



OPTIMAL LIGHTING IN THE CENTRE OF HELSINKI

The University of Helsinki's new main library is located right in the heart of the Helsinki city centre. It is Finland's largest multidisciplinary university library. The new library building – the Kaisa building – represents modern Finnish architecture and it attracted a lot of interest in its construction phase.

The University of Helsinki's main library was opened in the Kaisa building on 3 September 2012. The library services are open for everyone. The library management and public services are located in the same building as well. The three other libraries of the University of Helsinki are responsible for the information and library services of the disciplines of the own campuses.

The new city centre campus library offers library services concerning the faculties of City Centre Campus: Faculty of Arts, Faculty of Law, Faculty of Theology and Faculty of Social Sciences. A cosy Book Café is located on the second floor of the library premises.

MAGNIFICENT HOUSE FULL OF LIGHT

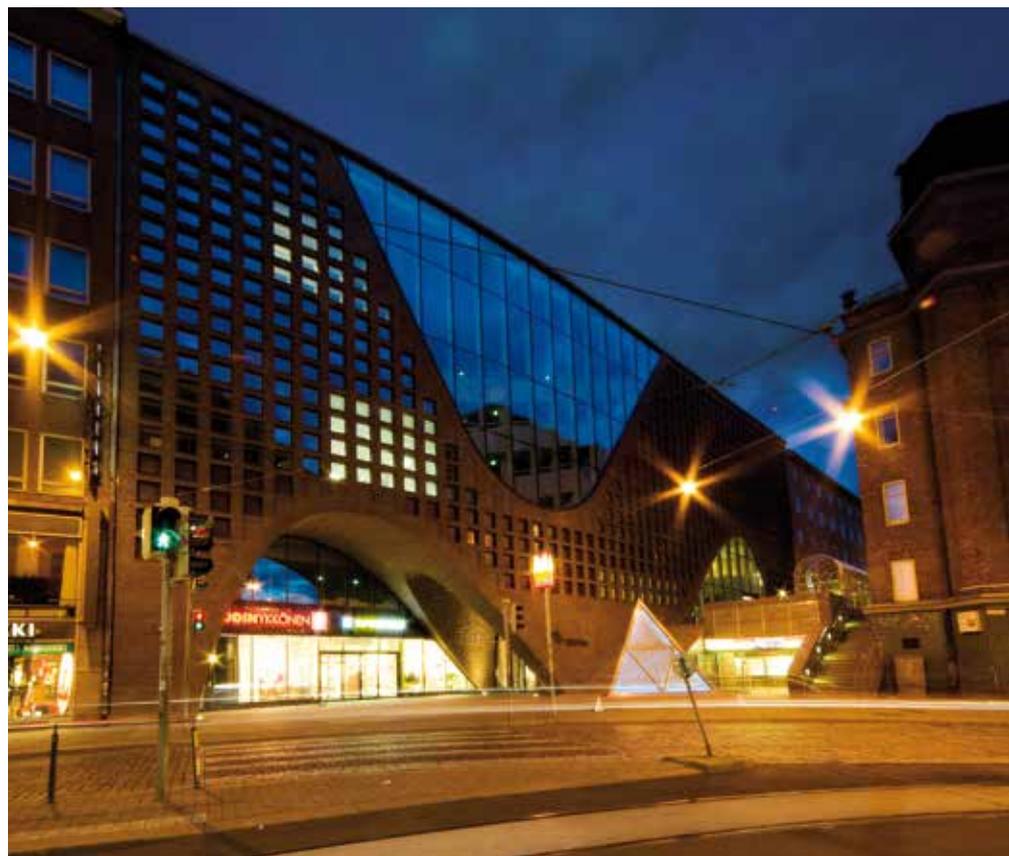
The Kaisa building is representative of the new library architecture. This handsome building was constructed in the former location of an old department store. The university library serves students, researchers and the public. Developing the library services has been one of the City of Helsinki's projects during the World Design Capital 2012 theme year.

