## 6.3.4 Building standards to minimize water use Smart Building in Alexandria University

No.	No. Name Place		automation		safety				energy		water		Indoor environment				lighting				Building Area (m²)
			В1	В2	<b>S1</b>	S2	<b>S3</b>	S4	E1	E2	<b>A1</b>	A2	l1	12	13	14	L1	L2	L3	L4	
1	University Alexandria; Abis Campus, Buildings 1-11	Alexandria, Egypt			x	x	х	x	x	x	x	х	x	x	x	x	x	x	x	x	667,730.988
2	University administration building	Alexandria, Egypt		x		x	х		x	x	x	x	x	x	x	x	x	x	x	x	1940
3	Faculty of Physical Education for Boys	Alexandria, Egypt		х		x	х		x	x	x	х	x	x		x	x	x	x	x	113311.93
4	Faculty of Physical Education for Girls	Alexandria, Egypt		х		х	х		х	х	x	х	x	x		х	х	x	х	x	2891
5	The medical complex	Alexandria, Egypt		х		х	х		х	х	х	х	х	х		х	х	х	х	х	91216
6	Faculty of Science in Horia Street	Alexandria, Egypt		х		х	х		х	х	х	х	х	х		х	х	х	х	х	22197
7	Faculty of Science in Moharram Bek	Alexandria, Egypt		х		х	х		х	х	х	х	х	х		х	х	х	х	х	5485
8	Faculty of Engineering	Alexandria, Egypt		х		х	х		х	х	х	х	х	х		х	х	х	х	х	111034
9	Campus of Humanities and Social Sciences	Alexandria, Egypt		х		х	х		х	х	х	х	х	x		х	х	x	х	x	80707
10	Faculty of fine Arts	Alexandria, Egypt		х		х	х		х	х	x	х	х	х		х	х	x	х	х	2569
11	Faculty of Specific Education	Alexandria, Egypt		х		х	х		х	х	х	х	х	x		х	х	x	х	х	1194
12	Faculty of Early Childhood Education	Alexandria, Egypt		х		х	х		х	х	x	х	x	х		х	х	х	х	х	1407
13	Medical Research Institute (Horia Street - Smouha)	Alexandria, Egypt		х		х	х		х	х	x	х	х	х		х	х	х	х	х	2500

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

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

## • 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.
- The University has applied a strategy in the faculties to decrease water consumption through installation of special parts on water taps, showers, toilette, and bathroom bidet which can conserve about 50% of water consumption. Water saving devices are used instead of traditional devices. For example, the use of a hand-washing faucet with automatic control via a sensor, and

high-efficiency bathroom devices. Supplying water taps with water conservation units. Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks.



Supplying water taps with water conservation units (Alexandria University, Egypt)



Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks (Alexandria University, Egypt)

Also, faculty of Pharmacy is seriously seeking to implement a grey water (wastewater) recycling
system that depends on reusing wastewater from sewage basins only (without using
wastewater from laboratory basins) by re-pumping it into the flushing bins in the toilets after
work. Filtration and primary treatment and taking advantage of rainwater for use in irrigation
and regulatory operations. The grey water recycling initiative has a significant impact on
rationalizing water use and thus saving the college's monthly water bills, which constitute a
burden on the budget.

