



PROPERTY SERVICES

SPECIFICATION FOR

OPERATIONS AND MAINTENANCE MANUALS

June 2010

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1. ALL O & M MANUALS – GENERAL PROVISIONS

COMMON STYLE ELEMENTS – ALL ASSET GROUPS

General

Manuals are to provide concise descriptions, technical details, operating and maintenance instructions and schedules, commissioning records, log books, catalogues, principles of operation, method of operation and other information that will enable the on-going operation and maintenance of the fabric, services, plant and equipment.

The comprehensive descriptions are to be accompanied by appropriate diagrams and other necessary illustrations so as to facilitate knowledge and understanding about the operation of the plant and equipment. Examples include hydraulic flow diagrams, electric wiring diagrams, electronic circuit plans and mechanical air flow diagrams etc.

Quality

Ensure the content of the documents is provided by personnel with skill and experience in the operation and maintenance of the installation and that the content is clear, succinct, accurate and relevant, the terminology is appropriate and the grammar is correct. i.e. All information is up to date at time of installation

Delivery

Operation and maintenance manuals and associated drawings shall be supplied as a quality electronic publication as follows:

- A USB flash drive, one (1) drive per discipline, with editing capability, containing all specified electronic files including index, and supplied in a protective storage case.

and

- Optical media (DVD ROM) holding a directory for each discipline within which shall be a copy of the USB drive discipline information

Packaging and identification

USB flash drives, with editing capability, containing all specified electronic files including index, and supplied in a protective storage case.

The protective storage case must be able to stand vertical on its own base for ease of shelf storage and be supplied complete with printed details as follows:

Front Cover of case: Clearly print details including: Campus, Building Name and Number, Date, Project Name, Name of Consulting Engineer, Service Discipline, Name of Contractor, Name of Architect.

Spine of case: Clearly print Project Name and Service Discipline.

DVD Optical Media will be write once and read only. Contents and identification shall match that specified above for USB flash drives.

Format

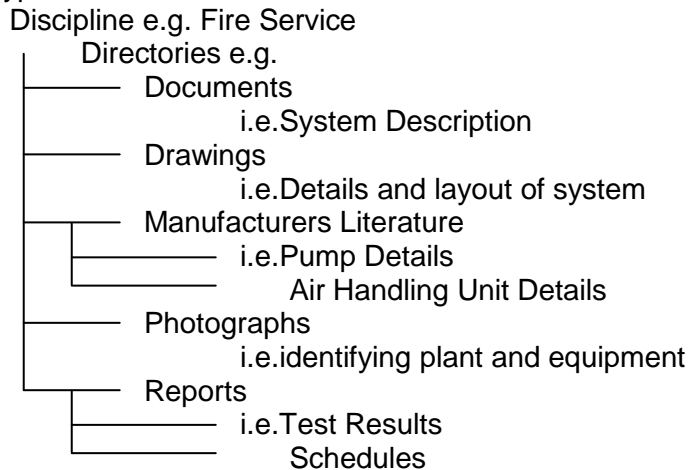
In each manual, provide the specified record drawings ('as built'), manuals and test results as specified in Table 1. Provide the entire set of the as-constructed drawings, all manuals and all test results in electronic format as follows:

- Drawings in AutoCAD DWG V.2004 format (or equivalent), files as per the drawing specifications outlined in The University of Adelaide's Building Standards AND with a PDF copy of the same drawing. Refer section 4 for more details.
- Operating and Maintenance manuals, equipment ratings and documentation in MS Word for Windows format (or equivalent) and/or
- Test results to be tabulated in MS Excel for Windows format (or equivalent)
- Manufacturer's literature is to be scanned and re-presented in Adobe Acrobat PDF format (or equivalent).
- All digital images shall be supplied in .JPG format (or equivalent).

Directories/Folders

These are to be provided for each separate section, with a description of the system and major equipment components as the label.

Typical :



Text

Manufacturers' printed data, including associated diagrams, or typed text, in clear, concise English.

Pagination

All documents are to have pages consecutively numbered complete with footers identifying the document date, author and file name.

Drawings and Manuals - copies

Record drawings and manuals are required for the following discipline :

Table 1

Discipline	Number of Copies	
	Drawings	Manuals
Architectural	1	1*
Structural	1	N/a
Mechanical	1	1
Electrical	1	1
Hydraulics	1	1
Building Automation System	1	1
Lifts	1	1
Security	1	1
Fire services	1	1
Audio Visual	1	1
Data and Communications	1#	1
Hard landscaping	1	N/a
Site survey	1	N/a
Underground services	1	N/a

* The Contractor's Manual to include all warranties, hardware and painting schedules, colours and materials, information on cleaning, lists of consultants, sub-consultants, subcontractors and suppliers with addresses and telephone numbers.

Data and communications test results are required prior to commissioning.

DRAWINGS

Record Drawings ('As-Built')

The Consultant Team will ensure that the Contractor updates the as-built drawings progressively.

The Contractor is to provide one complete set of drawings, revised to represent the 'as built' facility **within one month** after practical completion of the project. i.e. within one month after occupancy has occurred.

Drawings will be submitted and indexed as part of the Operating & Maintenance manual on USB drive/s **and** optical media (DVDs) in DWG v.2004 format as described by the CAD Documentation Standard in The University of Adelaide Building Standards.

The record drawings shall include as a minimum:

- Architectural plans, cross sections, elevations, building elements details, joinery etc., showing all room layouts, with usage and room numbers to the University room numbering system as described in The University of Adelaide Building Standards (*Section C Documentation C.1.3*).
(http://www.adelaide.edu.au/ps/resources/building_standards.html)

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- All building services with location and reduced levels (if in-ground), size, materials, stopcocks, pits, inspection openings, control valves, schematic wiring diagrams etc.
- All DWGs are to be supplied with all XREFs bound in to a single file. This is inclusive of all images, shapes and fonts. Providing XREFs with main drawing will NOT be accepted.
- PDF versions of DWG drawings are to be named the same with the file type extension providing differentiation of files.
- Each drawing is to be provided as a separate file. A tabbed suite of drawings will NOT be accepted.

