

7.2.1 University policy for ensuring all renovations / new builds are following energy efficiency standards

Elements of Green Building Implementation as Reflected in all new construction and renovation policies:

Green building implementation in new construction and renovation policies focuses on several key elements designed to enhance sustainability, reduce environmental impact, and promote energy efficiency. These elements are typically reflected in guidelines and frameworks, such as LEED (Leadership in Energy and Environmental Design) or other local and international standards.

1. Energy Efficiency

- Integrating solar and wind energy sources into building design reduces reliance on non-renewable resources.
- Installing systems that optimize ventilation with minimal energy consumption.
- Automated lighting systems that respond to occupancy or time of day.
- As for energy, all the buildings have solar energy generation cells to provide part of the building's needs, which are estimated at about 45%, in addition to using energy-saving lamps (LED).
- The public site lighting poles are powered by solar energy.

2. Sustainable Materials: Incorporating materials like recycled steel, concrete, or reclaimed wood.

3. Indoor Environmental Quality

- Maximizing the use of daylight to reduce artificial lighting and improve occupant well-being.
- Ensuring adequate ventilation and using non-toxic building materials to maintain clean indoor air.
- Designing spaces to maintain comfortable temperatures naturally through insulation and proper orientation.

4. Site Selection and Sustainable Landscaping: The area of the project is 160 acres (667,730.988 m²), a general site for educational buildings, and 120 acres are complementary activities. The percentage of green areas and lake is about 52% in addition to 25% streets and lanes.

5. Water Efficiency and Reduction

- Water-saving plots are used, which will reduce water consumption by about 30%. The sewage water will be treated and reused in the irrigation of green areas in the project.
- Rainwater is collected in the main lake and used for irrigation.
- The use of plants with few water rationed plants to reduce irrigation needs in addition to absorbing quantities of rainwater to reduce the severity of rain spells.
- Air conditioning water collection and reuse unit in Faculty of Engineering.
- Wastewater treatment unit at the Faculty of Engineering.
- Reusing wastewater from sinks, showers, and laundry for irrigation or flushing toilets.
- Using drip irrigation and other systems that minimize water use.

6. Sustainable Transportation: Proximity to Public Transport: Locating buildings near public transit hubs to reduce the need for private vehicle use.

14	Higher Institute of Public Profession	Alexandria, Egypt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	700
15	University land in Smouha (College of Nursing - Children's Hospital - Faculty members residences)	Alexandria, Egypt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	105218.22
16	Land of Mouwasat Hospital	Alexandria, Egypt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	20234.27
17	Institute of Graduate Studies and Research	Alexandria, Egypt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2764
18	Faculty of Agriculture Saba Pasha	Alexandria, Egypt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	144200.934
Total																	1,377,300.34



Green building implementation through the use of sun breakers in the SSP building at the Faculty of Engineering

Green buildings of Alexandria University are designed to reduce environmental impact through efficient use of resources and sustainable practices. The main elements of green building include:

- Site Selection,
- Landscaping and plantations,
- Water Efficiency (Water Conservation, Rainwater Harvesting, and Greywater Recycling),
- Energy Efficiency (Integrating Renewable Energy, and Lighting systems: Installing energy-efficient lighting systems such as LED)
- Waste Management (waste reduction, and composting).

Applying green building concepts in the Faculty of Engineering - Alexandria University in 2020.

The buildings of the Faculty of Engineering - Alexandria University were chosen to be the nucleus from which to implement green building concepts regarding the general vision for applying environmentally friendly green building requirements to the Faculty of Engineering buildings (Report is attached in evidence file 2.3).

In the report, the faculty buildings were studied, and the summary of the report was as follows:

1. Mechanical Engineering Building: Complies with green building requirements (LEED) with the silver category.
2. Preparatory building: conforms to green building requirements (LEED) with the silver category.
3. Administration building: It does not currently comply with green building requirements (LEED), but it is possible with simple

modifications to adopt it.

4. Electrical Engineering Building: It does not currently comply with green building requirements (LEED), but it is possible to adopt it with simple modifications.

After evaluating the Faculty of Engineering buildings, the elements of Green Building Implementation was considered in all building's maintenance activity and in the construction of new buildings.

