Electrical Services

Specification and Form of Tender

Project: Fire Alarm Replacement

Location: Radbourne Unit, Royal Derby Hospital, Uttoxeter Road, Derby DE22 3WQ

Client: Derbyshire Healthcare NHS Foundation Trust

September 2019

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Contents

1 Preliminaries

1.1 Contract Preliminaries

The following preliminaries clauses are supplemental to and shall be read in conjunction with all preliminary clauses included within these documents and available from the Main Contractor.

1.2 Definition of Terms

The following definitions to this Specification are deemed to apply unless there is something in the subject or context inconsistent with such construction.

The **Client and Employer** shall mean:

Derbyshire Healthcare NHS Foundation Trust

The **Project Manager** shall mean:

Derbyshire Healthcare NHS Foundation Trust – Capital Projects

The **Engineer** shall mean:

EP Consulting
Alpine House
16A Alpine Street
Old Basford
Nottingham NG6 0HS
Tel: 0115 924 44433

The **Main Contractor** shall mean the successful Specialist Contractor nominated by the Client to execute the described works, which are subject to this Specification and should include the Contractors Personal Representatives, Successors and Assignees.

The **Main Contract** shall mean the agreement made between the Main Contractor and the Employer for the execution of the works described in the Main Contract and shall include the Forms of Tender, Specifications, Drawings, etc.

The **Works** shall mean and include all plant and materials to be provided and the works to be carried out by the Main Contractor.

The **Site** shall mean the actual place or places to which materials, equipment, goods and other items to be used in the execution of the contract shall be delivered or where the work shall be carried out by the Main Contractor including the area surrounding a certain place or places where the Main Contractor shall, with the consent of the Client, actually use in connection with the works, other than merely for the purposes of access to the set place or places.

1.3 Guarantee

The whole of the works are to be guaranteed and maintained for a period of 12 months after completion and commissioning into service, any defects that may make themselves apparent in that period shall be made good at the Main Contractor's expense, provided always that the fault has not arisen from causes outside the Main Contractor's control.

1.4 Acceptance of Tender

The Employers do not bind themselves to accept the lowest Tender nor to reimburse the Tenderer for any expenses incurred in Tendering. The Tender is to remain open for acceptance for a period of 60 days from the date of submission.

1.5 Submission of Tenders

The Tender shall be submitted in accordance with the Invitation to Tender, Preliminaries and Conditions of Contract, which together with this Specification and the appropriate Drawings form the Tender documents.

The Tenderer shall submit a quotation on the Form of Tender and enter a breakdown of prices on a separate Tender Summary Sheet.

The Tender shall be based upon the specified equipment. To retain a consistency across the site, this is a specific requirement to be adhered to.

1.6 Inspections of Existing Conditions

Arrangements should be made to visit site by contacting the Capital Projects Team as noted in the Invitation to Tender letter.

The Tenderer is strongly advised to visit site to ascertain the full extent of the existing services across the many locations.

Any claims out of any matter where the grounds are based on a lack of familiarity with the existing conditions will not be considered.

1.7 Extent of Works

The Tenderer shall include for the provision and supervision of an adequate and suitably qualified labour force equipped with all necessary plant, tools, equipment and access equipment required for the execution of the works.

The tender shall note that due to the nature of the location, no lone working is allowed.

The works shall be the Electrical Installation as set down in this Specification, Schedules and the accompanying drawing(s) together with all additional work, both temporary and permanent which may be required to ensure the correct functioning and fixing of the installation.

The Tender submitted shall also include the following:

a) All costs in respect of delivery of materials required to carry out the work together with the specialist plant and equipment.

b) All costs relating to the Client's safety requirements and total compliance with the Health & Safety at Work Act.

c) All costs relating to the successful Contractor providing a copy of their Health & Safety Policy together with producing Method Statements for approval by the Project Manager

d) All costs relating to the necessary management, supervision and maintaining records in accordance with Construction (Design & Management) Regulations 2015.

1.8 Discrepancies

In the event of any discrepancies between the Drawings and the Specification, the Tenderer shall include for all items shown or described. The Tenderer shall inform the Consulting Engineer in writing at the time of Tender of any such discrepancies.

Claims for additional costs for items shown on the Drawings but not specified or vice versa will not be considered after the date of submission of the Tenders.

1.9 Health and Safety

The Tenderers attention is drawn to all the provisions contained within the Health & Safety at Works Act 1974 and the Electricity at Works Act 1989.

Additionally, the Main Contractor shall be responsible for the management, supervision and maintaining records in compliance with Construction (Design & Management) Regulations 2015.

The Tenderer shall pay full regard to the requirements of these particular items of legislation as far as it applies to the work and include for all costs incurred in pursuance or compliance with the same.

The Main Contractor shall be aware that the Radbourne Unit will be in full operation throughout the Contract period. It is imperative that the Main Contractor and specialist Commissioning Engineers ensure that their works do not prevent the safe circulation of the Staff, Patients or Visitors around the site. The working area must be kept clean and tidy and have proper warning signs and barriers.

The Main Contractor shall be aware that the Derbyshire Healthcare NHS Foundation Trust requires that all contractors and subcontractors adhere to their 'Control of Contractors Policy and Procedures' document together with their 'Health & Safety Handbook for Contractors' which advises the safe working practices required to minimise disruption to the operational use of the buildings by Staff & Public.

1.10 Schedule of Rates

Within 14 days of receipt of notification, the successful Tenderer shall submit a detailed and Quantified Schedule of Rates to the Consulting Engineer.

The total amount of the schedule shall be the same as the original Tender and reflect the constituent parts of the work as indicated on the Tender Summary. The costs of additions and/or omissions to the Contract shall be calculated using the Schedule of Rates wherever possible.

1.11 Interim Claims

Valuation of work for interim payment shall be agreed jointly by the Main Contractor and the Consulting Engineer. The Electrical Contractor shall agree regular dates with the Consulting Engineer or give at least 5 days prior notice of valuation inspections.

Claims shall be submitted in the form of percentage completion with items identified on the Tender Summary. This form shall be in addition to any other procedure required by the Contract.

Any claims for unfixed materials stored on site shall be supported by copy invoices and itemised lists of said materials.

1.12 Liaison

The Main Contractor shall examine all available information pertaining to furniture and equipment layouts, together with prevailing site conditions in conjunction with the Client as appropriate before commencing any work.

Where repositioning of equipment is required as a result of this consultation, this shall be agreed with the Consulting Engineer before installation works commence.

Claims for extra costs for repositioning arising from lack of consultation with the Client and the Consulting Engineer will not be considered.

1.13 Continuity of Labour

The Main Contractor shall endeavour to maintain the same personnel on the works for the complete Contract. Each site shall have an appointed person / operative to undertake a supervisory role.

Changes to personnel shall only be made as a result of unforeseen circumstances.

The Consulting Engineer shall be advised in writing of any proposed changes and replacement personnel shall be fully conversant with the development, nature and standards required by the works.

The Healthcare Trust require that all operatives working on site shall provide evidence of having undertaken an Enhanced Level Disclosure Barring Service (DBS) check.

A daily record of operatives working attendances shall be maintained and kept on site for inspection if requested by the Client or Client's representative.

1.14 List of Drawings

The Drawings listed below are those upon which the Tender is deemed to be based.

These Drawings shall be read in conjunction with the Specification:

1954/E/01	Proposed Ground Floor Fire Alarm Layout 1 of 2
1954/E/02	Proposed Ground Floor Fire Alarm Layout 2 of 2
1954/E/03	Proposed First Floor Fire Alarm Layout 1 of 2
1954/E/04	Proposed First Floor Fire Alarm Layout 2 of 2
1954/E/05	Proposed Roof Fire Alarm Layout 1 of 2
1954/E/06	Proposed Roof Fire Alarm Layout 2 of 2
1954/E/07	Existing Ground Floor Fire Alarm 1 of 2
1954/E/08	Existing Ground Floor Fire Alarm 2 of 2
1954/E/09	Existing First Floor Fire Alarm 1 of 2
1954/E/10	Existing First Floor Fire Alarm 2 of 2

1.15 Daywork

No daywork will be allowed unless specifically requested by the Engineer. Daywork rates shall be those as detailed in the Form of Tender.

1.16 Quality of Material

All materials to be used for the installation shall be of British / European manufacture except where specifically stated otherwise.

All items of plant, equipment and materials etc shall be the best of their particular type and shall be fit for the purpose intended.

All equipment and accessories shall carry the CE marking.

All materials must comply with the current British Standard specification.

The Technical Specification details the specific standards for materials to be used.

1.17 Builderswork

The Main Contractor shall be responsible for the undertaking all builderswork associated with the works, such as the forming of holes for cabling and containment etc.

The Main Contractor shall include for the making good following builderswork and any holes or damage left following the removal of redundant accessories or cabling. The making good shall also be followed by a discreet patch re-decoration of the affected area.

The Main Contractor shall ensure that any the holes made for cabling systems to pass through are appropriately sized and effectively fire stopped on completion. The Fire Stopping material shall be an approved product and be applied by a competent person and certified when complete.

Notice of all intended builder's works shall be provided to the Project Manager together with a specific Method Statement and Risk Assessment to be approved before commencement.

1.18 Clearance of Site

The Main Contractor shall remove at their expense, any rubbish and surplus material arising from their works and ensure all working locations are kept clean and tidy at all times. The Main Contractor is reminded that the safety of the Site Staff and the Public is of paramount importance.

1.19 Type of Construction

The Tenderer shall inspect the sites and acquaint themselves with sufficient details to carry out their installation work.

Close attention is required to determine the various types of ceiling and wall finishes.

1.20 Bylaws and Regulations

The Tenderer shall allow for their installations and alterations to comply with all local Bylaws and Regulations and as detailed by the IET 18th Edition Wiring Regulations BS7671:2018, BS5266-1:2016 and BS EN 1838:2013, including all current amendments.

2 Particular Specification

2.1 General

This specification covers the works to be carried out and materials to be used for the fire alarm installation works within the Radbourne Unit at Royal Derby Hospital under the supervision of:

E P Consulting
16A Alpine House
Alpine Street
Old Basford
Nottingham NG6 0HS
Tel: 0115 924 4433

2.2 Contract Conditions

A set of Contract Conditions can be obtained from Derbyshire Healthcare NHS Foundation Trust, however, it is envisaged that the successful Specialist Fire Alarm Contractor will become the Main Building Contractor.

2.3 The Works

The works will consist of the electrical installation for the new layouts and shall generally consist of the following:

- removal of existing fire alarm system
- 13A power installation
- Installation and commissioning of a new fire alarm system

2.4 Programme of Works

As part of the Tender process the Specialist Contractor shall submit a programme of works along with Tender costs. The Specialist contractor shall note that works shall be phased on a loop by loop basis. No more than one loop can be without a fire alarm system at any time.

The Specialist Fire Alarm Contractor should be aware that the building will remain fully occupied and operational during these works and, therefore, sufficient out-of-hours working will be necessary in order to carry out isolations and identification of circuits to be isolated.

Where circuits are isolated, he shall ensure that the services to all other areas not forming part of these works remain fully operational at all times. Suitable time should be allowed within his tender for investigation works to fully understand the nature of the circuits to be isolated.

It should also be noted that works within ECT rooms are restricted during normal working hours and therefore these works will need to be completed out of hours

2.5 Type of Construction

Full details of the type of construction of the building can be ascertained from the Architect.

2.6 Main Contractors Attendance

The Main Contractor will carry out all chasing, cutting of holes as necessary and making good in accordance with the details provided by the Electrical Contractor.

The Electrical Contractor shall provide builders work details or drawings as required for guidance when requested by the Main Contractor.

These shall be submitted to the Consulting Engineer for comment / approval.

2.7 General Method of Installation

The electrical services installation shall be wherever possible flush and concealed within the fabric of the building.

However, it will be necessary to install a system of galvanised trunking and conduit for the supplies serving the Plant Rooms and similar areas. The Contractor shall be aware of the types of cable to be used and the routes available.

For compliance with regulation 521.10.202 all wiring systems throughout the building shall be supported such that they will not be liable to premature collapse in the event of fire.

Cables installed in ceiling voids shall run parallel and at right angles to supporting beams, notching of any joists or other structural elements of the building will not be permitted. If cables are routed between joists they shall be fixed at a depth greater than 50mm from the ceiling or floor, or a greater depth of 50mm within any partitioning, to comply with the 18th Edition of the Wiring Regulations.

Cables buried in plaster or in plasterboard partitions shall run vertical and shall be protected by a minimum 20mm PVC conduit for all switch drops, lighting drops and main circuits. Due consideration shall be given to the requirements of the BS7671, 18th Edition Wiring Regulations.

Cable trunking, tray and basket shall be used wherever practical for all main cabling within ceiling voids and exposed ceiling spaces. Where four or more cables are routed together, cable trunking, tray or basket MUST be used.

Separate containment including cable trays, baskets and trunking shall be utilised for each of the following:

- LV cabling
- fire alarm cabling

All wiring connections shall be made at the electrical equipment / accessory point.

All wiring to 3-phase items of equipment, unless otherwise indicated, shall be carried out utilising XLPE/SWA/LSF armoured cables to BS6724 and BS5476. All cables shall be suitably clipped, supported and contained.

2.8 Isolation Procedures

As with all buildings on Hospital sites the Main Contractor shall ensure that the isolation and reinstatement of the supply to any circuit is undertaken in conjunction with the Estates Department. The Main Contractor must be in possession of a Permit to Work for all works on the Electrical Systems

2.9 Removal of Existing

The Electrical Contractor shall visit site to fully ascertain the extent of the requirements for the removal of existing services.

This includes the removal of all cabling services on the internal and external parts of the building not required.

Any equipment which is not required for re-use on this project shall be inspected by the Consulting Engineer prior to being disposed of in a safe and approved manner.

2.10 Regulations and Standards

The Electrical Contractor shall ensure that the installation is installed, inspected and tested in accordance with the following:

1. The Requirements for Electrical Installations, IET Wiring Regulations 18th Edition, BS7671:2018.
2. Statutory Acts including Health & Safety at Work Act, Electricity at Work Regulations 1989 and Workplace (Health Safety and Welfare) Regulations.
3. British Standards and British Standards Codes of Practice. Where an appropriate standard does not exist, CENELEC Harmonisation or IEC Standard shall be used where relevant.
4. National Inspection Council for Electrical Installations, Contractors Standards for Installation.
5. The requirements of the Electricity Supply Authority.
6. Local Authority Building Regulations, including Part L.
7. Local Fire Officers Requirements.
8. Specific manufacturer instructions or recommendations.
9. The works shall be carried out and installed to comply with the Health Authority Manuals and Standards.
10. The installation shall conform Fire code HTM 05:03 – Alarm and detection Systems

2.11 General Building Contractors Attendance

The Main Contractor will carry out all chasing, cutting of holes as necessary and making good in accordance with details provided by the Electrical Contractor.

The Electrical Contractor shall provide any builders work details or drawings required for guidance as requested by the Main Contractor.

2.12 System of Wiring

The system of wiring to be used for the Contract shall be as follows:

2.12.1 Lighting, General Purpose Power, 13A Socket Outlets

6242B LS0H cables are to be concealed within the fabric of the building or 6491B LS0H cables suitably contained, as indicated in the distribution schedules.

Where cables run on walls, they should be concealed within the plaster finish and be protected by high impact PVC conduits with a minimum 20mm diameter. A flexible metal 'Kopex' type product may be used within stud partition walls.

2.12.2 Fire Alarm Cables

Fire alarm cabling should be carried out utilising Draka Firetuf Plus 'Enhanced' cables concealed above ceilings and within the fabric of the building.

It should be noted that the contractor must take into consideration BS5839-1:2017 Recommendation 26.2f, which states, "*The method of cable support should be non-combustible and such that circuit integrity will not be reduced below that afforded by the cable used, and should withstand a similar temperature and duration to that of the cable, while maintaining adequate support. This in effect precludes the use of plastic cable clips, cable ties or trunking, where these products are the sole means of support*".

2.13 Positions of Equipment

The positions of equipment are correct for the purposes of tender as shown on the drawings. The positions shown are indicative only, final positions of accessories and electrical equipment shall be confirmed with the Engineer on site before the installation proceeds.

The Contractor shall ensure that the installation is compatible with the installation of all other trades and is to comply with BS5839-1:2017 and all other relevant regulations.

2.14 Location of Accessories and Equipment

Generally, mounting heights shall be 1000mm maximum for switches, control units, etc and 450mm min. for cleaners sockets.

In Kitchenette areas a single outlet shall be installed for each under worktop appliance. This outlet shall have an isolator mounted above the worktop and it shall be clearly engraved to indicate its purpose.

Mounting heights shall be measured from the finish floor level to the bottom of the plate of the accessory.

Light switches shall be 150mm in from any door frame or corner to which is it adjacent.

When locating accessories / equipment, the following instructions shall be adhered to, as far as possible:

i) Where a number of items are to be located in proximity, they shall form a regular arrangement, ie vertically or horizontally.

ii) A uniformity of layout shall be conformed to, ie all light switches shall be same distance from the architrave, etc.

iii) Where accessories are located on short sections of wall or piers, they shall be positioned on the centre line.

iv) Care should be taken to ensure that the plates or accessories of equipment are fixed squarely in unison with adjacent accessories or fixtures.

v) The positions on the drawings of all accessories / equipment are approximate only and it shall be the Electrical Contractors responsibility to consult with other trades to ascertain the positions of cupboards and other furniture and fixings which may or may not be shown on the plans. The furniture items indicated on the drawings are purely indicative, and do not represent any final positions or may not be shown to scale.

2.15 Fire Stopping

The Specialist Fire Alarm Contractor shall be responsible for providing all their own fire stopping where cables or services penetrate any fire barrier.

The Electrical Contractor shall obtain the Fire Strategy drawings and make full due allowance within the tender for all fire stopping necessary for their installation.

All fire stopping must be undertaken by an accredited contractor utilising approved products and certified on completion in compliance with the Client's site policy.

2.16 Schedule of Suppliers / Equipment

Unless advised at the time of the Tender submission it will be deemed that the Contractor has included for the specified products where stipulated. Alternative manufacturers will only be considered during the tender evaluation period providing a separate schedule of proposed items is submitted with the Tender.

Alternatives to the specified products **WILL NOT** be considered after Tender submission.

2.17 Samples

The Electrical Services Contractor shall include in his tender and submit as requested, a sample of fire alarm device or other items associated with the system provided under this contract.

Such samples shall be submitted by the Contractor to the Engineer within 7 days after request and in advance of any order for same for installation of the works.

2.18 Labelling

Except for local switches, multi-gang switches and controls shall be provided with engraved labels indicating their purpose.

The Electrical Contractor shall supply and fit labels also as required by the 18th Edition of the IET Wiring Regulations.

All labels shall be manufactured from a 'Traffolyte' type product as follows:

- Warning notices, ie danger 400 volts, black letters on yellow background.
- Prohibition, ie emergency stop, red letters on a white background.
- General, ie distribution board ref DB1, black letters on a white background.

Fixing to distribution boards, etc shall be by the means of 2no. Brass screws per label.

Distribution board labels shall include Title, Reference, Point of Supply (Circuit Ref) and size of cable.

All multi-gang switch points are to have an engraved plate or separate labels identifying the function of each switch.

2.19 Working Environment

The Contractor must be aware that the Radbourne Unit is Mental Health unit, and that the wards will be live and fully occupied. The Contractor must confirm the exact working

conditions with Nottinghamshire Healthcare NHS Foundation Trust, however the conditions are likely to include, but not be limited to the following.

- All work to be conducted in two man teams
- All work to be conducted in a barriered off zone
- Only tools essential for the job to be permitted on the wards
- Ensure that all tools remain secure and away from patients at all times

The Contractor should note that if any services requires isolating or disconnecting then a Works Permit will be required. The Contractor shall provide a minimum of 14 working days' notice to Doncaster and Bassetlaw Trust of their intent to isolate or disconnect services during the course of the work.

2.20 General Building Works

The Fire Alarm contractor will carry out all chasing, cutting of holes as necessary, making good and general paint where required. This shall include for a provision of 2No Boxes of replacement 600 x 600 ceiling tiles in the event tiles get damaged during works.

Contractor shall also allow for providing blank plants over existing bell alarms shall are to be removed.

2.21 Provisional Sums

The Electrical Contractor should note that a number of Provisional Sums are indicated on Tender Summary.

2.22 Manufacturers Quotations

The Electrical Contractor should be aware that a number of provisional quotations may have been obtained from a number of manufacturers. Such quotations would have been obtained during the development briefing stage of this project and therefore will not be fully up to date.

The Electrical Contractor shall be fully responsible for making their own enquiries to the manufacturers with regard to their requirements for this project and shall be responsible for forwarding relevant drawings and confirming all design parameters to the manufacturers and suppliers of equipment.

2.23 Instruction and Training

The Specialist Fire Alarm Contractor shall be responsible for providing the necessary instruction and training for the appropriate members of Estates Department. The training shall be arranged at a time convenient for the Estates Department and shall be undertaken by the Emergency Lighting manufacturer's representative who is fully conversant and has an in-depth knowledge of the installation, operation and maintenance of the system together with a familiarity of the luminaires utilised.

Given that the installation will follow a detailed Programme of Works some of the Fire Alarm may be operational at an early stage of the overall project. Therefore, the training will need to be arranged for a time that coincides with the completion of the first section of work. The system will then grow as each area of works is completed.

2.24 As Fitted and Working Drawings

The Electrical Contractor shall be responsible for maintenance of working drawings throughout the construction period of the Project. A DWG or DXF CAD file can be made available for use by the Electrical Contractor.

The Electrical Contractor shall be responsible for updating the services drawings on a regular basis to suit the latest building layouts and shall allow for all printing costs with regard to these drawings and for distributing them to both the Design and Construction teams as necessary.

In addition to this, the Electrical Contractor shall allow for all 'As Fitted' drawings to be presented to the Consultant on both a paper print and DWG CAD files compatible with AutoCAD LT.

The drawings shall also be included within two bound copies of an O&M Manual to be prepared by the Electrical Contractor. The Manuals shall include all Test and Commissioning Certification together with all manufacturers' information and maintenance requirements for all products and systems supplied and installed by the Electrical Contractor.

