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Siemens showcases integrated solutions for maximum business continuity and energy efficiency in Beijing data center

In September 2008, Siemens China opened the 30-storey, 123 metre Siemens' Center Beijing (SCB), their state-of-the-art, environmentally friendly headquarters. Located in Wangjing in the Chaoyang District of Beijing and covering an area of 17,500m^2, it is the company's largest, real-estate project worldwide. It houses the headquarters of Siemens China and partly consolidates the offices of local Siemens companies, subsidiaries and operating companies under one roof. It also includes the Beijing Data Center, the company's largest and most advanced data center in Asia, comprising 630 servers, 100 racks and covering 490m^2 of floor space.

Siemens, world leader with core competence in safe, secure and energy-efficient solutions for buildings, provided the technology to maximize energy efficiency, optimize the management of its technical infrastructure, ensure maximum business continuity and to enhance the comfort and safety of its occupants themselves. They provided the company's own tailored fire safety and security solutions integrating and managing all relevant components ranging from fire detection and extinguishing, evacuation, access control, video surveillance and building automation systems.

Prof. Dr. Hermann Requardt, member of Siemens AG Managing Board said at the opening of the building: "By the opening of the new China head office, we have not only provided a brand-new home to Siemens China employees in the SCB, but we have also reaffirmed our commitment to a long-term and sustainable development of China".

The immense development in China over the past few years has led to a large increase in demand for IT capacity. One of the main concerns of companies there too, who rely on IT systems to run their operations, is business continuity; if, for any reason, a system becomes unavailable, company activity may be impaired or brought to a complete halt. As a result, Siemens China decided to build the new data center to provide capacity, performance and assured continuity for both Siemens itself and external customers in China and throughout Asia. The new building is strategically important for Siemens, as it functions as the regional headquarters covering the

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infrastructures for the IT and voice services of more than seventy locations in China and Mongolia. The data center also provides computing and storage space for all of Siemens' Asian subsidiaries, along with a reliable infrastructure and a secure environment.

For no commercial organization today can afford breaches of its data security, disruption of its computer network or the loss of irreplaceable data. For some, even one or two hours of downtime can be financially crippling. Housing as they do such sensitive, vital information and systems essential to the survival of their clients, data centers therefore present a greater need for absolute protection whilst paradoxically demonstrating a greater level of risk – especially when it comes to fire.

The electrical power and extensive cabling that drive the computer systems provide a constant potential source of ignition, particularly under the raised floors - and the many thousands of plastic components supply a plentiful source of combustible materials. In computing environments, a fire will typically start slowly with a long period of overheating and smoldering before ignition takes place. It is therefore essential that preventive and active fire protection is employed in such vulnerable locations. Siemens' fire safety solution for the Beijing Data Center is based on extremely fast, very early and reliable smoke detection to detect any overheating before combustion occurs.

The AlgoRex® fire detection system comprises 57 integrated and centrally-monitored smoke detectors and 63 heat detectors. The smoke detectors provide early recognition and detection accuracy as they distinguish between genuine danger of combustion and deceptive phenomena. Aspirating detection, integrated on the same loop, provides the earliest possible warning wherever dilution caused by high ventilation is likely to prevent any smoke reaching the detectors (closed server racks, false floors, ceilings, cable ducts, and air inputs/outputs). If any particles of combustion are found, a pre-alarm or a full alarm is triggered, depending on the smoke concentration and the application. Even a minimal smoke concentration can be identified unequivocally at an early stage of fire. When a pre-alarm is generated, it triggers a shutdown of the ventilation system to enable the detectors to verify the alarm.

A fire control panel is at the heart of the building's system. Its simple user-interface allows operators to check the system status quickly either locally or by remote access. Another feature of the system is the video fire controller that is connected to the fire detection loop for event verification based on live images from a camera. In the event of a confirmed fire, the fire control panel converts the alarm into actions for alarm notification, evacuation and extinguishing. The fire detection and extinguishing control panel shuts down the ventilation and air-conditioning, disconnects power from protected equipment and activates the extinguishing process. Inert gas is released into the protected area after a defined pre-warning time. The system is zoned and is independent of the systems for the main building.