TRAINING

General

Contractors are to specify the information about the specific nature of the training to be provided for each asset group or piece of equipment. This information is to include:

- a) The maximum number of persons to be trained
- b) The time to be spent in training
- c) Where training is to be carried out
- d) The number of training sessions to be held
- e) The anticipated training dates
- f) The names of the contractor personnel to be involved in training.

On Practical Completion, the Contractor and Specialist sub-contractors shall provide the services of **competent staff** to instruct the appropriate University personnel in the operation and maintenance of the installed systems.

These items and procedures in the final draft Operations and Maintenance Manuals shall be used as the basis of instruction and as a consequence the contents of the Manuals shall be reviewed in detail with the staff of the Principal Contractor.

Training Literature

Within one month of practical completion, the contractor shall provide the principal Consultant with electronic copies of all programs relating to the operation and maintenance of the equipment.

Operations Training

Immediately after practical completion, explain and demonstrate to the principal's staff the purpose, function and operation of the installations.

Maintenance Training

Immediately after practical completion, demonstrate to all relevant staff identified by the principal the purpose, function and maintenance of the installations.

Demonstrators

Qualified manufacturers representatives who are knowledgeable about the installations.

CONTENT OF OPERATIONS AND MAINTENANCE MANUALS per DISCIPLINE

SECTION NUMBER	CONTENTS	DEFINITION
	Cover page	Details including: Campus, Building Name and Number, Date, Project Name, Name of Consulting Engineer, Service Discipline, Name of Contractor, Name of Architect.
1.	Contents page	Inside the root directory, with the title to match the title on the cover and the content of the respective discipline.
2.	Directory of Contacts	Names, addresses, telephone and facsimile numbers of the principal consultant, sub-consultants, contractor, subcontractors and responsible parties.
3.	Asset Register	A complete list of all equipment used in the installation, as per the attached Asset Register specification in Appendix 5.
4.	Description of the complete installation	A general description of the installation as required for providing a general understanding of the equipment and its operation.
5.	Specific System Description	A technical description of each system of the installation, written to ensure that it can be clearly understood by persons not familiar with the installation.
6.	Performance data	For new items - Technical description of the mode of operation of each system provided. This section provides functionality details.
7.	Equipment Brochures and Technical Data Sheets	Manufacturers technical literature assembled specifically for the project and excluding irrelevant matter. Each product data sheet marked to clearly identify the specific products and components used in the installation and the data applicable. Additional instructions and illustrations as required to identify any changes to the manufacturer's data or to illustrate the function of each component in the installation.
8.	Installation and dismantling instructions	Instructions for the proper installation and dismantling of the equipment.

9.	Operating instructions	<ul style="list-style-type: none"> • Manufacturers technical literature as appropriate. For other than common accessories, where no manufacturer literature is available, a precise and concise description of the operation procedure in plain English. • Safe starting, running, operating and shutting-down procedures for the equipment installed including a logical step-by step sequence of instructions for each procedure. • Control sequences and flow diagrams for the systems installed. • A legend for colour-coded services. A legend of the symbols used on the drawings, unless included on the drawings. • Schedules of the parameter settings of each protective device, including fixed and adjustable circuit breakers, protective relays, adjustable photoelectric switches, pressure switches, and any other control and monitoring device, as established during commissioning and maintenance.
10.	Maintenance instructions (See details in Section 1 and Appendix 2)	<ul style="list-style-type: none"> • Emergency procedures, including telephone numbers for emergency services, and procedures for fault-finding. • Manufacturers technical literature as appropriate. • Detailed recommendations for the frequency of performance of routine maintenance tasks. • List of procedures and tasks associated with preventive (routine) maintenance. • Procedures for safe trouble shooting, disassembly, repair and reassembly, cleaning, alignment inspection and adjustment, including a logical step-by-step sequence of instructions for each procedure.
11.	Maintenance schedules See Appendix 2 for a sample of the maintenance schedules.	<ul style="list-style-type: none"> • A schedule of the frequency of the required or recommended maintenance, testing or inspection for each type of equipment, other than those classified as Essential Safety Provision. This schedule is to include weekly, monthly attendance times. • A separate schedule for each type of equipment, other than Essential Safety Provision, as outlined in Appendix 2.
12.	Essential Services Provisions	<ul style="list-style-type: none"> • Outline of any provisions made for essential services, as per Section 1 of this manual.
13.	Tools and Testing Equipment	<ul style="list-style-type: none"> • List of tools and testing equipment required. • Instructions for the use of tools and testing equipment.

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14.	Spares and Consumables	<ul style="list-style-type: none"> • Schedule of spares (including bearings) with an expected operating life less than 40,000 hours, including item label manufacturer name, address and telephone number, catalogue number, name and address of the local distributor, and the <i>expected replacement frequency</i>. • Schedule of consumable items (oil, grease, belts, bearings) to be used during servicing
15.	Imported equipment	A list of all imported equipment, including country of origin, importer details.
16.	Drawings and index	<ul style="list-style-type: none"> • Index list of all drawings in numerical order. Drawings required are to be as set out in Section 1. ALL O & M MANUALS – GENERAL PROVISIONS • On small projects, the Principal Consultant may combine the services record ('as-built') drawings on one disk. However, the drawings of each discipline shall be kept in separate directories/folders. • For work on existing buildings, the Principal Consultant can, through the Project Manager, obtain existing plans from the Facilities Records, Property Services, The UNIVERSITY OF ADELAIDE. Before documentation, the Principal Consultant must check all measurements on site.
17.	Certificates, Guarantees and warranties	<ul style="list-style-type: none"> • Copies of manufacturers warranties. • All guarantees • Certificates from authorities. • Certificates of compliance for all electrical and plumbing works (to be included within the respective maintenance manuals). Where, in agreement with the Project Manager, no manuals will be submitted, these certificates will be presented to the Head Contractor for inclusion in the Contractor's Manual. • If installation is not by the manufacturer, and product warranty is conditional on the manufacturer's approval of the installer, submit the manufacturer's approval of the installing firm.
18.	Commissioning data	<ul style="list-style-type: none"> • Records of test results. • Records of commissioning data.

