Client:
Holborn Links Limited

D&B PARTICULAR SPECIFICATION

FOR THE

BUILDING SERVICES

AT

16 – 19 SOUTHAMPTON PLACE
LONDON WC1

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APPENDICES

DOCUMENT CONTROL

Issue	Date	Status	hpf Author (Date/Initials)	hpf Approval (Date/Initials)	Notes
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Additions shown in red text

Deletions shown as strikethrough

1.0 PERFORMANCE SPECIFICATION

1.1. General

The Works described herein is for the complete design, installation and commissioning of the Electrical, Mechanical, Lift and Public Health Services for the four grade 2 star listed buildings at 16 – 19 Southampton Place.

The Specification describes the particular requirements and shall be read in conjunction with the standard hurleypalmerflatt Specifications of Workmanship and Materials; the Performance Specification contains the general clauses which relate to workmanship and materials for the Electrical Installation on this Project.

The latest edition of the IEE Wiring Regulations shall be deemed to mean the 17th Edition with amendments. The design parameters are contained in this Section.

Notwithstanding that British Standard Specifications shall be adhered to, full compliance with the latest appropriate BS where such exist, including those issued in respect of materials manufactured to Metric or Harmonised Standards, is required for all specified materials.

All equipment shall be manufactured in the EC unless otherwise authorised; equipment that uses electricity shall be CE marked.

1.2. Contractors Design and Build Responsibility

The Contractor shall undertake the detailed design, construction and supervision of the complete electrical, mechanical public health and lift installation.

The Contractor’s responsibility shall include the following:-

Detailed design of the installation including all calculations, equipment specification, co-ordination drawings, working drawings and such details as are necessary to demonstrate his design to the Employer's Agent and Consulting Engineers.

Attending design meetings, explaining to other members of the design team the proposed system/design and providing information to enable the design of the supporting structure to be completed.

The submission of drawings and specifications where appropriate, to the Local Authority and Fire Officer for approval.

The preparation of the programme of works covering all aspects of the sub-contract for co-ordination with the main contract programme.

Preparation of builders works drawings and schedules.

Co-ordination of access requirements to electrical equipment with the Employer's Agent to enable safe working for future maintenance.

Liaise, co-ordinate and co-operate with all other contractors employed for the works and the design team at all stages.

The Mechanical Services Sub-Contractor will be charged with the lead management role for co-ordination and allowance shall be made for meetings, amendments to designs, etc, to provide a fully co-ordinated installation.

Full liaison with the Supply Authority for water, gas electricity and drainage including the payment of all fees and charges made by the DNO.

Advise the Employer's Agent, Consulting Engineer and Quantity Surveyor, in writing and within 3 working days, of any cost implications to the Electrical Services scheme arising from Architectural changes to the project or as a result of (written or verbal) instructions issued by the Employer's Agent on site.

1.3. Existing Services

The extent of retained services is described in the relevant sections.

The Contractor shall allow for removing all redundant data cabling where possible consistent with the listed building status of Grade 2 star and it does not involve intrusive destructive works to the building fabric which would affect the Grade 2 star status to do so.

All redundant equipment or materials that are currently remaining and are not required to form part of the refurbished scheme shall be removed.

This shall not include the incoming electrical service(s) and the supply Authority’s Equipment. The electrical metering and protective fuses shall be upgraded for building 18/19 supply which shall be renewed by the supply authority under this building refurbishment contract.

1.4. Inspection of Site

The site may be inspected on application, either in writing or by telephone. Appointment to view should initially be made with the Employer's Agent who is: -

Hanover Cube
9 Mansfield Street
London
W1G 9NY
Chris Richards
Mobile +44 7771 674462

The Contractor shall be deemed to have visited the site prior to Tendering. No claims shall be entertained for the lack of knowledge as to the work content, or the working conditions on site.

Full details of the building structure and details of all other services can be obtained by inspecting drawings that are available at the Employer's Agent’s office, or by physical inspection as above.