The Electrical Contractor shall liaise with the Consulting Engineer to ensure that this information is made available with sufficient time to allow scrutiny and comment where necessary.

3 13A Power and Ancillary Systems

3.1 Overview

The section of the electrical specification covers the works to be carried out to provide 13A power and ancillary systems to the building.

3.2 Extent of Works

The Fire Alarm Contractor shall employ the services of Messrs:

KA Brooks Ltd
552 Nottingham Road
Chaddesden
Derby DE21 6QL
Tel: 07971 214543
Contact: Dave Brooks

The Electrical Contractor shall provide power supplies to each Fire Alarm Panel and BS7273 Fire Alarm interface unit as required throughout the building.

3.3 13A Power

The Electrical contractor shall provide a 230v supply derived from a 20A rated SP&N switch fuse adjacent the local distribution board. This shall be provided with a locking facility and a label shall be provided at the switch fuse stating "**Fire Alarm - DO NOT ISOLATE WITHOUT PERMISSION**".

Wiring to the control panel should be carried out in 2.5m² fire resistant cable. This shall terminate at the fire alarm control panel in a double lockable fire alarm isolator switch MKK4780WHI which shall be clearly labelled "**Fire Alarm - DO NOT SWITCH OFF**".

The Electrical Contractor should note that adjacent to BS7276 compliant fire alarm interface units a 5A mains power supply will be required. This shall be derived from the local distribution board.

Wiring to small power installation shall be carried out in 6242B or 6491B cables 2.5mm² or 4mm² within galvanised conduit and trunking as required.

Small power circuits shall generally be protected by type B RCBOs or MCB's

Accessories shall generally be of a metal finish with a colour to suit the Equality Act 2010 and manufactured by Messrs MK Electric or equal approved from the Metalclad Plus range.

Within plant room areas accessories shall be metal clad finish.

4 Fire Alarm System

4.1 Overview

This section of the electrical specification covers the works to be carried out to provide a new fire alarm system throughout the building.

4.2 Extent of Works

There is an existing fire alarm system to the building; this is to be totally replaced on a phased basis.

The door access intercom system and main equipment has been replaced and is to be retained, however, new fire alarm interface units shall be provided to comply with BS7273

4.3 Fire Alarm System

The Fire Alarm Contractor should note that there is an existing Static Group 900 alarm system currently installed throughout the building. This generally consist of two main fire alarm panels, one located at the main entrance lobby and the second located at the rear entrance lobby adjacent ward 35. Each of the main fire alarm panels have 4 loops which serve the entire building.

It is proposed to replace the existing panels with a new Honeywell Gent Vigilon panel which will have the latest software installed to enable the additional loop loadings to drive the new Visual Alarm Devices in compliance with EN54 part 23. The new panel shall be located at the main entrance to the building, along with a secondary panel located at the rear entrance. There are a number of repeater panels required throughout the building as indicated on the drawings. These additional panels do not require to be fully functional. Each new Fire Alarm panel and repeater panel shall be housed in an Anti-temper proof enclosure with a visual panel at the front so Fire Alarm display screen can still be read.

The Specialist Contractor shall allow for replacing all existing smoke/heat head detectors. It is proposed that the new detection devices should incorporate sounders and beacons where appropriate as indicated on the drawings. The existing cabling shall be retained where possibly and only amended where necessary to provide additional detectors as indicate don the drawings. Due to the nature of the building all new manual call points shall be Key operated.

It shall be the responsibility of the Fire Alarm Contractor to employ a lift engineer to gain access into the lifts to enable the existing smoke detectors to be replaced.

As part of the Gent system the Specialist Contractor shall supply and install a Nimbus Fire management system. This will allow the end user to record and log all activity on the fire alarm panel. The Nimbus system shall be set up to enable the end user to receive notifications on the system such as Fire, Fault, and Isolation etc.

Wiring to all new devices shall be carried out utilising Draka Firetuf FT120 Enhanced Softskin cable for protection of all circuits and shall have a red LSF sheath to BS4076. Each core of the cable shall be colour-coded to aid identification and be 2-core brown/blue.

Secure fixings and sheathed red PVC coating shall be provided near bends and on straight runs at intervals no greater than recommended by the manufacturer or British Standards, British Standards stating that cables should resist the effects of fire for 30 minutes. These effects include fire, shock and water spray. The Specialist Contractor shall allow for providing additional protection to all existing fire alarm cables in accordance with BS5839-1:2017 Recommendation 26.2f.

The British Standards state that the cables should resist the effects of fire for 30 minutes. These effects include fire, shock and water spray.

The single cable shall be fixed utilising the manufacturers recommended clips to comply with British Standards.

The fire alarm manufacturer shall make available three sets of technical manuals for all equipment installed. These manuals must cover the specification of the system, zone requirements, guidelines for installation, commissioning, operating and servicing of the proposed equipment.

Wiring for all detector circuits shall be carried out using 1.5mm² size conductors and the number of cores will be determined by the design of the system.

Fire detector and sounder cables will be terminated in approved enamelled or galvanised BESA type junction boxes for all mechanical and electrical connections of devices.

All wiring that has to be surface, and is below 2m from finished floor level, shall be mechanically protected from damage. The Electrical Contractor shall allow for sequencing of all addresses and specialist commissioning as recommended by Marlowe Fire and Security.

The new Fire Alarm system must be firstly installed, commissioned and tested before the existing system is decommissioned and removed.

The system will be fully commissioned on completion of the installation to prove full functionality and conformity with the system specification, including cause and effects programming. All necessary certification and operation and maintenance manuals will be issued to the Consultant for approval.

The Tender drawings indicate the location for each device although the exact position may be subject to confirmation. It is not intended that the drawings be scaled from in order to ascertain any final positions. It is intended that the spacing between the devices shall be within recommended distances.

The device numbers are not indicated on the drawings at present, the cable routes are to be determined on site to best suit the building layout. The Electrical Contractor shall establish the routes to be used and notate the drawing accordingly together with the particular device numbers.

All devices shall be affixed with a discreet label indicating the allocated zone, loop and point number to comply with the Hospitals Standards.

A clear legend of the site, indicating the Zones, shall be securely fixed alongside the control panel within a robust hardwood frame.

The legend should clearly indicate the areas covered by the fire alarm system to facilitate the location of an incident.

The Electrical Contractor shall allow for one year’s maintenance and monitoring to be provided for fire alarm system.

New Detectors should not be mounted within 500mm of any wall partition or ceiling structure, having a depth rate of 150mm.

Mounting height shall be measured from finished floor level to the bottom of the plate of the accessory. Mounting height shall be:

fire alarm control panel	1500mm
manual call points	1000mm
sounders	2200mm
beacons	2200mm

On completion a signed certificate shall be provided verifying the design and construction together with testing and commissioning certificates, audibility results, operating manuals, log books, etc as required by the British Standards and issued NICIEC paperwork.

The existing redcare monitoring shall be retained and reused to serve new system.

The fire alarm control panel shall be complete with a key operated plant test override switch which when operated will allow a routine fire alarm test to be carried out without the requirement of shutting down the mechanical services plant. This switch shall be self-latching / self-cancelling to prevent the key being left in the isolated state, and shall have an audible sounder to warn when the override switch is activated.

The Specialist Contractor shall ensure that any void of 800mm and above is fully covered by the fire alarm system.

4.3.1 Mechanical Plant Shutdown Upon Activation of the Fire Alarm

The mechanical plant control panel will be shut down any gas or heating and ventilation equipment.

4.3.2 Lift Ground Floor Interface

For each lift upon activation of the fire alarm system the lifts will automatically drive to the ground floor and the doors will be held open. A second signal shall be applied to the lift when the origin of the fire is within the ground floor lift lobby area – this is to prevent driving the lift into a potential fire hazard. The lift on this occasion would stop at an alternative floor.

4.3.3 Gas Valve Interface

Upon activation of the fire alarm system the gas valve main supply will be shutdown to allow the valve to close.

4.3.4 Access Control Doors

Upon activation of the fire alarm system the access control door magnetic door holders will fail safe ensuring the doors remain locked.

4.3.5 Redcare / GSM

Upon activation of the fire alarm system the Redcare system will activate a signal to the remote monitoring station.

5 Technical Specification - Materials and Workmanship

5.1 Basis of Design

5.1.1 Definitions of Voltage

Extra Low Voltage - not exceeding 50V AC or 120V ripple-free DC, either between conductors or to Earth.

Low Voltage – Exceeding extra low voltage but not exceeding 1000V AC or 1500V DC between conductors, or 600V AC or 900V DC between conductors and Earth.

High Voltage – Normally exceeding low voltage.

5.1.2 Regulations

The design, installation and setting to work shall comply with all statutory regulations and in particular with the latest editions and publications of the following, including all amendments to date:

a) BS7671:2018 - Requirements for Electrical Installations
b) The Electricity Act
c) Local Electricity Supply Authority Requirements
d) The Building Regulations
e) The Water Bylaws
f) The Acts of Parliament and Local Bylaws
g) British Standards and Codes of Practice
h) CIBSE Guides

5.1.3 Standards

The complete installation shall comply with all relevant standard, British Standard Codes of Practice and where indicated, with other Standards and Specifications and all amendments thereto.

The relevant Standards shall be those that are current at the date for return of Tender unless alternative dates are indicated.

Equipment and products not manufactured in the United Kingdom shall be of a standard which ensures its compliance with all appropriate British Standards.

5.2 Supply Authority

5.2.1 General

The Contractor shall allow for co-ordination and be responsible for all liaising with the local Electricity Supply Authority and shall ensure that all of their technical requirements are met with adequate time to meet the agreed final service connection date.

5.3 Low Voltage Switchgear

5.3.1 General

The Contractor shall design, supply and install the Low Voltage equipment as stated in the Particular Specification in the positions indicated on the Drawing.

The Contractor shall clearly identify any deviation from this Specification. These deviations are to be listed in the Tender covering letter.

5.3.2 Factory Built Assembly Cubicle Switchboard

The factory built assemblies shall be referred to herein as the FBS.

The FBS shall comply with the following Specifications:

Factory Built Assemblies	BS5486, EN 60439
Air Circuit Breakers	BSEN60947-2
Switch-Disconnectors & Fuse Combination Units	BSEN60947-3
HRC Fuses	BS88
MCBs	BSEN60898
MCCBs	BSEN60947-2
Motor Starters	BSEN60947-4-1
Indicating Instruments	BS89
Current Transformers	BS3938
Indicating Lamps	BSEN60073
Push Buttons	BSEN60073
Low Voltage Switchgear & Control Gear	BS5486, EN 60439

5.3.3 Inspection and Tests

Bespoke equipment is to be factory inspected and tested and if required, facilities to be provided for witnessing of final tests at work. Tests to include:

a) Checking with compliance to drawings
b) Insulation Resistance - 2500V for 10 seconds
c) Functional tests on all devices

If site testing/erection/commissioning is required, this will be called for in specific Technical Specifications.

5.3.4 Fault Rating and Busbars

Shall be:

i) Compliant with BS5486 Part 2;

ii) Mechanically and Electrically designed to withstand the fault level and shall be ASTA certified design rated at not less than 50kA RMS for 1 sec;

iii) Formed from solid drawn, high conductivity copper bars having a constant current rating with a uniform cross sectional area throughout their length and current density not exceeding 2.22 Amps/mm²;

iv) Clearly marked with the appropriate colours to indicate each phase, neutral and Earth. Droppers shall be as short and as straight as possible;

v) Full segregated and shrouded from all other sections of the switchboard;

vi) Two bolt fixings wherever possible and due consideration shall be given to high stresses at bolted connections;

vii) Secured by high tensile steel bolts and nuts with anti-vibration locking devices.

5.3.5 Construction of FBS's

Shall be:

i) Designed and constructed in accordance with the requirements of BS5486-1:1990 EN 60439-1:1990 to Form 4, such that a fault associated with any circuit of busbars cannot effect the satisfactory operation of the remaining equipment;

ii) Constructed from quality folded and welded mild steel sheet not less than 2.0mm thick. They shall be divided into smaller bolted sections to facilitate handling and each section shall be equipped with a removable eye bolts to BS4278 for lifting purposes;

iii) Of the maximum width to be dispatched in one piece shall not exceed 2 metres. The frame shall be capable of being readily extended at each end;

iv) Of a height of the bottom of the largest functional unit shall be a minimum of 300mm above floor level. No device requiring manual operation or reading shall be mounted higher than 2000mm;

v) FBS's shall be duct and damp protected to IP41 minimum.

All equipment with FBS including busbars and risers shall be so arranged that maintenance can be readily carried out without the need for major dismantling. When front access only boards are specified, particular attention shall be made to the busbars and risers with a view to maintenance.

Each section shall be provided with full width access doors with individual doors not exceeding 750mm width. Doors shall be open at least 90 degrees and be key lockable to prevent unauthorised access. All the panel locks are to have identical key numbers. All doors shall be fitted with flexible Earthing conductor to ensure Earth continuity.

5.3.6 Fuse Links and Holders

Suitably rated fuses shall be provided at all points within the FBS necessary for circuit protection and isolation, separate fuses being provided for instruments, indication, alarm, heater and coil circuits. Fuse ratings shall be rationalised as far as possible to limit spares.

Fuses shall be housed in all-insulated carriers with fully shrouded bases and shall not be interchangeable with carriers and bases provided for removable solid links which shall be coloured white.

Low voltage fuse links shall be HRC cartridge type to BS88 Parts 1 and 2 and identified by labels indicating duty.

5.3.7 Switch Board Earthing

Shall be:

i) Provided with Earthing continuity in the form of copper bonding tape or cable connected to the Earth busbar;

ii) Provided with a main Earth bar of copper to run the full length of each board so that all cable sheaths, armouring and trunking or conduit plates may be bonded to it;

iii) Where the fault level at the switchgear is 33kA or less, the minimum size of 30mm x 6mm;

iv) For short circuit duty in excess of 33kA the size of not less than 50mm x 6.3mm;

v) Provided with flexible circuit protection conductor to movable panels, ie (meter push button).

5.3.8 Padlocks

Each switchboard shall be provided with a set of two padlocks. Padlocks shall be used to lock the circuit breaker switch operating mechanism in the "out of service" or "off" conditions. In addition, where withdrawable isolating type circuit breakers or switches are used, padlocks shall be used to lock the covers over live contacts when the units are withdrawn.

5.3.9 Paint Preparation and Finish

Shall be:

i) Suitable for the operating environment in which they are to be installed. Proprietary items may be used in their standard finish subject to the approval of the Engineer;

ii) After all matching and forming has been completed, all steelwork surface shall be thoroughly cleaned of rust, scale, welding slab or spatter and other contaminations prior to any painting;

iii) Immediately after cleaning, have all surfaces protected by an approved corrosion resistant primer, followed immediately by one intermediate and two finishing coats of paint to give a minimum total dry film thickness of 50 microns (0.002");

iv) High quality stove enamel paints.

Steel fixings and fastenings shall be treated to prevent corrosion by hot dip galvanising to BS729 before painting.

Any damage occurring to any part of a painting scheme shall be made good to the same standard of corrosion protection and appearance as that originally employed.

5.3.10 FBS Cabling Facilities and Wiring

Shall be:

i) In multi-tier compartments and individual terminal covers provided for each circuit such that additional circuits may be terminated safely whilst the panel is energised;

ii) Where front access or cabling is necessary, the vertical cableways shall have a minimum width of 250mm clear of terminals;

iii) Provided with lockable access doors;

iv) Provided with un-drilled removable gland plates for cables. Prior to manufacture, the Contractor shall confirm cabling termination requirements to the Engineer;

v) Run neatly within the cubicle in suitable cable looms or panel trunking and in the case of instrument or safety, low voltage circuits run in separate groups accommodated within the cubicles;

vi) Adequately secured without the use of adhesive materials;

vii) Where wiring carried across door hinges, neatly loomed and rolled in the plane of the hinges to minimise flexing of the wiring;

viii) Bushed or grommeted where wiring passes through sheet metal or plastic;

ix) In repetitive units wired in an identical pattern to match the arrangement of each component;

x) Adequately rated, tinned copper stranded conductors of no less than 1.0mm² (32/0.20) PVC insulated 600V grade, sheath coloured as follows:

AC Black
DC Grey

xi) Minimum size of conductor for CT circuits to be 2.5mm²;

xii) Terminated with suitable ring or space crimp or bootlace ferrules and identified at both ends by means of white or resistor colour coded ferrules imprinted to correspond with the diagram of connections, wires linking common points in the circuit shall bear the same reference at each termination.

5.3.11 FBS Terminal Blocks

Shall be:

i) For the connection of small wiring, comprise shrouded anti-tracking mouldings of melamine phenolic or comparable material with provision for securing conductors either by high tensile screws or clamps or by solder tag connection;

ii) Arranged such that both terminals and wiring ends are readily accessible and have separate terminals provided for incoming and outgoing wires;

iii) Adequately shielded from accidental contact and be clearly identified and inscribed if they remain "LIVE" in the event the FBS is isolated.

5.3.12 Labels to Switchgear Equipment

Shall be:

i) Provided with a title label and circuit designation labels shall be fixed to the front cover of each circuit compartment, all indicators, instruments, relays, control switches, push buttons, fuses and other ancillary apparatus with labels clearly stating their function;

ii) Fitted to the front of the panels and be of White/Black/White, except where otherwise specified, laminated with radius or chamfered front edges;

iii) For essential and non-essential sections of the panel, have circuit labels of different colours to enable easy identification. Danger labels and warning labels in Yellow/Black/Yellow;

iv) Fixed square to the equipment by means of screws or rivets of nylon or non-corrodible material. Labels affixed with adhesive will not be accepted.

5.3.13 Fuse Switches and Switches

Shall be:

i) Rated in accordance with BSEN60947-3 and be fitted with solid or HRC fuse links as appropriate for each phase and a Neutral link all contained within the switch case, with the terminals accessible from the front of the switch. Phase barriers and contact shrouds shall be provided with an interlock to prevent withdrawal or access when the switch is in the "ON" position;

ii) Provided with a free handle control mechanism to prevent inching and damage to contacts and fitted "ON" and "OFF" position. When padlocked in the "OFF" position, interlocks shall prevent the unit door being closed;

iii) Totally enclosed in separate compartments, easily accessible for maintenance and suitable for live cabling;

iv) On all units which are partly or completely withdrawable and where covers are opened or removed for the replacement of fuse cartridges, etc. all live connections and contacts shall be fully shrouded and identified;

v) Have the compartment doors painted red for Fire Alarm switches.

5.3.14 Distribution Boards

Shall be:

i) Metal clad construction with 500V rating;

ii) Manufactured to comply with BS5486, BSEN60898 and BS7671;

iii) Fitted with blanking shields for all spare ways;

iv) Fitted with 25% spare way capacity;

v) Fitted with neutral bars having a terminal for each circuit way;

vi) Fitted with HRC fuses or MCBs as stated in the Particular Specification;

vii) Fitted with insulating shields to prevent accidental contact and barriers shall be provided between phases;

viii) Fitted with spare ways as specified in the Particular Specification and on the drawings;

ix) Fitted with numbered multi-terminal bar for both CPC and Neutral conductors to correspond with circuits;

x) Fitted with isolating main switch to BSEN60947-3;

xi) Fitted at height of 2.2m to the top of the board unless otherwise approved by the Engineer;

xii) Fitted with charts mounted on the inside of the board which shall be typewritten and placed in transparent non-flammable pockets securely screwed to the boards;

xiii) Fitted with identification labels;

xiv) Fitted with hinged lockable door to BS5486 and BSEN60439-3.

5.3.15 Miniature Circuit Breakers (MCB)

Shall be:

i) Thermal/magnetic type having a quick break, trip free mechanism arranged to ensure simultaneous opening of each phase and comply with the requirements of BSEN60898;

ii) Of the type and fault rating as specified in the Particular Specification, a minimum of 10kA.

5.3.16 Moulded Case Circuit Breakers (MCCBs)

Shall:

i) Have adequate fault ratings for the system fault level;

ii) Be of the quick-make, quick-break type having a trip free mechanism arranged to ensure simultaneous opening of each phase;

iii) Be compliant with the requirements of BSEN60947-2;

iv) Be provided with adjustable thermal and magnetic trip release;

v) Be operated by switch dollies providing clear indication of the ON, OFF or TRIPPED positions and have provision for locking in the OFF position;

vi) Be moulded in shock resisting material.

5.3.17 Residual Current Devices (RCDs)

Shall:

i) Meet requirements of BSEN61009;

ii) Be designed to isolate each live conductor simultaneously within 300ms at the rated tripping current;

iii) Have a trip current sensitivity rating as detailed in the Particular Specification.

5.3.18 HRC Fuses and Carriers

Shall be:

i) To comply with BS88 Part 1 and Part 2;

ii) Class Q1 unless otherwise indicated;

iii) Supplied with 33.3% spare cartridge fuses.

5.4 Instruments, Meters, Push Buttons and Indicating Lights

Shall:

i) Comply with BS37, BS89 and BS3839;

ii) Be protected by separate fuses;

iii) Be of the type, size and accuracy as in the Particular Specification;

iv) Comply with BS3693-1 for instruments and meter scales;

v) Be completely segregated in instrument compartments which shall house test links for energy meter testing;

vi) Be fastened and keyed so that the lamps be capable of replacement from the front of the apparatus without disturbance to the lamp holder or panel wiring;

vii) Have filament lamps be arranged to operate at 20% below their rated voltage.

5.5 High Voltage Cabling

Shall be:

i) BASEC certified;

ii) If paper insulated, cables up to and including 11kV comply with BS6480 and be mass impregnated, non-draining, belted type, sheaths of lead for armoured cables and lead alloy for unarmoured cables;

iii) If paper insulated aluminium sheath cables up to and including 11kV and comply with BS6480;

iv) Installed in one complete length without any joints unless prior instruction in writing is given by the Engineer;

v) Sealed by plumbing / hermetically at all times;

vi) Installed by staff who are fully qualified and competent for the types of joints and terminations to be made;

vii) Laid and terminated in the manner recommended by the various manufacturers;

viii) Where phasing out is to be done at the last joint in a high voltage run, an oversize box shall be used to minimise distortion at the cores.