ESSENTIAL SAFETY PROVISIONS

A typical format for ESP data is attached as Appendix 1.

All commissioning and testing/inspecting data relating to the Essential Safety Provisions is to be **provided progressively** throughout the construction process, and **again at the time of handover** of the manuals.

The ESP provisions to be covered in the specification includes (but not exclusive to):

- Structural Fire Protection and Compartmentation
- Access to fire appliances
- Signs
- Clearance for large isolated buildings
- Occupancy Hazards

The following information is required for ESP:

1. A schedule of the frequency of the required or recommended maintenance, testing or inspection for each type of equipment classified as Essential Safety Provision;
2. A separate schedule for each type of Essential Safety Provision equipment including:
 - The type of equipment;
 - A unique identification label attached to each piece of equipment;
 - The location of the equipment, including building number and/or name, level number and/or name, room number and/or name and any other information required for prompt and unequivocal identification;
 - The type of inspection and maintenance required;
 - Space is to be left in order to enable the recording of results of each inspection, with sufficient spare space for not less than two years;
 - Space is to be left for comments on each inspection;
 - Space for the recording of the date and time of each inspection, the name, title, address and signature of the person performing each inspection.
3. Existing plans. One set of existing plans marked up identifying those units of plant that are either added or deleted for existing installations.

Include in this section only the record of tests and inspections of the Essential Safety Provisions as required by the South Australian Development Act 1993, Ministers Specification SA 76 and various Australian Standards and Codes of Practice.

Include all technical data and maintenance instructions for the Essential Safety Provisions in the relevant section of the Operating and Maintenance Manual. The items of maintenance included in this section are not to be repeated elsewhere in the Operating and Maintenance Manual but shall be supplemented elsewhere as necessary to ensure that all systems are comprehensively serviced and maintained.

SPARE PARTS

At least 1 month after the date of practical completion, the Principal Consultant is to submit to The University of Adelaide's Project Manager a schedule of spare parts necessary for maintenance of the installation.

TOOLS AND INSTRUMENTS

This instruction relates to any special, non-generic tools and instruments that are not commercially available for the operation, maintenance and dismantling or assembly of the plant and equipment provided.

Provision of Tools

At practical completion, the Contractor is to provide the Principal Consultant with **2 complete sets** of any special tools and portable indicating instruments necessary for operation and maintenance of equipment, together with suitable means of identifying, storing and securing the tools and instruments.

Include instructions for use and maintenance of the tools.

TIMING AND QUALITY OF MANUALS

There are a number of versions of asset information expected as the project progresses.

<i>General</i>	Submit progressive revisions of the manuals throughout the course of the construction project to ensure the accuracy of content and the familiarisation of the principal with the installation.
<i>Preliminary Manuals</i>	For equipment put into service during construction and operated by the principal, submit manuals within two weeks before acceptance.
<i>Draft Manuals</i>	Submit draft manuals, including maintenance records, eight weeks before the date for practical completion. Include provisional record drawings and preliminary performance data. <ul style="list-style-type: none"> • Format: As for the final manuals, with temporary insertions for items that cannot be finalised until the installation is commissioned and tested. • Two electronic copies of draft manuals to be submitted.
<i>Revised Draft Manuals</i>	Submit revised draft manuals two weeks before commissioning of the installation.
<i>Final Drafts</i>	On completion of commissioning, submit the Final Drafts for review no later than two weeks before the date for practical completion. If available, include certificates from authorities and warranties.
<i>Final Copies</i>	Submit both USB and DVD media sets of final volumes within two weeks after practical completion. Incorporate comments from the review and from training of the principal's staff, and include any additional relevant material. 2 digital copies, 1 USB (set) and 1 DVD
<i>Revisions</i>	Submit indexed amendments for insertion in the manuals within two weeks after completion, incorporating changes and comments from the maintenance period. 2 digital copies.

2. ASSET GROUPS – SPECIFIC INFORMATION NEEDS

The specialised information requirements for each asset group are to be read in conjunction with Section 1 – general requirements.

Where the general requirements are not applicable, the requirement is to be ignored.

Specific asset groups include:

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DOOR AND WINDOW HARDWARE

GLAZING

CLADDING

WATERPROOFING

FINISHES AND FURNITURE

INTERNAL WALLS AND PARTITIONS

OPERABLE WALLS

METAL FIXTURES

SIGNAGE

PLANTING

IRRIGATION

PAVING

URBAN ELEMENTS

ELECTRICAL

TELECOMMUNICATIONS SERVICES

ELECTRONIC SECURITY & ACCESS CONTROL SYSTEM

FIRE COMPARTMENTATION

AIR HANDLING SYSTEMS

FIRE SIGNS AND EMERGENCY LIGHTING

AUTOMATIC FIRE DETECTION ALARM and EWIS

FIRE EQUIPMENT

FIRE STOPPING

MECHANICAL SERVICES

HYDRAULICS

VERTICAL TRANSPORT

PEST CONTROL

Asset Groups such as architectural elements (2.1 - 2.12 above) may be provided in a single Architectural Manual rather than a separate series of folders. Similarly, elements such as 2.13 - 2.16 may be grouped into a Site Manual.

ROOFING

The Roofing Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Manufacturers recommendations

Within 1 month of practical Completion, submit a manual of recommendations from the roof manufacturer or supplier for the maintenance of the roofing system including,

- Frequency of inspection of roof systems and materials
- Recommended methods of access to the roof
- Issues surrounding maintenance to downpipes and gutters
- Recommended methods of inspection
- Recommended methods of cleaning
- Repair issues and,
- Scheduled replacement period of each material used

Special information needed

- Quantity of each roofing material type.
- Replacement cost per square metre, including demolition, access cost, disposal cost of each material type
- Walkway systems - drawings

Warranty

Provide a warranty in respect of manufacture and installation of the roofing or roof drainage against any and every effect or failure which may occur during the warranty period arising out of any fault of the system, workmanship fabrication, fixing or quality of materials used.

The Warrantor's liability shall include cost of removal and replacement of defective materials, making good any leakage staining or other damage to the building caused by any such defect in or failure, and any defect in or failure of the joints or edge sealing and any defects or failure caused by any inherent property of the roof and roof lights.

