

## **PART 1        GENERAL**

### **1.1            SUMMARY**

- .1    Section Includes:
  - .1        System requirements for Local Area Network (LAN) for Building Energy Monitoring and Control System (EMCS).
- .2    Related Sections:
  - .1        Section 25 05 01 – EMCS: General Requirements.

### **1.2            REFERENCES**

- .1    Canadian Standards Association (CSA International).
  - .1        CSA T529, Telecommunications Cabling Systems in Commercial Buildings (Adopted ANSI/TIA/EIA-568-A with modifications.
  - .2        CSA T530, Commercial Building Standard for Telecommunications Pathways and Spaces (Adopted ANSI/TIA/EIA – 569-A with modifications.
- .2    Institute of Electrical and Electronics Engineers (IEEE)/Standard for Information Technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements.
  - .1        IEEE Std 802.3TM, Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications.
- .3    Telecommunications Industries Association (TIA)/Electronic Industries Alliance (EIA).
  - .1        TIA/EIA-568, Commercial Building Telecommunications Cabling Standards Set, Part 1 General Requirements, Part 2 Balanced Twisted- Pair Cabling Components, Part 3 Optical Fiber Cabling Components Standard.
  - .2        TIA/EIA-569-A, Commercial Building Standard for Telecommunications Pathways and Spaces.
- .4    Treasury Board Information Technology Standard (TBITS).
  - .1        TBITS 6.9, Profile for the Telecommunications Wiring System in Government Owned and Leased Buildings-Technical Specifications.

### **1.3            DEFINITIONS**

- .1    Acronyms and definitions: refer to Section 25 05 01 – EMCS: General Requirements.

### **1.4            SYSTEM DESCRIPTION**

- .1    Data communication network to link Operator Workstations and Master Control Units (MCU) in accordance with CSA T529, TIA/EIA-568, CSA T530 and TIA/EIA-569-A.
  - .1        Provide reliable and secure connectivity of adequate performance between

different sections segments of network.

- .2 Allow for future expansion of network, with selection of networking technology and communication protocols.
- .2 Data communication network to included, but not limited to:
  - .1 EMCS-LAN.
  - .2 Modems.
  - .3 Network interface cards.
  - .4 Network management hardware and software.
  - .5 Network components necessary for complete network.

## **1.5 DESIGN REQUIREMENTS**

- .1 EMCS Local Area Network (EMCS-LAN).
  - .1 High Speed, high performance, local area network over MS/TP with MCUs and OWSs communicate with each other directly on peer to peer basis in accordance with IEEE 802.3/Ethernet Standard.
  - .2 EMCS-LAN to be: BACnet Protocol
  - .3 Each EMCS-LAN to be capable of supporting at least 50 devices.
  - .4 Support of combination of MCUs and OWSs directly connected to EMCS-LAN.
  - .5 High speed data transfer rates for alarm reporting, quick report generation from multiple controllers, upload/download information between network devices. Bit rate to be 10 Megabits per second minimum.
  - .6 Detection and accommodation of single or multiple failures of either OWSs, MCUs or network media. Operational equipment to continue to perform designated functions effectively in event of single or multiple failures.
  - .7 Commonly available, multiple sourced, networking components and protocols to allow system to co-exist with other networking applications including office automation.
- .2 Dynamic Data Access.
  - .1 LAN to provide capabilities for OWSs, either network resident or connected remotely to access point status and application report data or execute control functions for other devices via LAN.
  - .2 Access to data to be based upon logical identification of building equipment.
- .3 Network Medium.
  - .1 Network medium: twisted cable, shielded twisted cable, or fibre optic cable compatible with network protocol to be used within buildings. Fibre optic cable to be used between buildings.

**PART 2        PRODUCTS (NOT USED)**

**PART 3        EXECUTION (NOT USED)**

**END OF SECTION**