It will be assumed that the Contractor has viewed the Employer's Agent's survey and scheme drawings, or inspected the areas in question, and therefore made due allowance for all obstructions or complications arising from other services or structural details, when tendering.

1.5. Drawings

The drawings issued with this specification show the Architectural proposals and main items of equipment as a guide to the Tenderer. They do not show the full extent of the works described in this Specification.

The Contractor shall produce working drawings detailing all elements of the Mechanical and electrical services.

These drawings shall be the result of site surveys detail design, and co-ordination with the Employer's Agent, Structural Engineer, Main Contractor and Mechanical & Electrical Services Contractor.

Layout drawings on latest Employer's Agent plans shall be to a scale of 1:100 minimum; 1:200 drawings will not be acceptable.

Drawings shall be provided for the following services:-

- Lighting (as drawn on Architects reflected ceiling plan) complete with circuit details and connections indicated.
- Fire alarm system.
- Small power and distribution board locations with Dado trunking and data outlets indicated.
- Electrical distribution schematic.
- Drainage details and routes.
- Pipework Layout, AC units and Condensers
- Plant room Layouts 1:20

Larger scale details shall be produced by the Contractor to highlight services requirements to the Design and Construction Team to provide an integrated solution.

The Contractor shall submit working drawings to the Design and Construction team prior to commencing fabrication and works on site. Drawings will be returned with comments within five working day of receipt.

Distribution Board Schedules with design impedance values per circuit shall be provided with his working drawings submission.

Calculations will be requested to be submitted if any anomalies are identified.

Heat loss and pipe loss calculation of the new and existing pipework for the heating and cooling system.

1.6. Design Information

The Contractor shall provide detailed design information, which shall be submitted, to the Employer's Agent Engineer for comments prior to proceeding with the works.

This information shall include, but not be limited to the following:-

Detailed cable sizing, with due allowance for de-rating of cables associated with all relevant factors detailed in BS 7671.

The information shall be derived and calculated for every circuit cable to the satisfaction of BS 7671 for the following:-

- Current carrying capacity.
- Volt drop.
- Short circuit capacity.
- Earth fault current disconnection times.
- Discrimination verification**.**

Heat loss calculations and design calculations associated with the sizing of the new boilers and the retained and new radiators.

Heat loss calculations and design calculations associated with the sizing of the new condensers and associated AC units.

Calculations shall be submitted in typed form wherever possible and shall be signed as having been checked by the Design Contractor.

Where computer generated calculations have been used, a full listing of the input information shall be provided with the results, together with details of the programmes used.

Method Statement for the detailed routing of cables and pipework within the building.

Detailed installation/working drawings, which shall indicate the design solutions adopted and method of compliance with the design intent. Upon approval of the Contractor's design and drawings by the professional team, the Contractor shall complete installation drawings, procure, install, balance, commission and set to work all services to the complete satisfaction of the Employer's Agent and in complete compliance with the performance specification.

For loading details allied to mechanical services plant required for cable sizes, etc the Contractor shall liaise closely with the other Services Design and Build Contractor.

1.7. Builders Work

Others shall carry out all builders' work, but the Contractor shall be responsible for providing all builders work details to the satisfaction of the Employer's Agent.

Accuracy of dimensions or drawings in relation to all plant, equipment etc., shall at all times be the responsibility of the Contractor.

The Contractor shall be responsible for producing builders work drawings and marking out.

Slotting of beams and holes through joists shall where ever possible be reused existing holes. Where new holes are required they shall comply with BS8130.

Any existing holes or slots found during works which are not in accordance with the BS8103 shall be reported to the Employer's Agent who will instruct as necessary on remedial works.

1.8. Installation Access and Plant Removal

The Contractor shall ensure that all plant and equipment is manufactured in unit sizes which can be taken through the openings provided for the installation of the plant and for its future replacement.

All items of plant (switch gear, panels, etc) shall be provided with facilities for disconnection without undue disturbance to adjacent equipment or distribution services, building fabric and fitments. This shall be achieved via suitable isolators/disconnection switches.

The Contractor shall produce a 'Plant Access Strategy' which shall set out the requirements and considerations covering the installation, the replacement and maintenance for main items of plant.

