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Chapter 3

Commissioning and Management

503.01 Commissioning of Building Services - New Buildings

For all new air-conditioned buildings having a cooling load of 1 MW or greater, commissioning of air distribution systems, water distribution systems, lighting, central control and building management systems, refrigeration systems and boilers must be carried out.

1. Commissioning must be carried out in accordance with the CIBSE Codes listed below or other commissioning standard or code approved by Dubai Municipality (DM).
   - 1.1. 'The Chartered Institution of Building Services Engineers (CIBSE) Commissioning Code, Air Distribution Systems, Code A-2006'
   - 1.2. 'CIBSE Commissioning Code, Water Distribution Systems, Code W-2010'
   - 1.3. 'CIBSE Commissioning Code, Lighting, Code L-2018'
   - 1.4. 'CIBSE Commissioning Code, Automatic Controls, Code C-2001' for central control and Building Management System (BMS);
   - 1.5. 'CIBSE Commissioning Code R: 2002 Refrigeration Systems; and
   - 1.6. 'CIBSE Commissioning Code B: 2002 Boilers'.
2. Commissioning results must be recorded and available for inspection by DM.
3. A systems manual, documenting the information required to allow future operations staff to understand and optimally operate the commissioned services, must be developed and provided to the building operator, upon completion of commissioning works.

503.02 Re-Commissioning of Building Services - Existing Buildings

For all existing buildings having a cooling load of 2 MW or greater, re-commissioning of ventilation, water systems central plant, lighting and control systems must be carried out, at least once in every 5 years. Where possible, the re-commissioning works should be carried out in accordance with the requirements of Regulation 503.01. At a minimum, systems that required to be re-commissioned should ensure that:

1. The amount of fresh air supplied from each ventilation outlet is within ± 5% of the design volume.
2. The volume of the chilled water supplied to any cooling coil is within ± 5% of the design volume.
3. All mechanical devices, including but not limited to dampers, valves, fans, pumps, motors and actuators, operate freely and as required.
4. Filters and filter housings are sound and secure and that no unfiltered air bypasses the filter assembly.
5. Heat recovery systems are operating as designed.
6. Central plant equipment is tested to ensure that it operates through the full range of its capacity and that all design parameters are achieved.
7. All lighting systems and their controls operate as designed and that required levels of illumination are achieved.
8. Controls are checked and re-calibrated for operation, as designed. And to also ensure that any remote devices respond as required.
9. Pipe and ducts are inspected to ensure there is no air or liquid leakage.

Commissioning results must be recorded and available for inspection by Dubai Municipality.

Where original design requirements are not available, the contractor is to certify that after re-commissioning, the installed systems are operating correctly.

503.03 Electricity Metering

For all new buildings, meters must be installed to measure and record electricity demand and consumption of the facility as a whole. It must also provide accurate records of consumption and must be complying with DEWA specifications. All meters should be approved by DEWA.

1. For all buildings having a cooling load of at least 1 MW or gross floor area of 5,000 m^2 or greater, additional electrical sub-metering (of tariff class accuracy) must be installed to record demand and consumption data for each major energy-consuming system in the building. At a minimum, all major energy consuming systems with a load of 100 kW or greater must be sub-metered.
2. The building operator shall be responsible for recording the details of the energy consumption for the building and for ensuring that major electricity uses are sub-metered. Records must be kept for 5 years.
3. Each individual tenancy in the building must have a sub-meter installed when a building tariff meter is not present. These sub-meters should only be for demand management and electricity cost allocation purposes.
4. Where a Building Management System (BMS) or Central Control and Monitoring System (CCMS) is installed, metering must be connected to allow real-time profiling and management of energy consumption.
5. Virtual meters using run-hours are not acceptable as sub-meters.

503.04 Air Conditioning Metering

For all new buildings supplied by a central air conditioning source (such as a chiller plant or district cooling) and where cooling energy is delivered individually to several consumers, meters must be installed to measure and record chilled water supply to air conditioning units. It must also provide accurate records of consumption.

A. Energy meters designed to measure the supply of chilled water must be installed for each dwelling unit, office or tenant. The measuring device must measure the water flow and supply and return temperatures to determine the temperature differential for calculating the amount of cooling energy consumed.

B. Where a Building Management System (BMS) or Central Control and Monitoring System (CCMS) is installed, metering must be connected to allow real-time profiling and management of energy consumption.

C. Meters used must be specifically designed for the measurement of chilled water and not for hot water.

D. All meters must be capable of remote data access and must have data logging capability.

E. Virtual meters using run-hours are not acceptable as sub-meters.

F. The meter readings and actual consumption details should only be for demand management and cost allocation purposes.

503.05 Central Control and Monitoring System (CCMS)

For all new buildings having a cooling load of 1 MW or gross floor area of 5,000 m^2 or greater, must have a central control and monitoring system capable of ensuring that the building's systems operate as designed and as required during all operating conditions. The system shall provide full control and monitoring of system operations, apart from diagnostic reporting.

At a minimum, the system must control the chiller plant, heating, ventilation and air conditioning (HVAC) equipment and record energy and water consumption. It shall also monitor and record the performance of these items.