5.6 Low Voltage Cables

Shall:

i) Be BASEC certified;

ii) Have bends with a minimum internal bending radius of twice the minimum radii recommended by the manufacturer;

iii) Delivered to site with the maker's seals and labels intact;

iv) Limited for grouping based on formulae given in the BS7671, except where stated otherwise;

v) Where passing through structural floors / walls forming the fire barrier shall be sheathed and fire stopped.

5.6.1 Cables in Conduits and Trunking

Shall be:

i) Single core LS0H insulated ref. 6491B as indicated in the Particular Specification having high conductivity copper conductors and manufactured in accordance with BS6004:2012;

i) Single core EPR insulated braided and compounded cables ref. 6101T to BS6007:2000 in areas subject to high temperatures, where called for in the Particular Specification;

ii) Coloured in accordance with the IET Wiring Regulations, or fitted with coloured sleeves only with the approval of the Engineer;

iii) Installed without any joints, all connections being made at switch positions, lighting points, etc;

iv) Installed on the "loop in" system;

v) Installed with due regard to the loading length of run and voltage drop, and to the size called for on the Drawings and in the Particular Specification;

vi) Terminated at equipment positions unless otherwise indicated by means of soldered lugs of appropriate size, eyelet type cable terminations or crimped type terminations of reputable manufacture. Shake proof washers to be used where electric motors are connected;

vii) Fitted with reducing pin lug where cable cores are larger than terminal holes;

viii) Double or twisted back on themselves for all single connections so pinching screws shall not be permitted to cut the conductors;

ix) Firmly twisted together before the connection is made;

x) Terminated in the box to which lighting fitting appliance is to be connected;

xi) Provided with circuit protective conductors throughout its length to meet BS7671;

Cables shall not:

xii) Pass through lighting fittings or bulkhead fittings unless heat resistant type, ie of EPR rubber to BS6007:2000;

xiii) Be trapped under plain washers as a termination.

5.6.2 Mineral Insulated Sheathed Cable

Shall be:

i) Sheathed with copper in accordance with the Particular Specification with high conducting copper conductors embedded in compressed magnesium oxide;

ii) 600V grade for all 13A power, fire alarms and other low voltage systems;

iii) 1000V grade for all sub-mains, motor wiring and three-phase equipment;

iv) Installed in accordance with British Standards copper sheathed 6081 where run on walls, behind plaster or on the surface, cable symmetrical and in with building design. The routes to be pre-approved by the Engineer;

v) Terminated for concealed work using MICS boxes with patent clamps wherever possible. Ring type glands are not to be used and in cases where cables are above 2.5mm²;

vi) Terminated using Earth tail screw on pot with cold plastic compound, neoprene sleeving and colour tags or coloured PVC extension sleeving to BS4848 and 3858;

vii) Terminated using high temperature sleeves and compound for direct connection into tungsten lighting fittings;

viii) PVC covered in ducts where buried in the ground or otherwise indicated in the Particular Specification;

ix) Installed using galvanised boxes where PVC covered;

x) Installed using PVC hoods and shrouds when in conditions as item (viii);

xi) Installed using only bending, stripping and sealing tools recommended by the manufacturer;

xii) Installed in accordance with current recommendations of the manufacturer;

Mineral Insulated Copper Sheathed (MICS) Cables shall be:

xiii) Looped where connections are made to motors and other equipment where vibrations could be transmitted;

xiv) Covered with tiles where installed in the ground;

xv) Tested after sealing with a 1000 copper sheathed volt insulation tester and again 48 hours later. No reading other than infinity shall be accepted;

xvi) Where cables are run on the surface they shall be fixed by saddles at centres not exceeding 500mm on vertical and horizontal runs;

xvii) Cables fixed above ceilings shall be clipped at all changes of direction and not more than 600mm intervals. Saddles shall be fixed with brass screws;

xviii) Where 5 or more MICS cables are run on the surface or in the ceiling voids/ducts, they shall be fixed on approved cable trays by saddles, brass nuts and bolts.

xix) Fixed with surge suppressers for the following:

Three-phase star motors
Contactors (240-415V)
Fluorescent (series or no p.f. correction)

MICS cables shall not be:

xx) Left unsealed at any time during installation;

xxi) Terminated using sleeved conductors longer than 4 feet;

xxii) Be installed using joint boxes unless the Engineer's approval is obtained.

5.6.3 Flexible Cables and Cords

Shall be:

i) For normal accessories, be of multi-core cables of circular form, coloured white, PVC insulated and sheathed to BS6500, ref. 3093Y;

ii) For all tungsten lighting fittings, be silicone rubber insulated, glass fibre braided to BS6500, ref. 2782D or glass insulated;

iii) For fluorescent fittings, be EP rubber insulated CSP sheathed to BS6500 ref. 3183TQ;

iv) Include where necessary, a straining cord to ensure weight is not carried on the conductors in accordance with IET Regulations;

v) Have metallic protection where required by the Engineer, ie in places where cables are liable to mechanical damage, boiler houses, etc;

vi) Have Earth conductors of sufficient length to ensure that no undue stress is placed on the Earth conductor.

5.6.4 PVC / PVC Systems

Shall be:

i) To BS6004 being insulated and sheathed in Poly-Vinyl-Chloride;

ii) Copped cored unless otherwise stated in the Particular Specification;

iii) Only used where called for in the Particular Specification and where is can be concealed within the fabric of the building;

iv) Wired in the "loop in" system with no joint boxes unless prior permission is given by the Engineer and run symmetrical to the building with "drops" perpendicular;

v) Complete with an integral Earth continuity conductor in order to provide an Earth point at all accessories;

vi) Fixed using patent nylon clips at a maximum of 250mm centres for surface work or 600mm for concealed work with patent tie wraps;

vii) Protected by rigid PVC rounded or oval section conduit as necessary for all "drops" to switches, sockets, etc. protected by PVC capping only with Engineers instruction;

viii) Clear of gas and heating pipes by at least 150mm and shall be fixed below such pipes;

ix) Clipped to side joists and only traversing joists where no damage will suffer to the cables from floor boards;

x) Run square to the building and avoid all contact with polystyrene insulation;

xi) Of minimum size indicated in the Specification with sufficient cross sectional area to carry the full load current of the circuit with allowances for the thermal insulation and other cables without excessive voltage drop;

xii) PVC / PVC cables shall be protected by metal capping only with express permission of the Engineer.

5.6.5 Armoured and Unarmoured Mains Cables

Shall be:

i) As called for in the Particular Specification regarding minimum size, cores, insulation, armouring, sheathing, working temperatures and fire rating;

ii) Manufactured to the relevant British Standard BS6480 BS6346, BS1442, BS6746;

iii) Without any intermediate joints between one definite terminals point and another;

iv) Protected by ducting where ground is "made up" and for all entrances to buildings;

v) Protected by interlocking cable tiles and marking tape unless otherwise stated in the Particular Specification;

vi) Protected against other services where run in service ducts;

vii) Supported by cleats for all surface work at recommended cable intervals no less than 600mm to ensure no undue stress is put upon the cable or sealing glands. Where multiple runs of cables are involved, cable tray shall be used;

viii) Terminated using compression type glands to BS6121 shrouds through spreader boxes to crimped terminations;

ix) Bonded with 20mm x 2mm tape for cables up 35mm² and through body of gland for cables over 35mm²;

x) Only installed at temperature of over 0°C;

xi) Connected to the internal Earthing terminal of the equipment by a bonding conductor sized in accordance with BS7671;

xii) Bonded and Earthed at one end only with insulated glands used at the open circuit end for single core cable;

xiii) Supported below the gland to ensure that the gland is relieved of the weight of the cable;

xiv) Where sized for volt drop, it may be necessary to provide a cable extension box to spread the cores to enable the cores to be terminated without undue handling. The Contractor shall satisfy himself that the equipment terminals will accept the cable socket without detriment to the clearances between terminals and enclosures;

xv) Protected with an approved preventative jointing compound at the interface of all bi-metallic connections;

xvi) Provided with core identification using coloured or numbered plastic stretch or shrink ferrules at all terminations;

xvii) Identified by permanent brass labels indicating cable size, number of core and "to" or "from" designation, voltage, date;

xviii) In ducts, labelled at 3 metre intervals.

5.6.6 Excavation and Laying of Underground Cables, External

Shall be:

i) Laid direct in trench unless otherwise indicated;

ii) Drawn through ducts as they enter buildings, under roadways or car parking areas and elsewhere as indicated;

iii) Laid and the trenches shall be backfilled within 24 hours. At all times, safety precaution shall be taken and arrangements made to prevent damage to cables;

iv) Where run underground, be laid on a bed of sifted sand 75mm deep;

v) Provided with the minimum cover specified as below:

Type of Cable	Location and Depth of Cover		
	In Open Ground	Under Roadways or Under Pavement	Under / Alongside Railways / Drainage
High Voltage	1000mm	120mm	1000mm
Low Voltage Telephone Co Axial	600mm	800mm	500mm

vi) Provided with route markers at 50m intervals or change in direction with inset lead/ plastic information tags.

5.6.7 Cable Warning Covers

Interlocking cable covers shall:

i) Meet the requirements of BS2484;

ii) Be provided to cables laid direct in the ground unless directed otherwise. The material and dimension of the covers shall be as specified below:

Type of Cable	Material Cover	Dimensions Cover (nominal) length x width	Diameter of Cables	Number of Cables / Cover
High Voltage	Reinforced	914mm x 152mm	<50	1
	Concrete	914mm x 178mm	>50	1
Low Voltage Telephone Co Axial	Earthenware	229mm x 152mm	<50	1
			<40	2

5.6.8 Cable Ducts

Shall be:

i) 90mm minimum bore;

ii) As detailed in the Particular Specification or agreed by the Engineering from:

a) Earthenware, either salt glazed or ceramic glazed internally, of the self-aligning type or plastic type with sealing flange suitable to ensure self-alignment of the bore;

b) Steel or iron complying with BS788 with screwed and socketed joints;

c) Fibre with suitable collar joints;

d) PVC to BS4607.

iii) Sealed at each end with a plastic compound or other approved sealing substance to the satisfaction of the Engineer. A suitable draw wire shall be installed in all spare ducts.

5.6.9 Segregation

A minimum clearance in accordance with the table listed below shall be allowed from any equipment, pipework or ductwork. The distance shall be measured from the external surface of any lagging as far as practicable.

Cable	High Voltage	Low Voltage	Telephone	Co Axial	Equipment Pipework Ductwork
Buried	mm	mm	mm	mm	mm
1.					
High Voltage	150	300	300	300	600
Low Voltage	300	25	150	150	300
Phone	600	150	50	50	200
Co Axial	600	150	50	50	200
2.					
High Voltage	150	300	300	300	600
Low Voltage	300	see note 2150	-	150	150
Phone	300	150	-	-	-
Co Axial	300	150	-	-	100

NOTES

- *The minimum spacing will apply unless otherwise indicated*
- *Low voltage cables in air may be bunched subject to any requirements regarding segregation and installation methods set out in BS7671 and any requirements that may be indicated regarding grouping, installation of defined conditions or installation in enclosed trenches.*
- *When cables are in steel pipes, the minimum spacing need not be maintained, but a minimum space of 25mm shall be left between the pipes.*

Mutual Detrimental Influence

Electrical installation shall not be installed in contact with any steam, water, gas or other pipework, or any heating, cooling or ventilation ductwork or appliance. A minimum distance of 100mm shall be maintained from the insulation of pipework or 150mm uninsulated pipework, with conduits run below any trace heating pipework, ductwork or appliance.

Notwithstanding the requirements of the BS7671 Chapter 41, independent electrical systems shall be provided for the following:

a) Mains voltage lighting and power (LV)
b) Radio, Impulse clock, alarm and call systems (ELV)
c) British Telecommunications Systems
d) Internal Telephones
e) Patient Monitoring
f) Fire Alarm Systems and Safety Lighting

In no instance shall LV and ELV circuits be enclosed in the same trunking compartment, the same conduit systems or the same multi-core cable.

Public Telephone Operator communication circuits, internal telephone circuits and patient monitoring circuits shall be segregated throughout from all other circuits and each other and shall not be drawn into the same enclosure as cables of any other circuit, neither shall they form part of any composite cable, flexible cable or flexible cord.

5.7 Cable Trunking and Tray Systems

Cable trunking and tray systems shall be as called for in the Particular Specification.

5.7.1 Cable Tray

Shall be:

i) Galvanised medium return flanged to perforate not less than 1mm up to 150mm width or 1.5mm from 200mm to 450mm width and 2mm from 600mm to 900mm width unless stated otherwise;

ii) Of adequate size to support the cables without undue bunching;

iii) Supported at intervals by suitable brackets / Unistrut necessary to provide rigid fixing;

iv) Installed on structure which the Contractor has satisfied himself is capable of providing adequate fixings;

iv) The Contractor shall notify the Engineer where difficulty is experienced or anticipated;

v) Installed using factory formed bends and tees and when cut sections are used for sets, they shall be free from sharp edges, welded and installed with mushroom type bolts;

vi) Painted together with handmade accessories with zinc rich paint where cuts have been made;

vii) Suitably protected by means of lead or PVC liners where holes have been cut to allow cables back entry.

5.7.2 Cables

Shall be fixed to cable tray as follows:

i) By means of proprietary forms of plastic cable clips, saddles, straps, etc;

ii) By means of galvanised metal saddles and clips where higher than average temperatures are likely to be experienced;

iii) By means of brass screws, bolts, nuts, etc where applicable.

5.7.3 Trunking Generally

Trunking shall be:

i) Provided where more than 2 conduits are required;

ii) Sized to conform to BS7671;

iii) Routed and installed after agreement with Engineer;

iv) Free from all sharp projections and edges;

v) Electrically and Mechanically continuous throughout;

vi) Fitted with purpose made radius bends and tees and terminated with blank end pieces;

vii) Suitably flanged for entry into building;

viii) Compartmented to conform to BS7671 to segregate services;

ix) Provided with pin racks and retaining straps to support cables;

x) Provided with fire barrier units where penetrating fire zones;

xi) Supported to manufacturers guidelines.

5.7.4 Metal Trunking

i) To BS4678-1-2;

ii) Galvanised to BSEN10143;

iii) Of stainless steel for all areas subject to Food Hygiene Regulations;

iv) Bonded with PVC/copper straps unless manufacturers system is acceptable to the Engineer.

5.7.5 PVC Trunking

Shall:

i) Conform to BS4678-4;

ii) Be installed to manufacturers Specification regarding thermal expansion and support.

PVC mini trunking shall only be used where permission from the Engineer is given or specified in the Particular Specification.

5.8 Conduit Systems

Shall be:

i) Free from any imperfections and manufactured to BS31:1988 Class B and not less than 20mm diameter;

ii) Within the building fabric, black enamelled unless otherwise specified in the Particular Specification;

iii) Where mounted outside a building, run in floor trenches subject to dampness buried in the ground, or where directed by the Engineer, hot dip galvanised;

iv) Protected from mechanical damage and weather when stored on site;

v) Threaded to length specified in BS31, carefully reamed to remove all sharp edges and burrs after screwing; oil and filters being completely removed before erection and already cut threads cleaned by running dies over them and then wiping clean;

vi) Swabbed dry before wiring is commenced;

vii) Painted with rust inhibiting paint after erection where screwed threads are exposed and where conduit finish is damaged;

viii) Arranged to butt in solidly to box couplers, accessories, etc. and jointed with proper screwed couplings;

ix) In accordance with the appropriate table in BS7671 in respect of cable capacity and sufficiently large to allow easy draw in or withdrawal of one or all cables;

x) Electrically and mechanically continuous throughout forming a completely bonded system;

xi) Tested for continuity before cabling is commenced;

xii) Fitted with locknuts on all running couplings having smooth even bearing faces;

xiii) Set on site to form bends using bend machines, all sets being neatly made without restricting the bore;

xiv) Held in an efficient vice for threading. The Contractor is advised that badly marked conduit or poor threads will not be accepted;

xv) Coupled to equipment having tapped entries by smooth bore bushes screwed into the couplings terminating the conduit run. The couplings shall be backed by circular locknuts;

xvi) Coupled to equipment having untapped conduit entries by smooth bore brass bushes inside the equipment with brass compression rings and flanged couplings with backing circular locknuts outside the equipment;

xvii) Capable of withstanding a "Dead Weight of 25 kilos", after installation in the presence of the Engineer's representative at his discretion.

5.8.1 Steel Conduit Galvanised

Conduit where galvanised shall be:

i) Fixed with galvanised saddles as for surface or flush installation;

ii) Fixed with stainless steel screws;

iii) Painted with zinc rich paint where exposed conduit threads are left;

iv) Installed with all necessary galvanised accessories including box lids.

5.8.2 Boxes for Conduit

Conduit boxes shall be:

i) Standard, circular, black enamelled or galvanised where appropriate, malleable cast iron to BS31:1988;

ii) Fitted with heavy gauge cast or pressed steel lids secured in position with brass screws;

iii) Provided with tapped spouted entries;

iv) Of the waterproof type when erected in exposed positions and gasketed with waterproof plastic compound after wiring with external fixing lugs;

i) Of the multiple adaptable type of dimensions not less than 150 x 100 x 37.5mm where two or more conduit run parallel.

Not more than 3no 20mm conduits will be permitted to enter the longer side of the box, and where more or larger conduits are to be accommodated, larger boxes shall be used;

v) Of the cast type with cast lids where (v) are used on the surface;

vi) Fixed to the fabric of the building and in accessible positions;

vii) Be supplied with a fillet to segregate services where necessary (lighting and small power cables may pass in the same box, but telephone, fire alarms, etc must be segregated);

viii) Fitted with extension rings where necessary in order that the edge of the conduit box is flush with the finished ceiling.

5.8.3 Conduit Installation

Conduit on the surface shall be installed:

i) Using spacer bar saddles spaced at distances no more than:

Conduit Size	Spacing
20mm - 25mm	1.500m
32mm	2.000m

ii) Using distance saddles on switch and socket outlets drops or otherwise called for in the Particular Specification;

iii) With saddles fixed with a proprietary make of wall plug and screws of sufficient length to enter the main fabric to a minimum of 25mm. No fixings will be allowed in seams. All building fabric to be drilled;

iv) With due regard to neatness and finished appearance being made unobtrusive and where exposed on the surface of walls or ceilings, runs shall be symmetrical and in keeping with the building design. The routes of all surface conduits shall be approved by the Engineer before installation;

v) At distances of 20mm apart where two or more conduit runs parallel and where conduits must cross, a similar space must be left at the crossing.

Conduit where sunk in plaster of walls, partition walls, ceilings or roof spaces shall be installed.

vi) Using pressed saddles fastened by means of 2-25mm long black japanned screws and proprietary plugs where necessary, saddles in roof space and voids being installed at the minimum centres stated for surface work.

vii) In such a manner that the edge of the conduit box is flush with the finished surface. Particular note is drawn to suspended ceilings and where panelled ceilings are installed, the Contractor's attention is drawn to the need for accurate positioning of the boxes above the panels in the exact positions shown on the ceiling hole drawing.

Conduit shall not:

i) Have more than two right angle bends in any conduit run without the provision of a draw in box;

ii) Be installed in runs of more than 9.00m without draw in boxes;

iii) Be fitted with tees, elbows or manufactured bends unless specifically stated in the Particular Specification or prior permission is given by the Engineer. Circular junction boxes or adaptable boxes shall be used in their stead;

iv) Be fixed, where buried, by means of 'crampits' or nails;

v) Be concealed before inspection;

vi) Have cables drawn in until all conduit is complete;

vii) Be dismantled for wiring;

viii) Be installed within 150mm of gas, water, LPHW or steam unless express approval of the Engineer is obtained;

ix) Have any rust patches or other defects;

x) Be installed in ducts without approval of the Engineer.

5.8.4 Plastic Conduit Systems

Where PVC conduit is called for within the Particular Specification, all conduits shall comply with BS4607 AH grade.

i) Light gauge conduit (coloured white) may be used for protected cast concrete work where builder's traffic is minimal or for protected surface work, eg in false ceilings.

ii) Heavy gauge conduit (coloured black) shall be used in all locations where a possibility of physical maltreatment exists.

iii) Conduit joints shall be jointed and terminated utilising the appropriate components as supplied by the conduit manufacturers.

a) Permanent Adhesive

A solvent cement to produce a rigid watertight joint when used with standard couplers and accessories

b) Flexible Adhesive

A non-hardening adhesive to be used where expansion facilities are required in long conduit rungs in conjunction with expansion couplers

iv) Conduit Bends

Up to 25mm diameter may bend cold with the use of appropriate bending spring obtained from the conduit manufacturer.

v) Expansion of Conduits

Adequate allowance shall be made for longitudinal expansion and contraction of the conduits under normal working temperature variations as follows:

a) Expansion couplers should be used on all straight runs of conduit exceeding 6 metres in length;

b) Conduit shall be free to slide within saddles;

c) Special consideration may need to be given to the fixing of accessories in situations where the temperature fluctuates excessively. Oversize or slotted fixing holes may be necessary.

vi) Conduit Support

Shall be at intervals of 1½ metres in isolated positions or 1 metre in accessible situations. Where working temperatures tend to be high, this spacing should be reduced accordingly.

vii) Conduit Accessories

Wherever possible, conduit junction boxes shall be of the BS circular pattern with appropriate spout entries. Tangential entry circular boxes shall be used where appropriate.

Multiple conduits may necessitate the use of large PVC adaptable boxes for junctions.

viii) Support for Light Fittings

Care must be taken in the support of totally enclosed lighting fittings. Where high temperature are likely to occur, special all insulated heat resistant boxes shall be used.

5.8.5 Flexible Conduit

Flexible metallic conduit shall be:

i) PVC sheathed of type to meet particular situation of ample capacity and mechanically robust and weatherproof;

ii) Run between the internal wiring systems and fixed apparatus, motors, thermostats, etc;

iii) Kept to the shortest length;

iv) Connected to equipment with factory made clamps;

v) Run with an Earth conductor of minimum size 2.5mm² insulated cable, installed internally and connected externally at each end of the conduit with Earth clamps;

vi) Manufactured in accordance with BS731.