The building, which is full of light and fits perfectly in its surroundings, was designed by architectural office Anttinen Oiva Arkkitehdit Oy, which won the architectural competition for

the building in 2008. The company's proposition called "Opening" was regarded as bold, individual and location-committed. The plaid brick façade is stylishly compounded with arched "openings".

The brick surface connects the building as an integral part of the area with numerous red-brick buildings in Kaisaniemenkatu. The internal areas of the building are constructed around a set of intermediate floor openings made along the whole building that enable natural light from the large windows to enter all customer service floors.

The gross building volume of the University of Helsinki's library property is 30,200 m², of which the library covers 15,500 m², i.e. an area corresponding to the size of approximately three football fields. The building has seven floors above the ground and four underground floors. The construction budget was EUR 55 million. The library collection includes more than one and a half million books that are lent over two million times a year. The expected number of customers visiting the library is about 5,000 customers per day, and well over one million customers per year. ▶





TOP CLASS ENERGY EFFICIENCY

The developer for the Kaisa building project was the University of Helsinki Centre for Facilities and Properties and it set high requirements concerning the quality and functionality of the lighting of the university library. Daylight is utilised efficiently in the building. The implementation of the lighting, air conditioning, heating and cooling systems is innovative and energy-efficient.

The large windows of the building have been selected to minimise the solar radiation from the outside and to maximise the transmission of light.

The basic lighting of the building has been implemented with fluorescent lamps that are equipped with controllable ballasts. The switching and control of lighting is managed area-specifically. Lighting is automatically adjusted and the system calculates the natural light available from the windows. In addition to the light sensors, there are air quality sensors in the library. 180 measuring points analyse the electric power used in the building.

- The starting point was to create an easily manageable lighting system in the building to create a stable reading environment. Every light source in the building is included in the control system. There are daylight control and presence detectors on all floors. We will also monitor the

use of energy in the building. The controllable lighting ensures remarkable savings that we believe can amount to 50%, says Aimo Hämäläinen, deputy director of the University of Helsinki Centre for Facilities and Properties.

The on/off switching of the lighting of the meeting and teamwork rooms in the library is controlled by presence detectors. Also, the lighting control of the vast basement floors has been implemented with presence detectors that all control a small area. There are room-specific modular control panels for selecting different lighting scenes. The spacious reading rooms, located on several floors, are lit by anti-glare LED reading lights.

CONTROL PROVIDES ENERGY EFFICIENCY AND EASE OF USE

The lighting system for the whole interior of the University of Helsinki's library is connected to Helvar's DALI-based DIGIDIM router lighting control system. All 2,770 luminaires are controlled with the same lighting control system. The main control board of the DIGIDIM router system is located in the building's control centre and lighting can be adjusted from all rooms.

- Reading requires appropriate and good lighting. In addition to students, the library is used by researchers and university teachers. We acted by ourselves as the



developer of our building and we had our own vision of how the lighting system should be developed in such a large facility. If the lighting system is controlled traditionally, it cannot be controlled as accurately as it should be.

- Expectations were high. All lighting must serve the operations of the building and we wanted the end result to be economical. The lighting should be the key factor when we talk about ease of use and energy efficiency.

- After thorough consideration we decided to select Helvar's solution. We selected the best-known control system on the market as it was a question of an entity to be implemented to this extent. The DALI lighting control system was easy to implement in connection with other construction work. Price, economic efficiency and easy implementation were the main reasons for selecting this system.

- We are now able to control and manage lighting as a separate system with Helvar's uSee Interface. Measuring energy consumption has been implemented in a separate system. I don't believe in lighting control via construction automation to this extent. A lighting system of this scale should be implemented as a separate system, says Hämäläinen. ■

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SYSTEM FACTS

- Helvar EL1x14-35 iDim DALI ballasts
- 79 x DIGIDIM 910 Routers
- 658 x Helvar iDim 315 System sensors
- 51 x DIGIDIM 498 Relay Units
- 7 x DIGIDIM 494 Relay Units
- 4 x LCD TouchPanels
- 13 x Imagine 942 Input Units
- 26 x DIGIDIM Modular Panels
- Helvar uSee Interface