

REINSURANCE PLAZA GOES GREEN

The Corporation in line with the *Energy Management Regulation, 2012* undertook an energy audit of all its commercial buildings: Reinsurance Plaza Nairobi, Reinsurance Plaza Kisumu, Kenya Re Towers Upper Hill and Anniversary Towers Nairobi.

The aim of the audit is to align the property department's strategy of: Maximization of rental income by enhancing cost savings on energy, reduction of the Corporation's buildings carbon footprint on the environment, optimization and consequently reduction of consumption of energy units and maximization of the investment on each of the properties.

Carbon footprint is the amount of greenhouse gases, primarily carbon dioxide that is released in the atmosphere as a result of human activity, and in our case the human activities in the Corporation's buildings.

Reinsurance Plaza Nairobi

The building was built in 1978 and commissioned in the year 1982. It is situated along Taifa Road and is building number four (4) as per the Nairobi County Government numbering system. The building currently serves as the headquarters for Kenya Reinsurance Corporation Limited.

The Architectural and functional marvel that is Reinsurance Plaza cannot be understated!

Having being designed and supervised by one of Kenya's most formidable Architects, M/s Mutiso Menezes International (same Architect who designed the Kenyatta International Conference Center) it required that the property department approach any works with the mind frame to ensure excellence in execution of the project.

A consultant energy auditor and an energy works contractor were procured to be supervised by the Corporation's projects committee.

The works comprised of:

1. Installation of modern configurable and smart electrical metering (energy management consumption) systems in each floor.
2. Installation of modern building sensors to monitor internal light levels, the building internal temperatures and occupancy of areas.
3. Installation of modern humidity and carbon monoxide sensors at the basement levels to automatically drive the extract fans as well as ensure there is adequate circulation of clean air during high traffic durations in line with World Health Organization standards.
4. American designed Smart Building Management System by Johnson Controls.
5. Diesel fuel monitoring systems and fuel save controllers.
6. Retrofitting of all the lighting in the building with modern LED (Light Emitting Diode) lighting.
7. Collapsing of old, small consumer units to one neat and easily serviceable and safe distribution board in every floor
8. Installation of 60kW grid tied solar system.

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Installation of 60kW grid tied solar system.



Solar panels on the roof top



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Solar power smart inverters that convert direct current to alternating current for consumption by the building lifts & lights



Smart solar meter that monitors real time power production

Diesel fuel monitoring systems and fuel save controllers.



Ultrasonic sensor to monitor fuel level in the generator tanks.



Building standby generator.

Solar power production during day time black outs compliments power production by the generator

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Installation of modern building sensors



Internal light level sensors that detect if lumens are sufficient to automatically turn the lights on or off



Occupancy sensor that monitors occupation of a room for a maximum of 15min to automatically turn the lights on or off



Basement humidity and temperature sensors to automatically extract the fans on or off based on the humidity and heat emanating from the basement



Carbon monoxide (CO) basement sensors to measure the CO concentration levels exhausted by vehicles to automatically turn the extract fans on or off

Installation of modern humidity and carbon monoxide sensors at the basement levels to automatically drive the extract fans as well as ensure there is adequate circulation of clean air during high traffic durations in line with World Health Organization standards.

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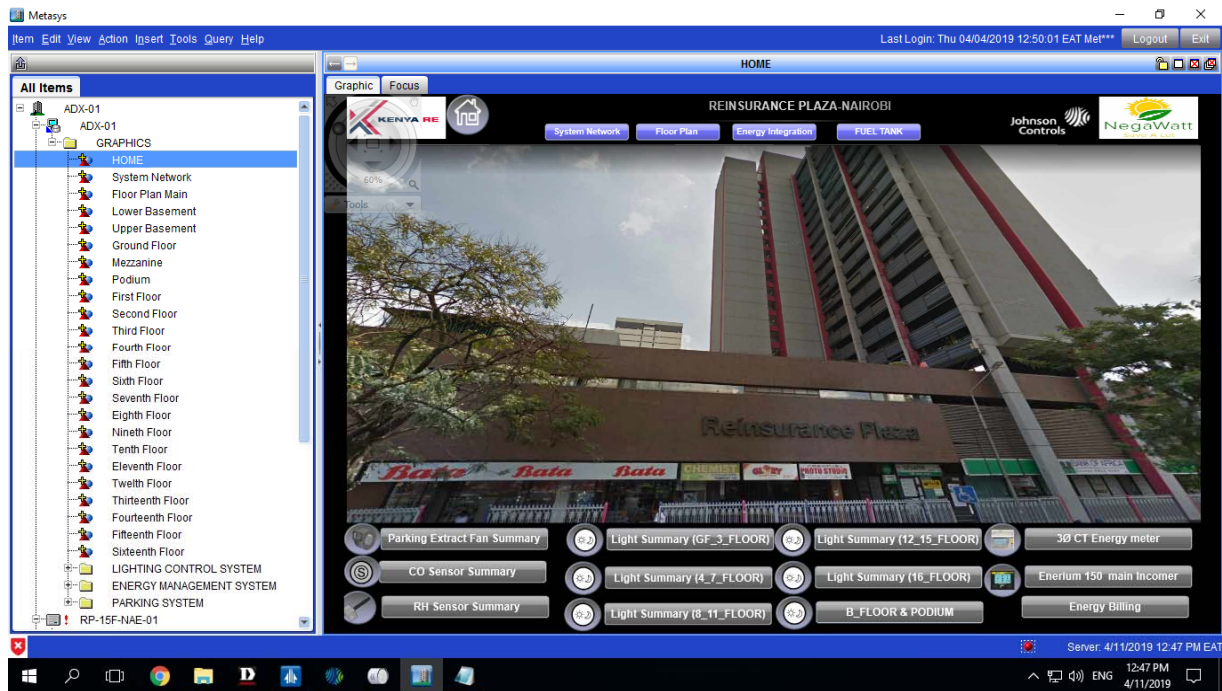
Retrofitting of lighting in the building with modern LED (Light Emitting Diode) lighting.



