SIEMENS

## Case Study

## Infrastructure & Cities Sector
## Building Technologies Division

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**Continuing medical education for physicians in an environment offering optimized safety and security**

**The Academy for Medical Training and Simulation (AMTS) in Lucerne, Switzerland provides continuing medical education for physicians from all over Europe. The high-tech center offers state-of-the-art facilities and equipment for surgery and emergency management courses. The rooms housing the sensitive and expensive infrastructure are secured by a Sinteso fire protection system from Siemens. Offering maximum dependability, reliable detection, and immunity to deception, this solution ensures uninterrupted operation of the training and simulation center.**

Visitors from all over the world have always appreciated the beauty of Lucerne located in the central part of Switzerland. Increasingly, physicians from all over Europe are drawn to the city on the shores of the idyllic Lake of Lucerne. However, they don't come primarily to enjoy the beautiful scenery and other tourist attractions. Their destination is the Academy for Medical Training and Simulation (AMTS) situated in the grounds of the Lucerne Cantonal Hospital. This independent institution with an international reputation is a leading center for medical training and process simulation in the areas of musculoskeletal surgery and emergency medicine.

AMTS was founded by physicians in cooperation with renowned partners from the medical and information technology industries. With its training and simulation center and its innovative offerings for continuing medical education, the Academy aims to set new standards in Europe. Medical personnel who keep their knowledge and skills up-to-date are a key factor in improving patient treatment. "There is no comparable institution in Europe which allows the entire chain of treatment to be practiced and is open to all interested parties," explains Dr. med. Roger Zobrist, surgeon as well as co-founder and CEO of AMTS: "In surgery and medicine, the requirements for training, continuing education, science, and networking have changed dramatically. The Academy was founded to address these challenges. We bring together people, ideas, products, services, and partners from different industry sectors—right here in the heart of Switzerland."



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With its novel approach of integrating state-of-the-art training and simulation methodologies into continuing education for medial personnel, the Academy responds to the rapid increase in complexity typical of many medical specialties, including minimally invasive surgery, musculoskeletal surgery, and emergency medicine. New techniques require interdisciplinary knowledge, customized course types, and frequently a high-tech environment which, for logistical and financial reasons, can only be offered in a central location. Opened in January of 2010, the training and simulation center has the necessary state-of-the-art infrastructure which can be used by companies, medical organizations, associations, clinics, and AMTS itself for a wide variety of course types, including technical courses or surgery and emergency management courses.

**Protection for sensitive and expensive infrastructure**

At a cost of approximately 40 million Swiss Francs, the former Women's Clinic of the Lucerne Cantonal Hospital was converted into a high-tech center encompassing 2,500 square meters on four floors. It offers state-of-the-art facilities and equipment for surgery and emergency management courses. A fully equipped operating room, workshop rooms, a shock room with a CT simulator, and a complete ICU are available for practical exercises. All training and education activities can be recorded using permanently installed video cameras; the recordings can be used immediately after the training for follow-up discussions. The building infrastructure also includes course and office spaces, an auditorium with seating for 180, a generously sized lobby, and a bistro.

The AMTS facilities are equipped not only with state-of-the-art medical technology but also with the latest generation of building technology. Fire safety has top priority. "We have a variety of rooms with sensitive and expensive equipment that require extra protection. For this reason, we chose a fire safety solution from Siemens. The Sinteso fire protection system is functional, easy to use, and meets our requirements the best," adds CEO Roger Zobrist. "The system has to be absolutely reliable in everyday operations and ensure optimal fire detection. In addition, Siemens is a core partner of AMTS in the imaging field. As doctors, we are very familiar with the high performance and quality of Siemens solutions, including those for medical technology."

**Guaranteed detection and maximum immunity to deception**

A fire protection system has to offer maximum dependability, reliable detection, and immunity to deception. Optimized interaction between the individual components is crucial for smooth operation. The Sinteso fire protection system is based on a unified technology platform with state-of-the-art networking technology. Its modular design provides customers with a wide range of system combinations, enabling them to cover every conceivable application scenario.



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Fire control panels are at the core of a fire protection system. They process all signals received from the detectors, control warning devices via the corresponding network, and alert safety personnel. The Sinteso FC2060 fire control panel deployed at AMTS has four loops which support up to 512 field devices. In addition, it can be upgraded with additional modules to support up to 1,512 field devices. Existing detectors can be added quickly thanks to auto configuration and auto addressing; existing controls of fire protection doors, extinguishing systems, elevators, and ventilation systems can be integrated easily via I/O modules. As a result, modernization concepts can be implemented flexibly, quickly, and inexpensively. In addition, operational safety during the upgrade phase is ensured by avoiding long disruptions or interruptions.

The shorter the time span between detection and intervention, the better the chances of extinguishing a fire. For this reason, a fire control panel should provide a clear visualization of the most important information as well as easy-to-learn, intuitive operation. In addition to a logically designed user interface, Sinteso panels also have clearly assigned function keys for the most important tasks, well organized event lists, and customer-specific intervention texts that guide users with unambiguous instructions. Switching operating modes and localizing, identifying, and checking event messages is just as easy.

In applications characterized by a medium level of risk and a moderate potential for deceptive phenomena, as is the case at AMTS in Lucerne, the high-performance Sinteso C-LINE detectors come into their own. Approximately 400 intelligent neural fire detectors distributed throughout the entire Academy detect and analyze optical and thermal signals separately. The behaviour of the detectors is set according to the environmental conditions to be expected by selecting the appropriate parameter set (with pre-programmed detection algorithms). This ensures detection of smoldering fires as well as open fires involving solid materials and liquids while guaranteeing a high level of reliability and immunity to deception. In addition, 34 manual call points are available to manually trigger an alarm. The addressed technology in a field device network (FDnet) provides precise location information together with fast and fail-safe communication between the detectors and the fire control panel.

**Optimal adjustment to environmental influences**

Sinteso systems offer optimized fire detection and avoid false alarms using selectable parameter sets. As a consequence, their fault tolerance is virtually zero. Operators can rest assured that a real fire will be detected early and reliably and that an alarm will be triggered without delay. Roger Zobrist adds: “With Sinteso, we play it safe. We can optimally adjust the system to the different environmental influences of our facilities, thereby minimizing the number of false alarms. This is



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particularly important to us since false alarms would severely disrupt our courses and negatively impact the operation of our company."

Sinteso from Siemens offers AMTS a smart, cost-effective, and reliable fire detection solution for their sensitive business-critical facilities to eliminate the disruptions and adverse effects on operations caused by false alarms. This is good news not only for the Academy but also for course participants. Sinteso's virtually unlimited expandability helps protects AMTS' investments. In addition, AMTS' fire protection system was seamlessly integrated into the comprehensive monitoring system used by Lucerne Cantonal Hospital.

BOX

**The challenge**

The Academy for Medical Training and Simulation (AMTS) in Lucerne requires uninterrupted operation of its training and simulation center without compromising the safety of visitors and employees and the security of the infrastructure.

**The solution**

AMTS uses a Sinteso fire protection system from Siemens to protect people and assets. It is based on a modular and future-proof technology platform that employs detectors with unparalleled immunity to deception.

**The benefits**

Siemens Sinteso provides protection with unmatched reliability and supports all functions crucial to AMTS. The system offers superior detector technology which eliminates false alarms almost completely, fire control panels with intuitive user interfaces, intelligent signal processing, and full network connectivity. With its flexibility and virtually unlimited expandability, Sinteso helps protects AMTS' investments.

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