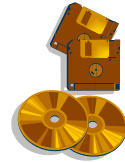




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Specification For The Production of Electronic Building Manuals

Index

1.	<i>Introduction</i>	3
2.	<i>Presentation</i>	3
3.	<i>Front Page / Title Sheet</i>	4
4.	<i>Main Menu Page</i>	4
5.	<i>User Guide</i>	4
6.	<i>File / Folder Structure</i>	5
7.	<i>O&M Manual Templates</i>	6
8.	<i>Language / Measurement Values</i>	6
9.	<i>File Formats</i>	6
10.	<i>Non Standard Documentation</i>	7
11.	<i>Reader / Helper Software</i>	7
12.	<i>Search Facility</i>	7
13.	<i>Table of Responsibilities</i>	7
14.	<i>Time Scales</i>	8
	<i>Appendix A - Example of O&M Manual Template Cover Sheet</i>	9

1. Introduction

The intention of this document is to:-

- Construct a fully electronic, interactive Building Manual incorporating the Health and Safety File, Operating and Maintenance Manuals, Record Drawings and other related documentation for the installation, with all text and drawings being in a standard electronic format, suitable for operation on a PC with a Windows 98 or above operating system.
- Present the Building Manual to the Client at practical completion on a self running, self contained CD-Rom or DVD-Rom as applicable (see section 2 "Presentation" following), with a user friendly title sheet (see section 3 "Front Page / Title Sheet" following) and a main menu (see section 4 "Main Menu" following).
- Ensure that a simple User Guide to the Building Manual is included (see section 5 "User Guide" following).
- Ensure that the Building Manual is arranged in a suitable format to allow it to be upgraded in the future and that all modifications can be recorded under the control of a system administrator (see item 6 "File / Folder Structure" following).
- Ensure that the Building Manual is arranged in a predetermined format to maintain consistency of the content (see section 7 "O&M Manual Templates", section 8 "Language / Measurement Values", section 9 "File Formats" and section 10 "non standard documentation" following).
- Ensure that all reader and / or helper software required to access the Building Manual is included on the CD-Rom / DVD-Rom and freely available (see section 11 "Reader Software" following).
- Ensure that the Building Manual has an in-built logical search facility (see section 12 "Search Facility" following).

2. Presentation

The Building Manual will be presented on one CD-Rom or DVD-Rom disk (to be decided by the quantity of information). Multiple disks will not be acceptable. The disk will be labelled with the title of the project and suitable graphics (to be decided). The disk will be of the auto-run type, such that when inserted into the CD / DVD drive of the users computer, the following sequence of events will occur:-

- The computer system will be interrogated to either (a) ensure that all requisite reader software is already present or (b) enable the User to install such software.
- The front page / title sheet (see section 3 following) will appear on the screen of the Users PC.

3. Front Page / Title Sheet

The title on the front page will be determined by the project name. It will contain graphics of the project (to be agreed with / provided by the Client), and hyperlinks to the Main Menu Page (see section 4 following) and also to Exit the Building Manual.

4. Main Menu Page

A proposed main menu is listed below, however, it must be agreed with the Planning Supervisor as a minimum:-

- Introduction - a brief introduction to the Building Manual.
- Project Directory - a directory of all parties involved with the project, giving names, addresses and other contact details for the Client, Planning Supervisor, Design Team, Principal Contractor and all Trade Package Contractors.
- Health and Safety File - a copy of the Health and Safety File produced for the project.
- Operating and Maintenance Manuals - a copy of the O&M manual for each Trade Package, complete with hyperlinked menu to the manuals. The manuals will be produced to the Templates discussed in section 7 following.
- As Built Drawings - a copy of the Record Drawing Register for each Trade Package, complete with hyperlinks to the drawings.
- Building Log Book - a copy of the log book for the building.
- Historical Information - a copy of any historical information pertaining to the project. For example, a copy of the Asbestos Register could be included if the building is existing.
- Photo Library - a copy of any photographs deemed applicable to the project. This should be kept to a minimum and should have a hyperlinked index to each photo file with a short description.
- Amendments to the Building Manual - a schedule should be included to allow the system administrator to upgrade the manual.
- User Guide - see section 5 following.

Each of the above menu items will be hyperlinked to the applicable document, such that when selected, will open the file using the relevant reader software.

5. User Guide

A short description to give the user guidance in the navigation and operation of the Building Manual will be provided. This will be in a practical, simple to understand format - a visual format (such as a movie file) is preferred. Instruction will also be given in how to search the Building manual and how to install reader software.