Metal deck roofing installation warranty: 20 years

Metal deck roofing material warranty: 20 years

WINDOWS AND CURTAIN WALLS

The Windows and Curtain Walls Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Warranties

Before, and as a condition of the issue of the final certificate, submit warranties:

- In the appropriate form
- Executed by the contractor and the warrantor (or warrantors in the case of joint warranties); and
- For the required warranty period.

Warranty conditions

Guarantee of performance: Where the warrantor is a subsidiary of another organisation, submit that organisation's guarantee of the performance of the warranty.

Product warranties: Submit product warranties which are coextensive with or additional to the terms and warranty period of any manufacturer's published warranty, and do not derogate from any warranty implied by law.

Adjustment of warranty period: Where any part of the work is required to be repaired or made good under a warranty, the warranty period:

- Must not terminate until that part has been satisfactorily repaired or made good; and
- In respect of that part, must recommence from the date of completion of the repair or making good.

Curtain wall warranty

General: Warrant the installed curtain wall against service defects in design, materials and workmanship, including but not necessarily limited to the following:

- Failure to meet performance criteria, including the "acceptable performance criteria" of tests for resistance to wind load, water penetration, air infiltration and collapse
- Structural adhesive failure in either adhesion or cohesion
- Failure of caulking, flashing, or sealing to the building structure.
- Failure of seals which are inaccessible in the curtain wall system as installed in the building.
- Failure of glass or glazing units.
- Excessive deterioration of components and finishes caused by weathering.
- Spandrel glass volatilisation, caused by condensation of vapours trapped in shadow box spandrels.
- Defects consisting of unauthorised departures from the contract documents.

Warranty period: 15 years from date of completion

Organic film coating warranty:

Submit the paint manufacturer's warranty for the specified coating, including warranty conditions, if any, applying to conversion coating mass, dry film thickness of paint coatings, and number of coatings.

Joint product warranties:

Submit the following product warranties with, and as part of, the curtain wall warranty:

- Glass manufacturer's warranty.
- Toughened and heat strengthened glass warranty.
- Aluminium framing suite Manufacturers warranty including non-standard components i.e.frameless sash windows, if applicable.
- Aluminium finish applicator's warranty: An undertaking by the applicator of the finish to refinish or replace aluminium items where:
 - a) The finish cracks, peels, or shows pitting or corrosion, discernible from 1500 mm distance, resulting from atmospheric conditions normal for the environment of the installation;
 - b) When tested to AS/NZS 1580.481.1.2 a coloured finish discolours in service to a degree greater than 2 on the Rating Scale of Table 1 of that standard, compared to an unweathered reference sample; or
 - c) A colour change in the coloured finish of either or both of any two adjacent sections results in a colour difference between them which exceeds the Rating Scale measure of the range of colour variation accepted in the contract approved colour sample range

Record drawings

On completion of the curtain wall installation, submit one set of the original shop drawings and in computer readable CAD format on compact disc, marked up or otherwise modified to show departures or additions incorporated in the work-as- executed. Identify site-glazed panels.

Maintenance Data

General: Submit the Operations and Maintenance Manual as per Section 1 of this specification. Special information to be added to the manuals for windows and curtain walling includes:

- An outline description of the installation and detailed description of specific items with product names, types and serial numbers.

- Recommended maintenance periods and planned preventive maintenance procedures.
- Copies of manufacturers' warranties or guarantees, service manuals, brochures and recommendations.
- Copies of test and approval certificates.
- A copy of each shop drawing, 'as-built' drawing, and the like relevant to the installation, both hard copy and electronic.
- A list of replacement parts recommended to be held on site, with the names of suppliers.
- Realignment and adjustment instructions where relevant.
- Procedures for dismantling and reassembling.

Log Book:

Include in the manual log book pages set up for recording the times of performance of the above procedures, sufficient in number to receive the entries for three years. Show examples of typical entries by recording maintenance procedures (such as cleaning) performed during the contract and defects liability periods.

Spares

At or before practical completion, deliver to the site in strong protective packages marked for identification, and store where directed, the following additional units, components and materials for future replacement or repairs:

- Components: The necessary components, including glass, panels, galvanised iron materials, beads and fasteners, to reinstate one glass panel of each type or size, for every hundred panels (or part thereof) of that type or size installed in the building.
- Paint: Where the aluminium components are to be pre-painted with high performance organic coatings or thermosetting powder coatings, spray cans containing air drying paint to match the colour of the pre-painted coating, at the rate of 1 litre to each 2000 m² of gross curtain wall surface area.

DOORS AND HATCHES

The Doors and Hatches Manual is to be organised as per the detail in Section 1. of this Specification. Special information to be provided is outlined below.

Roller Doors and Grilles

Provide maintenance details as per the schedules in Appendix 2.

Submit the manufacturers published recommendations for use, care and maintenance of all roller doors.

Special information needed

Specify the anticipated useful life of each door type.

Specify replacement cost of each door type, depending upon size.

DOOR AND WINDOW HARDWARE

The Door and Window Hardware section is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Hardware schedule

Submit an amended schedule, prepared by the door hardware supplier showing changes to the contract door hardware schedule caused by:

- The approval of a hardware sample
- The acceptance of an equivalent to a specified proprietary item
- A contract variation to a door hardware requirement.

Key codes

Submit the lock manufacturers' record for the key coding system, showing each lock type, number and type of key supplied, key number for re-ordering and the name of the supplier.

Maintenance Manual

Submit the manufacturers published recommendations for use, care and maintenance. This includes details of automatic door controllers.

Special Information

- Replacement cost per unit
- Expected useful life, given normal wear and tear and regular maintenance.

GLAZING

The Glazing Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Glazing warranty

Submit a warranty, signed by the glazing subcontractor, undertaking to repair or replace any glass and glazing materials which, within the warranty period, become defective or prove unsuitable of the specified application, provided that the manufacturers recommendations for the material have been followed during the warranty period.

Provide warranty against yellowing or other colour change, loss of strength, impact resistance and general deterioration for 10 years.

Seraphic glass – warranty against scratching 10 years.

