

70-year old headquarter building of the Siemens Building Technologies Division in Zug, Switzerland, certified as a Green Building

The world's first Gold certification according to new LEED version 4 for existing buildings

The former Landis&Gyr administration building at Gubelstrasse 22 in Zug, Switzerland, remains a landmark structure with its clear and restrained architecture, even as newer high-rises are shaping the district's urban landscape. The seven-story building, which has excellent connections to the public transportation network is known for the distinctive clock face on its facade, and is currently the international headquarters of the Siemens Building Technologies Division. In the future, the new owner, the city of Zug, will consolidate its municipal government here, which is currently distributed throughout the city. Because of its importance to Zug's industrial history, the building, which encompasses almost 12,000 square meters of floor space, is on Canton Zug's inventory of historic buildings.

The 70-year-old property is structurally sound and very well preserved. In addition to routine maintenance costs, Siemens Real Estate, the Group's in-house property management company, has invested more than CHF 8 million in the building since 1997. Windows and blinds, elevators, electrical installations, sanitation facilities and the interior design have been updated. In addition, new heating and cooling distribution systems have been installed. Despite its age, the building can be considered a "Green Building." After the optimization of the heating control system in 2010, it now consumes approximately 35 percent less energy and is thus one of the most energy-efficient properties on the industrial campus in Zug where it is domiciled.

Siemens takes a leadership role

Energy-efficiency in buildings is a key business field for Siemens and, at the same time, a special concern for the company's own property portfolio. Siemens is one of the world's largest real estate owners, with offices, factories, warehouses and special-purpose properties in 2,500 locations in 190 countries. The energy expenditures needed to operate these enormous holdings contribute significantly to the running costs and have a direct impact on the company's competitive position. Improving energy efficiency is therefore a key factor in reducing operating costs and a central element of Siemens' sustainability strategy.

As early as 2006, the corporation set itself the goal of certifying all of the Group's new buildings under the Leadership in Energy and Environmental Design (LEED) standard. This internationally recognized sustainability system guides building design and operations to achieve a balance between environmental protection, high occupant satisfaction and a positive business impact. A LEED-certified building demonstrates reduced CO₂ emissions, more satisfied occupants and significantly lower energy costs. Certification by the independent Green Building Certification Institute confirms that a building has been developed, planned and constructed according to measurably sustainable criteria. As a result, Siemens Real Estate is not only contributing to the Group's sustainability goals, but it also plays a leadership role within the community of corporate real estate companies. As many as 30 new Siemens buildings have now been LEED-certified; three of them have received the highest possible rating: Platinum.

Top marks for the core requirement of energy efficiency

Siemens pursues specific sustainability goals for both its existing buildings as well as new constructions and has committed itself to a systematic approach to conserving resources and protecting the environment as well as to implementing related processes. With the LEED-EBOM (Existing Buildings: Operations and Maintenance) system variant, LEED offers a suitable tool for evaluating sustainability in existing buildings. When rating the building's sustainability achievement, in addition to the building performance, LEED-EBOM also looks at building operations, including the purchase of supplies and the commuting patterns of the occupants.

Triggered by the internal Green Building Initiative, a project team within the Siemens Solution and Service Portfolio instigated certification of the building at Gubelstrasse 22 applying the latest LEED-EBOM version. The initiators were emboldened by the building's low energy footprint and the fact that Siemens Building Technologies had extensive engineering and operations expertise right in-house. The project team performed all preparation and directed implementation work required for certification themselves. As a result, they achieved one more important project goal: The expertise, experience and credibility developed during the certification process can be fully utilized for future consulting and certification services, which will benefit not only other Siemens locations but also external partners and customers.

In June 2014, after intensive project work and data gathering over a period of twelve months, the historic building became the world's first property to receive LEED-EBOM Gold certification under the latest version 4. The building earned a total of 64 points, with a threshold of 60 points required for Gold certification. It received top marks in the core requirement of "optimizing energy efficiency" by earning the maximum of 20 points. Because of the advantageous location, a majority of building occupants use alternative transportation to commute; for this reason, the building also earned the maximum number of points in the "location and transportation" category. However, the certification also revealed existing performance weaknesses. Potential for improvement exists in areas such as "material and resources," which covers recycling rates for building waste streams.