1.9. Handover

System documentation is of the utmost importance and shall be produced and maintained to the highest standards. This shall include but not be limited to the following:-

- Operating and maintenance manuals for all building and engineering services elements. These shall include all commissioning results, and a project specific description on how to use the systems together with simple user guides.
- Training Manuals
- As built and As Installed drawings
- All other diagrams, instructions and emergency procedures pertaining to the operation and maintenance of the building, plant and equipment;
- Health and Safety file (as required by CDM regulations);
- Maintenance manuals for all building service elements;
- A proposed schedule of planned maintenance;
- Operating manuals for all aspects of the project

Three weeks before contract completion, the contractor shall issue for comments operating and maintenance instructions together with record drawings.

The system documentation shall be presented in hard and soft format for the purpose of future updating.

2.0 ELECTRICAL AND MECHANICAL STRIP OUT SPECIFICATION

2.1. Scope of Works

The works shall include co-ordination, setting out preparation of detailed drawings, working drawings, method statements, scaffolding, plant labour, supervision, crainage if necessary, clearing debris from site, completion and preparation for the new installation. Refer to the Waste Management Clause in the Electrical Scope of Works.

Should any alterations or additions to the existing services be involved the Contractor shall inform the Contract Administrator immediately.

Where the Contractor is not sure whether to strip out an item or not, he shall inform the design team for direction. He shall not take any action unless he has a clear understanding of what is required.

2.2. Electrical Services Strip Out Scope

The refurbishment project involves enabling works which shall comprise of the strip out of the existing redundant electrical services. This shall include the removal of the luminaires and emergency lighting, the lighting control system, the removal of the small power in the floor void, the removal and isolation of the fire alarm system, the removal of communication systems. The strip out shall include for all associated cabling, containment and fixings/support systems.

The existing risers shall be retained.

Where electrical services are to be diverted or uninterrupted, the contractor shall prepare detailed method statements and risk assessments for the works and submit to the Project Manager for sanction.

No works shall proceed until the method statements have been approved by the Client and the professional team.

The Contractor shall strip out the following electrical services as part of this scope of works:

- Distribution boards and associated cabling
- Small power sockets floor boxes and associated cabling
- Luminaires and emergency lighting(except specified chandeliers)
- Lighting cabling and associated containment and fixings
- Communications cables
- Redundant supplies
- Fire Alarm cables

The Contractor shall retain, maintain and re-use the following equipment and apparatus if possible to do so:

- Lift supplies
- Mechanical supplies

The existing Telephone distribution system shall be removed, the specialist Data Contractor shall be responsible for the existing/new data installation.

Where the Contractor is not sure whether to strip out an item or not, he shall inform the design team for direction. He shall not take any action unless he has a clear understanding of what is required.

2.3. Mechanical Services Strip Out Scope

The refurbishment project involves enabling works which shall comprise of the partial strip out of the existing redundant mechanical services. This shall include the removal of the existing ac units, extract fans, radiators (where walls are to be demolished), pumps and associated pipework and ductwork as outlined below.

Where mechanical services are to be diverted or uninterrupted, the contractor shall prepare detailed method statements and risk assessments for the works and submit to the Project Manager for sanction.

No works shall proceed until the method statements have been approved by the Client and the professional team.

The Contractor shall strip out the following mechanical services as part of this scope of works:

Pipework and Fittings

Strip out works will include:-

Safely isolating, stripping and complete removal from site of water tanks, radiators (where necessary) and associated pipework and fittings.

DH&CWS pipework serving all toilets shall be stripped back to the riser position.

Drainage

All existing sanitary ware shall be stripped out and completely removed from site.

All existing soil vent and waste pipes serving existing sanitary ware shall be adjusted or stripped back to their riser positions to suit new toilet layouts.

The contractor shall allow for modifications to existing or provision of new steel steps where adjustments to services is required.

Where the Contractor is not sure whether to strip out an item or not, he shall inform the design team for direction. He shall not take any action unless he has a clear understanding of what is required.