Glass manufacturers warranty:

IGU units – see specification

Coated glass units – see specification

Toughened glass warranty – The manufacturers warranty certifying that toughened glass supplied for use in curtain walls has been subjected to a heat soaking process which has converted at least 95% of the nickel sulphide content to the stable beta-phase.

Maintenance Manual

Submit the manufacturers published recommendations for service use.

Special information

Special tools needed.

CLADDING

The Cladding Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Cladding warranty

Submit a warranty against defects in materials and workmanship.

Warranty period 15 years.

Maintenance

Submit manufacturers published recommendations for maintenance in accordance with the details provided in Appendix 2.

WATERPROOFING

The Waterproofing Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Waterproofing Warranty

Provide a warranty in respect of manufacture and installation of the waterproofing membrane against any and every effect or failure which may occur during the warranty period arising out of any fault of the system, workmanship fabrication, fixing or quality of materials used.

The Warrantor's liability shall include cost of removal and replacement of defective materials, making good any leakage staining or other damage to the building caused by any such defect in or failure, and any defect in or failure of the joints or edge sealing and any defects or failure caused by any inherent property of the waterproofing membrane.

Waterproofing Warranty Period:

Above slab membrane 25 years

Wet area waterproofing 10 years

Maintenance Manual

On completion submit a manual of recommendations from the manufacturer or supplier for the maintenance of the waterproofing membrane including, frequency of inspection and recommended methods of access, inspection, repair and replacement.

Drawings

Prepare and submit installation drawings, prepared in conjunction with the membrane manufacturers, showing general plan setouts and fully detailing the installation. These drawings are to be included in the maintenance manuals both hardcopy and electronic.

FINISHES AND FURNITURE

The Finishes and Furniture Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Sections

The manual is to contain the following sections

- Floor Finishes (Carpet, vinyl, ceramic tiles etc)
- Door Mats
- Stair Nosings
- Tactile Indicators
- Internal and External Paint
- Internal Furniture and Fabrics

2.8.1. Floor Finishes

The Floor Finishes Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Maintenance Manual

Carpet: Submit a maintenance manual containing a technical specification of the carpet installation and setting out the manufacturer's recommendations, approved by the Australian Wool Corporation in the case of products containing wool, for its use, care and maintenance. Include the names and addresses of the suppliers and manufacturers of each component. Standard: To AS/NZS 3733.

Vinyl: Submit a maintenance manual containing a technical specification of the vinyl installation and setting out the manufacturer's recommendations for its use, care and maintenance.

Ceramic Tiles: provide the tile manufacturers recommendations for the in-service cleaning, care and maintenance, post Practical Completion, of the ceramic floor and wall tiling, including procedures to enable continued in-service compliance with the classes of slip resistance for walking surfaces specified in AS/NZS 4586.

Special Information

Special tools needed.

Warranties and Guarantees

Submit the maker's warranty details.

Floor Finish schedule.

Submit a schedule, showing the rooms fitted out, quantity (sqm), floor covering name (proprietary badge), colour, manufacturer, estimated useful life (under normal wear and tear), cost per square metre to replace (including demolition and dumping costs),

A typical Floor Finish Schedule is attached as Appendix 3.

2.8.2. Door Mats

The Door Mats Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Within one month of the final completion of the project, submit information regarding floor finishes, as outlined in the Maintenance Manual Content guide.

2.8.3. Stair Nosings

The Stair Nosings Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Within one month of the final completion of the project, submit information regarding stair nosings, as outlined in the Maintenance Manual Content guide.

2.8.4. Tactile Indicators

The Tactile Indicators Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Within one month of the final completion of the project, submit information regarding tactile indicators, as outlined in the Maintenance Manual Content guide.

2.8.5. Internal and External Painting

The Internal and External Painting Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Within one month of the final completion, the Painting Schedule is to be submitted in hard copy and electronic version. The format is as follows:

LOCATION: Site, Building, Floor, Room

ELEMENT	PRODUCT TYPE	FINISH - COLOUR
External free standing walls		
External walls, shade structures		
External walls (general)		
External walls (feature)		
Internal walls (general)		
Internal walls (feature)		
Doors (including toilet partitions)		
Frames and stair balustrades		
Ceilings and bulkheads		
Floors (if painted)		
Concrete sealer		
Line marking		
Clear penetrative sealer		Clear
Other painted surfaces		

2.8.6. Internal Furniture and Fabrics

The Internal Furniture and Fabrics Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Maintenance

Submit manufacturers recommendations for demounting and relocation, and recommendations for service use, care and maintenance.

Warranties

Submit manufacturers warranties against defective materials and workmanship for a period of 10 years.

Schedules

Within one month of the final completion, the Internal Furniture Schedule is to be submitted in hard copy and electronic version. The format is as follows:

LOCATION: Site, Building, Floor, Room

ELEMENT	PRODUCT TYPE	COLOUR	SIZE - QTY
Fabrics			
Fabrics General 1,2,3			
Fabrics Feature			
Pin board Fabrics			
Other			
Joinery Finishes			
Joinery Laminate 1, 2, 3			
Other			
Window Treatments			
Blinds 1, 2, 3			
Other			
Furniture			
Chairs 1, 2, 3			
Tables 1			
Other			

2.8.7. Workstations

The Workstations Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Maintenance

Submit manufacturers recommendations for demounting and relocation, and recommendations for service use, care and maintenance.
Submit a list of manufacturers, and the suppliers of spare parts.

Warranties

Submit manufacturers warranties against defective materials and workmanship for a period of 10 years.

INTERNAL WALLS AND PARTITIONS

The Internal Walls and Partitions Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Warranty

Submit the installer's warranty against defective materials and workmanship for a minimum period of 12 months.

Warrant dry wall partitions to be free from defects in materials and workmanship.

Maintenance Manual

Submit the manufacturers' published recommendations for care and maintenance of the partitions as per the maintenance specifications in Appendix 2. Include instructions for demounting and relocating where applicable.

Special Information

- List of manufacturers and suppliers of various partition systems
- Special tools needed.
- Spare parts lists

OPERABLE WALLS

The Operable Walls Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Warranty

Submit the installer's warranty against defective materials and workmanship for a minimum period of 3 years.