6. File / Folder Structure

The arrangement of folders and files will generally follow the example format given below:-

- 📁 As Built Drawings
 - 📄 Index
 - 📁 Substructures
 - 📁 Primary Elements
 - 📁 Secondary Elements External
 - 📁 Secondary Elements Internal
 - 📁 Services Installation
 - 📁 External Works
- 📁 Health and Safety File
- 📁 Historical Data
- 📁 Images
- 📁 Installation
 - 📄 Adobe Acrobat Reader
 - 📄 Voloview
 - 📄 Flash Player
- 📁 Log Book
- 📁 O&M Manuals
 - 📄 Index
 - 📁 Substructures
 - 📄 Piling
 - 📄 Pile Caps
 - 📁 Primary Elements
 - 📄 Blockwork / Builderswork
 - 📄 Concrete Works
 - 📄 Demolition
 - 📄 Fire Protection
 - 📄 Floors
 - 📄 Steel Frame
 - 📁 Secondary Elements External
 - 📄 Windows
 - 📄 Roofing
 - 📄 Cladding
 - 📄 Window Cleaning Equipment
 - 📁 Secondary Elements Internal
 - 📄 Window Blinds
 - 📄 Doors / Ironmongery
 - 📁 Services Installation
 - 📄 Disabled Lifts
 - 📄 Lifts
 - 📄 Mechanical Services
 - 📄 Electrical Services
 - 📁 External Works
 - 📄 Incoming Services
 - 📄 Sewers / Drainage
- 📁 Search
 - 📄 Adobe Acrobat Search Index
- 📁 User Guide
 - 📄 How to use the manual
 - 📄 How to search the manual

7. O&M Manual Templates

A standard template will be produced for the operating and maintenance manuals. This template will be a Microsoft Word document, having hyperlinks from an initial index to named sections and files. The template will be set out to allow the relevant sections to be filled in directly from Word. Guidance notes and examples will be provided where felt necessary. Wherever possible, tables should be utilised to format text (i.e. equipment and drawing schedules, etc.) Guidance can be given if required on the use of this template and the creation of hyperlinks within Word. The fonts and styles to be used within the template are listed below:-

Normal / Normal Indent - Arial, size 11, used for text

Heading 1 - Normal + Title case + bold, used for section number and title

Heading 2 - Normal + Title case + bold, used for sub-section number and title

These styles must be used - they are an integral part of the hyperlink process and final conversion into an electronic manual. If they have not been used, the manual will not be accepted.

8. Language / Measurement Values

Language - English must be used for all documentation and drawings, whether produced electronically or scanned.

Measurement - Metric (SI) values must be used within all documentation and drawings, whether produced electronically or scanned.

9. File Formats

Electronic word processor files must be submitted in DOC format having been produced in Microsoft Word version 6.0 or higher.

Electronic spreadsheet files must be submitted in XLS format having been produced in Microsoft Excel version 6.0 or higher.

Electronic drawing files must be submitted in the native DWG format having been produced in AutoCad 14/2000 or higher. All external reference (XREF) files must be bound to their parent drawings. The drawings must be purged and audited prior to issue. All non standard shape and font files must be issued with the drawings.

Electronic image files must be submitted in TIFF, JPEG, BMP or WMF format at a resolution of 300 dpi.

Scanned images must be submitted in **searchable** PDF format at a resolution of 300 dpi, having been produced in Adobe Capture or Acrobat version 5 or higher.

10. Non Standard Documentation

Test certificates and commissioning sheets must be submitted electronically in their native format (e.g. word processor or spread sheet file). Where this is not possible (e.g. concrete tests, IEE certification), the document must be scanned and thence treated as a scanned image (see 3 above) and submitted in **searchable** PDF format at a resolution of 300 dpi.

Manufacturers literature must be submitted electronically in its native format (e.g. word processor file). If this is not possible, the literature, whether in paper or PDF format, must be treated as a scanned image (see 3 above) and submitted in **searchable** PDF format at a resolution of 300 dpi.

11. Reader / Helper Software

A copy of Adobe Acrobat Reader (minimum V6), Voloview (or a similar AutoCad Viewer) plus any other “helper” software (such as Macromedia Flash Player) must be included within the Building Manual.

12. Search Facility

A search facility will be formulated to allow each document to be individually searched utilising the Adobe Acrobat search engine.

