

HI-FOG® case study

Motala hospital, Sweden



Sweden's Motala Hospital finds fire protection solution it can grow with in major modernization





Marking the halfway point between Stockholm and Gothenburg, Sweden's two largest cities, the town of Motala was founded in 1822 as a logistical centre for Swedish industry. In 1951 the county of Western Östergötland, in which Motala is located, drew up a healthcare plan containing a proposal for a new hospital in Motala. Planning for the new hospital began in 1961. In 1966 building permits were

obtained, and the finished hospital was inaugurated on June 3, 1970. Motala Hospital was originally intended to be a county hospital for general medical practice. When care for the elderly became the healthcare focus in the 1970s, however, a second building for Motala Hospital was erected in 1972 to accommodate new, long-term medical services for the elderly. Further extensions were completed in 1978.



Today, Motala Hospital specializes in orthopaedics and internal medicine while continuing to be Western Östergötland's centre for general medical practice. In important respects, Motala Hospital has been leading the way in Sweden in the development of primary care and hospital-quality home care. The hospital has always been a large and modern facility offering all the necessary resources for quality healthcare, while remaining small enough for personnel to provide personalized treatment.

As with other hospitals in Sweden, healthcare processes at Motala Hospital have undergone substantial evolution since the hospital's inauguration. As the hospital adopted new technology and equipment over the years, the need grew for structural improvements to the hospital beyond basic refurbishment.

When it came to fire protection, the hospital needed a solution that would not complicate the modernization of a 35-year-old facility. There was another basic constraint. The hospital could not access the local water supply for the purposes of fire protection, so the County Council wanted a solution that would use water efficiently and not require new reservoirs. Fortunately, Marioff became aware of Motala Hospital's unique fire protection needs. With its tight spaces and limited water supply, the hospital was an ideal candidate for Marioff's HI-FOG® Water Mist Fire Protection System.



“The issues of space and water were both very important. We did not have much of a choice”, states Mr. Kristiansson.

“The HI-FOG® system solved both problems.”

Greater need for fire protection

At the end of 2003, a major reorganization occurred in Western Östergötland. Healthcare in the county was restructured across five units, with one central unit providing primary care. The County Council of Östergötland provided structural, economic and cooperation directives for the complete renovation of Motala Hospital, with a focus on improving healthcare processes for maximum patient benefit.

The ongoing renovation complies with Swedish building codes and accommodates future demands for healthcare in collaboration with other hospitals, county officials and sub-contractors. The latest medical treatments and technologies require more space for ministering to the needs of patients. In the fire protection equation, the greater need for service space means commensurately more coverage is needed from a system that is also suitable for historical buildings.

Conserving space and minimizing water consumption

According to **Johan Kristiansson**, Director of Building Projects for the county of Östergötland, HI-FOG® fulfills the two primary requirements at Motala Hospital: conserving space and minimizing water consumption.



The hospital's floor slabs are very tight, making it difficult and laborious to install components for modern electrical, ventilation or fire protection systems. Complicating matters, the hospital could not access the municipality's main water supply for fire protection. The administration required a flexible, self-contained solution that would be easy to install and not require new, costly, high-maintenance water reservoirs.

Mr. Kristiansson emphasizes that HI-FOG® provides greater coverage than traditional fire protection systems: "Any other choice for fire prevention would not have satisfied every need for fire prevention at the hospital. The second choice would have been much worse. HI-FOG® represented a complete solution, as well as the best. Now we have a much bigger, better solution than

we had before. The HI-FOG® system makes it possible to protect all the service areas we have to protect, which we could not do without HI-FOG® or a similar system."

While taking up minimum space and conserving water, HI-FOG® is a high-performance, flexible system that covers the entire hospital, not just the high-risk areas. HI-FOG® will protect the entire hospital in accordance with Sweden's SBF 120:6 fire regulation. The electric SPU 4 +1 pump unit and water tank will occupy only 18 cubic metres of space in an old storeroom in the hospital basement, leaving plenty of room for maintenance activities. The system runs up to each floor via 38 mm tubing, with 30 mm tubing on the floor levels, and then 12 mm tubing runs to the HI-FOG® sprinkler heads.



Two views of HI-FOG® system installation in the ongoing Motala Hospital renovation. HI-FOG® tubes are made of high-quality AISI 316L stainless steel, ensuring long life and clean discharge in keeping with the hospital's high standards of hygiene.



HI-FOG® tubes are very small compared to traditional sprinkler system pipes: about $\frac{2}{3}$ of the tubing network of a typical HI-FOG® system for buildings will be composed of 12 mm tubes. An important advantage when space is extremely limited.



HI-FOG® 2000-series sprinkler heads of the pendent type are installed in the ceilings of all the hospital workspaces. Each sprinkler head provides 25 m² of coverage. Specialized fire protection is also provided by HI-FOG® 2000-series sprinkler heads of the pendent type, mounted inside the lowered corridor ceilings at every third metre. These protect all the cables running there as stipulated by Swedish fire regulation SBF 120:6.



Marioff is using its own certified sub-contractors for trouble-free installation, carried out as a sub-project within the overall refurbishment project in accordance with the hospital's operations.



The future of Swedish healthcare

Motala Hospital is on the front line of modern healthcare in Sweden and therefore faces some uncertainty regarding the medical services it will need to provide in future.

Regardless of what the future may bring, Mr. Kristiansson points out: “We think we have a basic system now [for fire protection] which is flexible and will meet some demands in the future, if not every demand.”

As the Swedish healthcare system continues to evolve in future, the modernized Motala Hospital will be in the forefront of hospital technology and medical service development.

With the HI-FOG® system fulfilling its fire protection requirements for years to come, Motala Hospital will safely continue its legacy of healing the people of the community.





Thank you

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