Maintenance Manual

Submit the manufacturers' published recommendations for care and maintenance of the partitions as per the maintenance specifications in Appendix 2.

Special Information

- List of manufacturers and suppliers of various operable walls systems
- Special tools needed.
- Spare parts lists

METAL FIXTURES

The Metal Fixtures Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Locations

Specify location of metal fixtures.

Maintenance manual

Submit manufacturer's published recommendations for service use as per the maintenance specifications in Appendix 2.

Special Information

Special tools needed.

Spare parts lists

SIGNAGE

The Signage Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Location	Building number, level number, room number. Note: When recording multiple signs of the same type, record building number and level number only.
Sign description	Words or symbols on sign (except for room numbers, where the words "Room Number" will suffice).
Number of signs	Quantity (if multiples of the same type)
Sign type	Directional, regulatory or interpretive. ** Note that if there is more than one type of the same sign in various locations, then these may be grouped together as one record, with the quantity recorded.
The University of Adelaide Specification	Reference to any sign specification number unique to THE UNIVERSITY OF ADELAIDE (Refer to The University of Adelaide Signage Manual)
Sign size	Height and width (mm).
Sign material	Steel, aluminium, PVC, polycarbonate etc.
Sign finish	Luminescent, gloss, etc
Manufacturer	Name, address, phone number and other relevant contact details of manufacturer.
Supplier	Name, address, phone number and other relevant contact details of supplier.
Warranties	Type and term of warranties
Special Information	List of spare parts Special tools required

Product required is a spreadsheet providing the above fields information for each unique sign type and a printed hard copy.

PLANTING

The Planting Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Plant Schedule

List of plants – common name, botanical name, quantity.

Precinct or Location	common name	botanical name	quantity

Product warranty

Submit the supplier's written statement certifying that:

- plants are true to the required species and type, and are free from diseases, pests and weeds.
- imported soil, fill material and mulch is as specified and is free from diseases, pests and weeds.

Maintenance Manual

Submit recommendations for maintenance of plants.

IRRIGATION

The Irrigation Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Maintenance Manuals

When practical completion is authorised the Contractor shall provide the Principal with three (3) sets of operating and maintenance instructions. (One electronic and two hard copies)

The instructions shall cover the type of system and operating and maintenance requirements.

Spare Parts and Special tools

A comprehensive spare parts list shall also be provided. All information shall be placed in a folder containing plastic pouches for protection.

A list of special tools required for servicing and repairs.

As Installed Drawings

When practical completion is authorised the Contractor shall provide the Principal with a set of "as installed drawings" These drawings must be accurate within 500 mm for all irrigation components installed and they must detail any changes made during installation from the initial design.

The drawings must be in electronic format DWG & PDF format. Also provide the Principal with an A3 set of installation drawings.

Laminated plan and schedule

Within each control cabinet shall be a laminated plan and an agreed laminated irrigation schedule which is made in conjunction with the superintendent.

Warranties

Type and term of warranties given.

PAVING

The Paving Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Schedule

Provide a paving schedule, outlining the following detail.

Precinct or Location	Paver Name	Paving type	Quantity	Colour and finish	Manufacturer

Maintenance

Provide the manufacturers recommendations for care and maintenance of the pavers, including details of:

- a) Cleaning, including recommended detergents and chemicals
- b) Repair techniques
- c) Replacement schedule
- d) Inspection frequencies

URBAN ELEMENTS

The Urban Elements Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

A list of all street furniture or urban elements as per the attached schedule.

Location	Street name, precinct
Type	Bubbler, bench, table etc
Quantity	Number (count)
Model No or Name	Model number or name given by manufacturer or supplier
Special finishes	Varnish on timber, paint, natural etc
Manufacturer	Name and contact details of manufacturer
Supplier Details	Name and contact details of supplier
Warranties	Type and duration of warranty
Special treatments needed	Description of any special treatments needed for the equipment.
Comments	Any other information

ELECTRICAL

The Electrical Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Colour coding

Electrical services: Orange.

Titles (examples)

Cover:

OPERATING AND MAINTENANCE MANUAL
ELECTRICAL SERVICES FOR THE UNIVERSITY OF ADELAIDE, NORTH
TERRACE CAMPUS – BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS – BENHAM
BUILDING (C9) - ELECTRICAL SERVICES

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) - ELECTRICAL SERVICES, DRAWINGS

TELECOMMUNICATIONS SERVICES

The Telecommunications Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Colour coding

Telecommunication services: Light blue.

Titles (examples)

Cover:

OPERATING AND MAINTENANCE MANUAL
TELECOMMUNICATIONS SERVICES FOR THE UNIVERSITY OF
ADELAIDE, NORTH TERRACE CAMPUS - BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) -TELECOMMUNICATIONS SERVICES

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) -TELECOMMUNICATIONS SERVICES, DRAWINGS

ELECTRONIC SECURITY & ACCESS CONTROL SYSTEM

The Electronic Security Systems Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Colour coding

Electronic security system: Blue.

Titles (examples)

Cover:

OPERATING AND MAINTENANCE MANUAL
ELECTRONIC SECURITY SYSTEM
FOR THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS --
BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) - ELECTRONIC SECURITY SYSTEM

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) - ELECTRONIC SECURITY SYSTEM, DRAWINGS

FIRE COMPARTMENTATION

The Fire Compartmentation section is to contain all elements in the standard manual contents outlined in Section 1., and should consider the special items listed below.

Sections

Divide the Fire Compartmentation Manual into sections as defined in Section 1 of this specification. Provide separate references for the following:

- General description of the fire compartmentation provisions and means of egress
- Include a schedule of inspections required in accordance with the BCA, AS 1851 – maintenance of fire protection equipment and AS 1905.1 Supplement 1 – Components for protection of openings in fire resistant walls – Logbook for the maintenance of fire resistant door sets.
- Maintenance Schedules.
- Drawings to comply with Section 1 of this specification.

AIR HANDLING SYSTEMS

The Air handling systems section is to contain all elements in the standard manual contents outlined in Section 1., and should consider the special items listed below.

