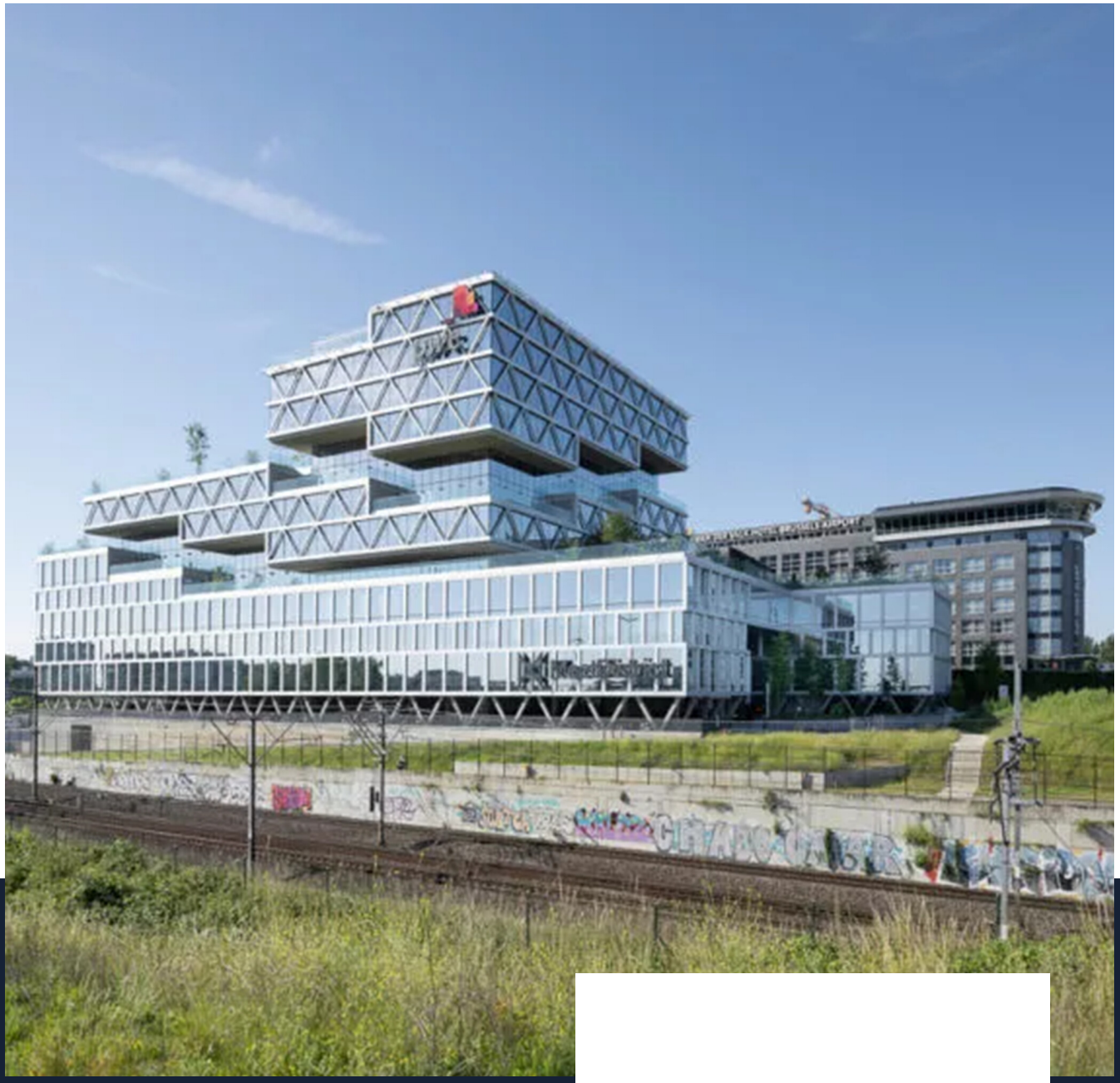

PWC CAMPUS

Diegem

The project consists of 3 building sections: a central tower of 12 floors (44 meters high), a left wing with 3 floors, and a right wing with 8 floors.
Underground there is ample parking space over 4 floors.

Status
2019 - 2021

Services:
Building Services, Structural

Sectors:
Office & Commercial: Office buildings

Client:
SRL ASSAR BE ARCHITECTS

Architect:
BV ASSAR ARCHITECTS

Area:
50000 m²

BM ENGINEERING GROUP

BM ENGINEERING GROUP

General

In less than 2 years, Ghelamco Group built a new headquarters for PwC and a 4th Meet District in Belgium in Diegem. Totaling 50,000 m2 of usable floor space across 16 building levels. The design by Assar Llox Architects is not only a landmark along the E40. With the BREEAM Excellent label and ample attention to greenery, the building also immediately sets a new standard for future offices in Belgium. And this with minimal facility and energy costs. The building on Culliganlaan in Diegem is located at a crossroads of traffic routes – the Ring/E40 with on- and off-ramps to the A201, a railway line with a cycling highway, and Brussels Airport in Zaventem – and is therefore exceptionally easy to reach. Underground, there is ample parking over 4 levels. Above that, 3 building sections were constructed: a central tower of 12 floors (44 meters high), a left wing with 3 floors, and a right wing with 8 floors.