5.9 Lighting Switches

Lighting switches shall be:

i) Supplied and installed by the Contractor as detailed on the Drawings and in the Particular Specification;

ii) Manufactured in accordance with BS3676;

iii) Plate switches with rocker operated white finish unless otherwise stated in the Particular Specification;

i) Mounted at 1,000mm to centre unless otherwise directed;

iv) Watertight and galvanised for use in exterior locations with membrane or with rotary action.

5.10 Switch Disconnectors

Shall:

i) Be provided as local means of isolation for compliance with BS7671;

ii) Meet BSEN60943;

iii) Full duty rating;

iv) Disconnect all unearthed phased conductors;

v) Labelled as detailed;

vi) Be capable of means of locking in the "off" position.

5.11 Socket Outlets

Socket outlets shall be:

i) Supplied and installed by the Contractor and detailed on the Drawings and in the Particular Specification;

ii) Manufactured in accordance with BS1363;

iii) 13A rectangular pin with white finish wired on a ring main system unless otherwise stated in the Particular Specification;

iv) Switched unless otherwise stated in the Particular Specification;

v) Supplied with a fused plug top for each socket outlet, an equal division of 3 and 13A fuses being provided. These to be handed to the Consulting Engineer prior to completion on site;

vi) Mounted as detailed in Schedule and Particular Specification;

vii) Provided with RCD protection where called for to BS4293, BS11363 and BS7671;

viii) Provided with spring gasketed flap/screw or seal to meet protection requirements;

ix) Vertically in line where in close proximity with light switches.

5.12 Luminaires / Light Fittings

Luminaires / light fittings shall:

i) Be as detailed in the Schedule, Particular Specification and Drawings;

ii) Unless directed otherwise, mounted on one conduit box for tungsten fittings. Fluorescent fittings shall have two conduit boxes for support;

iii) Suspended independent of any false ceiling structure unless specific arrangements have been made;

iv) Finally fed by heat resistant glass / silicone insulated flex Ref. 2827D, 0.75mm² to BS6500 for all tungsten fittings;

v) Through wired only using heat resistant cable EPR Ref. 6101T;

vi) Earthed in all cases to conform to BS7671, BS67, BS4533, BS5042, BSEN60920 / 61048 / 60598 / 60922;

vii) Be supplied with new lamps and tubes as detailed in Particular Specification with 10% spare lamps for each type installed.

5.13 Mounting Heights

The following mounting heights shall be used unless otherwise stated:

Accessories	Location / Function	Height affl
Light Switch	General	1000mm
	In Disabled Facilities	900mm
Socket Outlet	General	450mm
	Kitchens	1350mm
	Above Worktops	150mm
	In Divisional Wall in Showroom	450mm
	External	800mm
Dado Trunking		TBA
Shaver Socket Outlet		1000mm
Fused Connection Unit	Radiant Wall Heater	1800mm
	Radiant Heater - focal point	300mm
	Tubular Heater	300mm
	Clock	1800mm
	Above Worktop	150mm
Cooker Control Unit		1000mm
Cooker Connection Unit		450mm
Isolating Transformer		1300mm
Room Thermostat		1600mm
Telephone Outlet	General	450mm
Radio/TV Outlet		450mm
Push Button		1000mm
Fire Alarm Call		1000mm
Bell or Buzzer		2200mm
Flex Outlet Plate		150mm from cable entry equipment
Distribution Board		1800mm
Infra Beam Detector		1900mm
Fan / Heater Controller		1000mm

Heights are from finished floor level to the centre of the accessory or equipment, except in the case of worktops when the measurement shall be from the worktop surface. If the specified height of an accessory coincides with the top of tiling, the accessory shall be mounted above the tiling leaving a clear gap of 50mm.

Where apparatus is located underneath a worktop, the accessory shall be mounted 100mm below the underside of the worktop. In car parks and garages, the heights shall comply with the appropriate Regulations relating to the presence of petroleum vapour. Where the accessory falls within tiling, it shall be located at the cross joint in four tiles. All accessories shall line through horizontally.

5.14 Connections to Appliances

5.14.1 General

The following tables specify standard connection methods for a range of appliances and motors and these methods shall be used unless otherwise indicated.

5.14.2 Connections to Appliances

Appliance	Maximum Rating	Outlet		Rating of Fuse (BS1362)		Cable or Cord
		Type	Pilot Lamp	A	Type	Size mm
Water Heater – Storage	1kW	SFC	YES	13	D	1.5
	3Kw	SFC	YES	13	D	1.5
Water Heater – Instant	4kW	DPS	YES	-	D	2.5
	7Kw	DPS	YES	-	D	2.5
Room Heater – Storage	3.4kW	DPS	YES	-	D	2.5
Room Heater – Convector	1kW	SFC	YES	13	D	1.5
	3kW	SFC	YES	13	D	1.5
Room Heater – Radiant	2kW	SFC	YES	13	D	1.5
	3kW	SFC	YES	13	D	1.5
Shower	8.4kW	DPPS	YES	-	B	6.0
Towel Rail		SFC	YES	13	B	1.5
Cooker	45A	CC	YES	-	A	6.0
Waste Disposal Unit		SFC	YES	13	E	1.5
Sanitary Disposal Unit		SFC	YES	13	E	1.5
Macerator		SFC	YES	13	A	1.5
Extract Fan (single phase) - wall or window mounted without controller	150W	SFC	YES	3	E	1.5
		SFC with FO	YES	3	A or	1.5
		FO or DPS	NO	-	C E	1.5
Extract Fan (single phase) - with unfused controller	150W	SFC with FO or DPS	NO NO	3 -	A or C E	1.5
Extract Fan (single phase) - with fused controller	150W	SFC with FO or DPS	NO NO	3 -	A or C E	1.5

Codings

Outlets
- DPPS Double pole pull cord switch c/w flag indicator
- DPS Double pole switch
- SFC 13A switched fused connector
- CC Cooker connection outlet
- FO Flex outlet

Cables
- A PVC - insulated, non-sheathed cabled in conduit (as section 8)
- B 85° rubber - insulated non-sheathed cables in conduit (as section 8)
- C PVC - insulated multi core sheathed cables (as section 9)
- D 85° rubber insulated HOFR sheathed flexible cord
- E PVC insulated and sheathed (circular) flexible cord

Notes

1. *SFC or DPS to be engraved with the legend "WATER HEATER".*
2. *Applies only when SFC immediately adjacent to fan.*
3. *Where the fan is in the same room as and not more than 2m from SFC, an FO is to be located immediately adjacent to the fan.*

4. *Where the fan is more than 2m from SFC, a DPS is to be located immediately adjacent to the fan.*
5. *Cable to be routed from SFC via controlled to FO or DPS.*

5.15 Earthing

5.15.1 The Earthing System for the Electrical Services Installation

Shall:

i) Comply with the BS7671 and 7430;

ii) Provide for all main equipotential bonding between main Earth, water, gas and main mechanical services. Bond all non-current carrying metal parts of electrical equipment to the Earthing system;

iii) Follow special instructions detailed in the BS7671 for Earthing, eg metal conduits, trunking, outlet boxes, motor casings, etc;

iv) Be made using PVC insulated single core cables coloured green and yellow of the rating and termination detailed in BS7671;

v) Thermally and electrically adequate for the fault conditions associated with the system to be installed to discharge without endangering personnel or equipment;

vi) Where protective multiple Earthing is to be employed, follow the Supply Authority's Regulations for bonding leads;

vii) Where liable to corrosion (buried in ground, floors, walls, fixed externally, etc.) be PVC sheathed or wrapped with corrosion resistant tape;

viii) Where buried in the ground be laid in sand and protected with interlocking cable ties;

ix) Have brass bolts, nuts and washers for all fixings (bronze where liable to corrosion);

x) Have separate Earth bonding for Telecommunication Systems.

5.15.2 Earth Electrode System

Shall:

i) Be set out to meet the site and soil conditions;

ii) Comprise solid drawn high conductivity copper Earth electrode rods of 15mm diameter, 1.2m long sections with internal screw and socket joints;

iii) Fitted with hardened steel tip and driving cap;

iv) Be driven into the ground to a minimum depth of 2.4m;

v) Be connected by means of a purpose made clamp below ground level in a proprietary branch of concrete inspection pit with a removable cover;

vi) Include all Earthing conductors which together with the electrode system provide the required value of impedance. The Earthing conductors to be insulated between Main Earth Bar and Earth Electrode and fitted with copper disconnecting links to provide a testing facility at the point of connection to the Earth electrode. The Links to be of equivalent cross sectional area to the Earthing conductor.

5.15.3 Earthing Tape

Shall:

i) Be high conductivity, un-tinned except where otherwise specified;

ii) Be PVC sheathed or PVC wrapped where run externally or in the ground, through walls and floors or in situations where is may be liable to corrosion. Sheaths and wrappings shall be green and yellow;

iii) Be fixed by means of purpose made brass or bronze saddles;

iv) Be jointed by tinning both pieces before assembly, riveting with at least 2 rivets and sweating solid;

v) Be connected to equipment by tinning the contact area and clamping or by drilling the tape, tinning the contact area and bolting with high tensile plated steel bolts, flat washers, nuts and locknuts.

5.16 Testing and Commissioning

5.16.1 Introduction

As detailed elsewhere in this Specification, the work will be tested and commissioned when completed to conform to BS7671.

Tests may also be carried out as the work proceeds as required by conditions and the decision of the Site Engineer.

Although the Consulting Engineer may employ Site Engineers to inspect, test and commission the works, this in no way relieves the Contractor from any of his responsibilities in ensuring that the work is effectively and adequately supervised by his own staff.

5.16.2 Commissioning

At the end of the Contract or at the end of a particular section of the Contract, the Contractor shall satisfy himself that the installation is 100% complete and that all labels and fuse board circuit schedules are fitted, etc.

He shall ensure that all manufacturers' information is available, that all equipment functions are as intended and that keys are ready to hand over.

He shall than notify the Engineer that the installation is complete and demonstrate that it is. No installation will be taken over by the Client which is not complete in every respect.

The Engineer may, if he so wishes, inspects large items of plant at works prior to delivery to site to ensure that it fulfils the purpose for which it is designed.

5.16.3 Test and Test Instruments

Tests shall be carried out as each section of the work is completed and during the progress of the works as required by the Engineer.

The tests shall be carried out to BS7671 Part 6: Inspection and Testing. This shall include as follows:

- Continuity of ring final circuit conductors

- Continuity of protective conductors including main and supplementary equipotential binding
- Earth electrode resistance
- Insulation resistance
- Insulation of site-built assemblies
- Protection by electrical separation
- Protection by barriers or enclosure provided during erection
- Insulation of non-conducting floors and walls
- Polarity
- Earth fault loop impedance
- Operation of residual current devices and fault voltage operated protective devices
- Ability to withdraw cables from conduit

The Contractor shall provide all labour and fully calibrated instruments certified as necessary.

These tests may be witnessed by the Engineer who will make out the necessary test certificates. The form of these certificates is as detailed.

When the Contractor is ready to carry out a test he shall give the Engineer at least 7 days notice. He shall satisfy himself that the installation is in a fit state for the tests to be made. It is not intended that repeat tests should need to be witnessed because some circuits failed to satisfy the readings required as detailed in the IET Regulations.

The Engineer may, if he so wishes, use his own instruments for these tests.

5.16.4 Test during the Course of the Contract

If the installation is to be conduit or trunking concealed within the fabric of the building, the Contractor shall ensure that continuity is tested and maintained before the conduits are concealed and shall notify the Engineer who may witness these tests if he so wishes.

5.17 General Specification

5.17.1 Guarantee

The whole of the works is to be guaranteed and maintained for a period of 12 months after the completion and any defects that may make themselves apparent in that period shall be made good at the Contractors expense, provided always that the fault has not arisen from causes outside the Contractors control.

5.17.2 Insurance

The Contractor shall insure such plant and materials ordered for the installation as may for the time being be upon the site and shall keep them insured against destruction or damage by fire for the full value of such plant and materials until the completion of the Contract.

The Contractor shall insure against all claims for compensation or damage brought by a workman or persons entitled to payment under the Employers Liability Acts, or on account of

injury sustained by such workmen and are to indemnify the Purchaser against all claims arising in respect of such.

Full insurance shall also be taken out by the Contractor in respect of all Third Party Risks.

The Contractor shall provide any other insurance which may be necessary to comply with Contract Conditions.

5.17.3 As Fitted Drawing

When the works have been taken over, a completion certificate prescribed by the Institute of Electrical Engineers shall be forwarded to the Engineer as detailed in this Specification under "Testing and Commissioning" and the "As Fitted Drawings" of the installation. The latter shall be ink on tracing negatives recording the following:

i) Plans of each floor showing exact location and sizes of all cables or conduit runs, circuit wiring, positions of control gear, lighting points, socket outlets, etc;

ii) Schematic diagram showing all equipment as fitted with main and sub main cable connections together with sizes of all cables and ratings of all equipment;

iii) The Drawings are to include all additional to or reductions from the works during the progress.

Final payment to the Contractor will not be certified until such Drawings are received and approved by the Engineer.

5.17.4 CAD Drawings

The Electrical Contractor shall allow for all As Fitted Drawings as requested in the Standard Specification, to be issued as 1:50 scale.

In addition to this, the Electrical Contractor shall allow for all the "As Fitted" Drawings to be made available in electronic format compatible with AutoCAD LT, either as a DXF file or a DWG file.

The Electrical Contractor shall liaise with the Engineer to ensure this is carried out and that his requirements are met.

5.17.5 Site Representation

The Contractor shall keep a competent foreman in charge of the work who shall be in constant attendance during the progress of the work. The Engineer shall be at liberty to object to any representative or person employed by the Contractor in the execution of the contract or otherwise about the work, who shall misconduct himself and be incompetent or negligent, and the Contractor shall remove such a person or persons objected to upon receipt from the Engineer of notice in writing requiring him to do so.

5.17.6 Drawings and Specification

The Contractor shall be responsible for taking his measurements from the Drawings except for those items where provisional measurements and quantities are specifically stated and no extra price will be allowed on account of any dimensional or clerical errors or omission on the plans.

Any minor part or parts not on the Drawing or in the Specification but which are clearly necessary to the satisfactory completion of the work shall be deemed to be included for in the Tender and no exact amount will be allowed on account of such omission. In the event

of any major discrepancies arising between the Drawings and the Specification, the Tenderer shall bring such to the notice of the Engineer who shall decide which is to be followed.

5.17.7 Damage

The Contractor shall be responsible for any damage caused by his employees, either to the works and subject of this contract or incidental thereto and shall reinstate all such damage at his own cost.

5.17.8 Regulations

The Contractor shall be held responsible that the whole of his works are carried out in accordance with the following Regulations:

i) The Regulations for the Electrical Equipment of Buildings, as issued by the Institute of Electrical Engineers BS7671:2018;

ii) Any bylaws and Regulations of the Governments, County or Borough and Local Councils;

iii) The Rules and Regulations of the Central Electricity Councils;

iv) British Standards Institution Specifications.

5.17.9 Materials and Workmanship

Any materials used on this Contract shall comply with appropriate British Standards where such apply. Where materials of a particular manufacturer are called for in the Specification, the Engineer has the authority to reject any materials which are not of the manufacturer specified. Should the Engineer deem it necessary, vouchers must be produced as evidence that the materials are such as are required for the work.

The words "or other approved" shall mean any make of equal quality of materials, but the use of such alternative makes of materials must be approved by the Engineer.

The whole of the works shall be carried out in a straightforward manner by competent workmen under skilled supervision.

The Engineer has the authority to reject any work he may consider unfit and have any portion of work taken down, removed or undone which he may consider executed in an unworkmanlike manner or with improper materials, at the expense of the Electrical Contractor.

5.17.10 Maintenance Manuals

Immediately prior to handover, the following items made up in the form of a manual shall be provided. Three copies of this manual are required and each shall comprise of a black A4 size ring binder suitably indexed containing clear plastic A4 size sleeves for each document.

Each Manual shall contain the following:

i) An inventory of all equipment supplied showing details of make, model, type, serial / catalogue number, rating together with location, drawing and date of manufacturer for specialist items of plant;

ii) Lubrication instructions for all equipment;

iii) Manufacturer's instruction manuals of servicing and maintenance for each specialist item of plant including guidance on assembly and dismantling, safety, special tools,

maintenance equipment, test instruments and spare equipment items provided under this Contract;

iv) General information including makers and insurance, test certificates, warranties, etc.

5.17.11 Test and Completion Certificates

The following Test and Completion Certificates shall be provided where applicable:

i) As issued by the NICEIC for the following installations:

- Electrical Installation
- Emergency Lighting Installation
- Fire Alarm System Installation and Commissioning

ii) Certificates of Test and Examination for Passenger and Goods Lifts/Hoists as prescribed in BS5655 Part 10.

iii) For Lighting Protection Installation, a certificate showing:

- Air termination network - No. of, size and method of fixing
- Down Conductors - No. of, size and method of fixing
- Bonds - Items bonded
- Joints - Type
- Test Points - Type, No. of and size

Earth Terminations - Type, size, length or rod or area of mat, resistance value at each position, sketch layout of terminations and combined resistance of all terminations

Confirmation that the installation has been tested and inspected and conforms to the current edition of BS6651.

iv) Certificate for other systems including Public Address, TV Aerials, Security CCTV, etc.

All relevant certificates shall be enclosed in A4 clear plastic sleeves and incorporated in the Service Manuals previously described.

5.17.12 Site Conditions

The Contractor shall examine the site and make themselves familiar with the local conditions, construction and occupation of the building and other matters relevant to the execution of the Contract.

Claims for lack of knowledge will not be entertained.

The Contractor shall, when authorised in writing, vary the Drawings or Schedule by way of an extra or omission but no variations shall be made without such authorisation

All authorised extras, omissions and variations shall be measured by the Surveyor named in the Contract and the value thereof shall be determined by the Surveyor according to the applicable provisions of the Contract.

Save that where extra work cannot be so measured or valued, it shall be paid for in accordance with the National Schedule of Daywork Charges as agreed between the Royal Institute of Chartered Surveyors and the National Federated Electrical Association.

5.17.13 Ordering of Materials

It is essential that the successful Contractor, upon receipt of the official order, places his orders for the equipment required at a sufficiently early enough date to ensure absolutely NO DELAY in the progress of this contract.

6 Tender Summary and Form of Tender

6.1 Summary of Tender – Electrical Services

1.	Preliminaries	£
2.	Removal of Existing	£
3.	Supply Only of new Fire Alarm system	£
4.	Supply & Installation of Nimbus System	£
5.	Small Power Installation	£
6.	Installation of new fire alarm system	£
7.	Commissioning of Fire Alarm System	£
8.	Supply & Install Manual Call Point Signs	£
9.	Builders Works	£
10.	Lift Engineer	£
11.	'As Fitted' Drawings and Operating Manuals	£
Sub Total		£
Provisional Sum for void detection to mother & baby ward		£ 5,000.00
Contingencies		£ 10,000.00
TOTAL TENDER SUM		£

Signed: .....

For and on Behalf of: .....

Date: .....

Note: Tender will not be valid unless submitted on this form.

6.2 Daywork Rates – Electrical Services

Labour		Normal Time
Advanced Electrician	Rate	£.....
Qualified Electrician	Rate	£.....
Assistant/Mate	Rate	£.....

Rates for overtime working, excluding statutory holidays:

Labour		Time and Half
Advanced Electrician	Rate	£.....
Qualified Electrician	Rate	£.....
Assistant/Mate	Rate	£.....
Labour		Double Time
Advanced Electrician	Rate	£.....
Qualified Electrician	Rate	£.....
Assistant/Mate	Rate	£.....

Daywork Percentage Additions

Materials	nett cost	+ .....%
Labour (ECA/RICS Definition)	nett cost	+ .....%
Sub Contracts	nett cost	+ .....%
Plant	nett cost	+ .....%

Signed: ..... Dated: .....

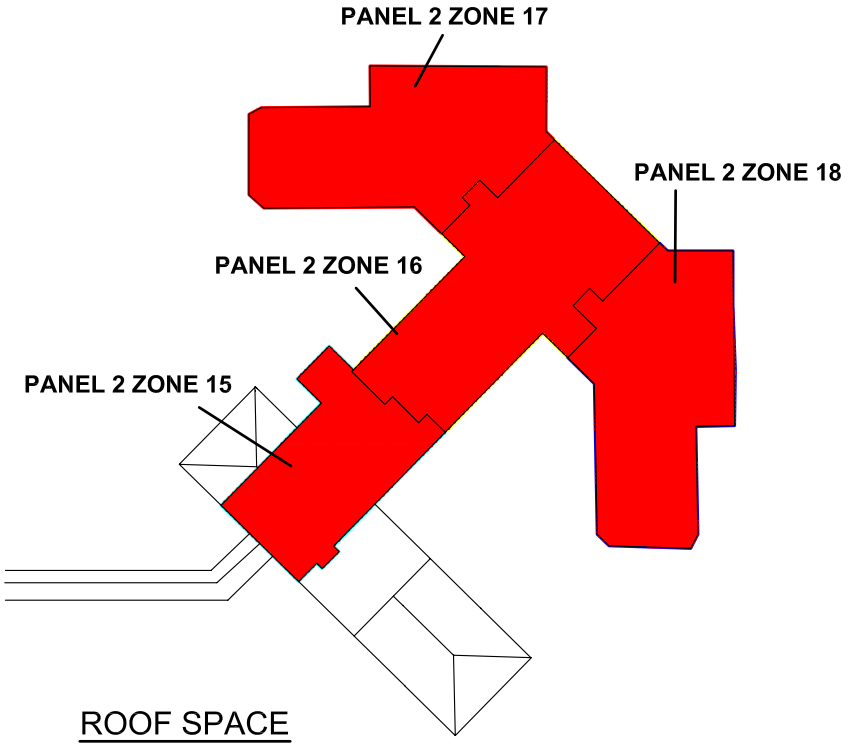
Company: .....

