

<b>4</b>	<b>ENERGY USE</b>	<b>4.4 PROVISIONS FOR ENERGY MANAGEMENT</b>	
		<b>EU 12 METERING AND MONITORING</b>	
	<b>EXCLUSIONS</b>	None.	
	<b>OBJECTIVE</b>	Enable building operators to measure, monitor and develop measures to improve the performance of the building's engineering systems, particularly concerning energy use.	
	<b>CREDITS ATTAINABLE</b>	1	
	<b>PREREQUISITES</b>	As a prerequisite metering provisions shall meet the requirements of the Government's energy codes.	
	<b>CREDIT REQUIREMENT</b>	1 credit for installation of:	
		metering that allows monitoring of electricity use by the main chiller plant and auxiliaries;	1
		instruments for monitoring building cooling load and operating parameters of the central chiller plant;	2
		metering that allows separate monitoring of electricity use by the air side of the HVAC system; and	3
		metering for landlord's electricity consumption in common space/public areas.	4
	<b>ASSESSMENT</b>	The Owner/Operator shall provide details of the measuring and monitoring equipment installed and commissioning records of consumption and chiller plant performance, to demonstrate that electricity use and performance can be monitored as stipulated.	5
		Monitoring of central chiller plant will be assessed on the basis of BSRIA Technical Note TN 7/94 [1] or similar specification published by an appropriate authority. The monitoring system shall allow the overall performance of the plant and individual chillers to be determined for all operating modes and range of operating conditions.	5
		Electricity metering (for input power, energy and maximum demand), together with associated measuring transducers/transformers for indicating power and energy, shall comply with an appropriate standard such as BS EN [2] and to at least accuracy class 1. Sensors for temperature, flow rate and pressure measurements shall meet the minimum accuracy requirements in ASHRAE Standard 114 [3] or similar equivalent.	6
		Metering provision shall identify electricity use patterns for major air handling equipment, such as centralised air handling units for floors/zones, large designated areas, etc.	7
		Metering provision shall identify the electricity use pattern for each major system, fed from the Owner/Operator's main switchboard(s), i.e., landlord's lighting and small power, transportation, plumbing & drainage systems, major air handling equipment, such as centralised air handling units for floors/zones, large designated areas, etc.	8
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- 1 K Calder. The Building Services Research and Information Association. Practical Chiller System Monitoring. Technical Note TN 7/94. 1994.
- 2 British Standard BS EN 60521:1995. Class 0.5, 1 and 2 alternating-current watt-hour meters.
- 3 ASHRAE. Standard 114-1986: Energy Management Control Systems Instrumentation, American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc., USA. 1987.

**Q22. EU 12, For BEAM Plus New Buildings Version 1.1 & 1.2, What are the requirements for metering and monitoring for clubhouse and carpark?**

To fulfill the credit requirement of EU 12, separate sub-meters shall be installed for individual category of power such as mechanical ventilation, air-conditioning, lighting, lifts, escalators, pumps, etc. in clubhouse and carpark respectively. (Released on 16 November 2016)