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## **Green Building – Efficient Life Cycle**

Energy saving does not just apply to traffic, production or agriculture. Buildings are also contributing to the climate change. The focus here is on the energy they use and on their CO<sub>2</sub> emissions. Each year, Siemens invests more than two billion euros in the appropriate research and development. For customers, this means that Siemens is already providing them with energy-efficient solutions that save resources and reduce emissions.

Siemens Real Estate (SRE) has taken on the task of ensuring that Siemens AG will become 20 percent more energy efficient by 2011, and it has turned an efficiency program for existing real estate, which has been in existence since 2005, into an integrated green building initiative. This initiative comprises the components “Sustainable Building Design”, “Life Cycle Cost Analysis”, “Green Building Certification” and “Natural Resources Management”. These components are deliberately arranged around the life cycle of the real estate concerned. This allows a different emphasis to be placed on the different questions in each project phase and each phase of a building’s life and for them to be answered in a targeted manner. “Sustainable Building Design” comes into effect during the tasking and preliminary planning phase of a building project; and, by providing a specially developed sustainability manual, it helps with the definition of target values and the drawing up of efficiency strategies for the planning of the building. The manual epitomizes, and sets out clearly, the attitude of SRE to all building-specific sustainability matters. In addition, it is used in the offering of rewards for project competitions. As a result, through a selection of different energy-efficiency measures that have been roughly conceived beforehand, the primary energy consumption can already be restricted in the project definition phase.

“Life Cycle Cost Analysis” comes into effect when the blueprint for buildings is being drawn up. Up to now, when components and systems were being chosen, the main focus was usually on the investment costs involved. By using a cost tool developed specifically to meet the needs of the company, SRE will in future be able to estimate the component-specific utilization costs – such as cleaning, maintenance, and the use of energy – at an early planning stage.

“Green Building Certification” is used in building projects during the planning and implementation phase, and it thus ensures the quality of the new real estate over the long term. Siemens is implementing the Green Building Program of the European Commission in new building projects and renovation work in EU countries. In all other countries that are not taking part in the EU Green Building Program, SRE uses certification in accordance with LEED (Leadership in Energy and Environmental Design). In the LEED certification, a transparent and easy-to-use catalog of criteria is employed to make an assessment of the use of energy and other aspects of sustainability, such as the selection of the plot of land, the efficient use of water, the quality of air within buildings, and the selection of materials. This ensures that a neutral and independent assessment is made of all new building and large-scale renovation projects.

The action program “Natural Resources Management” rounds off the range of measures in the area of existing real estate. The aim of the program is to identify and highlight all latent efficiency potential in existing buildings. This includes, for instance, modernizing the control equipment used for the heating and ventilation systems. This entails replacing electrical power units with more efficient models, and retrofitting fans and pumps with frequency converters.

Sixty buildings have now been inspected, and savings of almost eight million Euros have been achieved. The average payback period is less than two years. One example of this is an old Siemens building from the 1970s at the Munich-Perlach site. Through energy optimization, it has been possible to cut the energy requirement for heating by 34 percent, and to reduce the annual energy requirement by 15 percent. As far as the tenants are concerned, this means an annual saving of just under 100,000 Euros. The building was recently awarded the Green Building Label.