Address: .....

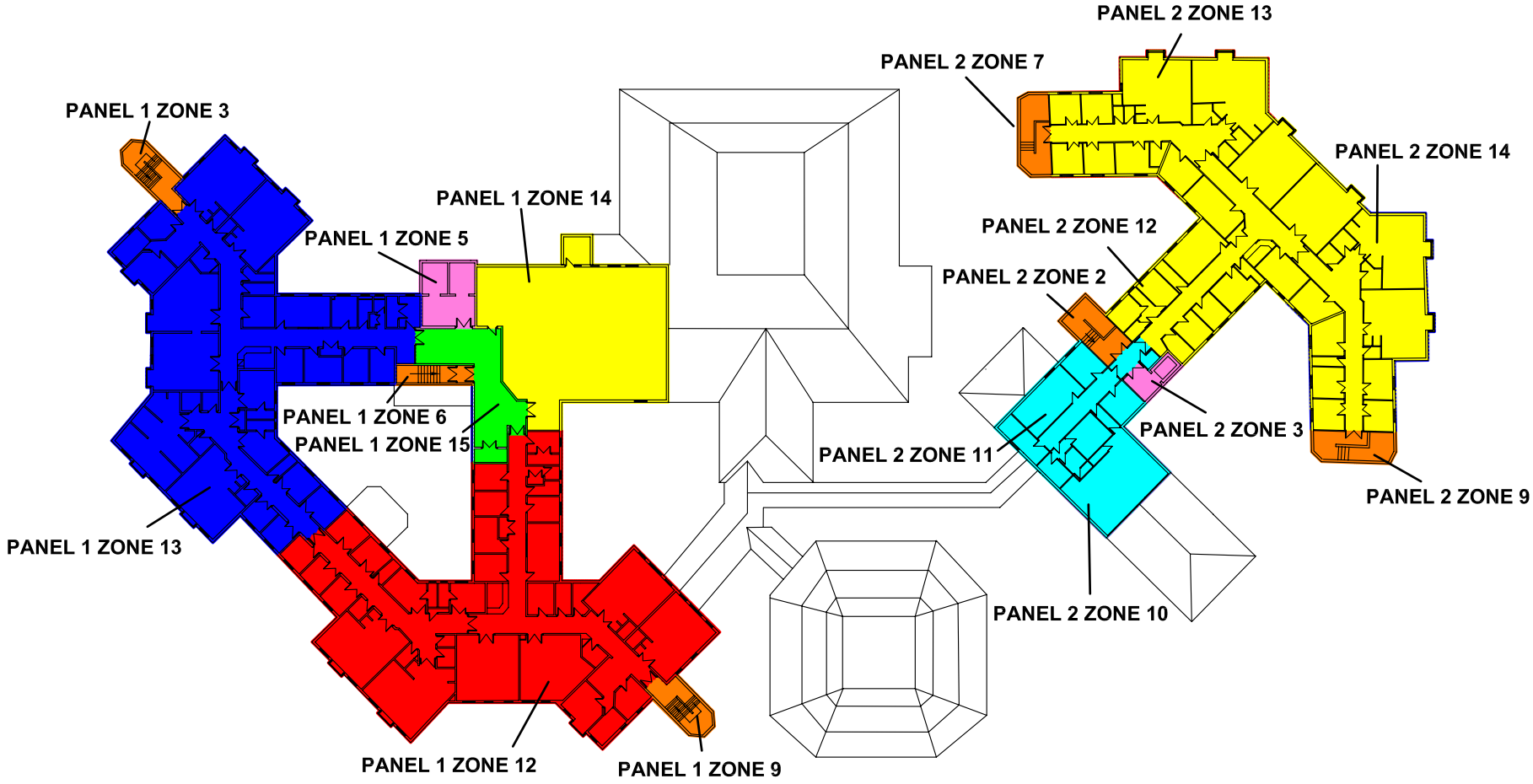
.....

Appendix A – Existing Zone Chart

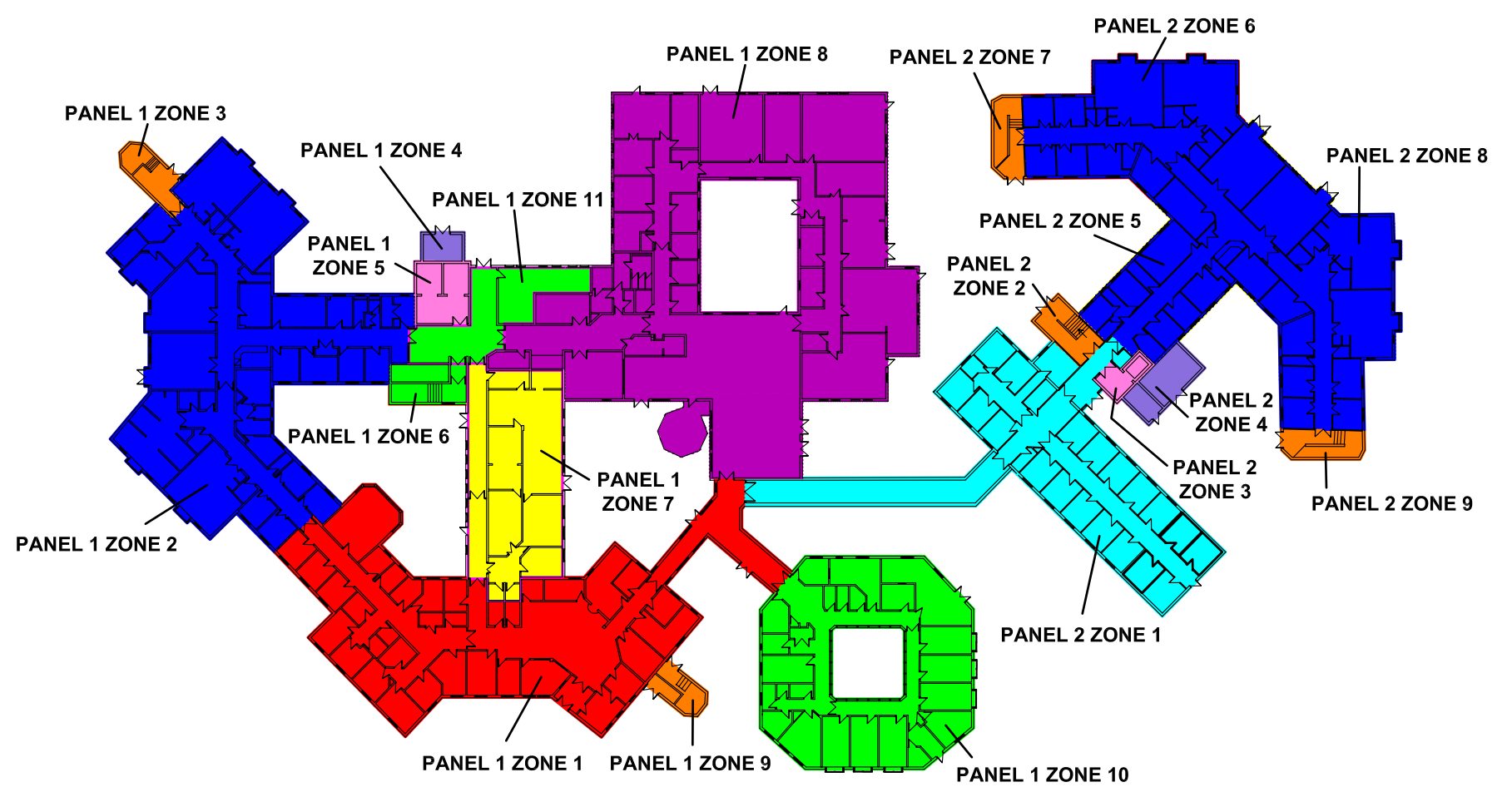
FIRE ALARM ZONE PLAN
DERBY CITY GENERAL HOSPITAL
ADULT PSYCHIATRIC UNIT



ROOF SPACE



FIRST FLOOR



GROUND FLOOR

Appendix B – Existing Cause and Effect

Project 15015 - Radbourne Unit – Conversion of lifts serving wards 33 and 34 to evacuation lifts

Cause and effect

Please see below the requirements from the Trust Fire Officer for the operation of the evacuation lifts to Wards 33 and 34 in fire alarm situations.

Trust Fire Officer's requirements for the working of the lifts associated with the fire alarm and zones are as follows:

- Lifts and lift lobby areas to be on one separate fire zone (zone at ground floor and zone at first floor)
- If lift zone goes into continuous alarm – evacuation lift to ground to ground floor
- If lift zone goes into intermittent alarm – evacuation lift to continue to work normally
- The evacuation lift is labelled with signage indicating that it can be used in case of fire as an evacuation lift

(Revised)

Radbourne Unit Roof Space Fire Zones Cause and Effect

Zone 16 Cause	Effect	Action	Status
Roof space above Ward 33 in fire condition	Roof space above Ward 33	Fire bells ringing constantly	EVACUATE
	Roof space above Ward 34	Fire bells ringing intermittently	ALERT
	Ward 34	Fire bells ringing intermittently	ALERT
	Ward 33	Fire bells ringing constantly	EVACUATE
	Plant Room	Fire bells ringing constantly	EVACUATE
	Plant Room tank room	Fire bells ringing constantly	EVACUATE
Zone 13 Cause	**Effect**	**Action**	
Ward 33 in fire condition	Roof space above Ward 33	Fire bells ringing constantly	**EVACUATE**
	Roof space above Ward 34	Fire bells ringing intermittently	**ALERT**
	Ward 34	Fire bells ringing intermittently	**ALERT**
	Ward 33	Fire bells ringing constantly	**EVACUATE**
	Plant Room	Fire bells ringing constantly	**EVACUATE**
	Plant Room tank room	Fire bells ringing constantly	**EVACUATE**
Zone 17 Cause	**Effect**	**Action**	
Roof space above Ward 34 in fire condition	Roof space above Ward 33	Fire bells ringing intermittently	**ALERT**
	Roof space above Ward 34	Fire bells ringing constantly	**EVACUATE**
	Ward 34	Fire bells ringing constantly	**EVACUATE**
	Ward 33	Fire bells ringing intermittently	**ALERT**
	Plant Room	Fire bells ringing intermittently	**ALERT**
	Plant Room tank room	Fire bells ringing intermittently	**ALERT**
Zone 12 cause	**Effect**	**Action**	
Ward 34 in fire condition	Roof space above Ward 33	Fire bells ringing intermittently	**ALERT**
	Roof space above Ward 34	Fire bells ringing constantly	**EVACUATE**
	Ward 34	Fire bells ringing constantly	**EVACUATE**
	Ward 33	Fire bells ringing intermittently	**ALERT**
	Plant Room	Fire bells ringing intermittently	**ALERT**
	Plant Room tank room	Fire bells ringing intermittently	**ALERT**
Zone 14 cause	**Effect**	**Action**	
Plant Room in fire condition	Roof space above Ward 33	Fire bells ringing constantly	**EVACUATE**
	Roof space above Ward 34	Fire bells ringing constantly	**EVACUATE**
	Ward 34	Fire bells ringing intermittently	**ALERT**
	Ward 33	Fire bells ringing constantly	**EVACUATE**
	Plant Room	Fire bells ringing constantly	**EVACUATE**
	Plant Room tank room	Fire bells ringing constantly	**EVACUATE**
Zone 13 cause	**Effect**	**Action**	
Plant room tank room in fire condition	Roof space above Ward 33	Fire bells ringing constantly	**EVACUATE**
	Roof space above Ward 34	Fire bells ringing constantly	**EVACUATE**
	Ward 34	Fire bells ringing intermittently	**ALLRT**
	Ward 33	Fire bells ringing constantly	**EVACUATE**
	Plant Room	Fire bells ringing constantly	**EVACUATE**
	Plant Room tank room	Fire bells ringing constantly	**EVACUATE**
Zone 18 Cause	**Effect**	**Action**	
Jackie's pantry, O.T area roof space in fire condition	Roof space above O.T	Fire bells ringing constantly	**EVACUATE**
	O.T Area	Fire bells ringing constantly	**EVACUATE**
Cause	**Effect**	**Action**	
Jackie's pantry, O.T area in fire condition	Roof space above O.T	Fire bells ringing constantly	**EVACUATE**
	O.T Area	Fire bells ringing constantly	**EVACUATE**

Revised fire alarm Cause and Effect for the roof void fire detection at the Radbourne Unit as programed.
Copy sent to Carrina Gaunt for approval

Date 20th November 2012
Jennifer Cooper

Appendix C – Existing Device Print Off

: 26/03/2019
: 09:40:26

STATIC SYSTEMS GROUP PLC

Series 925, Device Description Database (Addressable)
DERBYSHIRE MENTAL HEALTH
PSYCHIATRIC UNIT - MAIN RECEPTION
Job Number 81N8 Station Number 01

New Job
Amendment

— DEVICE TYPES (APOLLO LOOP)

AS : Any Sensor	C : Manual Call Point	DAS : Disc Any Sensor
DH : Disc Heat	DO : Disc Optical	DMS : Disc MultiSensor
BO : Beacon O/P	NMO : Non Mon. O/P	

'*' : Device Currently Masked Out '#' : Device Includes output

Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
_001 (01)	002A		DO	Y		1-3-05 BEDROOM 2	3	3	[ ]	[ ]
_002 (02)	002A		DO	Y		1-3-26 BEDROOM 3	3	3	[ ]	[ ]
_003 (03)	002A		C	Y		1-3-01 MALE CORRIDOR			[ ]	[ ]
_004 (04)	002A		DO	Y		1-3-04 BEDROOM 1	3	3	[ ]	[ ]
_006 (06)	002A		DO	Y		1-1-32 DE-ESCALATION LOBBY	3	3	[ ]	[ ]
_007 (07)	002A		DO	Y		1-1-30 DE-ESCALATION ROOM 1	1	1	[ ]	[ ]
_008 (08)	002A		DO	Y		1-3-01 MALE CORRIDOR	3	3	[ ]	[ ]
_009 (09)	002A		DO	Y		1-3-29 MALE DORMITORY 1	3	3	[ ]	[ ]
_010 (0A)	002A		DO	Y		1-3-31 MALE DORMITORY 2	3	3	[ ]	[ ]
_011 (0B)	002A		C	Y		1-1-35 DAYROOM			[ ]	[ ]
_012 (0C)	002A		DO	Y		1-1-35 DAYROOM	3	3	[ ]	[ ]
_013 (0D)	002A		DO	Y		1-1-36 DINING	3	3	[ ]	[ ]
_014 (0E)	002A		DAS	Y		1-1-39 BEDROOM 10	3	3	[ ]	[ ]
_015 (0F)	002A		DO	Y		1-1-38 FEMALE LOBBY	3	3	[ ]	[ ]
_016 (10)	002A		C	Y		1-1-38 FEMALE LOBBY			[ ]	[ ]
_017 (11)	003A		DO	Y		1-1-01 WARD 32 BACK STAIR	3	3	[ ]	[ ]
_018 (12)	002A		DO	Y		1-1-02 FEMALE DORMITORY 3	3	3	[ ]	[ ]
_019 (13)	002A		DO	Y		1-1-05 RECREATION ROOM	3	3	[ ]	[ ]
_021 (15)	002A		DO	Y		1-1-29 MAIN CORRIDOR	3	3	[ ]	[ ]
_022 (16)	002A		DH	Y		1-1-07 KITCHEN	3	3	[ ]	[ ]
_023 (17)	002A		C	Y		1-1-29 STAFF BASE			[ ]	[ ]
_024 (18)	002A		DO	Y		1-1-10 MDM OFFICE	3	3	[ ]	[ ]
_025 (19)	002A		DO	Y		1-1-23 MAIN CORRIDOR	3	3	[ ]	[ ]
_026 (1A)	002A		DH	Y		1-1-11 LAUNDRY	3	3	[ ]	[ ]
_027 (1B)	002A		DO	Y		1-1-13 WARD 32 ELECTRICAL SWITCH ROOM	3	3	[ ]	[ ]
_028 (1C)	002A		DO	Y		1-1-24 MANAGERS OFFICE	3	3	[ ]	[ ]
_029 (1D)	002A		DH	Y		1-1-15 SLUICE STORE	3	3	[ ]	[ ]
_030 (1E)	002A		C	Y		1-1-23 MAIN CORRIDOR			[ ]	[ ]
_031 (1F)	011A		C	Y		1-1-21 WARD 32 LOBBY			[ ]	[ ]
_032 (20)	005A		DO	Y		1-1-42 WARD 32 LIFT LOBBY	3	3	[ ]	[ ]
_033 (21)	011A		DO	Y		1-1-21 WARD 32 LOBBY	3	3	[ ]	[ ]
_034 (22)	011A		C	Y		1-1-21 REAR DOOR			[ ]	[ ]
_035 (23)	004A		DO	Y		1-1-17 LIFT MOTOR ROOM	3	3	[ ]	[ ]
_036 (24)	004A		C	Y		1-1-17 LIFT MOTOR ROOM			[ ]	[ ]
_037 (25)	008A		DO	Y		K-05 KITCHEN CORRIDOR	3	3	[ ]	[ ]
_038 (26)	008A		DH	Y		K-06 KITCHEN SLUICE	3	3	[ ]	[ ]
_039 (27)	007A		DO	Y		1-4-01 CORRIDOR	3	3	[ ]	[ ]
_040 (28)	007A		DO	Y		1-4-02 TREATMENT	3	3	[ ]	[ ]
_041 (29)	007A		DO	Y		1-2-39 PRIMARY RECOVERY	3	3	[ ]	[ ]
_042 (2A)	007A		DO	Y		1-2-39 PRIMARY RECOVERY	3	3	[ ]	[ ]
_043 (2B)	007A		DH	Y		1-4-05 SEC RECOVERY	3	3	[ ]	[ ]
_044 (2C)	007A		DH	Y		1-4-04 WAITING	3	3	[ ]	[ ]
_045 (2D)	007A		DO	Y		1-4-01 CORRIDOR	3	3	[ ]	[ ]
_046 (2E)	007A		DO	Y		ECT ENTRANCE LOBBY	3	3	[ ]	[ ]
_047 (2F)	007A		C	Y		1-2-39 PRIMARY RECOVERY			[ ]	[ ]
_048 (30)	002A		NMO		016	1-1-13 WARD 32 ELECTRICAL SWITCH ROOM			[ ]	[ ]
_049 (31)	002A		DO	Y		1-1-12 STAFF WC	3	3	[ ]	[ ]
_050 (32)	002A		DO	Y		1-1-08 ADMIN OFFICE	3	3	[ ]	[ ]
_051 (33)	002A		DO	Y		1-1-04 FEMALE WC 2	3	3	[ ]	[ ]
_052 (34)	002A		DO	Y		1-1-03 FEMALE WC 1	3	3	[ ]	[ ]
_053 (35)	002A		DO	Y		1-1-41 BEDEROOM 11	3	3	[ ]	[ ]
_054 (36)	002A		DO	Y		1-1-40 QUIET ROOM	3	3	[ ]	[ ]
_055 (37)	002A		DH	Y		1-1-37 BATH	3	3	[ ]	[ ]
_056 (38)	002A		DO	Y		1-1-33 MALE WC 1	3	3	[ ]	[ ]
_057 (39)	002A		DH	Y		1-1-34 MALE BATHROOM	1	1	[ ]	[ ]
_058 (3A)	002A		DO	Y		1-3-28 MALE WC 2	3	3	[ ]	[ ]
_059 (3B)	002A		DH	Y		1-3-27 ASS. BATH	3	3	[ ]	[ ]
_060 (3C)	002A		DO	Y		1-3-01 MALE CORRIDOR	3	3	[ ]	[ ]
_061 (3D)	002A		DO	Y		1-1-31 SECLUSION WC	3	3	[ ]	[ ]
_062 (3E)	002A		DO	Y		1-3-30 ASSISTED WC	3	3	[ ]	[ ]
_063 (3F)	002A		DO	Y		1-1-26 CL UTILITY	3	3	[ ]	[ ]

Witnessed By :

Sign _____ Print _____

Date _____

Commissioned / Maintained By :