Retrofit of all bulbs in the common areas

Retrofitting of all Kenya Re offices, washrooms, basements and common areas

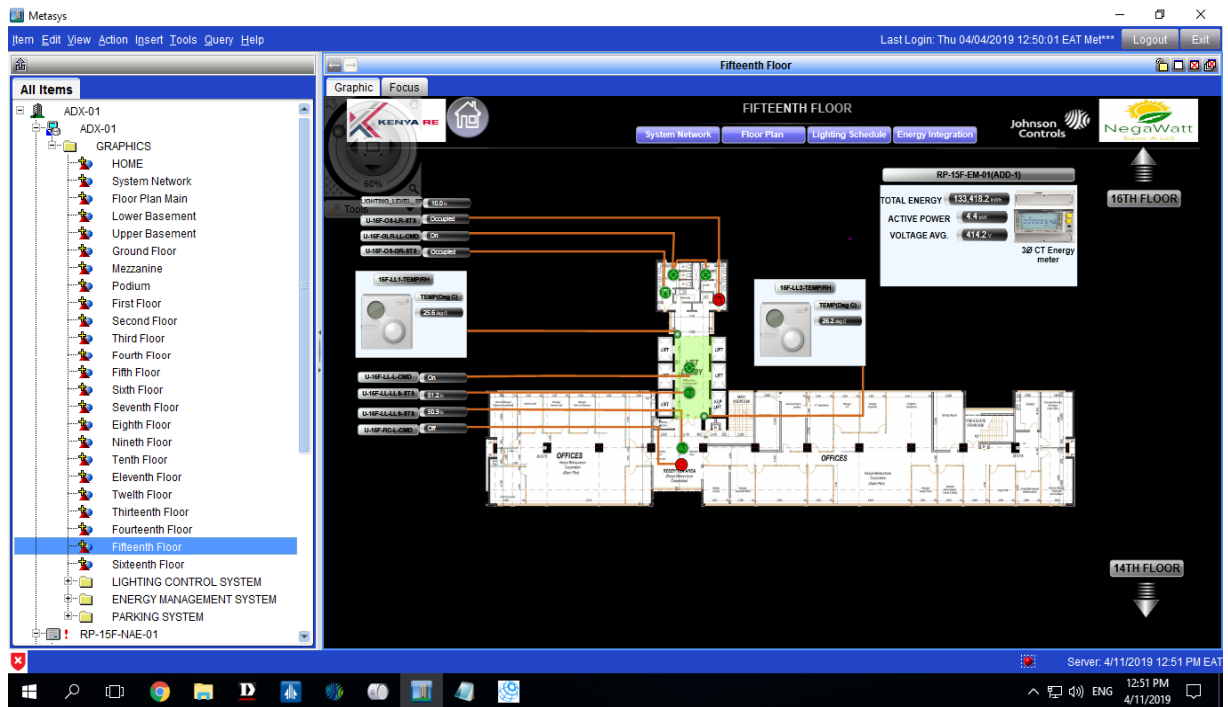
American designed Smart Building Management System by Johnson Controls.



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Graphic User Interfaces of the *metasys* by M/s Johnson Controls, **Building Automation System** that monitors:

- ✚ Light levels in the building
- ✚ Occupancy in common areas
- ✚ Fuel consumption
- ✚ Scheduling of lights in the common areas
- ✚ Power consumption and meter readings per floor
- ✚ Solar power production and consumption

Consequently:

The project has achieved a net of 32% savings in energy for the building and a consequent net avoidance of 17% due to an increase in tariff from **9.2 Kshs/kWh** in Nov 2017 to **12 Kshs/kWh** in August 2018. Reinsurance Plaza Nairobi has the lowest power bill and power consumption yet it is the Corporation's second largest building and has the highest operational power consumption of all four commercial properties.

Kenya Re is going green!