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In order to offer the greatest protection to personnel and property in the data center, the installation of the MM8000 danger management station by Siemens Building Technologies allows the integration of security and automation control with the fire safety system. In the event of any dangerous event or emergency, MM8000 will locate the site of the incident precisely and provide centralized supervision and alarm handling by enabling interaction between the different functions. This facilitates an optimal event response. Danger zones can be monitored via video surveillance and integrated access control allows escape routes to be monitored with doors being quickly opened or closed. Data and electronic equipment are also protected against unobserved theft thanks to integrated intrusion detection.

Siemens' Building Technologies division installed a SiPass system - integrating access control for the data center, with information from video surveillance, intrusion and policy zones guarding systems. Access to the data center is controlled by card/token in conjunction with a personal identification number. Main entrance is via man-traps installed by Building Technologies and used in conjunction with 'once-in-once-out' access control and personal identification characteristics (fingerprints, retinal scan, etc.). The surveillance system comprises IVM (Interactive Video Management) software, four day/night dome cameras, eight fixed cameras, inside and outside the data center (with time-lapse monitoring of access points and secure rooms even in a very low lighting) and an analogue and digital video matrix system. The IVM system combines all video monitoring, control and configuration systems on a common platform. It ensures quick access to all monitored areas and system components. Dual action (thermal and motion) detection equipment is fitted in all rooms giving a clear view around all equipment

The new, high-capacity Siemens' Center Beijing also incorporates intelligent building technology that lowers the building's energy consumption to around one third less than that of comparable Chinese buildings. As buildings currently contribute to 40% of energy consumption, the development, design and operation of the high-capacity SCB, are all ecologically oriented in order to create a facility of low energy consumption and a favorable energy-balance. In contrast to buildings featuring individual, 'green' IT strategies, the concept behind the SCB incorporates all of its infrastructures: design, fire safety, security, energy, water management, building engineering, communication and traffic. The building utilizes open-air cooling and low-energy lighting along with servers needing over 35% less energy.

Integration of all data from the building control, fire safety, security, lighting and power systems is through APOGEE Insight - the building automation management station from Siemens. The open, multi-tasking architecture allows SBC's managers to collate information efficiently using open communications protocols. It provides the latest, easy-to-use, interface design to simplify the tasks which operators commonly perform, providing a graphical approach to manage and control the building.

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Siemens' Center Beijing is indeed the perfect showcase for Siemens' integrated solutions. The building demonstrates the very real and obvious advantages of energy-efficiency and the many benefits of Siemens' integrated building systems in providing a pleasant, safe, secure and – above all - *controlled* working environment. But, in the future, it will be the security and reliability of IT environments that will determine any organization's continued success and ongoing longevity. For many Asian companies, critical business functions are now assured thanks to the services provided in the Beijing Data Center - just one example of many where Siemens has provided the solutions needed to guarantee the availability of important IT infrastructures.

The **Siemens Industry Sector** (Erlangen, Germany) is the worldwide leading supplier of environmentally friendly production, transportation, building and lighting technologies. With integrated automation technologies and comprehensive industry-specific solutions, Siemens increases the productivity, efficiency and flexibility of its customers in the fields of industry and infrastructure. The Sector consists of six divisions: Building Technologies, Drive Technologies, Industry Automation, Industry Solutions, Mobility and Osram. With around 207,000 employees worldwide (September 30), Siemens Industry achieved in fiscal year 2009 total sales of approximately €35 billion. www.siemens.com/industry

The **Siemens Building Technologies** Division (Zug, Switzerland) is the world's leading provider of safe, secure and energy efficient solutions for buildings ("Green Buildings") and building infrastructure. As a service provider, system integrator and product supplier Building Technologies offers building automation, HVAC, fire safety, security, electrical installation technology and low voltage powers distribution. With around 43,000 employees worldwide (September 30), Building Technologies achieved a turnover of €7.0 billion in fiscal year 2009. www.siemens.com/buildingtechnologies

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