Construction site with challenges and advantages

The plot on which the building was constructed is characterized by a level difference of 3 building levels between the front and the back. Therefore, both temporary and permanent earth retaining structures had to be provided with the adjacent plots. Because the construction pit occupied virtually the entire plot, careful thought was given in advance to the layout of the site, the phasing of the earthworks, and the execution of the sheet pile walls. Despite the height of the building and the heavy loads on the basement columns, it proved unnecessary to use pile foundations. Due to very good sand layers at level -4, a general flat foundation slab was sufficient. This was considerably cheaper and also resulted in significant time savings in the construction process. An additional advantage was that no collector pipes from the underlying BEO field had to cross foundation beams. Because there was also no groundwater present at -4, no dewatering was needed either. This meant both time and financial savings.

Making optimal use of height

Due to the proximity of the airport, the height of the building had to remain limited. Naturally, the developer wanted to build as many usable floors as possible. To have both sufficient clear height and enough space for the horizontal technical ducts on each floor, the height of the structural elements had to remain limited. We worked out various options in both concrete and steel in terms of optimal space utilization and cost efficiency. Combined design in a BIM environment ensured excellent coordination with the technical services.

Terraces and greenery

Large cantilevers of the central tower section characterize the architecture of the building. The reinforcement in the cantilevers is designed to keep deformations within acceptable limits even in the long term, despite the limited thickness of the concrete slab. This is important because the entire facade consists of glass.

The abundant greenery – a striking contrast with the neighborhood where concrete and glass predominate – provides beautiful views and a particularly pleasant working atmosphere. With 2,187 m2 of terraces with greenery and 1,737 m2 of green roof, however, some extra vertical forces are transferred to the building's structure. Our structural engineers consulted with the landscape architect to optimize the heaviest loads on the terraces and the loads from the roof garden. This allowed the structure to remain as light as possible while still literally and figuratively supporting the quality of the garden design.

V-shaped columns

Another architectural eye-catcher are the prefabricated V-shaped columns that support the entire facade structure on the ground floor. Here, extra attention was paid to absorbing the horizontal forces and to the detailing of all connections. The superstructure consists of 3 separate parts divided by structural expansion joints. By connecting the parts to each other via sliding dowels, the building functions as one whole to absorb the horizontal wind load.

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

Inside, the column structure of the superstructure is aligned with the optimal column layout in the basement. As a result, only a limited number of transfer structures were needed between the superstructure and the basement. This also meant financial savings.

Corona-proof air quality

The BREEAM Excellent label demonstrates that the high-performance technical systems provide exceptionally high comfort in the nearly zero-energy building. Heat and cold are generated with energy from the BEO field beneath the building and supplemented with heating and cooling from the most efficient heat pumps, boilers, and cooling towers.

The indoor air quality is at the high IDA 1 level. This target was established long before the coronavirus was detected in Belgium, but is now obviously an additional asset for health and safety in the workplace.

Monitoring facility costs

In addition to the highly performant heating, cooling, and ventilation installations, the building was naturally also equipped with the most modern office technologies. By using climate ceilings, daylight control, and smart building technology, not only is a comfortable working environment created, but facility costs are also kept in check. By carefully monitoring all parameters, tens of euros per square meter in energy will be saved each year.

Knowledge and collaboration create a win-win

In this project, many strengths of BM Engineering come together. Our years of experience with technical systems in large buildings and office spaces leads to well-considered and smart choices resulting in low facility costs. The expertise of our structural engineers supports top-level architecture with structures and solutions that are sustainable and cost-efficient. The intensive internal collaboration between our departments and the advanced digitalization that characterizes BM Engineering also ensures that we save time in both the design and execution phases. In combination with a well-oiled construction team with highly experienced partners, this delivers a top-quality building that was nevertheless realized in record time.

Construction partners:

- Ghelamco Invest – developer
- Assar Llox Architects (Wilrijk) – architect
- Aertssen (Stabroek) – earthworks contractor
- Soiltech (Ostend) – sheet piling contractor
- BAM Contractors (Brussels) – structural works contractor
- SPIE (Geel) – HVAC contractor
- VMA (Sint-Martens-Latem) – electrical contractor
- Robijns (Leuven) – sanitary installations contractor
- Somati Systems (Erembodegem) – sprinkler installation
- Schindler (Brussels) – elevators
- Seco (Brussels) – inspection bureau
- Interalu (Wilrijk) – climate ceilings
- BM Engineering Group (Kortrijk) – structural engineering and special techniques

BM ENGINEERING GROUP