While the result of the LEED certification represents a specific snapshot in time, energy consumption will continue to be checked through ongoing monitoring, and corrective action can be taken as needed. Compliance and continuous improvement of additional key criteria will be controlled through supplementary internal policies – pertaining to water and recycling, for instance – as well as educational programs aimed at influencing occupant behavior.

Internal expertise for consulting and implementation

Michael Brook, Head of Portfolio Management Solution, who co-heads the team for the LEED certification project, draws an entirely positive conclusion: "We were able to benefit from a strong initial situation. The building's solid structure and its orientation, as well as the continuous investments made over the past few years

have turned out to be a stroke of luck. Building up our internal expertise and skills where LEED is concerned has paid off. Thanks to the practical knowledge gained in our own building, we are in a position to cost-effectively both optimize existing buildings and apply our ideas in new building design with respect to green building certification. We can better assess the requirements of building owners, operators and occupants and provide our customers and partners targeted and comprehensive support as they work toward 'green certification.' We offer system-independent consulting, and our Siemens solution and service portfolio gives us a toolbox for implementing the measures necessary to achieve continuous improvements in energy efficiency.”

Ecological benefits lead to economic added value

The energy efficiency and sustainability of buildings are increasingly becoming crucial business success factors. The growing importance and weighting of ecological factors boosts demand for and increases the value of sustainability-certified buildings all over the world. Private and institutional investors as well as the public sector are joining in on sustainability. In addition to the environmental benefits, the advantages of green buildings are also apparent when it comes to their operation. According to the U.S. Department of Energy, for example, LEED Gold-certified buildings require an average of 25 percent less energy, generate 34 percent fewer emissions and consume 11 percent less water than do conventional administration buildings. Operating costs drop by 20 percent while the satisfaction of building occupants and employees rises by approximately 30 percent. Rating a property according to sustainability criteria increases its attractiveness and makes it easier to market. This results in higher rents as well as lower vacancy rates. Moreover, owners, operators and tenants of green buildings benefit from a better image, allowing them to become more competitive in their markets.

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LEED: More than a building standard

A considerable number of sustainability labels exist worldwide. Leadership in Energy and Environmental Design (LEED) is a U.S. system introduced in 1998 for environmentally compatible, sustainable building construction that saves resources. Certification is awarded by the Green Building Certification Institute, an independent, non-profit trade organization dedicated to sustainable building construction. The label, which is gaining wide acceptance internationally, is updated regularly. In version 4, which was introduced in December 2013, various credits have been revised or added to the certification system.

In contrast to MINERGIE, Switzerland's national building standard, LEED takes into account a number of rating criteria that go far beyond pure energy or building standards. For example, the point system also covers access to public transportation and – where privately used buildings are concerned – proximity to schools and shopping. The goal behind this more comprehensive view is to make occupants of LEED-certified buildings less dependent on means of transportation that burden the environment.

The certification system includes different variants or certification systems for different phases of a building's lifecycle, for example focusing on design and construction in new buildings and focusing on operation and maintenance in existing ones.

The criteria are divided into categories that impose mandatory, prescriptive preconditions and require a certain number of environmentally compatible services, which in combination determine the final points awarded to a building. In a LEED assessment, a project rated under the current version 4 can earn a total of 110 points in the following quality levels: "Certified" (40-49 points), "Silver" (50-59 points), "Gold" (60-79 points) and "Platinum" (80 points or more). Buildings are rated according to the following categories:

- Sustainable sites: LEED-certified buildings must be built according to a waste management plan that reduces waste generation and provides for the use of recyclable or locally produced materials.

- Water efficiency: The existence of rain water collection systems or faucets with pressure controllers must ensure maximum efficiency in water consumption.
- Energy and atmosphere: The optimum use of renewable and locally sourced energy can significantly lower the building's energy costs.
- Material and resources: Buildings constructed with natural, renewable and locally produced materials such as would receive a higher number of points under the LEED rating system.
- Indoor environmental quality: The building's interior must be planned in such a way that it delivers an optimum balance energy and operational performance and occupant well-being and comfort.
- Innovation: The use of improved building technologies compared to the existing best practice is a value-enhancing element of the LEED certification.
- Location and transportation: This criterion was added to version 4. It essentially rates the property's location and access to transportation, e.g. alternative means of transportation and nearby public facilities.

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