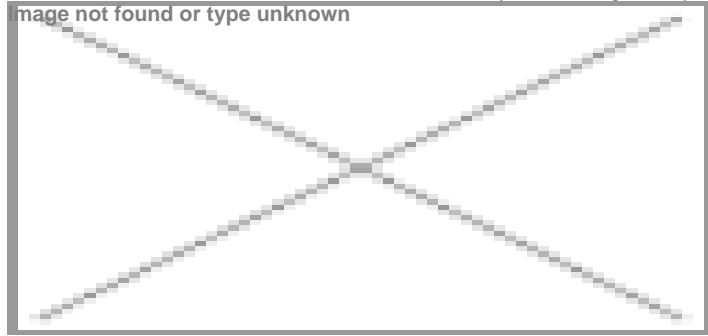




Notice: Undefined index: tmb3_comingPicture in /data/sites/web/boydensbe/www/generate-pdf/template.php on line 89

Notice: getimagesize() [function.getimagesize]: Read error! in /data/sites/web/boydensbe/www/generate-pdf/template.php on line 89

Notice: Undefined index: tmb3_comingPicture in /data/sites/web/boydensbe/www/generate-pdf/template.php on line 94



sector:	office
project:	Provincial Government Office in Antwerp, BE
total cost price	€ 60.482.323,81 hors tva
total area	26.000 m ²
Study start date:	September 2012
completion date	In execution
nature of work	Construction: study and following up MEP / EPBD reporting / Sustainable advice
cost techniques	€ 15.583.191,94 VAT excluded (tender)
client	Provincie Antwerpen, Koningin Elisabethlei 22, 2018 Antwerp, BE
architect	De Geyter Xaveer Architectenbureau bvba, Sainctelettesquare 12, 1000 Brussels, BE

description

The new "Provinciehuis" Provincial Government Administrative Office in Antwerp was designed from a sustainable perspective. Thanks to the pre-design multidisciplinary collaboration of the various skill sectors it has made it possible to combine the challenging architecture with extensive sustainability elements without compromising aesthetics. As a result, the building will be passive certified, signifying that the buildings net demand for heating and cooling has been minimized to a bare minimum, only by optimizing the building's shape, orientation, facades etc. The building contains open offices, individual offices, one auditorium for 350 occupants and the other for 100 occupants, an industrial kitchen including a restaurant for 200 guests, a fitness room, a data center, a library and an underground parking garage.

An extensive field, containing 350 geothermal boreholes will be installed below the underground parking, which will provide the primary energy supply to the building. During winter, heat pumps extract their warmth out of the ground, and in this way store the cold that will be applied for passive cooling during summer. The system for distribution throughout the building exists primarily out of concrete core activation, completed with a few zones of floor heating. These low-temperature systems render an ideal efficiency of the heat pumps and passive cooling. The hygienic ventilation is demand-driven according to the buildings air quality in the different zones. Even the heat from the industrial kitchen extractor hoods is recovered thanks to a degreasing process with UV lights.

The office lighting utilizes high-performance LED appliances that can be individually programmed for more flexibility. The daylight control system will reduce the consumption further by using light fixtures that dim by responding to the daylight luminance values (light intensity values) and occupancy (presence detectors) in any given space. The roof is optimally covered with PV panels for the production of green power.

The building is Breeam' Excellent' Certified, in order to obtain this certification the following tasks were executed as for climatization and energy consumption.

* Modeling of the building: a model of the building, that showed the physical and installation characteristics as well as the user technical characteristics, was constructed. The building was modelled in a geometrical shape, which allows us to analyze the questions below as accurately as possible.

* Thermal comfort study: According to the provided requirements of the related BREEAM-credit, we made a dynamic calculation of the indoor temperatures that will occur in the usable spaces of the Provinciehuis. Based on the hourly results, we formed an image of the to be expected indoor comfort during an entire "typical" year. With this reference, it was possible to do a numerical evaluation that determined whether or not the credit could be obtained.

* Daylight calculation: According to the provided requirements of the related BREEAM-credit, we made a daylight calculation concerning all spaces within the Provinciehuis, to assure a sufficient amount of daylight would enter each of the spaces, making them more comfortable during the day and decreasing the energy demand related to artificial lighting.

* Evaluation LZC-technologies: According to the provided requirements of the related BREEAM-credit, we made an evaluation of the effectiveness of the applied low or zero carbon technologies. More specifically, we examined the ground source heat pumps and considered to what extent they will reduce the CO2 emissions of the project on a long term basis. For this purpose, the installation was compared with a "classic installation" for similar buildings, showing that the gain in CO2 emissions was big enough to even receive the full amount of credits and the additional innovation credit for this building.

sustainable

K Level: 20

E Level: 38

Certification: Breeam Excellent / Passive

general data

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solar energy



PV panels



geothermal energy



comfort



reuse rainwater



waste management



passive cooling



water management



heat recovery



glazing



ecological materials



insulation