



Energy Conservation Measures adopted in Phase 8 Development and Monitoring Mechanism on Energy Conservation Installations adopted by The Hong Kong Polytechnic University (The PolyU)

1. The PolyU has a proven track record of advocating sustainability and energy saving measures in all campus buildings.
2. The incorporation of energy efficient equipment, recycled materials and environmental friendly provisions have long been a standard requirement in the design brief for building projects of the University. Moreover, the Campus Development Office will collaborate with our academic departments to incorporate latest green technologies arising from their researches and the outcome has been promising.
3. One remarkable example is that our Hong Kong Community College (Hung Hom Campus) has won the Merit Award of the 2008 Green Building Award, a reputable biennial event organized by the Hong Kong Professional Green Building Council.
4. For our Phase 8 Development project, the following energy efficient and renewable energy technologies features have been adopted and it is estimated to have about 9% energy saving in annual energy consumption over the same category of buildings:

	<u>Energy Efficient and Renewable Energy Technologies Features</u>	Estimated annual energy saving(kWH)
1	<u>Water-cooled chillers with evaporative cooling towers</u> The use of water cooling instead of traditional air cooling for air conditioning system will greatly improve the efficiency of the system.	130,000
2	<u>Rotary heat recovery wheels for fresh air-handling units</u> This system allows reclaiming energy from cool exhaust air to cool down the hot intake air, and will thus lower energy consumption.	250,000



3	<p><u>Demand control of fresh air supply with CO2 sensor</u></p> <p>The system will detect the CO2 content in public space such as classrooms to automatically adjust the fresh air rate to meet the requirements in order to avoid over provision of cool air.</p>	17,000
4	<p><u>Light-emitting diode (LED) type exit signs</u></p> <p>LED lamps applicable for exit signs are very energy efficient when compared with other lamp source.</p>	241,000
5	<p><u>Occupancy and daylight sensors for lighting & air conditioning control</u></p> <p>The employment of occupancy sensors in public facilities such as classrooms will automatically switch off the lightings and air conditioning when they detect that the classroom is not in use. The daylight sensor installation will also help to switch off external lightings when there is adequate daylight.</p>	112,000
6	<p><u>Automatic lighting and ventilation control for lifts</u></p> <p>This system will automatically switch off the lighting and ventilation fan inside the lift car when the lift is not in use.</p>	1,000
7	<p><u>Self-contained type PV cell solar lightings in landscaping areas</u></p> <p>The use of solar driven landscaping lightings.</p>	8,000
	<p>Total</p>	<p>759,000</p> <p>[approximately 9% of annual electricity consumption of the building]</p>



5. During the design and tender stage, the University will check the above energy efficient features and the associated equipment to be clearly specified in the tender documentations. After the award of contract, the University with their Consultant will check and monitor closely the contractor's works to ensure that the offered equipment and workmanship particularly associated with above energy efficient features would tally with the design intent and specification requirements. The site works inspectors will further monitor the testing and commissioning of the works to ensure their compliance of design intent in achieving the estimated energy saving in the future operation of the building.

6. A Building Management System (BMS) will be provided in the Phase 8 Development. The function of BMS is mainly to control and monitor various building services installations. The University will make use of BMS to monitor the energy performance of the above energy efficient features. Based on the data extracted from BMS, the University will check the actual performance of the above energy efficient features regularly and compare with the estimated energy saving. If there is great deviation from the estimation, the University will find out the problems and take appropriate corrective actions accordingly.

7. Moreover, like other recently completed projects, the Phase 8 Development will join and hence will also be assessed at different stages under the HK-BEAM (Hong Kong Building Environmental Assessment Method) to ensure the proper performance of the said energy efficient features as well as other building services systems. The HK-BEAM Society will assign professional assessors to evaluate the actual performance of various building services systems. Assessments will not only evaluate the energy performance, but also the testing/commissioning, and operation procedures of building services systems. The University will fine tune various building services systems based on the recommendation of HK-BEAM to further optimise the energy performance that have been identified. The above energy efficient features will also be maintained by the University to ensure that their operation is in good and most efficient order and achieve the estimated energy saving.



8. Regarding the monitoring mechanism for Phase 8 Development, The PolyU has well-established systems and procedures to monitor energy consumption, mainly electricity, as well as explore other workable measures to save energy. Besides, the University has an Energy Management Sub-committee, comprising representatives from different faculties and major administrative departments, collectively looking for new opportunity on practicable means of energy saving. It will also educate users to use the energy consuming equipment/installations in most efficient way and order such as the promotion of indoor temperature setting of 25.5 degrees during summer and energy saving labels to remind users the use of equipment only as necessary.

9. The executive arm of the Energy Management Sub-committee is our Facilities Management Office that will monitor the overall energy consumption of buildings on campus including the newly completed buildings and fine tune various building services systems to optimise their efficiency as far as practicable. A Working Group has also been set up with relevant technical staff to regularly review the effectiveness of various energy saving measures that have been implemented and look for additional viable energy saving features. They will not only initiate appropriate action in case of any abnormal high energy consumption being noticed, but also conduct the monitoring and measurement of energy efficient features regularly in building projects, including the Phase 8 Development.

10. Furthermore, The PolyU has participated in many related activities organized by different organizations including the HKSAR Government and other NGOs. Such activities include Power Smart Competition organized by Friends of the Earth in 2006, Energy Conservation Charter - Suitable Room Temperature and The Hong Kong Energy Efficiency Registration Scheme for Buildings organized by EMSD in 2006 and Carbon Reduction Charter Campaign by EPD in 2008.