

## Energy and Water Monitoring

The quantity of energy and water meters must be provided in-line with the *Regulation 503.03, 503.04, 602.01* and requires it to be integrated with CCMS for real time tracking and recording.

The energy and water metering is the first step in identifying opportunities to reduce consumption and operating costs. The real time and historical data provided by meters forms the basis for decision making with respect to changes to operation practices, control strategies or capital upgrades.

All the meters installed shall have open communication protocols in order to integrate with CCMS system. The most common protocols include:

- Pulse
- Modbus RS485
- BACNet
- Ethernet
- GSM (i.e. via a telco mobile network)
- Low powered radio mesh

The CCMS is required to be commissioned at the time of the building becoming operational. Consideration must be given to the recommissioning of the system at regular intervals, which should be no longer than three years. The utility consumption data must be exported into a suitable spreadsheet or data file on a monthly basis and be backed up accordingly. The recorded energy and monitoring data shall be utilised to monitor the performance in accordance with *Regulation 503.07: Performance and Commissioning Reports* for Golden and Platinum buildings.

## COMPLIANCE DOCUMENTATION

**Table 503.05(1): Documents Required**

Project Stages	Submittal Documents
Design Permit Application	1. DM BLDG Al Sa'fat declaration.
Construction Completion Application	1. CCMS technical specifications. 2. Delivery notes for the system.
After Completion	Not applicable.

## REFERENCES AND ADDITIONAL INFORMATION

The Chartered Institution of Building Services Engineers. (2009). CIBSE Guide H - Building control systems.