NEW ANTWERP HOSPITAL BECOMES REFERENCE IN THE CITY

The Antwerp Hospital Network (ZNA) has been building a new central hospital in Antwerp since mid-2016, which will become a 'new reference in the city'. VK Studio and architectural firm Robbrecht & Daem were responsible for the design. ZNA Cadix Hospital must be ready in 2020.

Text *Filip Van der Elst* | **Image** *VK, Interbuild en Thomas Geuens*

ZNA needed a new infrastructure in Antwerp, and the winning construction team – Kairos, VK Studio, Robbrecht & Daem and Bladt Building Engineering – proposed building the new hospital in a central location.

The 65,000 m² building with 19 floors will be situated between Park Spoor Noord, the docks and the city centre. ZNA opted for a green location, which has consequences for mobility around the site. Motorised traffic must pass underground,

The majority of the ground floor of the hospital is reserved for shops, restaurants and bars, accessible to everyone.

including ambulances and logistics transport. Aboveground there will be a healthcare boulevard with a central plaza for pedestrians and cyclists. There will also be a tram and bus stop in front of the hospital entrance.

340 patients

Services provided by ZNA Stuivenberg and ZNA Sint-Erasmus will be accommodated in the new hospital, which will have room for 340 patients. Among other things, there will be an emergency service, operating theatres, intensive care department, burns centre, inpatient wards, outpatient clinic and consultation rooms for numerous disciplines. But the new building will be home to more than just the Cadix general hospital, with ZNA aiming to integrate it the with rest of city. The majority of the ground floor is therefore reserved for shops, restaurants and bars, accessible to everyone.

ZNA has carefully considered ease of movement within the building. Hospitals can after all become very busy. So important services will be located next to each other in order to limit walking distances, with separate lifts for priority medical services, moving beds around and other logistics.

'ZNA Cadix will be closely integrated with the city'

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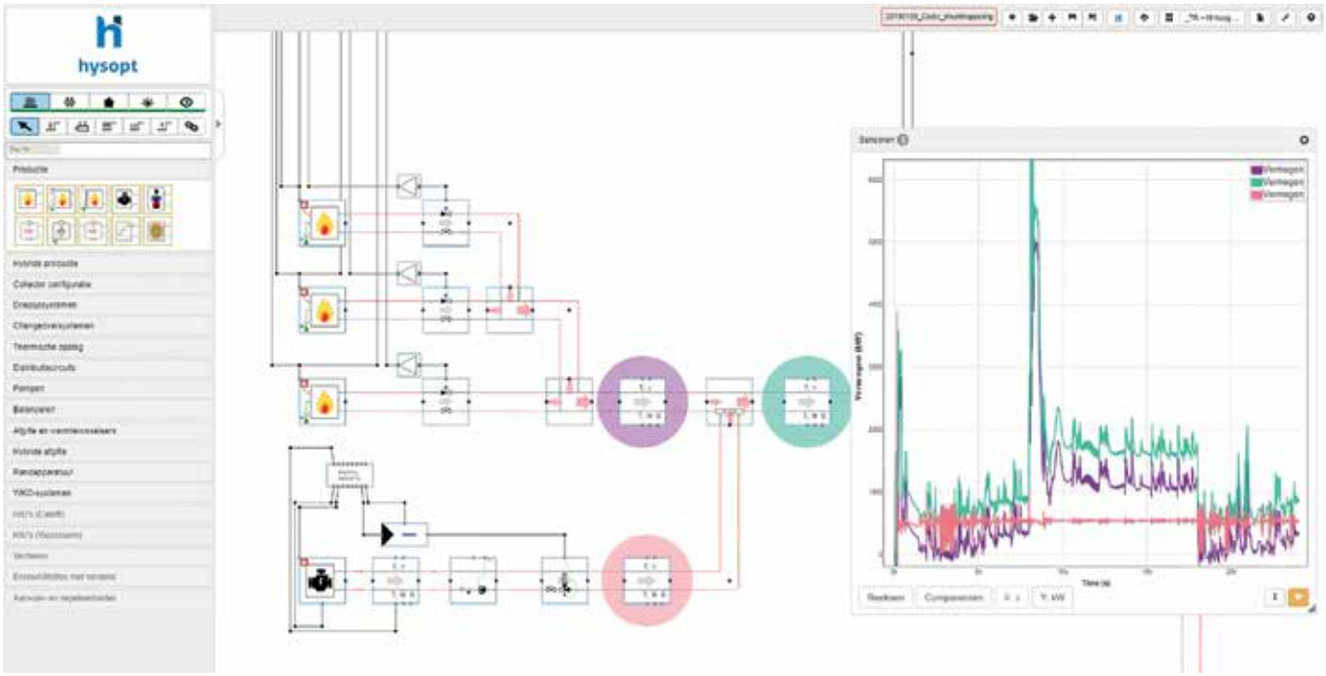

Als simulatietool maakt Hysopt het mogelijk om As a simulation tool, Hysopt makes it possible to assess the system performances as early as the design phase. (Image: Hysopt)

Dynamic simulations

The technical infrastructure includes systems for distributing various liquids and medical gasses alongside the heating, cooling and air treatment systems. It's crucial for ZNA that all the different aspects work together properly as a whole installation. Tom Havermans, Environment Coordinator at ZNA, explains: 'Good and responsible management and ownership is of paramount importance for us. We've already proven this by going further with the building permit application than the requirements imposed by the government. We've also paid a lot of attention to having the right settings and hydraulic balance. The way in which the installation is dimensioned and set up does after all have a big impact on both the comfort level and the energy performance, which is why we're using dynamic simulations and leading the way in the hospital sector.'

The Hysopt software was used as a design and simulation tool in consultation with VK Engineering and Cegelec. 'Dynamic simulation with the Hysopt software has become standard practice in all our renovation and new build projects,' says Havermans. 'Two people from Cegelec followed training at Hysopt to learn how to use the software properly,' adds Yves Hendrickx from Cegelec. 'So our own people can design and implement the installation in Hysopt.'

Havid El Khaoui, Support Engineer at Hysopt, provided the necessary support and know-how. 'All the individual components are connected to each other in a full hydraulic and technical control calculation model in this design tool, which makes it possible to design much faster and build more intelligence into the model,' says El Khaoui.

As a simulation tool, Hysopt makes it possible to assess the system performances as early as the design phase, taking the installation's partial load into account. El Khaoui: 'This means we can simulate concept variants with as much comfort as possible for the patients and employees at ZNA Cadix, while keeping the energy consumption and CO2 emissions to a minimum. The optimisations of these concepts resulted in a total annual energy cost reduction of 10 - 28%, and 9 - 11% less CO2 emissions. An optimal result, thanks to the Hysopt software.'

Finally, digital clones of the installation are also created with the model, and the dynamic as-built dossier will add lots more value in any further developments. ▮