3.0 ELECTRICAL INSTALLATION

3.1. Scope of Works

The works shall comprise the design, supply, delivery, off-loading, marking out, erection, testing, commissioning and setting to work, of the electrical installation as described and detailed in the following clauses, schedules and drawings.

The Electrical Services installation applicable to all properties shall commence at the outgoing terminals of the Supply Authority's metering equipment and shall comprise the following:-

- Design and working drawings
- Main LV switchgear including liaison with the Local Electricity Supplier.
- Sub-main distribution
- Internal lighting installation complete including supply of lighting
- Emergency lighting installation
- External lighting installation
- Small power installation from the distribution boards.
- Electrical installation for Mechanical Services
- Radio Fire Alarm/Detection system
- Electrical installation associated with Lifts
- Earthing and bonding installation
- Lightning Protection
- Testing and Commissioning
- Record documentation
- Spares

3.2. Incoming Supply Details

The Supply Authority's existing equipment is from UK Power Networks. The Contractor shall complete the appropriate forms for a change in the availability of the service capacity and return them with the appropriate fee to the local supply Authority who will then pursue the installation of suitable metering.

The Contractor shall make full allowance for all fees, charges and connection costs required by the District Network Operator (DNO) to provide a reinforced supply if required, including the new metering and associated equipment and including the removal and making safe the existing redundant equipment for the supply to buildings 16, 17, 18 and 19.

The Contractor shall ensure that the metering and fusing arrangements for each building are compatible with the new proposed loads for each of the buildings.

The existing incoming supply for number 17 shall be modified so that the feeder cable supplies buildings 16 and 17, the correct fuses and metering shall be installed. The supply for number 16 shall then be considered redundant.

The incoming supply for building 18 and 19 shall remain, the correct fuses and metering shall be installed.

The District Network Operator is as follows:-

Seisi Singh

UK Power Networks
Connections Business - Projects
261City Road
London EC1 1LE
Tel. No. 020 7055 4195
Mob No. 07875 115602

Unless the Contractor is ‘accredited’ to undertake on site connections of DNO equipment, it is recommended that he appoints the DNO to do the detailed design.

The existing metering will/ need to be changed to suit the revised electrical distribution systems.

The order for the new metering shall be placed direct by the Contractor on behalf of the Client.

The Contractor shall pay all monies to the DNO and obtain and complete all forms, necessary notices and certificates required accounted to the Client This administration aspect of the liaison with the DNO shall be the sole responsibility of the Contractor who shall ensure the supply is available when required.

The Contractor shall advise the Main Contractor of any required cable duct routes or modifications required to same, and supervise the Building Contractor's installation, to ensure compliance with this Specification.

The Contractor shall allow for provision of three phase power for commissioning the lifts equipment, three weeks prior to builders completion.

The relevant department within the DNO shall be advised of the forthcoming change of usage/ownership and can be reached on the numbers above.

For arrangements regarding the draw and reconnection of service cut-out fuses, notify the DNO. On no account should the DNO equipment be disturbed without prior written consent from them.

3.3. Main Switchgear

The Contractor shall survey and confirm the existing MCCB panel board is installed in number 16, number 17 and number 19 (including for building 18). The new connections shall be via a CT split busbar metering chamber.

The equipment shall be of a sufficient size to accommodate the incoming supply of up to 200A for building 17 and 19, and shall be located in the existing electrical cupboards in the basements.

A working drawing shall be prepared showing the elevations and schematic layouts of switch gear giving cable sizes, references, fuse/mcb ratings, etc. and as elsewhere specified in the workmanship and materials section of the tender. The layout shall include the DNO equipment and interconnecting trunking for meter tails, all of the Contractor's provision.

An A3 size laminated "As Fitted" Schematic diagram and an A2 size laminated "Treatment for Electric Shock" notice shall each be fixed adjacent the main switch gear, fixed on the wall or the inner face of the access doors.

The schematic shall include the installing contractor's details in the title block and the installation date.

3.4. Sub-Main Distribution

Sub-main cables, distribution boards, isolators and fused switches, etc. shall be provided where indicated on the Architects drawings.