Sign _____ Print _____

Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
_064 (40)	002A		DO	Y		1-1-25 ADMIN OFFICE	3	3	[ ]	[ ]
_065 (41)	002A		DH	Y		1-1-16 SLUICE	3	3	[ ]	[ ]
_067 (43)	006A		DO	Y		1-1-43 LOBBY	3	3	[ ]	[ ]
_068 (44)	006A		DO	Y		1-1-43 STAIRS	3	3	[ ]	[ ]
_069 (45)	007A		DO	Y		1-1-20 DOMESTIC SLUICE	3	3	[ ]	[ ]
_070 (46)	007A		DO	Y		1-1-38 SUPPLY STORE	3	3	[ ]	[ ]
_071 (47)	007A		DO	Y		1-4-06 PHARMACY OFFICE	3	3	[ ]	[ ]
_072 (48)	007A		DO	Y		1-4-08 WC	3	3	[ ]	[ ]
_073 (49)	007A		DO	Y		1-4-07 WC	3	3	[ ]	[ ]
_074 (4A)	002A		DO	Y		1-1-28 WARD OFFICE	3	3	[ ]	[ ]
_075 (4B)	S002		NMO		024	PLANT OUTPUT A			[ ]	[ ]
_076 (4C)	002A		DAS	Y		1-1-29 MAIN CORRIDOR	3	3	[ ]	[ ]
_077 (4D)	002A		DAS	Y		1-1-44 RECREATION ROOM STORE 1	3	3	[ ]	[ ]
_078 (4E)	002A		DAS	Y		1-1-45 RECREATION ROOM STORE 2	3	3	[ ]	[ ]
_079 (4F)	002A		DAS	Y		1-1-46 LINEN STORE	3	3	[ ]	[ ]
_080 (50)	011A		DAS	Y		LAUNDRY CUPBOARD OUTSIDE ENHANCED CARE	3	3	[ ]	[ ]
_081 (51)	002A		DO	Y		STORE ROOM ADJ WARD ENTRANCE	3	3	[ ]	[ ]
_082 (52)	002A		DO	Y		1-1-23 WARD 32 ENTRANCE LOBBY	3	3	[ ]	[ ]
_083 (53)	004A		NMO		040	EVACUATION LIFT IFU No 1			[ ]	[ ]
_084 (54)	004A		NMO		040	EVACUATION LIFT IFU No 2			[ ]	[ ]
_085 (55)	013A		BO		041	SECLUSION SUITE ROOF SPACE			[ ]	[ ]
_086 (56)	013A		DO	Y		SECLUSION SUITE ROOF SPACE	3	3	[ ]	[ ]
_087 (57)	002A		DO	Y		1-1-14 OBSERVATION AREA	3	3	[ ]	[ ]
_088 (58)	002A		DMS	Y		1-1-50 SECLUSION ROOM 01	4	4	[ ]	[ ]
_089 (59)	002A		DMS	Y		1-1-49 SECLUSION ROOM 02	4	4	[ ]	[ ]
_090 (5A)	002A		DMS	Y		1-1-47 SERVICE DUCT 1	4	4	[ ]	[ ]
_091 (5B)	002A		DO	Y		1-1-14 OBSERVATION AREA	3	3	[ ]	[ ]
_092 (5C)	002A		C	Y		1-1-14 OBSERVATION AREA EXIT			[ ]	[ ]
_093 (5D)	002A		C	Y		1-1-49 SECLUSION LOBBY			[ ]	[ ]
_094 (5E)	002A		DO	Y		1-1-32 DE ESCALATION	3	3	[ ]	[ ]
_095 (5F)	002A		DO	Y		1-1-32 DE ESCALATION	3	3	[ ]	[ ]
_096 (60)	002A		DO	Y		1-1-32 DE ESCALATION SWITCH CUPBOARD	3	3	[ ]	[ ]
_100 (64)	013A		NMO		023	DUMMY O/P 23			[ ]	[ ]
_101 (65)	005A		NMO		025	DUMMY O/P 25			[ ]	[ ]
_105 (69)	002A		DO	Y		1-01-16 FEMALE TOILET	3	3	[ ]	[ ]
_001 (01)	008A		DO	Y		1-2-30 JACKIES PANTRY	3	3	[ ]	[ ]
_002 (02)	008A		DO	Y		1-2-30 JACKIES PANTRY	3	3	[ ]	[ ]
_003 (03)	008A		DO	Y		K-01 SERVERY	3	3	[ ]	[ ]
_004 (04)	008A		DO	Y		K-05 KITCHEN CORRIDOR	3	3	[ ]	[ ]
_005 (05)	008A		DO	Y		K-03 KITCHEN STORE	3	3	[ ]	[ ]
_006 (06)	008A		C	Y		K-05 KITCHEN CORRIDOR			[ ]	[ ]
_007 (07)	008A		DH	Y		1-2-02 WASH UP	3	3	[ ]	[ ]
_008 (08)	008A		DO	Y		MALE KITCHEN STAFF WC	3	3	[ ]	[ ]
_009 (09)	008A		DO	Y		K-05 KITCHEN CORRIDOR	3	3	[ ]	[ ]
_010 (0A)	008A		DO	Y		1-2-15 CORRIDOR	3	3	[ ]	[ ]
_011 (0B)	008A		DO	Y		HOPE & RES 1-2-10 OFFICE	3	3	[ ]	[ ]
_012 (0C)	008A		DO	Y		1-2-11 JADE ROOM	3	3	[ ]	[ ]
_013 (0D)	008A		DO	Y		1-2-14 STORE	3	3	[ ]	[ ]
_014 (0E)	008A		DO	Y		1-2-13 PYHSIO TREATMENT ROOM	3	3	[ ]	[ ]
_015 (0F)	008A		DO	Y		1-2-12 PINK ROOM	3	3	[ ]	[ ]
_016 (10)	008A		C	Y		1-2-12 PINK ROOM			[ ]	[ ]
_017 (11)	008A		C	Y		1-2-16 ACTIVITY ROOM 4			[ ]	[ ]
_018 (12)	008A		DO	Y		1-2-16 ACTIVITY ROOM 4	3	3	[ ]	[ ]
_019 (13)	008A		DO	Y		HOPE & RES 1-2-20 CORRIDOR	3	3	[ ]	[ ]
_020 (14)	008A		C	Y		HOPE & RES 1-2-20 CORRIDOR			[ ]	[ ]
_021 (15)	008A		DO	Y		HOPE & RES 1-2-17 STAFF SPACE	3	3	[ ]	[ ]
_022 (16)	008A		DH	Y		1-2-18 WOODWORK	3	3	[ ]	[ ]
_023 (17)	008A		C	Y		1-2-18 WOODWORK			[ ]	[ ]
_024 (18)	008A		DO	Y		HOPE & RES 1-2-19 QUIET SPACE	3	3	[ ]	[ ]
_025 (19)	008A		DH	Y		HOPE & RES 1-2-25 ADL KITCHEN	3	3	[ ]	[ ]
_026 (1A)	008A		DO	Y		1-2-22 SWITCHROOM	3	3	[ ]	[ ]
_027 (1B)	008A		DH	Y		HOPE & RES 1-2-25 ADL KITCHEN	3	3	[ ]	[ ]
_028 (1C)	008A		C	Y		HOPE & RES 1-2-25 ADL KITCHEN			[ ]	[ ]
_029 (1D)	008A		C	Y		HOPE & RES 1-2-26 ACTIVITY ROOM 1			[ ]	[ ]
_030 (1E)	008A		DO	Y		HOPE & RES 1-2-26 ACTIVITY ROOM 1	3	3	[ ]	[ ]
_031 (1F)	008A		C	Y		GYM			[ ]	[ ]
_033 (21)	008A		C	Y		1-2-30 JACKIES PANTRY			[ ]	[ ]
_034 (22)	008A		DO	Y		HOPE & RES 1-2-20 CORRIDOR	3	3	[ ]	[ ]
_035 (23)	008A		DO	Y		CONSERVATORY	3	3	[ ]	[ ]
_036 (24)	008A		DH	Y		DINING ROOM/SHOP	3	3	[ ]	[ ]
_037 (25)	008A		DO	Y		SHOP	3	3	[ ]	[ ]
_038 (26)	008A		NMO		017	1-2-22 SWITCHROOM			[ ]	[ ]
_039 (27)	008A		NMO		017	1-2-22 SWITCHROOM			[ ]	[ ]
_040 (28)	008A		NMO		017	1-2-22 SWITCHROOM			[ ]	[ ]

Witnessed By :

Sign _____ Print _____

Date _____

Commissioned / Maintained By :

Sign _____ Print _____

Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
_041 (29)	008A		NMO		017	1-2-22 SWITCHROOM			[ ]	[ ]
_042 (2A)	008A		NMO		017	1-2-22 SWITCHROOM KITCHEN SHUTTER			[ ]	[ ]
_043 (2B)	008A		DO	Y		K-16 FEMALE CHANGING ROOM	3	3	[ ]	[ ]
_044 (2C)	008A		DO	Y		K-15 MALE CHANGING ROOM	3	3	[ ]	[ ]
_045 (2D)	008A		DO	Y		K-14 CLEANERS SLUICE	3	3	[ ]	[ ]
_046 (2E)	008A		DO	Y		1-2-36 COUNCILLING ROOM	3	3	[ ]	[ ]
_047 (2F)	008A		DO	Y		HOPE & RES 1-2-08 W.C	3	3	[ ]	[ ]
_048 (30)	008A		DO	Y		1-2-09 PHLEBOTOMIST	3	3	[ ]	[ ]
_049 (31)	008A		DO	Y		K-13 MALE WC	3	3	[ ]	[ ]
_050 (32)	008A		DO	Y		K-09 MAIN OFFICE	3	3	[ ]	[ ]
_051 (33)	008A		DH	Y		K-08 WASH ROOM	3	3	[ ]	[ ]
_052 (34)	008A		DO	Y		K-05 KITCHEN CORRIDOR	3	3	[ ]	[ ]
_053 (35)	008A		DO	Y		K-10 STORE ROOM	3	3	[ ]	[ ]
_054 (36)	008A		DO	Y		HOPE & RES 1-2-28 W.C	3	3	[ ]	[ ]
_055 (37)	008A		DO	Y		HOPE & RES 1-2-24 OFFICE	3	3	[ ]	[ ]
_056 (38)	008A		DO	Y		HOPE & RES 1-2-23 OFFICE	3	3	[ ]	[ ]
_057 (39)	008A		DAS	Y		GYM	3	3	[ ]	[ ]
_058 (3A)	008A		DAS	Y		GYM	3	3	[ ]	[ ]
_059 (3B)	008A		DAS	Y		GYM TOILET	3	3	[ ]	[ ]
_060 (3C)	008A		DAS	Y		GYM EQUIPTMENT STORE	3	3	[ ]	[ ]
_061 (3D)	008A		DAS	Y		GYM ROOF VOID	3	3	[ ]	[ ]
_062 (3E)	008A		DAS	Y		K-02 MAIN KITCHEN	3	3	[ ]	[ ]
_063 (3F)	008A		DAS	Y		K-02 MAIN KITCHEN	3	3	[ ]	[ ]
_064 (40)	008A		NMO		032	K-04 GAS SHUTDOWN			[ ]	[ ]
_065 (41)	008A		NMO		033	K-04 DOOR CONTROL			[ ]	[ ]
_066 (42)	008A		NMO		034	K-04 ROLLER SHUTTER DOOR			[ ]	[ ]
_068 (44)	008A		C	Y		K-05 KITCHEN CORRIDOR			[ ]	[ ]
_069 (45)	008A		C	Y		K-05 KITCHEN CORRIDOR			[ ]	[ ]
_070 (46)	008A		DAS	Y		K-09 MAIN OFFICE VOID	3	3	[ ]	[ ]
_071 (47)	008A		DAS	Y		K-11 FEMALE WC	3	3	[ ]	[ ]
_072 (48)	008A		DAS	Y		K-12 CATERING STAFF WC	3	3	[ ]	[ ]
_073 (49)	008A		DAS	Y		K-07 FRIDGE STORE	3	3	[ ]	[ ]
_074 (4A)	008A		DAS	Y		K-07 FRIDGE STORE	3	3	[ ]	[ ]
_075 (4B)	008A		DAS	Y		K-04 SWITCH CUPBOARD	3	3	[ ]	[ ]
_076 (4C)	008A		DO	Y		HOPE & RES 1-2-19 ACTIVITY ROOM 3	3	3	[ ]	[ ]
_077 (4D)	008A		DO	Y		HOPE & RES 1-2-18 ACTIVITY ROOM 2	3	3	[ ]	[ ]
_078 (4E)	008A		DO	Y		HOPE & RES 1-2-26 ACTIVITY ROOM 1 STORE	3	3	[ ]	[ ]
_001 (01)	001A		DO	Y		1-3-13 ADMIN CORRIDOR	3	3	[ ]	[ ]
_002 (02)	001A		DH	Y		1-3-17 BEVERAGE	3	3	[ ]	[ ]
_003 (03)	001A		DO	Y		1-3-13 ADMIN CORRIDOR	3	3	[ ]	[ ]
_004 (04)	001A		DO	Y		1-3-22 PHOTOCOPIER	3	3	[ ]	[ ]
_005 (05)	001A		C	Y		1-3-13 CRISIS TEAM CORRIDOR			[ ]	[ ]
_006 (06)	001A		DO	Y		1-3-07 CRISIS TEAM OFFICE	3	3	[ ]	[ ]
_007 (07)	001A		DO			1-3-13 CRISIS TEAM CORRIDOR	3	3	[ ]	[ ]
_008 (08)	001A		DO	Y		1-3-12 ADMIN SWITCHROOM	3	3	[ ]	[ ]
_009 (09)	001A		DO	Y		1-4-11 ADMIN CORRIDOR	3	3	[ ]	[ ]
_010 (0A)	001A		C	Y		1-4-23 RECEPTION			[ ]	[ ]
_011 (0B)	001A		DO	Y		2-5-09 STORE	3	3	[ ]	[ ]
_012 (0C)	001A		DO	Y		1-4-13 PATIENT BANK	3	3	[ ]	[ ]
_013 (0D)	001A		DO	Y		ADMIN WAITING	3	3	[ ]	[ ]
_014 (0E)	001A		DO	Y		1-4-17 RECORDS ROOM	3	3	[ ]	[ ]
_015 (0F)	009A		DH	Y		1-4-19 EXTERNAL GARDENERS STORE	3	3	[ ]	[ ]
_016 (10)	001A		DO	Y		1-4-16 CHAPEL	3	3	[ ]	[ ]
_017 (11)	001A		DO	Y		1-10-30 CORRIDOR	3	3	[ ]	[ ]
_018 (12)	010A		DO	Y		1-10-27 MOTHER/CHILD ENTRANCE	3	3	[ ]	[ ]
_019 (13)	010A		DO	Y		1-10-02 NURSERY	3	3	[ ]	[ ]
_020 (14)	010A		DO	Y		1-10-05 STORE	3	3	[ ]	[ ]
_021 (15)	010A		DH	Y		1-10-06 KITCHEN	3	3	[ ]	[ ]
_022 (16)	010A		DO	Y		1-10-07 SITTING & DINING	3	3	[ ]	[ ]
_023 (17)	010A		C	Y		1-10-07 SITTING & DINING			[ ]	[ ]
_024 (18)	010A		DO	Y		1-10-08 BEECHES BEDROOM 6	3	3	[ ]	[ ]
_025 (19)	010A		DO	Y		1-10-09 BEECHES BEDROOM 5	3	3	[ ]	[ ]
_026 (1A)	010A		DO	Y		1-10-28 MOTHER/CHILD CORRIDOR	3	3	[ ]	[ ]
_027 (1B)	010A		DO	Y		1-10-10 MOTHER/CHILD ROOM 4	3	3	[ ]	[ ]
_028 (1C)	010A		C	Y		1-10-10 SLUICE			[ ]	[ ]
_029 (1D)	010A		DO	Y		1-10-13 CLEANER	3	3	[ ]	[ ]
_030 (1E)	010A		DO	Y		1-10-14 MOTHER/CHILD ROOM 3	3	3	[ ]	[ ]
_031 (1F)	010A		DO	Y		1-10-15 MOTHER/CHILD ROOM 2	3	3	[ ]	[ ]
_032 (20)	010A		DO	Y		1-10-16 MOTHER/CHILD ROOM 1	3	3	[ ]	[ ]
_033 (21)	010A		DO	Y		1-10-17 INDOOR PLAY	3	3	[ ]	[ ]
_034 (22)	010A		DO	Y		1-10-18 MILK KITCHEN	3	3	[ ]	[ ]
_035 (23)	010A		DO	Y		1-10-24 LINEN STORE	3	3	[ ]	[ ]
_036 (24)	010A		C	Y		1-10-27 MOTHER/CHILD ENTRANCE			[ ]	[ ]
_037 (25)	001A		C	Y		1-10-30 CORRIDOR			[ ]	[ ]

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_038 (26)	010A		DH	Y		1-10-23 LAUNDRY	3	3	[ ]	[ ]
_039 (27)	010A		DO	Y		1-10-22 BEECHES STAFF OFFICE	3	3	[ ]	[ ]
_040 (28)	001A		C	Y		ADMIN WAITING			[ ]	[ ]
_048 (30)	010A		DO	Y		1-10-25 OFFICE	3	3	[ ]	[ ]
_049 (31)	010A		DO	Y		1-10-01 BEECHES TREATMENT ROOM	3	3	[ ]	[ ]
_050 (32)	010A		DO	Y		1-10-03 WC	3	3	[ ]	[ ]
_051 (33)	010A		DO	Y		1-10-04 WC	3	3	[ ]	[ ]
_052 (34)	010A		DH	Y		1-10-12 SLUICE	3	3	[ ]	[ ]
_053 (35)	010A		DO	Y		1-10-27 CORRIDOR	3	3	[ ]	[ ]
_054 (36)	010A		DH	Y		1-10-19 BATH	3	3	[ ]	[ ]
_055 (37)	010A		DO	Y		1-10-21 DISABLED WC	3	3	[ ]	[ ]
_056 (38)	001A		C	Y		MOTHER & BABY ENTRANCE LOBBY			[ ]	[ ]
_057 (39)	001A		DO	Y		1-4-14 OFFICE	3	3	[ ]	[ ]
_058 (3A)	001A		DO	Y		1-4-15 MATRON OFFICE	3	3	[ ]	[ ]
_059 (3B)	001A		DO	Y		1-4-20 OFFICE	3	3	[ ]	[ ]
_060 (3C)	001A		DO	Y		1-4-21 ASSESSMENT SUITE	3	3	[ ]	[ ]
_061 (3D)	001A		DO	Y		1-4-23 RECEPTION	3	3	[ ]	[ ]
_062 (3E)	001A		DO	Y		1-4-24 OFFICE	3	3	[ ]	[ ]
_063 (3F)	001A		DO	Y		1-4-25 OFFICE	3	3	[ ]	[ ]
_064 (40)	001A		DO	Y		1-4-26 OFFICE	3	3	[ ]	[ ]
_065 (41)	001A		DO	Y		1-3-14 OFFICE	3	3	[ ]	[ ]
_066 (42)	001A		DO	Y		1-3-14 OFFICE	3	3	[ ]	[ ]
_067 (43)	001A		DO	Y		1-3-16 OFFICE	3	3	[ ]	[ ]
_068 (44)	001A		DO	Y		1-3-20 OFFICE	3	3	[ ]	[ ]
_069 (45)	001A		DO	Y		1-3-19 WC	3	3	[ ]	[ ]
_070 (46)	001A		DO	Y		1-3-18 WC	3	3	[ ]	[ ]
_071 (47)	001A		DO	Y		1-3-21 OFFICE	3	3	[ ]	[ ]
_072 (48)	001A		DO	Y		1-3-23 CRISIS TEAM OFFICE	3	3	[ ]	[ ]
_074 (4A)	001A		DO	Y		1-3-08 CRISIS TEAM OFFICE	3	3	[ ]	[ ]
_075 (4B)	001A		DO	Y		1-3-06 CRISIS TEAM OFFICE	3	3	[ ]	[ ]
_076 (4C)	001A		DO	Y		1-3-32 OFFICE	3	3	[ ]	[ ]
_077 (4D)	001A		DO	Y		1-3-08 OFFICE	3	3	[ ]	[ ]
_078 (4E)	001A		DO	Y		1-3-09 OFFICE	3	3	[ ]	[ ]
_079 (4F)	001A		DO	Y		1-3-10 OFFICE	3	3	[ ]	[ ]
_080 (50)	001A		DO	Y		1-3-11 WC	3	3	[ ]	[ ]
_081 (51)	001A		DO	Y		1-4-09 WC	3	3	[ ]	[ ]
_082 (52)	001A		DO	Y		1-4-10 WC	3	3	[ ]	[ ]
_083 (53)	001A		DO	Y		1-3-13 ADMIN CORRIDOR	3	3	[ ]	[ ]
_084 (54)	001A		DO	Y		1-1-08 ADMIN OFFICE	3	3	[ ]	[ ]
_085 (55)	001A		DO	Y		MOTHER & BABY ENTRANCE LOBBY	3	3	[ ]	[ ]
_086 (56)	010A		DO	Y		ELECTRICAL ROOM	3	3	[ ]	[ ]
_087 (57)	001A		NMO		031	DOOR OUTSTATION ZONE 1			[ ]	[ ]
_120 (78)	001A		NMO		022	1-3-12 ADMIN SWITCHROOM			[ ]	[ ]
_121 (79)	010A		NMO		019	1-10-26 SWITCHROOM			[ ]	[ ]
_122 (7A)	010A		NMO		020	1-10-26 SWITCHROOM			[ ]	[ ]
_123 (7B)	010A		NMO		020	KITCHEN SHUTTER			[ ]	[ ]
_124 (7C)	001A		NMO		018	BANK ROLLER SHUTTER DOOR			[ ]	[ ]
_125 (7D)	001A		NMO		018	ENTRANCE DOORS			[ ]	[ ]
_126 (7E)	001A		NMO		018	RECEPTION ROLLER SHUTTER DOORS			[ ]	[ ]
_001 (01)	012A		DO	Y		WARD 34 ELECTRICAL SWITCHROOM 2-8-04	3	3	[ ]	[ ]
_002 (02)	012A		DO	Y		WARD 34 STAFF LCKERS 2-8-30	3	3	[ ]	[ ]
_003 (03)	015A		DO	Y		MAIN SW RM O/S PLANT RM	3	3	[ ]	[ ]
_004 (04)	012A		C	Y		WARD 34 CORRIDOR 2-8-23			[ ]	[ ]
_005 (05)	012A		DO	Y		WARD 34 DIRTY UTILITY STORE ROOM 2-8-02	3	3	[ ]	[ ]
_006 (06)	012A		DH	Y		WARD 34 LAUNDRY 2-8-06	1	1	[ ]	[ ]
_007 (07)	012A		DO	Y		WARD 34 MEETING ROOM 2-8-08	3	3	[ ]	[ ]
_008 (08)	012A		DO	Y		WARD 34 CORRIDOR 2-8-23	3	3	[ ]	[ ]
_009 (09)	012A		C	Y		WARD 34 CORRIDOR 2-8-24			[ ]	[ ]
_010 (0A)	012A		DO	Y		WARD 34 BEDROOM 4 2-8-25	3	3	[ ]	[ ]
_011 (0B)	012A		DO	Y		WARD 34 CORRIDOR 2-8-24	3	3	[ ]	[ ]
_012 (0C)	012A		DH	Y		WARD 34 KITCHEN 2-8-09	3	3	[ ]	[ ]
_014 (0E)	012A		DO	Y		WARD 34 DORMITORY 3 2-8-12	3	3	[ ]	[ ]
_015 (0F)	012A		DO	Y		WARD 34 DORMITORY 4 2-8-15	2	2	[ ]	[ ]
_016 (10)	009A		DO	Y		1-4-18 WARD 34 BACK STAIRS	3	3	[ ]	[ ]
_017 (11)	012A		C	Y		WARD 34 FIRE EXIT CORRIDOR 2-8-23			[ ]	[ ]
_018 (12)	012A		DO	Y		WARD 34 CORRIDOR 2-8-23	3	3	[ ]	[ ]
_019 (13)	012A		DO	Y		WARD 34 THERAPY 2 ROOM 2-8-18	3	3	[ ]	[ ]
_020 (14)	012A		DO	Y		WARD 34 DINING ROOM 2-8-21	3	3	[ ]	[ ]
_021 (15)	012A		DO	Y		WARD 34 DAYROOM 2-8-22	3	3	[ ]	[ ]
_022 (16)	012A		DO	Y		WARD 34 DORMITORY 2 2-7-15	3	3	[ ]	[ ]
_023 (17)	012A		DO	Y		WARD 34 DORMITORY 1 2-7-17	3	3	[ ]	[ ]
_024 (18)	012A		DO	Y		WARD 34 CORRIDOR 2-7-12	3	3	[ ]	[ ]
_025 (19)	012A		DO	Y		WARD 34 BEDROOM 3 2-7-09	3	3	[ ]	[ ]
_026 (1A)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-07	3	3	[ ]	[ ]