13. Table of Responsibilities

Item	Responsibility	Format
Word Search Facility	BMA	Adobe Acrobat pdf
Front Page	BMA	Bespoke with hyperlinks
Menu	BMA	Bespoke with hyperlinks
Sub-Menus	BMA	Bespoke / pdf with hyperlinks
User Guide	BMA	avi / mov / Flash
Amendments Page	BMA	Word doc
Health and Safety File	PS	Hyperlinked Word doc
Photo Library	PC	Jpg
Package Interfaces	PC	-
Comment / Approval	PS / PT/ PC	Bespoke / doc / pdf / dwg
O&M Manuals	TPC	Hyperlinked Word doc
O&M Literature	TPC	Hyperlinked Word doc / Acrobat pdf
Record Drawings	PT / TPC	AutoCad dwg
Log Book	BSE / ARC / M&E	Hyperlinked Word doc

BMA = Building Manual Author
PS = Planning Supervisor
PT = Professional Team (i.e. Architect and Engineers)
ARC = Architect
PS = Planning Supervisor
STE = Structural Engineer
BSE = Building Services Engineer
PC = Principal Contractor
TPC = Trade Package Contractors
M&E = Mechanical and Electrical Services Contractors

14. Time Scales

All requisite documentation must be submitted in its' final approved state at least six weeks prior to the date of completion of the main contract. If test certificates and commissioning data for mechanical and electrical services are not available for this date, a full schedule of certificates is to be issued such that "place markers" can be included within the Building Manual. It should be noted that if this is not strictly adhered to, additional costs may be incurred as a result of re-compilation of the Building Manual

Appendix A - Example of O&M Manual Template Cover Sheet

Name of Installing Contractor: *Enter your company name here*
 Element of Works: *Enter your work package title / content here*
 Emergency Tel No: *Enter your emergency phone number here*

	Item	Y/N	Comments	Page
	REVISIONS SHEET	Y		3
	TRAINING RECORD LOG SHEET	Y		4
0.0	Preambles	Y		5-10
0.1	Introduction	Y		6
0.2	Design & Installation Team	Y		7-8
0.2.1	Architect	Y		7
0.2.2	Structural Engineer	Y		7
0.2.3	Building Services Consultants	Y		7
0.2.4	Work Package Contractor	Y		8
0.2.5	Work Package Suppliers	Y		8
0.3	Services Identification	N		9
0.4	Plant Life Expectancy	Y		10
1.0	Technical Information	Y		11-19
1.1	Design Criteria	Y		12
1.2	Detailed As Built Specification of the Installation	Y		13
1.3	QA Standards and British Standards	Y		14
1.4	Warranties and Guarantees	Y		15
1.5	Master Equipment Schedule	Y		16
1.6	Locations of Installation	Y		17
1.7	Installation & Fixing Methods	Y		18
1.8	Space Required for Operation & Use	N		19
2.0	Operating Information	Y		20-28
2.1	Operating Procedures	Y		21
2.2	Special Considerations	N		27
2.3	Training Requirements	N		28
3.0	Maintenance Information	Y		29-37
3.1	Notes On Maintenance	Y		30
3.2	Maintenance Schedules	Y		31
3.3	Inspections	Y		32
3.4	Servicing	Y		33
3.5	Cleaning	Y		34
3.6	Lubrication	Y		35
3.7	Tools	N		36
3.8	Spares	Y		37

4.0	Fault Finding	Y		38-42
4.1	Notes On Fault Finding	Y		39
4.2	General Failure	N		40
4.3	Fault Finding Charts	N		41
5.0	Health & Safety	Y		43-49
5.1	Significant Health & Safety Risks Within The Design	Y		44
5.2	COSHH Data	Y		45
5.3	Significant Weights	Y		46
5.4	Safe Access / Removal	Y		47
5.5	Dismantling / Demolition Procedures	Y		48
5.6	Fire Protection Measures	N		49
6.0	Manufacturers Information	Y		50-52
6.1	Directory of Manufacturers & Suppliers	Y		51
6.2	Manufacturers Literature	Y		52
7.0	As Built Drawings	Y		53-55
7.1	Drawing Register	Y		54
7.2	The Drawings	Y		55
8.0	Photo Library	N		56-57
9.0	Emergency Procedures	N		58-59
10.0	Testing and Commissioning	N		60-64
10.1	Testing Prior To Use	N		61
10.2	Future Testing Requirements	N		62
10.3	Test Certificates	N		63
10.4	Commissioning Data	N		64

Revision	Date Issued	Comment
Rev 2	17th December 2003	Test Electronic Conversion