Distribution boards shall generally comply with the workmanship and materials specification and shall be complete with integral isolating switch, type B lockable MCB's, spare ways blanking plates and internal wallet holders. Ways designated as socket outlet circuits shall be fitted with combined MCB/RCD's.

The boards shall be the flush type or skeleton type and have flush, lockable doors, be fully labelled and mounted discretely.

The cable distribution in buildings 18 and 19 shall start from the incomer located in the basement of number 19 and then shall run at high level in the basement to the bottom of the riser located in building 18. The cables shall run on a galvanised cable tray located above the false ceiling.

3.5. System of Wiring

Final-circuit cables and the system of wiring shall be installed as follows:-

Sub-main cables and three phase supply cables shall be XLPE/SWA/LSF fixed to the building fabric and strapped to cable trays or run in ducts, as the design dictates.

Screened cable for use in walls, partitions and building voids where there is a risk of damage or penetration from nails, screw fixings etc.

The cables shall be based upon the material and constructional requirements of BS8436 and shall be suitable for use at voltages up to and including 600/1000V in areas where solid non-demountable ceilings exist and a surface installation is not acceptable.

All cables shall be suitably fixed to the building structure; loose laid cables in voids will not be acceptable.

Cables to BS8436 shall be installed in surface fixed PVC conduit or trunking in the Plant Rooms and utility/storage areas.

Surface run PVC conduit/trunking shall be installed in plant rooms.

Cables to BS8436 shall be surface fixed wiring within the voids, concealed from view, installed within mini-trunking when exposed to view from offices for additional mechanical protection.

XLPE/SWA/LSF or PVC in the class 4 steel galvanised conduits, for external circuits, installed to IP44 standard of protection.

Conductors of all the above cable types shall be copper; all cables and conduits shall be concealed wherever possible.

Circuit protective conductors - steel wire armour/LSF insulated copper; bonding conductors shall be LSF insulated copper.

All trunking and accessory box fixing screws shall be of the round head type or pan head type. Countersunk screws to be used only when a recess is provided in the fixing hole for the equipment

3.6. Lighting Installation

3.6.1. General

The Contractor shall design and provide a complete lighting installation including the purchase of all luminaries. The design for the general lighting including toilets and corridors has been agreed between the Employer's Agents.

The contractor shall take the concept design shown on the Architects drawings and develop the scheme with the manufacturer. The layout and quantity for tendering purposes shall be provisionally as shown on the Architects drawings.

Some rooms have highly ornate ceilings with chandeliers and are not suitable for fixed or suspended lighting, in these areas additional wall lights shall be installed.

In these circumstances the illumination levels specified may be lower than stated. The Contractor shall issue a schedule of these rooms with the calculated lux levels to the design team at the start of the construction stage.

The lighting installation shall be designed in accordance with the CIBSE Code of Practice for Interior Lighting to provide the following average illumination levels:-

Circulation routes, corridors etc.	150-200 lux at floor level
Toilets	150-200 lux
Stairs/landings	150-200 lux at floor level
Staff Room	150-200 lux
Teaching Spaces	450-500 lux
Administration	450-500 lux at floor level
Plantroom	150-200 lux at floor level
Landscaped Area)	Street lights or decorative IP65 30/50 lux average.

3.6.2. Office Area Decorative Lighting

The luminaries shall be as indicated on the Architects drawings and are generally a combination of suspended with up and down light options and/or fixed direct to lathe and plaster ceilings.

In the Office Area, the lighting shall be designed so as to provide an appropriate level of ambient lighting with levels increased around ‘architectural features’ and to create effect and character.

Emergency exits signs should also be illuminated. The layout shall be determined by design from the accompanying tender drawings drawing.

Decorative luminaires that may be required for the listed stair cases shall be subject to a Provisional sum and selection by the Employer's Agent. The Contractor shall allow for handling and installation of these luminaires.

Recessed lighting in lathe and plaster ceiling or plaster ceiling shall be fitted with fire hood or fire box to retain the fire integrity of the space illuminated.

