



NEERLAND

Wilrijk

Construction of 252 residential units (36 social apartments and 22 social houses + 177 private apartments and 17 private houses) with underground parking.



Status

2018 - ongoing



Services:

Building Services



Sectors:

Residential: Social housing



Client:

BV WOONHAVEN ANTWERPEN



Architect:

Bert Ooms architect bv



Area:

29000 m²



General

Phase 1: 36 social apartments + 57 private apartments

Phase 2: 17 private houses

Phase 3: 69 private apartments

Phase 4: 51 private apartments

Phase 5: 22 social houses

Heating / Free cooling

After an investigation of various heat generation systems, it was decided to provide geothermal boreholes (BES field – Borehole Energy Storage) per apartment building, to which a central water/water heat pump is connected for the production of heating water at low temperature (35/30°C). By utilizing the thermal ground capacity, we can provide a very energy-efficient heating system. Additionally, there is a limited cooling possibility; by installing a heat exchanger, we can directly use the cold stored ground temperature after the heating season for passive cooling. This increases living comfort without added primary energy. In this project, a 4-pipe system was chosen. This gives each resident the option to cool or heat.

The heat emission / free cooling in the residential units is provided by underfloor heating.

During execution, an ESCO was also appointed with whom further detailing of the installation was developed. The focus was primarily on control-technical optimizations to make the installation operate as energy-efficiently as possible. For the individual houses, individual air-to-water heat pumps were chosen.

Ventilation

For the ventilation of the residential units, a ventilation system D was provided per residential unit. By applying a ventilation system D, it is possible to perform heat recovery. The efficiency of this heat recovery is higher than 75%. A demand-controlled ventilation unit is provided per residential unit. This significantly limits ventilation losses without loss of air quality.

Water

The hot water production is provided decentrally per residential unit. A heat pump boiler is provided per residential unit; these heat pumps primarily use the low-temperature heating water and provide domestic hot water on the secondary side. By using a boiler capacity tailored to the end user, we provide efficient hot water production customized to the resident.

The necessary electrical energy for generating domestic hot water is captured by providing a PV installation per residential unit. This method enables us to provide domestic hot water production in a fossil-free manner.

Rainwater harvesting is used for the maintenance and irrigation of the various green zones.

Electricity

The apartments were provided with the necessary power outlets and lighting points according to a basic fit-out. A lift was provided per stairwell. The common areas were equipped with automatic fire detection in accordance with standards. The stairwells and central corridors were provided with lighting fixtures according to the look & feel of the architect. The emergency lighting was aligned with or integrated into the chosen fixtures.

A PV installation was provided per residential unit. The PV panels are equipped with micro inverters that are connected to the panels themselves.

Additionally, a central PV installation was provided to offset the electrical energy consumption by the central heat generation. To achieve the highest possible yield, the remaining available roof surface was fully utilized for the placement of a PV installation. This installation will provide local CO₂-neutral electricity generation, offsetting part of the electrical consumption of the heat generation.

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Underground parking garage

Under buildings B1abcd, an underground parking garage was provided with a total of 7,595 m² spread over 2 underground floors. The parking is equipped with a smoke and heat exhaust (SHE) installation and the necessary smoke screens for zone demarcation. This SHE installation is also used to provide the minimum parking ventilation. Furthermore, the parking was provided with a sprinkler installation in accordance with regulations. The installed medium-voltage customer cabin provides power to the electrical charging infrastructure installed in the parking.

Provisional acceptance dates:

- B1a: not yet delivered
- Tuinen Van Eden "Boomgaard I" (building block B1b): 13/11/2024
- Tuinen Van Eden "Boomgaard II" (building block B1c): 11/02/2025
- Tuinen Van Eden "Boomgaard III" (building block B1d): 28/01/2025
- Delivery of the underground parking "Boomgaard": 12/11/2024
- Delivery of the technical installation "Boomgaard": 05/02/2025
- Tuinen Van Eden "Parktuin I" (building block D1A): 03/10/2025
- Tuinen Van Eden "Parktuin II" (building block D1B): 17/10/2025
- Tuinen Van Eden "Parktuin III" (building block D1C): not yet delivered
- Delivery of the technical installations Parktuin: 29/09/25
- Tuinen Van Eden "Parkrand" (building block D2): 22/01/2024
- Tuinen Van Eden "Parkzicht I" (building block D3A): 16/05/2024
- Tuinen Van Eden "Parkzicht II" (building block D3B): 17/06/2024
- Delivery of the technical installation Parkzicht (D3A + D3B): 04/06/2024