ingenium

bringing buildings to life, for life

Masterplan Ledeganck, Ugent

The "Masterplan Faculty of Science" project for Ghent University consists of a thorough renovation of the Ledeganck complex in Ghent.

The site, with a total gross floor area of 42,584 m², houses both teaching areas (auditoria, lecture and practical halls, etc.) and research functions (laboratories, departments), as well as the GUM (Ghent University Museum).

Throughout the years, the Faculty of Sciences of Ghent University has experienced systematic growth, as a result of which the existing building complex was reaching its limits in terms of use for the diversity of departments and (laboratory) applications.

In addition, the 40-year old building complex no longer met the requirements in terms of accessibility, safety and fire standards; also in terms of technology and laboratory equipment, a thorough renovation was required.

The renovation follows a step-by-step plan in which the entire complex will be completely renewed in five different phases and adapted to the current (legal) needs regarding fire safety, comfort requirements, etc. and within the specific character which a laboratory environment must satisfy.

Taking into account the relocation scenarios of the various departments, the renovation of three other buildings on the De Sterre campus (N1, S5 and S12) was also included in the project.

The master plan thus comprised 8 sub-projects:

- LEDstep 1 - renovation of phase I low-rise building
- LEDstep 2 - renovation phase I high-rise
- LEDstap 3 & 4 - renovation phase II east-west
- LEDstep 5 - renovation phase III
- Redesign N1 INW
- Redesign S5 Sterre campus
- Redesign S12 campus Sterre

Ingenium has been involved in the implementation of this step-by-step plan since early 2009. Starting from a master plan approach, Ingenium first performed research on the sustainable approach to the building envelope. Different scenarios were examined by means of dynamic simulations and weighed against each other with respect to feasibility, investment, comfort and energy gain. Finally, it was decided to provide a completely new high-performance curtain wall for steps 2 to 4, i.e. the high-rise and Phase II, the largest sub-projects of the complex.

A global vision of the heat production, carried out by Ingenium, has also led to combining the boiler room of the Ledeganck complex with the boiler room of the adjacent greenhouses. So, a new and centralised production. The new heating plant now consists of a combination of condensing gas boilers with combined heat and power (CHP) units, the latter providing the main part of the heat and electricity supply for the entire complex of approximately 42,584 m².

The design of the technical equipment is aimed at a modern and dynamic lab environment, where flexibility and comfort are the key values. This translated into an installation that was provided with a ring system for the ventilation, a central canalis structure for the electrical power distribution, etc.

Given the diversity of departments and the dynamic use of laboratory equipment, these are investments that pay for themselves in the long term and that create added value for the installations. It is thus possible to transform office spaces into laboratory spaces (and vice versa) without having to make drastic changes to the installation.

In addition to the classic HVAC, sanitary, special gases and electricity techniques, the tasks also included distribution of type II water and equipping the growth chambers.

An eye-catcher within this master plan is the final LEDStage 5, where within this complex the Ghent University Museum will be furnished. The current museum pieces, which until now were spread over various branches of UGent, are thus centralised in a new building, the GUM. The necessary attention had to be paid to the strict technical requirements for a qualitative and demanding museum environment.

Meanwhile, the complex is in full use by various departments of UGent, and the final phase LED Step 5 will be completed in 2019.

DEVELOPER

Universiteit Gent

ARCHITECT

Abscis Architecten

LOCATION

Gent

BUDGET TECHNICS

ca. 17.675.000 EUR (excl. btw)

SURFACE

42 584 m²

STUDY PERIOD

2008 - 2016

EXECUTION PERIOD

2009 - 2019

Sectors

Education

Services

Building services engineering

Reference: 08017.001