

Case story | SEM-SAFE® high-pressure water mist system

Isala Clinics in the Netherlands

Large-scale hospital project protected with high-pressure water mist for fire fighting

Danfoss Fire Safety A/S



In 2008, clearance was given to construct a new, large and innovative 104,000 m² hospital at the Sophia location on Dokter van Heesweg in Zwolle, Netherlands: the Isala Clinics. In 2009, the construction of the impressive 210 million Euro building started, the hospital being scheduled for opening in the latter half of 2013 when the employees and first patients will start using it.

Building description

The new Isala Clinics will become one of the largest non-university hospitals in the Netherlands. The complex includes space for offices, research and treatment facilities, nursing wards, laboratories and other functions spread out across four buildings.

The complex is particularly appealing because of the organic style of the architecture and the interior garden and green landscape.

The co-operation between Danfoss and Unica, official Danfoss business partner in the Netherlands, the client and the relevant authorities – the advisor, fire department and the inspection and certification agency R2B – has resulted in firm acknowledgement of the benefits provided by the SEM-SAFE® high-pressure water mist system for fire fighting. With all the tests and approvals in place, the decision was made to install SEM-SAFE®. Isala will become the first large-scale institutional project in the Netherlands to rely on high-pressure water mist protection.



SEM-SAFE® high-pressure water mist system

In contrast to traditional sprinklers, the SEM-SAFE® high-pressure water mist uses less water and produces a high level of atomization. The water damage in case of a fire situation is therefore kept to a minimum.

Water mist has excellent fire suppression properties, including capture of soot particles, strong reduction of radiant heat and rapid lowering of the temperature to acceptable levels. Furthermore, it does not require a large water buffertank or complicated water connections, and there are no major requirements for installation space, structural loads and leak tightness in the building. Isala will have two diesel pumps feeding the system and approximately 10,000 nozzles. The pipes run through a tunnel into shafts leading to the various parts of the building.

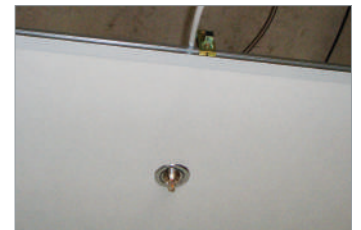
The new 'better house' consists of four connected units, the 'butterflies'. Flexibility was a high priority. The layout of a ward can be modified relatively easily without affecting the structural skeleton. Another major theme was sustainability. To this end, the Deerns engineering firm designed the technical installations, such as combined heat and power generation (dual source) and motion sensors for lighting.

Risk classification for the Isala project are:

- Ordinary Hazard 1 for most areas.
- Ordinary Hazard 3 for shopping areas.
- Ordinary Hazard 3 pre-action with automatic fire detection for special rooms.
- Deluge system with open nozzles and automatic fire detection in atria.

Awards

In December 2010, D2B (Designed to Build), the construction consortium responsible for realizing the building and the installations, received a gold award for environmental quality with compliments for the continued functioning of the old hospital without disruption, a clean construction site and pride in a building partner with complete trust in continued operations.



The SEM-SAFE® nozzles are reliable and will keep the water damage to a minimum in case of a fire situation.

By using soft colors and natural materials, Isala hospital promoted the well-being of its patients, visitors and employees.