



## ENERGY EFFICIENCY (EE) IN COMMERCIAL BUILDINGS

The Covid-19 pandemic has significantly affected the commercial real estate market in Ghana as it has led to delays in potential transactions.

Both, local and international businesses, exited their spaces due to the negative effects of the pandemic on their businesses and adopted working remotely. During this period, the control of expenses including energy costs had become the most difficult day-to-day activity of the

managers of commercial buildings when suddenly the demand in office space was lower than the supply for the last 5 years (Occupancy rates decreased from 67% in 2018 to 57% in 2020)(1).

Those who took the opportunity to reduce their energy costs benefited and will continue to benefit from year-on-year savings. As they are better equipped to control their expenses and improve the quality of their services.

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Energy consumption and bills are far from being a fatality!

Managers of the commercial buildings think that there is nothing to do when you speak about improving the energy efficiency (EE) of their facilities.

This is not true! Commercial buildings have in

02

Green Buildings in Ghana

Green Building is a term used for buildings that are energy efficient, environmentally friendly and uses resources wisely.

Owners and developers of a new commercial building can opt at design and construction stage to invest in a green building with any of the international green building certification(2) systems (EDGE, DGNB, LEED, BREEAM, Green Star) or any other government approved rating system.

The “Ghana building Code-Chapter 37 (GHGBC)” includes mandatory requirements for energy efficiency under prescriptive compliance path or alternate compliance path - Green Building Certification(2).

most of the cases two “Significant Energy Uses (SEU)”: air conditioning and lighting. Besides other plug equipment as lifts, hot water, etc. considered to be relatively small energy users in most of the cases. Several energy efficiency measures are profitable as shown below.

Promoters of new projects can request an EE specialist to conduct a Setting-out Energy Efficiency feasibility study of their project so that all bankable EE measures are integrated into the design at the early stage bringing the implementation costs to a minimum.

The GHGBC recommends key performance parameters such as LPD (W/m<sup>2</sup>) for lighting systems (e.g., LPD of 11 for offices) and the USHGC (Unshaded Glass Solar Heat Gain Coefficient, e.g., 0.26 for buildings with a window-to-wall ratio of >80%). (1)

- For Grade B offices (Old 10-20 years; Previously occupied and not to the level of Grade A; Standard finishes with necessary amenities- Source: Broll Ghana)
- The certification is delivered by Ghana Green Building Council (GHGBC) operational since 2019 and a member of the World Green Building Council.

## 03 Energy audit

Significant reductions of the energy consumption of existing commercial buildings cannot be achieved unless a measurement campaign is conducted and the energy balance is analyzed, challenged, and optimized.

Doing an energy audit is a task that requires significant expertise and knowledge regarding the performance of the buildings and the requirements of the commercial building's operation.

## 04 Zero and low-cost EE measures pay for the cost of audits!

Some low hanging fruits of the audit recommendations:

- Use of more daylight in offices and corridors after refreshing and whitening the walls and ceilings
- Airing offices before turning on the Air Conditioning system
- Eliminate access for the occupants to individual room temperature controls to avoid misuses
- Automatic switch-off technologies for lights, office equipment and air conditioning units (when occupants leave offices for meetings / are absent or when they open windows)
- Cleaning all filtration media at the evaporator levels
- Create shading for the condensers of all split A/Cs
- Install detectors to switch on lights only during uses.
- Create regular energy efficiency awareness campaigns.

In the actual context of low demand for commercial buildings, an audit will demonstrate the energy efficiency measures applicable when areas are not fully occupied.

The zero and low-cost measures pay for the costs of the energy audit during the first year and can remain as showcase actions for the energy efficiency policy of the establishment.

In addition, implementing daily reading of electricity, water and diesel consumption and publish it to all occupants on a weekly basis will help the managers and maintenance staff to improve their knowledge on how to reduce energy consumption in their facilities, increase their competitiveness and produce real and sustainable economic development of their facilities.

## 05 Improving the comfort, the marketing and the public perception

The Energy auditor will challenge and identify most of the time the comfort level and the quality of the services of the day-to-day operations through the "new eyes" of an outsider resulting in an improvement of the facility.

Usually, this is perceived as added-value by the managers as it will help to boost the facilities exposure as 'green venture'. Improving the energy efficiency will help attract new (mostly

corporate) customers who are aligned with sustainability concerns.

The commercial buildings sector is facing a rental cost reduction due to higher supply than demand and it needs to integrate new technologies and approaches for controlling its expenses including energy costs while improving overall customer comfort and their environmental load.

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