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BUILDING TOMORROW

Subject: Sustainability considerations within Lebanese University – Rafic Hariri Campus - Hadath

The Lebanese University Campus at Hadath is located on a land of 705,000 m^2 and has 370,000 m^2 built-up area. It includes the Faculty of Sciences, Faculty of Engineering, Faculty of Dental Medicine, Faculty of Public Health, Faculty of Pharmacy, Faculty of Medical Sciences, Faculty of Fine Arts and Architecture, Faculty of Law and Political and Administrative Sciences, Faculty of Economics and Business Administration, Doctoral School of Science and Technology, Centre of Profession, Innovation and Entrepreneurship (Centre MINE), students' dorms, visiting professors' dorms, conference hall, main kitchen, restaurants, lounges, cafeterias, sports complex, underground car parking, open car parking, technical buildings, security forces building, and 250,000 m^2 of landscaped areas.

Some of the key elements of sustainable considerations within the Campus:

1- Energy efficiency & Energy management:
   In order to reduce the energy consumption for HVAC, a district cooling system is used. It takes into consideration the diversity of cooling demand between buildings, and within each building, which contributes in energy management and efficiency. The installed chillers within the thermal plant are of the Energy efficient type using high COP and low consumption in electrical consumption.
   Additionally, at the Air side within the buildings, a Variable Air Volume (VAV) system was adopted in order to control the needs of the air-conditioning within the areas, thus optimization on the needed cooling energy.
   All systems are controlled via a Building Management System allowing automation of all technical systems for an appropriate Energy management.
   A district Heating system is used as well, having the same characteristics of the District cooling as mentioned above. This system provides also the heating water for the domestic hot water production.

2- Economizer cycle:
   Economizer cycle that uses cool outdoor air (at tempered mid-season) to cool the building (or warm outdoor air to warm up the building) instead of operating the air conditioning system within the building is implemented in lecture halls (amphitheatres) as ventilation system. Economizer cycle aims at saving the energy for cooling/heating productions.

3- Water saving:
   Water saving sanitary fixtures are used (example: temporized faucets, low water demand flush valves…).

4- Double glazing:
   In order to reduce energy consumption for HVAC, double glazing is used, which minimizes the heat transmission and provides good soundproofing.