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_027 (1B)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-06	3	3	[ ]	[ ]
_028 (1C)	019A		C	Y		WARD 33/34 FLEX AREA CORRIDOR 2-7-12			[ ]	[ ]
_029 (1D)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-20	3	3	[ ]	[ ]
_030 (1E)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-21	3	3	[ ]	[ ]
_031 (1F)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-22	3	3	[ ]	[ ]
_032 (20)	019A		C	Y		WARD 33/34 FLEX AREA CORRIDOR 2-7-01			[ ]	[ ]
_033 (21)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-05	3	3	[ ]	[ ]
_034 (22)	019A		DO	Y		WARD 33/34 FLEX AREA BEDROOM 2-7-04	3	3	[ ]	[ ]
_035 (23)	013A		DO	Y		WARD 33 BEDROOM 2-7-02	3	3	[ ]	[ ]
_036 (24)	013A		DO	Y		WARD 33 CORRIDOR 2-7-01	3	3	[ ]	[ ]
_037 (25)	013A		DO	Y		WARD 33 DORMITORY 4 2-7-25	3	3	[ ]	[ ]
_038 (26)	013A		DO	Y		WARD 33 DORMITORY 3 2-7-27	3	3	[ ]	[ ]
_039 (27)	013A		DO	Y		WARD 33 LOUNGE 2-5-30	3	3	[ ]	[ ]
_040 (28)	013A		DO	Y		WARD 33 DINING ROOM 2-5-31	3	3	[ ]	[ ]
_041 (29)	013A		AS	Y		WARD 33 MDM ROOM 2-5-33	M	M	[ ]	[ ]
_042 (2A)	013A		DO	Y		WARD 33 CORRIDOR 2-5-35	3	3	[ ]	[ ]
_043 (2B)	013A		C	Y		WARD 33 CORRIDOR 2-5-35			[ ]	[ ]
_044 (2C)	003A		DO	Y		WARD 33 BACK STAIRS 1-1-01	3	3	[ ]	[ ]
_045 (2D)	013A		DO	Y		WARD 33 DORMITORY 1 2-5-02	3	3	[ ]	[ ]
_046 (2E)	013A		DO	Y		WARD 33 DORMITORY 2 2-5-05	3	3	[ ]	[ ]
_048 (30)	013A		DH	Y		WARD 33 KITCHEN 2-5-08	3	3	[ ]	[ ]
_049 (31)	013A		DO	Y		WARD 33 STAFF BASE 2-5-24	3	3	[ ]	[ ]
_050 (32)	013A		DO	Y		WARD 33 BEDROOM 2-5-25	3	3	[ ]	[ ]
_051 (33)	013A		C	Y		WARD 33 STAFF BASE 2-5-24			[ ]	[ ]
_052 (34)	013A		DO	Y		WARD 33 STAFF OFFICE 2-5-10	3	3	[ ]	[ ]
_053 (35)	013A		DH	Y		WARD 33 LAUNDRY 2-5-11	3	3	[ ]	[ ]
_054 (36)	013A		DO	Y		WARD 33 CORRIDOR 2-5-18	3	3	[ ]	[ ]
_055 (37)	013A		AS	Y		WARD 33 STORE ROOM 2-5-19	M	M	[ ]	[ ]
_057 (39)	013A		DH	Y		WARD 33 SLUICE STORE 2-5-15	3	3	[ ]	[ ]
_058 (3A)	013A		C	Y		WARD 33 CORRIDOR 2-5-18			[ ]	[ ]
_059 (3B)	005A		DO	Y		LIFT SHAFT 1	3	3	[ ]	[ ]
_060 (3C)	005A		DO	Y		LIFT SHAFT 2	3	3	[ ]	[ ]
_061 (3D)	005A		DO	Y		2-5-36 LIFT LOBBY	3	3	[ ]	[ ]
_062 (3E)	015A		DO	Y		2-5-17 CORRIDOR	3	3	[ ]	[ ]
_063 (3F)	015A		C	Y		2-5-17 CORRIDOR			[ ]	[ ]
_064 (40)	006A		DO	Y		2-5-37 STAIR LOBBY	3	3	[ ]	[ ]
_065 (41)	014A		DO	Y		2-6-01 PLANTROOM	3	3	[ ]	[ ]
_066 (42)	014A		DO	Y		2-6-01 PLANTROOM	3	3	[ ]	[ ]
_067 (43)	014A		C	Y		2-6-01 PLANTROOM LOBBY			[ ]	[ ]
_068 (44)	015A		DO	Y		2-5-17 CORRIDOR	3	3	[ ]	[ ]
_069 (45)	013A		NMO		023	WARD 33 SWITCHROOM 2-5-13			[ ]	[ ]
_070 (46)	013A		DO	Y		WARD 33 MALE STAFF W.C 2-5-12	3	3	[ ]	[ ]
_071 (47)	013A		DO	Y		WARD 33 W.C 2-5-04	3	3	[ ]	[ ]
_072 (48)	013A		DO	Y		WARD 33 W.C 2-5-03	3	3	[ ]	[ ]
_073 (49)	013A		DO	Y		WARD 33 QUIET ROOM 2-5-01	3	3	[ ]	[ ]
_074 (4A)	013A		DO	Y		WARD 33 STORE ROOM 2-5-34	3	3	[ ]	[ ]
_075 (4B)	013A		DH	Y		WARD 33 BATHROOM 2-5-32	3	3	[ ]	[ ]
_076 (4C)	013A		DO	Y		WARD 33 W.C 2-5-28	3	3	[ ]	[ ]
_077 (4D)	013A		DH	Y		WARD 33 BATHROOM 2-5-29	3	3	[ ]	[ ]
_078 (4E)	013A		DO	Y		WARD 33 ASSISTED W.C 2-7-26	3	3	[ ]	[ ]
_079 (4F)	019A		DO	Y		WARD 33/34 FLEX AREA W.C 2-7-24	3	3	[ ]	[ ]
_080 (50)	019A		DH	Y		WARD 33/34 FLEX AREA BATHROOM 2-7-23	1	1	[ ]	[ ]
_081 (51)	019A		DO	Y		WARD 33/34 FLEX AREA CORRIDOR 2-7-01	3	3	[ ]	[ ]
_083 (53)	013A		DO	Y		WARD 33 BARIATRIC ROOM 2-5-25	3	3	[ ]	[ ]
_084 (54)	013A		DO	Y		WARD 33 WARD MANAGER 2-5-23	3	3	[ ]	[ ]
_085 (55)	013A		DO	Y		WARD 33 CLINICAL ROOM 2-5-21	3	3	[ ]	[ ]
_087 (57)	013A		DH	Y		WARD 33 SLUICE 2-5-16	3	3	[ ]	[ ]
_088 (58)	013A		DO	Y		WARD 33 FEMALE STAFF W.C 2-5-14	3	3	[ ]	[ ]
_089 (59)	013A		DO	Y		WARD 33 SWITCHROOM 2-5-13	3	3	[ ]	[ ]
_090 (5A)	012A		DO	Y		WARD 34 STAFF W.C 2-8-03	3	3	[ ]	[ ]
_091 (5B)	012A		DO	Y		WARD 34 STORE 1 2-8-05	3	3	[ ]	[ ]
_092 (5C)	012A		DO	Y		WARD 34 W.C 2-8-13	3	3	[ ]	[ ]
_093 (5D)	012A		DO	Y		WARD 34 W.C 2-8-14	3	3	[ ]	[ ]
_094 (5E)	012A		DO	Y		WARD 34 THERAPY 1 ROOM 2-8-17	3	3	[ ]	[ ]
_095 (5F)	012A		DO	Y		WARD 34 OFFICE 2 2-8-16	3	3	[ ]	[ ]
_096 (60)	013A		C	Y		WARD 33 LEADING TO FLEX AREA			[ ]	[ ]
_097 (61)	012A		DO	Y		WARD 34 DORMITORY 3 STORE 2-8-07	3	3	[ ]	[ ]
_098 (62)	019A		DO	Y		WARD 33/34 FLEX AREA CORRIDOR 2-7-12	3	3	[ ]	[ ]
_099 (63)	012A		DO	Y		WARD 34 ASSISTED W.C 2-7-16	3	3	[ ]	[ ]
_100 (64)	019A		C	Y		WARD 33/34 FLEX AREA CORRIDOR 2-7-12			[ ]	[ ]
_101 (65)	012A		C	Y		WARD 34 LEADING TO FLEX AREA			[ ]	[ ]
_103 (67)	012A		DO	Y		WARD 34 BEDROOM 4 EN SUITE 2-8-25	3	3	[ ]	[ ]
_104 (68)	012A		DO	Y		WARD 34 OFFICE 1 2-8-26	3	3	[ ]	[ ]
_105 (69)	012A		DO	Y		WARD 34 CLINIC ROOM 2-8-27	3	3	[ ]	[ ]

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_106 (6A)	012A		DO	Y		WARD 34 QUIET ROOM 2-8-29	3	3	[ ]	[ ]
_107 (6B)	012A		DH	Y		WARD 34 DIRTY UTILITY 2-8-01	1	1	[ ]	[ ]
_108 (6C)	S002		NMO		025	PLANT OUTPUT B			[ ]	[ ]
_109 (6D)	013A		NMO		026	2-5-13 ZONE 12 DOORS			[ ]	[ ]
_110 (6E)	013A		NMO		027	WARD 33 CENT DRS BETWEEN 12 & 13 2-5-13			[ ]	[ ]
_112 (70)	013A		DO	Y		WARD 33 LINEN CUPBOARD	3	3	[ ]	[ ]
_113 (71)	014A	S003	DH	Y		2-6-01 PLANTROOM D.H.W BOILER No 1	1	1	[ ]	[ ]
_114 (72)	014A	S003	DH	Y		2-6-01 PLANTROOM D.H.W BOILER No 2	1	1	[ ]	[ ]
_115 (73)	014A		NMO		039	2-6-01 PLANTROOM D.H.W GAS SHUTDOWN			[ ]	[ ]
_116 (74)	012A		NMO		028	WARD 34 DOOR IFU 2-7-14			[ ]	[ ]
_117 (75)	012A		NMO		028	WARD 34 DOOR IFU 2-7-14			[ ]	[ ]
_118 (76)	012A		NMO		028	WARD 34 DOOR IFU 2-7-14			[ ]	[ ]
_119 (77)	012A		DO	Y		WARD 34 DORMITORY 4 STORE 2-8-10	3	3	[ ]	[ ]
_120 (78)	012A		DO	Y		WARD 34 CORRIDOR 2-8-23	3	3	[ ]	[ ]
_121 (79)	012A		DO	Y		WARD 34 LINEN STORE 2-8-19	3	3	[ ]	[ ]
_122 (7A)	015A		DO	Y		DOMESTIC EQUIPTMENT STORE	3	3	[ ]	[ ]
_123 (7B)	012A		DO	Y		WARD 34 BEDROOM 3 EN SUITE 2-7-09	3	3	[ ]	[ ]
_124 (7C)	013A		DO	Y		WARD 33 DE-ESCALTION ROOM 2-5-20	3	3	[ ]	[ ]
_001 (01)	017A		C	Y		WARD 34 / CRISIS TEAM			[ ]	[ ]
_002 (02)	017A		DO	Y		WARD 34 / CRISIS TEAM	3	3	[ ]	[ ]
_003 (03)	016A		DO	Y		PLANTROOM	3	3	[ ]	[ ]
_004 (04)	017A		DO	Y		WARD 34 / CRISIS TEAM	3	3	[ ]	[ ]
_005 (05)	017A		DO	Y		WARD 34 / CRISIS TEAM	3	3	[ ]	[ ]
_006 (06)	017A		DO	Y		WARD 34 / CRISIS TEAM	3	3	[ ]	[ ]
_007 (07)	017A		C	Y		WARD 34 / CRISIS TEAM			[ ]	[ ]
_008 (08)	017A		DO	Y		WARD 34 / CRISIS TEAM	3	3	[ ]	[ ]
_009 (09)	017A		DO	Y		WARD 34 / CRISIS TEAM	3	3	[ ]	[ ]
_010 (0A)	017A		C	Y		WARD 34 / CRISIS TEAM			[ ]	[ ]
_011 (0B)	016A		C	Y		WARD 33			[ ]	[ ]
_012 (0C)	016A		DO	Y		WARD 33	3	3	[ ]	[ ]
_013 (0D)	016A		DO	Y		WARD 33	3	3	[ ]	[ ]
_014 (0E)	016A		DO	Y		WARD 33	3	3	[ ]	[ ]
_015 (0F)	016A		C	Y		WARD 33			[ ]	[ ]
_016 (10)	016A		DO	Y		WARD 33	3	3	[ ]	[ ]
_017 (11)	016A		DO	Y		WARD 33	3	3	[ ]	[ ]
_018 (12)	016A		DO	Y		WARD 33	3	3	[ ]	[ ]
_020 (14)	016A		DO	Y		PLANT ROOM / TANK ROOM	3	3	[ ]	[ ]
_021 (15)	016A		C	Y		PLANT ROOM / TANK ROOM			[ ]	[ ]
_001 (01)	018A		C	Y		O.T AREA			[ ]	[ ]
_002 (02)	018A		DO	Y		O.T AREA	3	3	[ ]	[ ]
_003 (03)	018A		C	Y		O.T AREA			[ ]	[ ]
_004 (04)	018A		DO	Y		O.T AREA	3	3	[ ]	[ ]
_005 (05)	018A		DO	Y		O.T AREA	3	3	[ ]	[ ]
_006 (06)	018A		DO	Y		O.T AREA	3	3	[ ]	[ ]
_007 (07)	018A		C	Y		O.T AREA			[ ]	[ ]
_008 (08)	018A		DO	Y		O.T AREA	3	3	[ ]	[ ]
_009 (09)	018A		C	Y		O.T AREA			[ ]	[ ]

— REPORT END

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: 25/03/2019
: 11:53:35

STATIC SYSTEMS GROUP PLC

Series 925, Device Description Database (Addressable)
DERBYSHIRE MENTAL HEALTH
RADBOURNE UNIT - NIGHT ENTRANCE
Job Number 81N8 Station Number 02

New Job
Amendment

— DEVICE TYPES (APOLLO LOOP)

C : Manual Call Point
DH : Disc Heat
DO : Disc Optical
NMO : Non Mon. O/P

'*' : Device Currently Masked Out '#' : Device Includes output

Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
001 (01)	001A		DO	Y		1-11-11 - OFFICE 2	3	3	[ ]	[ ]
002 (02)	001A		DO	Y		1-11-12 - OFFICE 4	3	3	[ ]	[ ]
003 (03)	001A		DO	Y		1-11-13 - OFFICE 6	3	3	[ ]	[ ]
004 (04)	015A	015C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
005 (05)	001A		DO	Y		1-11-14 - OFFICE 8	3	3	[ ]	[ ]
006 (06)	001A		DO	Y		1-11-15 - OFFICE 10	3	3	[ ]	[ ]
007 (07)	001A		C	Y		1-11-16 - CORRIDOR			[ ]	[ ]
008 (08)	001A		DO	Y		1-11-17 - OFFICE 9	3	3	[ ]	[ ]
009 (09)	001A		DO	Y		1-11-18 - OFFICE 7	3	3	[ ]	[ ]
010 (0A)	001A		DO	Y		1-11-15 - OFFICE 5	3	3	[ ]	[ ]
011 (0B)	001A		DO	Y		1-11-20 - OFFICE 3	3	3	[ ]	[ ]
012 (0C)	001A		DO	Y		1-11-21 - OFFICE 1	3	3	[ ]	[ ]
013 (0D)	001A		DO	Y		1-11-23 - CORRIDOR TO WARDS 35 & 36	3	3	[ ]	[ ]
014 (0E)	001A		DO	Y		1-11-23 - CORRIDOR TO WARDS 35 & 36	3	3	[ ]	[ ]
015 (0F)	001A		C	Y		1-11-09 - CORRIDOR			[ ]	[ ]
016 (10)	001A		DH	Y		1-11-01 - SHOWER ROOM 136 SUITE	3	3	[ ]	[ ]
017 (11)	001A		DO	Y		1-11-02 - ASSESSMENT SUITE 136 SUITE	3	3	[ ]	[ ]
018 (12)	001A		DO	Y		1-11-02 - ASSESSMENT SUITE 136 SUITE	3	3	[ ]	[ ]
019 (13)	001A		DO	Y		1-11-07 - OFFICE 136 SUITE	3	3	[ ]	[ ]
020 (14)	001A		DH	Y		1-11-05 - BEVERAGE ROOM 136 SUITE	3	3	[ ]	[ ]
021 (15)	001A		DO	Y		1-11-08 - VISITOR WAITING ROOM 136 SUITE	3	3	[ ]	[ ]
022 (16)	015A	015C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
023 (17)	001A		DO	Y		1-11-24 - CORRIDOR 136 SUITE	3	3	[ ]	[ ]
024 (18)	001A		DO	Y		1-11-09 - CORRIDOR	3	3	[ ]	[ ]
025 (19)	001A		DO	Y		1-11.09 - CORRIDOR	3	3	[ ]	[ ]
026 (1A)	001A		DO	Y		1-11-06 - OFFICE OPP NIGHT ENTRANCE	3	3	[ ]	[ ]
027 (1B)	001A		C	Y		NIGHT ENTRANCE CORRIDOR			[ ]	[ ]
028 (1C)	002A		DO	Y		1-12-02 - WARD 36 STAIRS	3	3	[ ]	[ ]
029 (1D)	003A		DO	Y		1-12-19 - LOBBY	3	3	[ ]	[ ]
030 (1E)	004A		DO	Y		1-12-20 - LIFT MOTOR	3	3	[ ]	[ ]
031 (1F)	004A		C	Y		1-12-20 - LIFT MOTOR			[ ]	[ ]
032 (20)	004A		C	Y		1-12-21 - WARD 35 EXTERNAL PLANT ROOM			[ ]	[ ]
033 (21)	004A		DH	Y		1-12-21 - WARD 35 EXTERNAL PLANT ROOM	3	3	[ ]	[ ]
034 (22)	001A		DO	Y		1-12-18 - SWITCHROOM	3	3	[ ]	[ ]
035 (23)	005A		DO	Y		1-12-03 - SECLUSION	1	1	[ ]	[ ]
036 (24)	005A		C	Y		1-12-17 - ENTRANCE CORRIDOR			[ ]	[ ]
037 (25)	005A		DO	Y		1-12-05 - DE-ESCALATION	3	3	[ ]	[ ]
038 (26)	005A		DO	Y		1-12-06 - DE-ESCALATION	3	3	[ ]	[ ]
039 (27)	005A		DO	Y		1-12-17 - CORRIDOR	3	3	[ ]	[ ]
040 (28)	005A		DO	Y		1-12-07 - STORE	3	3	[ ]	[ ]
041 (29)	005A		DO	Y		1-12-07 - STAFF OFFICE	3	3	[ ]	[ ]
042 (2A)	005A		DO	Y		1-12-07 - STAFF OFFICE	3	3	[ ]	[ ]
043 (2B)	005A		DO	Y		1-12-17 - ENTRANCE CORRIDOR	3	3	[ ]	[ ]
044 (2C)	005A		DO	Y		1-12-16 - STAFFROOM	3	3	[ ]	[ ]
045 (2D)	005A		DO	Y		1-12-15 - SLUICE	3	3	[ ]	[ ]
046 (2E)	005A		DH	Y		1-12-14 - LAUNDRY ROOM	3	3	[ ]	[ ]
047 (2F)	005A		DO	Y		1-12-13 - CLINIC	3	3	[ ]	[ ]
048 (30)	005A		DO	Y		STAFF BASE	3	3	[ ]	[ ]
049 (31)	005A		DH	Y		1-12-12 - KITCHEN	3	3	[ ]	[ ]
050 (32)	005A		C	Y		1-14-01 - DINING ROOM			[ ]	[ ]
051 (33)	005A		DO	Y		1-14-01 - DINING ROOM	3	3	[ ]	[ ]
052 (34)	005A		C	Y		1-12-17 - ENTRANCE CORRIDOR			[ ]	[ ]
053 (35)	005A		DO	Y		1-13-16 - DAY ROOM	3	3	[ ]	[ ]
054 (36)	005A		C	Y		1-13-16 - DAY ROOM			[ ]	[ ]
055 (37)	005A		DO	Y		INTERVIEW 2	3	3	[ ]	[ ]
056 (38)	006A		DO	Y		1-13-01 - INTERVIEW 3	3	3	[ ]	[ ]
057 (39)	006A		DO	Y		1-13-03 - BEDROOM 28	3	3	[ ]	[ ]
058 (3A)	006A		DO	Y		1-13-13 - FEMALE CORRIDOR	3	3	[ ]	[ ]
059 (3B)	006A		DO	Y		1-13-04 - BEDROOM 27	3	3	[ ]	[ ]
060 (3C)	006A		C	Y		1-13-13 - FEMALE CORRIDOR			[ ]	[ ]
061 (3D)	007A		DO	Y		1-13-13 - FEMALE SIDE BACK STAIRS	3	3	[ ]	[ ]
062 (3E)	006A		DO	Y		1-13-06 - BEDROOM 25	3	3	[ ]	[ ]

