchangers. In all apartments, demand-controlled ventilation units are provided to guarantee hygienic ventilation. The central boiler rooms are furthermore prepared for a future conversion to district heating. Beneath block B there is an underground parking garage, equipped with a ventilation opening that serves as a safety installation and natural ventilation provision.

Structural

Regarding structural stability, block A rests on a foundation slab on piles, with local crawl spaces on a beam grid that is also founded on piles. The load-bearing masonry consists of calcium silicate brick, with precast floor slabs and prefabricated concrete stairs. For block B, a foundation slab on solid ground was provided, supplemented with footings under the columns.

The basement floor is covered with a mushroom slab on concrete columns. Here too, the load-bearing masonry consists of calcium silicate brick, with precast floor slabs and prefabricated stairs. The earth retention is realized with Berlin walls and concrete walls. The building has the shape of a donut and encloses a patio. The roof slab of the patio consists of a mushroom slab, while the section under the building was supported by a conventional reinforced concrete beam grid, chosen for economic feasibility and column spacing.

Block C was conceptually close to block A during the design phase, but during construction the contractor proposed to provide the building entirely with a crawl space. Due to the compact donut shape and the flexibility for the installation of technical systems, this was possible within the same budget.

A crawl space also scores higher on sustainability, as it facilitates future maintenance and renovation of technical systems.

The base slab of the crawl space was founded on piles, with a thickness that makes pile caps and foundation beams unnecessary. The walls of the crawl space consist of precast twin walls, which ensures rapid installation and avoids on-site formwork.

Surface Areas

- Block A: Apartments and Houses distributed over 4 building floors (6,920 m²).
- Block B: Apartments distributed over 4 building floors (7,900 m²) + Underground parking garage (2,960 m²).
- Block C: Apartments distributed over 6 building floors (7,000 m²)

Kortrijk Office

Beneluxlaan 1A
8500 Kortrijk
+32 (0) 56 28 26 20

Antwerp Office

Britselei 23, bus 401
2000 Antwerpen
+32 (0) 3 235 48 88

Email us at:

info@bmengineering.be

Visit our website:

www.bmengineering.be

Dates

- Design start: 30/10/2014
- Urban planning permit: 19/01/2016
- Provisional delivery of block A: 29/06/2023
- Provisional delivery of blocks B and C: 19/06/2020

Construction partners:

- Main contractor: Vanderstraeten nv