Sections

Divide the Air handling Systems Manual into sections as defined in Section 1 of this specification. Provide separate references for the following:

- General description of the fire mode operation of the air handling systems.
- Include a schedule of inspections required in accordance with the BCA, AS 1851 – maintenance of fire protection equipment.
- Maintenance Schedules.
- Drawings

FIRE SIGNS AND EMERGENCY LIGHTING

The Fire Signs and Emergency Lighting section is to contain all elements in the standard manual contents outlined in Section 1., and should consider the special items listed below.

Sections

Divide the Fire Signs and Emergency Lighting manual into sections as defined in Section 1 of this specification. Provide separate references for the following:

- General description of the fire signs and emergency lighting installed provisions and means of egress
- Include a schedule of inspections required in accordance with the BCA, AS/NZS 2293.2 – Emergency evacuation lighting for buildings – inspection and maintenance.
- Maintenance schedules
- Drawings

AUTOMATIC FIRE DETECTION ALARM and EWIS

The Fire Alarm and EWIS section is to contain all elements in the standard manual contents outlined in Section 1., and should consider the special items listed below.

Sections

Divide the Automatic Fire Alarm and EWIS manual into sections as defined in Section 1 of this specification. Provide separate references for the following:

- Automatic fire detection and alarm system, including FIP
- Emergency warning and intercommunication system, including Master Emergency Control panel
- Controls and alarms associated with the ESP and smoke management systems
- Electrical and controls systems

Titles (example)

Cover:

OPERATING AND MAINTENANCE MANUAL
FIRE ALARM and EWIS FOR THE UNIVERSITY OF ADELAIDE, NORTH
TERRACE CAMPUS-- BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS- BENHAM
BUILDING (C9) - FIRE ALARM and EWIS

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS- BENHAM
BUILDING (C9) - FIRE ALARM and EWIS, DRAWINGS

Asset Replacement

Details of estimated economic useful life of all equipment

FIRE EQUIPMENT

The Fire Equipment Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Sections

Divide the manual in sections as required to provide for quick reference to the various sections of the installation. Provide separate sub-sections for the following:

- Automatic fire sprinkler system
- Fire hydrant system
- Portable fire extinguishers, blankets and signage
- Jacking pump, controllers etc

Manual Titles (example)

Cover:

OPERATING AND MAINTENANCE MANUAL
FIRE PROTECTION SERVICES
FOR THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS -
BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS – BENHAM
BUILDING (C9) - FIRE EQUIPMENT

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS –
BENHAM BUILDING (C9) - FIRE EQUIPMENT DRAWINGS

FIRE STOPPING

The Fire Stopping section is to contain all elements in the standard manual contents outlined in Section 1, and should consider the special items listed below.

Certification

Submit evidence of compliance, in accordance with the recommendations of AS 4072.1 Appendix B.

Form - Submit a completed certification document for installed fire-stopped penetrations and control joints. Use form as per Figure B1 of AS 4072.1

Schedule - Submit a schedule of installed fire-stopped penetrations and control joints. Use form as per Figure B2 of AS 4072.1

Manual

Where the fire stopping materials are to be modified in-service, provide a manual.

In this regard, the manual is to provide details of the following:

- Fire stop mortars
- Formulated compound of incombustible fibres
- Fibre stuffing
- Fire-stop composite sheets
- Fire stop foams
- Fire stop putty
- Fire stop collars
- Fire stop pillows
- Labelling

MECHANICAL SERVICES

The Mechanical Services Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Colour

Blue

Sections

Divide the manual into the following sections as required to provide for quick reference to the various sections of the installation.

- Air conditioning services and ventilation systems
- Exhaust systems
- Fume cabinets
- Compressed air systems
- Reference to colour coding of pipe work reticulation systems
- Air diffusion and distribution systems
- Sump pumps
- Water treatment systems
- Building Management systems for all mechanical services
- Drawings**Note: It is advisable to provide a separate Manual for the drawings, as it may be impractical to include drawings in the same folder as information.

Titles (examples)

Cover:

OPERATING AND MAINTENANCE MANUAL
MECHANICAL SERVICES FOR THE UNIVERSITY OF ADELAIDE, NORTH
TERRACE CAMPUS - BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) -MECHANICAL SERVICES

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) -MECHANICAL SERVICES, DRAWINGS

HYDRAULICS

The Hydraulics Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Sections

Divide each manual in sections as required to provide by Section 1 of this specification, for quick reference to the various sections of the installation. Provide separate manuals for the following:

- Pipework (soil stack risers and vents, trade waste risers and vents, waste pipework, graded drains)
- Fixtures and fittings including connection details
- Potable and non-potable water distribution
- Back-flow prevention devices
- Associated electrical and control systems

Manual Titles (example)

Cover:

OPERATING AND MAINTENANCE MANUAL
HYDRAULIC SERVICES
FOR THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS --
BENHAM BUILDING (C9)

(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) - HYDRAULIC SERVICES

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS - BENHAM
BUILDING (C9) - HYDRAULIC SERVICES, DRAWINGS

Special Information needed

- Expected useful life of each piece of equipment, material
- Replacement cost of each item or cost per metre of each material used, including demolition, trenching, reinstatement, disposal.

VERTICAL TRANSPORT

The Vertical Transport Systems Manual is to be organised as per the detail in Section 1. of this specification. Special information to be provided is outlined below.

Sections

Divide the manual in sections as required to provide for quick reference to the various sections of the installation. Provide separate sections for the following:

- Lift equipment
- Lift well equipment
- Landing equipment
- Lift car and associated equipment
- Electrical end communications equipment
- Control systems
- Permanent guards and rails
- Interface with building access control system
- Lift shaft ventilation grilles
- Any painting, labelling or other identification issues associated with the above equipment
- Other associated work such as electrical interfaces, plumbing, control systems etc.