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Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
_063 (3F)	006A		DO	Y		1-13-07 - BEDROOM 26	3	3	[ ]	[ ]
_064 (40)	006A		DO	Y		1-13-10 - FEMALE DORMITORY 1	3	3	[ ]	[ ]
_065 (41)	006A		DO	Y		1-13-12 - FEMALE DORMITORY 2	3	3	[ ]	[ ]
_066 (42)	006A		DO	Y		1-13-13 - FEMALE CORRIDOR	3	3	[ ]	[ ]
_067 (43)	008A		DO	Y		1-14-15 STORE ROOM/OFFICE	3	3	[ ]	[ ]
_068 (44)	008A		DO	Y		1-14-14 - WARD MANAGER	3	3	[ ]	[ ]
_069 (45)	008A		DO	Y		1-14-12 - BEDROOM 23	3	3	[ ]	[ ]
_070 (46)	008A		DO	Y		1-14-11 - BEDROOM 24	3	3	[ ]	[ ]
_071 (47)	008A		C	Y		1-14-17 - MALE CORRIDOR			[ ]	[ ]
_072 (48)	009A		DO	Y		1-14-10 - MALE BACK STAIR	3	3	[ ]	[ ]
_073 (49)	008A		DO	Y		1-14-09 - BEDROOM 22	3	3	[ ]	[ ]
_074 (4A)	008A		DO	Y		1-14-08 - BEDROOM 21	3	3	[ ]	[ ]
_075 (4B)	008A		DO	Y		1-14-06 - MALE DORMITORY 2	3	3	[ ]	[ ]
_076 (4C)	008A		DO	Y		1-14-04 - MALE DORMITORY 1	3	3	[ ]	[ ]
_077 (4D)	008A		DO	Y		1-14-17 - MALE CORRIDOR	3	3	[ ]	[ ]
_078 (4E)	001A		DO	Y		1-11-16 - CORRIDOR	3	3	[ ]	[ ]
_079 (4F)	008A		DO	Y		1-14-17 - MALE CORRIDOR	3	3	[ ]	[ ]
_080 (50)	001A		DO	Y		1-11-22 - OFFICE 11	3	3	[ ]	[ ]
_081 (51)	001A		DO	Y		1-11-23 - OFFICE 12	3	3	[ ]	[ ]
_082 (52)	001A		DO	Y		1-11-24 - OFFICE 13	3	3	[ ]	[ ]
_083 (53)	001A		DO	Y		1-11-25 - OFFICE 14	3	3	[ ]	[ ]
_084 (54)	001A		DO	Y		CORRIDOR	3	3	[ ]	[ ]
_085 (55)	013A		DO	Y		WARD 35 LINEN	3	3	[ ]	[ ]
_086 (56)	004A		NMO		019	1-12-21 - WARD 35 EXTERNAL PLANT ROOM			[ ]	[ ]
_087 (57)	003A		NMO		020	1-12-18 - SWITCHROOM			[ ]	[ ]
_088 (58)	003A		NMO		021	1-12-18 - SWITCHROOM			[ ]	[ ]
_089 (59)	005A		NMO		022	1-12-22 - WARD 35 SWITCHROOM			[ ]	[ ]
_090 (5A)	001A		DO	Y		CONSULTANTS WC	3	3	[ ]	[ ]
_091 (5B)	001A		DO	Y		1-11-04 - VISITORS WC 136 SUITE	3	3	[ ]	[ ]
_092 (5C)	005A		DO	Y		1-12-04 - SECLUSION WC	3	3	[ ]	[ ]
_093 (5D)	005A		DO	Y		1-12-22 - SWITCH ROOM	3	3	[ ]	[ ]
_095 (5F)	006A		DH	Y		1-13-02 - BATH	3	3	[ ]	[ ]
_096 (60)	006A		DO	Y		1-13-08 - FEMALE WC 1	3	3	[ ]	[ ]
_097 (61)	006A		DO	Y		1-13-09 - FEMALE WC 2	3	3	[ ]	[ ]
_098 (62)	006A		DO	Y		1-13-11 - ASSISTED WC	3	3	[ ]	[ ]
_099 (63)	006A		DH	Y		1-13-15 - FEMALE BATHROOM	3	3	[ ]	[ ]
_100 (64)	008A		DH	Y		1-14-03 - MALE BATHROOM	3	3	[ ]	[ ]
_101 (65)	008A		DO	Y		1-14-05 - MALE WC 1	3	3	[ ]	[ ]
_102 (66)	008A		DO	Y		1-14-07 - MALE WC 2	3	3	[ ]	[ ]
_103 (67)	008A		DO	Y		1-14-13 - MALE WC 3	3	3	[ ]	[ ]
_104 (68)	005A		DO	Y		1-14-16 - WARD 35 STAFF TOILET	3	3	[ ]	[ ]
_105 (69)	002A		C	Y		1-12-02-WARD 36 STAIRS			[ ]	[ ]
_106 (6A)	001A		DO	Y		1-11-03 - STORE 136 SUITE	3	3	[ ]	[ ]
_107 (6B)	005A		DO	Y		1-12-05 DE-ESCALATION STORE ROOM	3	3	[ ]	[ ]
_001 (01)	003A		DO	Y		LIFT	3	3	[ ]	[ ]
_002 (02)	003A		DO	Y		2-16-17 WARD 36 LIFT LOBBY	3	3	[ ]	[ ]
_003 (03)	011A		DO	Y		2-15-04 F/F DOCTORS CORRIDOR CONSULTANT	3	3	[ ]	[ ]
_004 (04)	003A		DO	Y		2-15-03 ON CALL ROOM	3	3	[ ]	[ ]
_005 (05)	010A		C	Y		2-15-10 F/F PLANT ROOM WARD 36			[ ]	[ ]
_006 (06)	010A		DO	Y		2-15-10 F/F PLANT ROOM WARD 36	3	3	[ ]	[ ]
_007 (07)	011A		DO	Y		2-15-01 ON CALL ROOM	3	3	[ ]	[ ]
_008 (08)	011A		DO	Y		2-15-10 F/F DOCTORS CORRIDOR ROOM 1	3	3	[ ]	[ ]
_009 (09)	011A		DH	Y		2-15-10 F/F JUNIOR DOCTORS ROOM	3	3	[ ]	[ ]
_010 (0A)	011A		DO	Y		2-15-08 CORRIDOR	3	3	[ ]	[ ]
_011 (0B)	011A		DO	Y		2-15-05 FIRST FLOOR SECRETARY	3	3	[ ]	[ ]
_012 (0C)	002A		DO	Y		2-16-19 STAIRS TO WARD 36	3	3	[ ]	[ ]
_013 (0D)	012A		DO	Y		2-16-01 CORRIDOR	3	3	[ ]	[ ]
_014 (0E)	002A		C	Y		2-16-19 STAIRS TO WARD 36			[ ]	[ ]
_015 (0F)	011A		DO	Y		2-16-16 WARD 36 ELEC/SWITCHROOM	3	3	[ ]	[ ]
_017 (11)	012A		DO	Y		2-16-04 LOBBY	3	3	[ ]	[ ]
_018 (12)	012A		DO	Y		2-16-05 INTERVIEW	3	3	[ ]	[ ]
_019 (13)	012A		DO	Y		2-16-05 ENTRANCE CORRIDOR	3	3	[ ]	[ ]
_020 (14)	012A		DO	Y		2-16-06 STORE	3	3	[ ]	[ ]
_021 (15)	012A		DO	Y		NURSING OFFICE	3	3	[ ]	[ ]
_022 (16)	012A		DO	Y		NURSING OFFICE	3	3	[ ]	[ ]
_023 (17)	012A		DO	Y		2-16-18 - CORRIDOR	3	3	[ ]	[ ]
_024 (18)	012A		DO	Y		2-16-15 STAFFROOM	3	3	[ ]	[ ]
_025 (19)	012A		DO	Y		2-16-14 - DIRTY UTIL.	3	3	[ ]	[ ]
_026 (1A)	012A		DH	Y		2-16-13 - LAUNDRETTE	3	3	[ ]	[ ]
_027 (1B)	012A		DO	Y		2-16-12 - CLINIC	3	3	[ ]	[ ]
_028 (1C)	012A		DO	Y		WARD 36 NURSE STATION	3	3	[ ]	[ ]
_029 (1D)	012A		DH	Y		2-16-11 - KITCHEN	3	3	[ ]	[ ]
_030 (1E)	012A		DO	Y		2-18-01 - DINING ROOM	3	3	[ ]	[ ]
_031 (1F)	012A		C	Y		2-16-18 - CORRIDOR			[ ]	[ ]

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Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
_032 (20)	012A		DO	Y		2-17-15 - DAYROOM	3	3	[ ]	[ ]
_033 (21)	012A		DO	Y		2-16-09 - MDM ROOM 2	3	3	[ ]	[ ]
_034 (22)	013A		DO	Y		2-17-01 - A SIDE INTERVIEW ROOM 3	3	3	[ ]	[ ]
_035 (23)	013A		DO	Y		2-17-03 - A SIDE BEDROOM 28	3	3	[ ]	[ ]
_036 (24)	013A		DO	Y		2-17-12 - A SIDE CORRIDOR	3	3	[ ]	[ ]
_037 (25)	013A		DO	Y		2-17-04 - A SIDE BEDROOM 27	3	3	[ ]	[ ]
_038 (26)	007A		DO	Y		2-17-16 - WARD 36 A SIDE BACK STAIR	3	3	[ ]	[ ]
_039 (27)	013A		C	Y		2-17-12 - A SIDE CORRIDOR			[ ]	[ ]
_040 (28)	013A		DO	Y		2-17-05 - A SIDE BEDROOM 25	3	3	[ ]	[ ]
_041 (29)	013A		DO	Y		2-17-06 - A SIDE BEDROOM 26	3	3	[ ]	[ ]
_042 (2A)	013A		DO	Y		2-17-09 - A SIDE DORMITORY 2	3	3	[ ]	[ ]
_043 (2B)	013A		DO	Y		2-17-10 - A SIDE DORMITORY 1	3	3	[ ]	[ ]
_044 (2C)	013A		DO	Y		2-17-12 - A SIDE CORRIDOR	3	3	[ ]	[ ]
_045 (2D)	014A		DO	Y		2-18-15 STORE ROOM/OFFICE	3	3	[ ]	[ ]
_046 (2E)	014A		DO	Y		2-18-14 - MANAGER OFFICE	3	3	[ ]	[ ]
_047 (2F)	014A		DO	Y		2-18-12 - B SIDE BEDROOM 23	3	3	[ ]	[ ]
_048 (30)	014A		DO	Y		2-18-04 - CORRIDOR	3	3	[ ]	[ ]
_049 (31)	014A		DO	Y		2-18-11 - B SIDE BEDROOM 24	3	3	[ ]	[ ]
_050 (32)	009A		DO	Y		2-18-17 - B SIDE BACK STAIR	3	3	[ ]	[ ]
_051 (33)	014A		C	Y		2-18-04 - B SIDE CORRIDOR			[ ]	[ ]
_052 (34)	014A		DO	Y		2-18-10 - B SIDE BEDROOM 22	3	3	[ ]	[ ]
_053 (35)	014A		DO	Y		2-18-09 - B SIDE BEDROOM 21	3	3	[ ]	[ ]
_054 (36)	014A		DO	Y		2-18-07 - B SIDE DORMITORY 2	3	3	[ ]	[ ]
_055 (37)	014A		DO	Y		2-18-06 - B SIDE DORMITORY 1	3	3	[ ]	[ ]
_056 (38)	014A		DO	Y		2-18-04 - B SIDE CORRIDOR	3	3	[ ]	[ ]
_057 (39)	014A		DO	Y		LINEN	3	3	[ ]	[ ]
_058 (3A)	011A		NMO		023	2-16-16 - WARD 36 ELEC/SWITCHROOM			[ ]	[ ]
_059 (3B)	011A		DO	Y		2-15-09 - LOBBY	3	3	[ ]	[ ]
_060 (3C)	011A		DO	Y		CORRIDOR TO 2-15-10	3	3	[ ]	[ ]
_061 (3D)	012A		DO	Y		2-16-02 - SECLUSION WC	3	3	[ ]	[ ]
_062 (3E)	012A		DO	Y		1-16-19 - SWITCHROOM WARD 36	3	3	[ ]	[ ]
_064 (40)	013A		DH	Y		2-17-02 - A SIDE ASSISTED BATHROOM	3	3	[ ]	[ ]
_065 (41)	013A		DO	Y		2-17-07 - A SIDE WC 1	3	3	[ ]	[ ]
_066 (42)	013A		DO	Y		2-17-08 - A SIDE WC 2	3	3	[ ]	[ ]
_067 (43)	013A		DO	Y		2-17-11 - A SIDE WC 3	3	3	[ ]	[ ]
_068 (44)	013A		DH	Y		2-17-14 - A SIDE BATHROOM	3	3	[ ]	[ ]
_069 (45)	014A		DH	Y		2-18-03 - B SIDE BATHROOM	3	3	[ ]	[ ]
_070 (46)	014A		DO	Y		2-18-05 - B SIDE ASSISTED WC	3	3	[ ]	[ ]
_071 (47)	014A		DO	Y		2-18-08 - B SIDE WC 1	3	3	[ ]	[ ]
_072 (48)	014A		DO	Y		2-18-13 - B SIDE WC 2	3	3	[ ]	[ ]
_073 (49)	012A		DO	Y		2-18-16 Staff WC	3	3	[ ]	[ ]
_080 (50)	012A		DO	Y		2-16-03 SECLUSION	1	1	[ ]	[ ]
_081 (51)	012A		C	Y		2-16-05-ENTRANCE CORRIDOR			[ ]	[ ]
_082 (52)	012A		DO	Y		SECLUSION STORE ROOM WARD 36	3	3	[ ]	[ ]
_001 (01)	015A	015C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_002 (02)	015A	015C	C	Y		ROOF VOID			[ ]	[ ]
_003 (03)	015A	015C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_004 (04)	015A	015C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_005 (05)	015A	015C	C	Y		ROOF VOID			[ ]	[ ]
_006 (06)	016A	016C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_007 (07)	016A	016C	C	Y		ROOF VOID			[ ]	[ ]
_008 (08)	016A	016C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_009 (09)	017A	017C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_010 (0A)	017A	017C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_011 (0B)	017A	017C	C	Y		ROOF VOID			[ ]	[ ]
_012 (0C)	017A	017C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_013 (0D)	018A	018C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_014 (0E)	018A	018C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_015 (0F)	018A	018C	C	Y		ROOF VOID			[ ]	[ ]
_016 (10)	018A	018C	DO	Y		ROOF VOID	3	3	[ ]	[ ]
_017 (11)	018A	018C	DO	Y		ROOF VOID - PLANT ROOM	3	3	[ ]	[ ]
_001 (01)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-67	3	3	[ ]	[ ]
_002 (02)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-66	3	3	[ ]	[ ]
_003 (03)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-65	3	3	[ ]	[ ]
_004 (04)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-64	3	3	[ ]	[ ]
_005 (05)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-63	3	3	[ ]	[ ]
_006 (06)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-62	3	3	[ ]	[ ]
_007 (07)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-61	3	3	[ ]	[ ]
_008 (08)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-60	3	3	[ ]	[ ]
_009 (09)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-59	3	3	[ ]	[ ]
_010 (0A)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-58	3	3	[ ]	[ ]
_011 (0B)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-57	3	3	[ ]	[ ]
_012 (0C)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-56	3	3	[ ]	[ ]
_013 (0D)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-55	3	3	[ ]	[ ]

Witnessed By :

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Loop / Dr. (Hex)	Pri. Zone	Sec. Zone	Device Type	Latch	O/p Group	Location Label	Sensitivity Day	Sensitivity Night	Pre Comm Testing	Witness Testing
_014 (0E)	019A		DO	Y		MEDICAL ANNEX F/F PHOTO COPY ROOM	3	3	[ ]	[ ]
_015 (0F)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-53	3	3	[ ]	[ ]
_016 (10)	019A		DO	Y		MEDICAL ANNEX F/F FEMALE TOILET	3	3	[ ]	[ ]
_017 (11)	019A		DO	Y		MEDICAL ANNEX F/F MALE TOILET	3	3	[ ]	[ ]
_018 (12)	019A		DH	Y		MEDICAL ANNEX F/F KITCHEN	3	3	[ ]	[ ]
_019 (13)	019A		DO	Y		MEDICAL ANNEX F/F OFFICE 2-11-49	3	3	[ ]	[ ]
_020 (14)	019A		DO	Y		MEDICAL ANNEX F/F CORRIDOR	3	3	[ ]	[ ]
_021 (15)	019A		DO	Y		MEDICAL ANNEX F/F CORRIDOR	3	3	[ ]	[ ]
_022 (16)	019A		DO	Y		MEDICAL ANNEX F/F CORRIDOR	3	3	[ ]	[ ]
_023 (17)	019A		DO	Y		MEDICAL ANNEX F/F CORRIDOR	3	3	[ ]	[ ]
_024 (18)	019A		DO	Y		MEDICAL ANNEX F/F CORRIDOR	3	3	[ ]	[ ]
_025 (19)	019A		DO	Y		MEDICAL ANNEX F/F CORRIDOR	3	3	[ ]	[ ]
_026 (1A)	019A		DO	Y		MEDICAL ANNEX F/F TOP OF STAIRS	3	3	[ ]	[ ]
_027 (1B)	019A		C	Y		MEDICAL ANNEX F/F TOP OF STAIRS			[ ]	[ ]
_028 (1C)	019A		DO	Y		MEDICAL ANNEX CONSERVATORY	3	3	[ ]	[ ]
_029 (1D)	019A		DO	Y		MEDICAL ANNEX RECEPTION OFFICE	3	3	[ ]	[ ]
_030 (1E)	019A		DO	Y		MEDICAL ANNEX G/F OFFICE 1-11-34	3	3	[ ]	[ ]
_031 (1F)	019A		DO	Y		MEDICAL ANNEX G/F OFFICE 1-11-33	3	3	[ ]	[ ]
_032 (20)	019A		DO	Y		MEDICAL ANNEX G/F PHOTO COPY ROOM	3	3	[ ]	[ ]
_033 (21)	019A		DO	Y		MEDICAL ANNEX CORRIDOR FIRE EXIT	3	3	[ ]	[ ]
_034 (22)	019A		C	Y		MEDICAL ANNEX CORRIDOR FIRE EXIT			[ ]	[ ]
_035 (23)	019A		DO	Y		MEDICAL ANNEX BOILER ROOM	3	3	[ ]	[ ]
_036 (24)	019A		DO	Y		MEDICAL ANNEX SERVER ROOM	3	3	[ ]	[ ]
_037 (25)	019A		DO	Y		MEDICAL ANNEX G/F FEMALE TOILET	3	3	[ ]	[ ]
_038 (26)	019A		DO	Y		MEDICAL ANNEX G/F MALE TOILET	3	3	[ ]	[ ]
_039 (27)	019A		DO	Y		MEDICAL ANNEX ENTRANCE CORRIDOR	3	3	[ ]	[ ]
_040 (28)	019A		DO	Y		MEDICAL ANNEX ENTRANCE CORRIDOR	3	3	[ ]	[ ]
_041 (29)	019A		DO	Y		MEDICAL ANNEX ENTRANCE CORRIDOR	3	3	[ ]	[ ]
_042 (2A)	019A		C	Y		MEDICAL ANNEX ENTRANCE CORRIDOR			[ ]	[ ]
_043 (2B)	019A		DO	Y		MEDICAL ANNEX G/F ASSISTED TOILET	3	3	[ ]	[ ]
_044 (2C)	019A		DO	Y		MEDICAL ANNEX G/F OFFICE 1-11-39	3	3	[ ]	[ ]
_045 (2D)	019A		DO	Y		MEDICAL ANNEX G/F OFFICE 1-11-37	3	3	[ ]	[ ]
_046 (2E)	019A		DO	Y		MEDICAL ANNEX G/F OFFICE 1-11-41	3	3	[ ]	[ ]
_047 (2F)	019A		DO	Y		MEDICAL ANNEX G/F OFFICE 1-11-42	3	3	[ ]	[ ]
_048 (30)	019A		DH	Y		MEDICAL ANNEX G/F KITCHEN	3	3	[ ]	[ ]
_049 (31)	019A		DO	Y		MEDICAL ANNEX G/F STUDY CORRIDOR	3	3	[ ]	[ ]
_050 (32)	019A		C	Y		MEDICAL ANNEX G/F BOTTOM OF STAIRS			[ ]	[ ]
_051 (33)	019A		DO	Y		MEDICAL ANNEX G/F BOTTOM OF STAIRS	3	3	[ ]	[ ]
_052 (34)	019A		DO	Y		MEDICAL ANNEX G/F STUDY ROOM	3	3	[ ]	[ ]
_053 (35)	019A		DO	Y		MEDICAL ANNEX G/F STUDY ROOM	3	3	[ ]	[ ]
_054 (36)	019A		DO	Y		MEDICAL ANNEX G/F STUDY ROOM	3	3	[ ]	[ ]
_055 (37)	019A		DO	Y		MEDICAL ANNEX G/F STUDY ROOM	3	3	[ ]	[ ]
_056 (38)	019A		C	Y		MEDICAL ANNEX G/F STUDY ROOM			[ ]	[ ]
_057 (39)	019A		NMO		023	BOILER POINT SIGNAL			[ ]	[ ]
_058 (3A)	019A		NMO		023	FIRE DOORS SIGNAL 1			[ ]	[ ]
_059 (3B)	019A		NMO		023	FIRE DOORS SIGNAL 2			[ ]	[ ]
_060 (3C)	019A		DO	Y		MEDICAL ANNEX LIFT SHAFT	3	3	[ ]	[ ]
_061 (3D)	019A		DO	Y		MEDICAL ANNEX LIFT MOTOR ROOM	3	3	[ ]	[ ]
_062 (3E)	019A		NMO		027	EXTRACT FAN LIFT MOTOR ROOM			[ ]	[ ]

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