

ABB crucial for 6 star green-building rating

Low voltage products control lighting and ventilation, in addition to the protection of photovoltaic and distribution equipment



South Africa, despite being dependent on coal for about 77 percent of the country's primary energy needs is taking concrete steps to reduce its carbon footprint. The Department of Environmental Affairs has, through their adoption of a green-building philosophy for the department's new headquarters in Pretoria, illustrated a clear commitment to responsible building practices. The campus incorporates sustainable features including building controls and rooftop solar power equipment from ABB, that will reduce utility provided electrical power.

ABB's i-bus® KNX Intelligent Building Control system enables the integration of lighting, heating, ventilation, air conditioning, window shading, security and comfort controls with energy measurement.

ABB i-bus® KNX light sensors located throughout the building constantly monitor the ambient light levels and automatically adjust the artificial lighting to provide the optimal lighting levels.

By combining daylight harvesting with ABB i-bus® KNX presence detection, optimum light level is ensured in addition to actively reducing energy wastage.

“Our new head office complex is energy and resource efficient - it incorporates ABB low voltage products that contribute to reduce the impact of the building on its occupants and the environment”. Edwin Maseda, Chief Director, Facilities Management, South African Department of Environmental Affairs.

The KNX controlled installation will realize estimated energy savings in the region of 30 percent compared to non-automated conventional control solutions.

The ABB systems along with high efficiency chillers, a trigeneration plant, the thermally shielded and automated façade, rain-water harvesting and the specialised roof structure design and highly glazed façade both help to provide high levels of daylight throughout the building contribution to the 6-star rating awarded by the Green Building Council.



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Imagine the possibilities for smart buildings and smart cities to synchronise the adjustment of air conditioning or heating by one to two degrees with the power grid. All of these minor adjustments over the city not only have an impact on the environment for the occupants of the building, but could also play a major role in averting the risk of a grid outage.

The Department of Environmental Affairs building in the Tswane metro, South Africa makes use of the following low voltage products:

- Inverters PVS 300-TL
- Air circuit breakers Emax; MS, E1 & E3
- ABB i-bus® KNX devices; Z S/S 1.1, SE/S 3.16.1, SV/S 630.5
- Moulded-case circuit breakers; Tmax XT
- Switches; OT EV03

The incorporation of ABB low voltage equipment from the initial design phase has resulted in the realization of a building that meets the requirements of the Green Building council in South Africa and ensures productivity for the occupants in an environmentally responsible manner.

Additional benefits are realised in a country facing significant energy constraints, the photovoltaic generation capabilities of the building eases the demand on the local utility.

The Department of Environmental Affairs' campus reduces dependence on the local utility for energy: 10% of the required power being generated by the roof installed mini solar plant. The plant comprises 1200 photo-voltaic solar panels which can generate some 425 kWp.

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