

## **1 General**

### **1.1 ACRONYMS**

- .1 BMM - Building Management Manual.
- .2 CX - Commissioning.
- .3 HVAC - Heating, Ventilation and Air Conditioning.
- .4 PI - Product Information.
- .5 PV - Performance Verification.
- .6 TAB - Testing, Adjusting and Balancing.
- .7 WHIMIS - Workplace Hazardous Materials Information System.

### **1.2 GENERAL REQUIREMENTS**

- .1 Standard letter size paper 216 mm x 279 mm.
- .2 Methodology used to facilitate updating.
- .3 Drawings, diagrams and schematics to be professionally developed.
- .4 Electronic copy of data to be in a format accepted and approved by Departmental Representative.

### **1.3 APPROVALS**

- .1 Prior to commencement, co-ordinate requirements for preparation, submission and approval with Departmental Representative.

### **1.4 GENERAL INFORMATION**

- .1 Provide Departmental Representative the following for insertion into appropriate Part and Section of BMM:
  - .1 Complete list of names, addresses, telephone and fax numbers of contractor, sub-contractors that participated in delivery of project - as indicated in Section 1.2 of BMM.
  - .2 Summary of architectural, structural, fire protection, mechanical and electrical systems installed and commissioned - as indicated in Section 1.4 of BMM.
    - .1 Including sequence of operation as finalized after commissioning is complete as indicated in Section 2.0 of BMM.
  - .3 Description of building operation under conditions of heightened security and emergencies as indicated in Section 2.0 of BMM.
  - .4 System, equipment and components Maintenance Management System (MMS) identification - Section 2.1 of BMM.
  - .5 Information on operation and maintenance of architectural systems and equipment installed and commissioned - Section 2.0 of BMM.
  - .6 Information on operation and maintenance of fire protection and life safety systems and equipment installed and commissioned - Section 2.0 of BMM
  - .7 Information on operation and maintenance of mechanical systems and equipment installed and commissioned - Section 2.0 of BMM.
  - .8 Operating and maintenance manual - Section 3.2 of BMM.
  - .9 Final commissioning plan as actually implemented.
  - .10 Completed commissioning checklists.
  - .11 Commissioning test procedures employed.
  - .12 Completed Product Information (PI) and Performance Verification (PV) report forms, approved and accepted by Departmental Representative.
  - .13 Commissioning reports.

### **1.5 CONTENTS OF OPERATING AND MAINTENANCE MANUAL**

- .1 For detailed requirements refer to Section 01 78 00 - Closeout Submittals.
- .2 Departmental Representative to review and approve format and organization within 12 weeks of award of contract.
- .3 Include original manufactures brochures and written information on products and equipment installed on this project.
- .4 Record and organize for easy access and retrieval of information contained in BMM.
- .5 Include completed PI report forms, data and information from other sources as required.
- .6 Inventory directory relating to information on installed systems, equipment and components.
- .7 Approved project shop-drawings, product and maintenance data.
- .8 Manufacturer's data and recommendations relating: manufacturing process, installation, commissioning, start-up, O M, shutdown and training materials.
- .9 Inventory and location of spare parts, special tools and maintenance materials.
- .10 Warranty information.
- .11 Inspection certificates with expiration dates, which require on-going re-certification inspections.
- .12 Maintenance program supporting information including:
  - .1 Recommended maintenance procedures and schedule.
  - .2 Information to removal and replacement of equipment including, required equipment, points of lift and means of entry and egress.

#### **1.6 LIFE SAFETY COMPLIANCE (LSC) MANUAL**

- .1 Samples of LSC Manual will be available from Departmental Representative..
- .2 Content of Manual:
  - .1 All possible Emergency situations modes including: presence of fire and smoke, power failure, lose of water or pressure, chemical spills and refrigerant release.
  - .2 Failure of elevators and escalators.
  - .3 HVAC emergencies and fuel supply failures.
  - .4 Intrusion and security breach.
  - .5 Emergency provisions for natural disasters, bomb threats and other disruptive situations.
  - .6 Dedicated emergency generators for high security projects, medical facilities and computer systems.
  - .7 Emergency control procedures for fire, power and major equipment failure.
  - .8 Emergency contacts and numbers.
  - .9 Manual to be readily available and comprehensible to non-technical readers.

#### **1.7 SUPPORTING DOCUMENTATION FOR INSERTION INTO SUPPORTING APPENDICES**

- .1 Provide Departmental Representative supporting documentation relating to installed equipment and system, including:
  - .1 General:
    - .1 Finalized commissioning plan.
    - .2 WHMIS information manual.
    - .3 Approved as-built drawings and specifications.
    - .4 Procedures used during commissioning.
    - .5 Cross-Reference to specification sections.
  - .2 Architectural & Structural
    - .1 Inspection certificates, construction permits.
    - .2 PV reports.
  - .3 Mechanical:
    - .1 Installation permits, inspection certificates.

- .2 Piping pressure test certificates.
- .3 Ducting leakage test reports.
- .4 TAB and PV reports.
- .5 Charts of valves and steam traps.
- .6 Copies of posted instructions.
- .4 Electrical
  - .1 Installation permits, inspection certificates.
  - .2 TAB and PV reports.
  - .3 Electrical work log book.
  - .4 Charts and schedules.
  - .5 Locations of cables and components.
  - .6 Copies of posted instructions.
- .2 Assist Departmental Representative with preparation of BMM.

#### **1.8 LANGUAGE**

- .1 English.

#### **1.9 IDENTIFICATION OF FACILITY**

- .1 When submitting information to Departmental Representative for incorporation into BMM, use conforming identification following the system for identification of documentation as the one in use in the building.

#### **1.10 USE OF CURRENT TECHNOLOGY**

- .1 Use submitting information to Departmental Representative for incorporation into BMM, use conforming identification following the system for identification of documentation as the one in use in the building.
- .2 Obtain Departmental Representative's approval before starting work.

**END OF SECTION**

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