Manual Titles (example)

Cover:

OPERATING AND MAINTENANCE MANUAL
LIFT SERVICES FOR THE UNIVERSITY OF ADELAIDE, NORTH TERRACE
CAMPUS - BENHAM BUILDING (C9)
(Year of installation)

Spine:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS- BENHAM
BUILDING (C9) - LIFT SERVICES

Title for the drawings shall be:

THE UNIVERSITY OF ADELAIDE, NORTH TERRACE CAMPUS- BENHAM
BUILDING (C9) - LIFT SERVICES DRAWINGS

PEST CONTROL

Provide details of all provisions for permanent pest control. For example:

Location	Type
All slab penetrations	Woven stainless steel mesh
All slab control joints and footing/slab joints	Woven stainless steel mesh
Building perimeters – where insufficient clearance between the slab edge and paving level	Woven stainless steel mesh

Special information

Provide details of warranties.

Maintenance

Provide details of any regular inspections and any maintenance required.

APPENDIX 1 – ESP INSPECTION DATA

A schedule of the frequency and required or recommended maintenance, testing or inspection for each type of equipment classified as Essential Safety Provision.

A separate schedule for each type of Essential Safety Provision equipment is required, including:

Information/data name	Definition of information
Location of the equipment.	Include building number and/or name, level number and/or name, room number and/or name and any other information required for prompt and unequivocal identification
Description of equipment	Describe the equipment
Unique identification label	To be attached to each piece of equipment
Inspection type	Weekly, monthly, 6 monthly, annual, 3 yearly etc.
Maintenance required	Description of maintenance tasks

Note:

Contractors must be aware of the annual requirement for inclusion of the Form 3 Certification regarding Emergency Egress (refer AS1851/SA76), and Exit/Emergency Lighting (AS2293/SA76).

Appendix 6 provides detail of the Form 3 proforma.

APPENDIX 2 – SAMPLE MAINTENANCE SCHEDULES

A schedule of the frequency and required or recommended maintenance, testing or inspection for each type of equipment, other than those classified as Essential Safety Provision. Records to show:

Information/data name	Definition of information
Location of the equipment.	Include building number and/or name, level number and/or name, room number and/or name and any other information required for prompt and unequivocal identification
Description of equipment	Describe the equipment
Unique identification label	To be attached to each piece of equipment
Inspection type	Weekly, monthly, 6 monthly, annual, 3 yearly etc.
Maintenance required	Description of tasks
Inspection Results	Space to record results of each inspection, with sufficient spare space for not less than two years.
Comments on each inspection	Space for comments on each inspection
Inspection date	Space for the recording of the date and time of each inspection.
Inspector name, title, address	Name, title, address and signature of the person performing each inspection.

MAINTENANCE FREQUENCIES

Equipment Description	Weekly	Monthly	Bi Monthly	Quarterly	6 Monthly	Annual
Equipment A	X	X	X	X	X	X
Equipment B		X		X		X
Equipment C		X		X		X
Equipment D			X		X	X
Equipment E		X				X
Equipment F		X				X

MAINTENANCE SCHEDULES

Location (Bldg, level, room)												
Equipment description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment A	B	B	B	B	B	B	B	B	B	B	B	B
Equipment B	C			C			C			C		
Equipment C	B	C	B	B	B	B	B					
Equipment D							A					

MAINTENANCE TASKS

THE UNIVERSITY OF ADELAIDE MAINTENANCE TASKS						
BUILDING ACCESS AND EGRESS		Service type				
Check and record in log book:		A	B	C	D	E
1	All doors should open freely without the use of a key. If an automatic-unlocking device has been approved, check that the door opens freely when the device is actuated.	▲	▲			
2	All hold-open devices operate correctly.	▲	▲			
3	Treads are stable and non-slip surfaces are in good condition.	▲		▲		
4	All handrails are in good repair.	▲		▲		
5	Obstructions above the rail which would tend to break a handhold.	▲		▲		
6	Handrail is continuous between stair landings.	▲		▲		
COMMENTS						
A = Annual, B = Monthly, C = 3 monthly, D = bi-monthly, E = Weekly						
<ul style="list-style-type: none"> ANY CONCERN REGARDING DISABILITY ACCESS & EGRESS - CHECK WITH THE APPROPRIATE AUTHORITY. 						

APPENDIX 3 – FLOOR COVERING SCHEDULE

Building no., level no., room no(s)	Quantity (sqm)	Floor Covering name (proprietary badge)	Predominant colour(s)	Manufacturer	Estimated useful life (under normal wear and tear conditions)	Cost per square metre to replace (including demolition and dumping costs),

APPENDIX 4 – MANUAL ITEMS DELIVERY CHECKLIST

The underlying checklist is intended to provide a guide to the Principal Consultant, Contractors and University Staff, in ensuring that the Operations and Maintenance Manuals have been delivered as per the specifications provided.

The timeline is directed at the provider of the service, whether it is the contractor or Principal Consultant.

Action Item	Timeline	Provided By	Recipient
Drawings - As Built	Final as-built to be provided within 1 month after practical completion.	Contractors to the Principal Consultant	The University of Adelaide
Training	To be provided within 1 month after practical completion.	Contractors	The University of Adelaide
Manual Contents	To be provided within 1 month of practical completion. See Section 1 for Manual delivery schedules.	Contractors to the Principal Consultant	The University of Adelaide
ESP issues	To be provided within 1 month of practical completion. See Section 1 for Manual delivery schedules.	Contractors to the Principal Consultant	The University of Adelaide
Spare parts	To be provided within 1 month of practical completion.	Contractors and suppliers to the Principal Consultant	The University of Adelaide
Tools and Instruments	At practical completion	Contractors and suppliers Principal Consultant	The University of Adelaide
Paint schedules	Within 1 month after practical completion	Contractors to Principal Consultant	The University of Adelaide
Carpet Schedules	Within 1 month after practical completion	Contractors to Principal Consultant	The University of Adelaide
Directory of contacts etc	To be provided at practical completion. (See manual Section 1, Section # 2.	Principal Consultant	The University of Adelaide

APPENDIX 5 – ASSET REGISTER

The University of Adelaide asset management system is MAINPAC. The asset register specification is to provide a guide to the Principal Consultant, Contractors and University Staff, in ensuring that a specification for data can be delivered and be importable to MAINPAC.

5.1 Equipment Schedule. *This is an imbedded spreadsheet, double click to open.*



5.1_Equipment-Schedule.xls