The European Union project to convert several buildings of Alexandria University into green buildings by reducing energy consumption in addition to establishing solar-powered power stations

- In light of the keenness to rationalize energy consumption in university buildings and the general trend to increase the percentage of reliance on new and renewable sources in electricity production, and in cooperation with the European Union, the European Union funding was accepted for a project to transform some buildings of Alexandria University into green buildings by reducing energy consumption in addition to constructing Electrical power stations powered by solar energy on the roofs of some qualified faculty and institute buildings suitable for this purpose.
- Accordingly, three buildings belonging to the university's faculties were chosen as a first stage to study the feasibility of applying the project to them in terms of the building's ability to bear the weight of solar stations to produce electricity, as well as studying the spaces available for building these stations and the extent of those spaces' exposure to solar radiation throughout the day. The opportunities available to reduce reliance on usual energy sources were also studied in terms of using more efficient lighting, increasing reliance on natural lighting during the day, and reducing the building's air conditioning loads.
- After research and review, the specialized scientific programs will be developed in the Faculty of Engineering, the Faculty of Education building within the Literary faculties Complex, and the Manchester Building in the Faculty of Medicine, which were chosen due to the recent construction of these buildings and their ability to accommodate the proposed development in terms of the electrical load network and the development of air conditioning systems and water heating systems used in laboratories and bathrooms.
- These buildings were visited and their suitability for the project was evaluated. The current electricity consumption and the possibility of covering these loads with electricity generated from solar energy were studied. The roof areas facing south and suitable for establishing solar stations were inspected and raised. The available roof area in the Specialized Scientific Programs Building at the Faculty of Engineering, Alexandria University, was 2,400 square meters. It can be used to create a solar station with an area of 1,000 square meters with a capacity of **120 kilowatts**, so that the station will be able to generate **360 megawatt hours** of electricity annually. As for the Faculty of Education building, the total area of the building was 4,000 square meters, and the appropriate spaces for building the station accommodate 1,000 square meters of solar cells with a capacity of **120 kilowatts**, so that the station is capable of generating **360 megawatt hours** of electricity annually, and for the Manchester building at the Faculty of Medicine, 1,200 square meters is capable of accommodating a solar power station with an area of 800 square meters. With a capacity of **96 kilowatts**, the station is capable of generating **288 megawatt hours** of electricity annually. These stations also contribute to reducing carbon dioxide emissions by a total of approximately 214 tons annually. The total expected cost of the project is about 300,000 euros.
- The time to recover the capital was estimated through providing the electricity consumed in the three buildings for approximately seven years from the date the stations entered service at full capacity, considering the periodic maintenance necessary to continue the station's operation with the greatest possible efficiency. Detailed reports were also prepared for each building and submitted to the general coordinator of the project, for review and to take the necessary steps to start this vital project, which is an important step in strengthening the efforts of the Egyptian state towards switching to renewable energy and reducing dependence on fossil fuels that have a negative impact on the environment.

New European Union Project for Renewable energy production (Solar panels)

No	Location	Production (in kWh)
1	Faculty of Engineering	360,000
2	Faculty of Education	360,000
3	Faculty of Medicine	288,000
	Total	1,008,000



The European Union project to convert several buildings of Alexandria University into green buildings by reducing energy consumption in addition to establishing solar-powered power stations: the Specialized Scientific Programs Building at the Faculty of Engineering, the Faculty of Education Building within the Literary Colleges Complex, and the Manchester Building at the Faculty of Medicine.

Policy created (2022)



Policy on Energy and water sustainable use

Alexandria university is Committed to pursuing sustainable development within and through the university and to reassessing higher education and its role in the transition to more sustainable societies. This includes building synergies and collaboration in the search for effective and innovative approaches to solving today's as well as future sustainable development challenges.

The university ensures that all renovations and establishment of new buildings are following energy efficiency standards and water conservation strategies.

The university ensures divesting investments and purchases from Carbon-intensive energy industries particularly coal and oil.

The university through its faculties is committed to maximise water reuse across the university buildings and through all services provided in the process of education and research

The objective of this statement is Commitment to offering an open, interactive and collaborative forum for discussion and action, to raise awareness and advocate for changes needed changes in higher education to best serve the goals of sustainable development, (SDGs) as well as building international linkages and cooperation on the basis of core values of academic freedom, institutional autonomy and related local and global responsibilities to society.

Being uncompliant with the commitment to pursue sustainable development issue will be regarded as interfering with personal development of the students, and the university administration will act accordingly

Policy created September 2019

Policy reviewed October 2022

Prof. Abdel Aziz Konsowa

University President

A handwritten signature in blue ink that reads "A. Konsowa".

