

Technology and science working together in Italian research headquarters

A project to provide an integrated solution for the Milan headquarters of one of Europe's premier biomedical research organizations, the Mario Negri Institute for Pharmacological Research, has benefited from Siemens' experience in the life science industry. Safety and security are critical to life science facilities, providing protection for people, assets and infrastructure. Maintaining often very specific environmental parameters is also important to prevent any issues that might negatively impact on product quality and therefore ultimately affect patients' or consumers' health or safety.

The non-profit Mario Negri Institute operates four sites throughout Italy undertaking research into a number of biomedical areas and providing training for laboratory technicians and graduate researchers from around the world. Founded in 1960 from the estate of wealthy Milanese philanthropist Mario Negri, the Institute's research is wide ranging, including cancer, heart and vascular diseases, rare illnesses, kidney diseases, and mother and infant health.

The head office in Milan is a 6,000 square meter building on a 25,000 square meter site including R&D facilities, offices, test laboratories and lecture theatres. The head office was previously located in Via Eritrea in Milan but the selection of a new site brought about the construction of the new development in the northern part of the city. The management of the buildings' systems and how energy usage could be optimized was a central consideration in the 100 million Euro project.

Optimized performance through integration

Integration of the systems was identified as an important factor in this process, particularly in the high technology areas of the site where maintaining power is critical. Siemens supplied a complete solution, employing a Desigo building automation and

control system to provide integrated control, automation and management of a number of systems including HVAC, fire detection, video surveillance, access control, power distribution, data network and telephone equipment, again all supplied by Siemens. The Desigo management system meets the requirements for independent power distribution, ensuring electrical power is provided in the event of a malfunction or power outage. The nature of the operation at Mario Negri means that this could prove a particularly costly occurrence, interrupting vital research and development and potentially impacting on months of work already undertaken.

In addition to managing and optimizing the buildings' systems, Desigo also monitors and controls both the thermal and electrical energy used. Measuring energy is fundamental to achieving energy cost savings, requiring an appreciation of where and how much energy is being employed to be in a position to identify areas where savings can be made. The system monitors over 18,000 physical data points, automatically identifying any abnormalities and optimizing the energy consumption through complex control algorithms that adjust the fluid distribution and co-generation systems.

With safety and security such an integral factor in the Institute's operations, the project featured access control, video surveillance, intrusion protection and fire prevention, all integrated through the MM8000 danger management system with two workstations.

A high degree of interoperability across the different building systems is assured through the use of the BACnet standard network protocol. This means it is an open architecture approach which both ensures that systems work together and delivers the potential to easily add other elements or upgrade as required, offering a flexible solution for the lifecycle of the Mario Negri site. A high level of reliability is provided for the site's network infrastructure by an IP backbone and a field bus within each of the system's four areas.

Science and technology: complementary partners

Technology is seen as a vital part of the scientific process by Silvio Garattini, director of the Mario Negri Institute. He has been director since its formation in 1960 and sees science and technology as two sides of the same coin – “It's inconceivable to

talk about one side, without considering the other. Science and technology complement each other. Having good ideas is not enough if there is no suitable technology for it, but no great progress can be made with technology alone. With its outstanding life science technologies, Siemens helps to provide safe, secure and energy-efficient environmental conditions at our institute.”

The Siemens approach to life science projects mirrors that held by Mr. Garattini: the technology needs to be specifically tailored to the scientific environment in which it operates for the two to work effectively together and achieve optimum results. The scalable integrated solution employed at Mario Negri ensures that energy optimization and risk minimization is achieved in the Institute's processes and systems, both now and in the future.

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