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[Project Name]

Author

Operating and Maintenance Manual

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1.0 Introduction:

Description of the manual content and structure. How to use it and why it is being issued.

[could be standardized across all your projects]

2.0 Project Information:

Include detailed information on the project.

[can take information from the OPR, BOD, Specifications, Cx Plan]

3.0 Project Specifications:

Include a register of Specifications that were utilized on the project.

Type		Document Number
Building Management Systems	BMS	[insert]
Extra Low Voltage Systems	ELV	[insert]
Electrical Systems	EE	[insert]
Fire Systems	FS	[insert]
Mechanical/HVAC Systems	MVAC	[insert]
Plumbing & Drainage Systems	PD	[insert]

3.1 Building Management System [BMS] Specification:

Insert copy of final specification.

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3.2 Extra Low Voltage System [ELV] Specification:

Insert copy of final specification.

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3.3 Electrical Systems [EE] Specification:

Insert copy of final specification.

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3.4 Fire Systems [FS] Specification:

Insert copy of final specification.

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3.5 Mechanical/HVAC Systems [MVAC] Specification:

Insert copy of final specification.

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3.6 Plumbing and System [PD] Specification:

Insert copy of final specification.

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4.0 As-Built Drawings:

Include a register of as-built drawings that have been issued and approved for the project.

Type: BMS | CONT | EE | ELV | FS | MVAC | PD

Description	Type	Drawing Number
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]
[insert]	[insert]	[insert]

4.1 Building Management System [BMS] Drawings:

Insert copy of as-built schematic/layout drawings.

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4.1.1 BMS Schematics:

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4.1.2 BMS Layouts:

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4.2 Control Systems [CONT] Drawings:

Insert copy of as-built logic drawings.

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4.2.1 CONT Logics:

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4.3 Extra Low Voltage System [ELV] Drawings:

Insert copy of as-built schematic/layout drawings.

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4.3.1 ELV Schematics:

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4.3.2 ELV Layouts:

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4.4 Electrical Systems [EE] Drawings:

Insert copy of as-built schematic/layout drawings.

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4.4.1 EE Schematics:

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4.4.2 EE Layouts:

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4.5 Fire Systems [FS] Drawings:

Insert copy of as-built schematic/layout drawings.

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4.5.1 FS Schematics:

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4.5.2 FS Layouts:

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4.6 Mechanical/HVAC Systems [MVAC] Drawings:

Insert copy of as-built schematic/layout drawings.

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4.6.1 MVAC Schematics:

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4.6.2 MVAC Layouts:

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4.7 Plumbing and System [PD] Drawings:

Insert copy of as-built schematic/layout drawings.

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4.7.1 PD Schematics:

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4.7.2 PD Layouts:

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5.0 Electrical Discrimination Study:

Include the approved discrimination study report for the electrical systems.

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6.0 BMS Graphic Document:

Include the approved BMS Graphic Document.

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7.0 BMS Access/Messaging As-Built Information

Include the approved BMS Access/Messaging documents.

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8.0 Summary of Systems Installed:

Provide a summary of each systems component, location, and how they are designed to operate.

[can take from specifications, drawings, control logics]

8.1 Building Management Systems:

Insert summary.

8.2 Control Systems:

Insert summary.

8.3 Extra Low Voltage Systems:

Insert summary.

8.4 Electrical Systems:

Insert summary.

8.5 Fire Systems:

Insert summary.

8.6 Mechanical/HVAC Systems:

Insert summary.

8.7 Plumbing & Drainage Systems:

Insert summary.

9.0 Asset Register:

Include a detailed list of equipment for each type of system that has been installed, modify the following pages to suit.

[a lot of information can be taken from the progress trackers to give a good start, if they are detailed enough]

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10.0 Systems Operation:

Expand on the way in which each of the systems operate, covering start-up interfaces and interlocks, set points, running, shut down interfaces and interlocks, fault finding and problem solving.

[can take from specifications, drawings, control logics, manufacturers data and information]

10.1 Building Management Systems:

Insert detailed operation description

10.2 Control Systems:

Insert detailed operation description

10.3 Extra Low Voltage Systems:

Insert detailed operation description

10.4 Electrical Systems:

Insert detailed operation description

10.5 Fire Systems:

Insert detailed operation description

10.6 Mechanical/HVAC Systems:

Insert detailed operation description

10.7 Plumbing & Drainage Systems:

Insert detailed operation description

11.0 Manufacturers Literature & Information

Include all the manufacturers information relating to the equipment, ancillaries, and systems.

[Use the asset registers for reference for what would be needed]

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11.1 Building Management Systems Manufacturers Literature:

11.1.1 BMS Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.1.2 BMS Literature:

Attach documents...

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11.2 Controls Systems Manufacturers Literature:

11.2.1 CONT Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.2.2 CONT Literature:

Attach documents...

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11.3 Extra Low Voltage Systems Manufacturers Literature:

11.3.1 ELV Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.3.2 ELV Literature:

Attach documents...

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11.4 Electrical Systems Manufacturers Literature:

11.4.1 EE Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.4.2 EE Literature:

Attach documents...

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11.5 Fire Systems Manufacturers Literature:

11.5.1 FS Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.5.2 FS Literature:

Attach documents...

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11.6 Mechanical/HVAC Systems Manufacturers Literature:

11.6.1 MVAC Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.6.2 MVAC Literature:

Attach documents...

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11.7 Plumbing & Drainage Systems Manufacturers Literature:

11.7.1 PD Literature Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

11.7.2 PD Literature:

Attach documents...

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12.0 Health & Safety:

12.1 Safety Procedures

Include all safety processes and procedures related to the operation, access, and maintenance of the equipment and systems.

[Use the project health and safety file for examples and reference]

12.1.1 Safety Procedure Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

12.1.2 Safety Procedures

Attach/include safety procedures

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12.2 Control of Substances Hazardous to Health [COSHH]

Include all COSHH data sheets for items related to the maintenance, cleaning, and disposal of chemicals [paint, adhesives, gases, and chemicals].

[Use the project health and safety file for examples and reference]

12.2.1 COSHH Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

12.2.2 COSHH Data

Attached/include COSHH data sheets and information.

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12.3 Risk Assessments

Include all risk assessments related to the operation, access, and maintenance of the equipment and systems.

[Use the project health and safety file for examples and reference]

12.3.1 Risk Assessment Register

Description	Document Number
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]
[insert]	[insert]

12.3.2 Risk Assessments

Attached/include risk assessments and information.

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12.4 Arc Flash Study

Include the approved Arc Flash Study for the electrical systems

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13.0 Disposal of Equipment/Products:

Provide information on how equipment and products should be disposed of.

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14.0 Maintenance:

14.1 Planned Maintenance Instructions and Schedules

Provide instructions and schedules on how to maintain each piece of equipment, systems, and ancillaries of the installation.

Cover: monthly, half yearly, yearly programme on items such as lubrication, adjustment, replacement, routine maintenance, cleaning, filter changing, access & safety etc.

[Mostly provided by the manufacturers].

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15.0 Equipment/System Spares:

15.1 Handover Spares List

Provide the list of spares that have been provided under the contract.

15.2 Recommended Spares & Purchase Information

Provide a list of spares that are recommended to be held by the operator/facilities department including any purchasing information needed.

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16.0 Service Level Agreements:

Include information from the suppliers, vendors, and contractors relating to any service agreements/warranties that are to be include for the operation of the building and systems after handover.

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17.0 Final Testing and Commissioning Report:

Include the final commissioning report that is usually to be written and issued by the commissioning agent/authority.

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-END-

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