Glare is to be avoided and ‘lamps’ should not be visible to offices; lighting should be sited so as not to cause reflected glare from monitors.

Safety factors should be taken into account for example increasing the light level over a staircase, emergency lighting to changes of level or direction, etc.
Consideration should be given to the location of luminaires with regard to access for changing of ‘lamps’ (CDM Regulations).

The lighting control shall be via local wall mounted switches.

The preferred types of luminaire per application are detailed on the Architects tender drawings.

3.6.3. Circulation and Common Areas

Except where the lighting is proposed to be concealed recessed or suspended all luminaires shall be fitted over flush mounted circular conduit boxes.

Wall mounted luminaires shall each connect into a luminaire support coupler; mounting heights shall be agreed with the Employer's Agent.

The lighting control shall be via local wall mounted switches. Toilet lighting shall be switched on and off via normally closed controlled from a PIR Sensor.

Testing of the emergency lighting of the Office area, reception and toilets shall be via a bank of grid key switches mounted adjacent the source distribution board. All the switches shall be suitably labelled to indicate the area they serve.

3.6.4. Plant and External Areas

Luminaires shall generally be of the surface mounted general purpose and/or vapour proof type, as appropriate to the application, generally housing compact or linear fluorescent (low energy) lamps, also provided by the Contractor.

Control gear shall generally be low loss electronic (not high frequency) having power factor correction to between 0.9 and 0.99 lagging.

Control shall, unless shown otherwise on the drawings, be afforded by the provision of integral PIR controllers or local rocker switches as appropriate to the location.

3.6.5. External Lighting

External lighting shall comprise of the wall mounted lantern type, amenity lighting boards, sign boards and facia lighting. The control of the external lighting shall be via zoned PIR with integral PIR sensors.

Plant access and garden lighting shall be provided with flood lights complete with integral PIR controllers.

The Contractor shall provide lighting to the light wells, and basement access to vaults area generally as detailed on the Architects drawings. Surface cables shall be terminated inside the building.

The wall lights shall be fed internally where possible to ensure the wiring system is concealed inside the building surface wiring shall be avoided. Any surface external wiring shall be fixed to the building fabric at high level out of reach to the public. All external lighting shall be RCB protected.

3.7. Emergency Lighting

The Contractor shall design and provide a means of escape lighting installation generally in accordance with the Employer's Agent’s Plan, and the requirements of BS 5266.

Means of Escape emergency lighting in the Public Areas shall comprise self contained Maintained, Exit, and Emergency Exit luminaires elsewhere they shall be self contained luminaires of the non-maintained type. The emergency luminaires shall be equipped with a 3 hour battery and charger/inverter unit. Exit signs shall be of the Pictogram type.

Each luminaire shall house a permanent charger feed wired from the live side of the switch or contactor, interrupted only by a key switch. Test switches for locally controlled luminaires (back of house areas) shall be included in the switch gang; office areas and toilets shall have key switches located adjacent the source distribution board labelled as to their function.

The Contractor's design shall be finally submitted to the Employer's Agent for a joint submission to the District Surveyor/ Building Control Officer.

The Contractor shall verify with the Employer's Agent the location and type necessary to meet the requirements of the Building Control Officer

3.8. Small Power Installation

3.8.1. General

The Contractor shall design and provide a complete small power installation as described herein. The accessory plates shall match those described for switches; MK Albany MCO.

Generally the building shall have the small power fitted to a CAT B standard. This means that the final circuits from the distribution boards shall be installed. Refer to the Architects plan drawings.

This specification requires that the Contractor shall provide distribution boards with sufficient spare ways for future installations (nominally 25%). The Contractor shall define the number of spare ways that will be left available.

Mounting heights shall be as existing for single socket outlets. All 13 Amp socket outlets shall be RCD protected at source via combined mcb/RCD units on the distribution board.

Accessories employed in the various areas shall be as follows:-

Surface mounted accessories in dry areas in back of house shall be metalclad.

Surface mounted in cellars and potentially wet and external areas shall be IP54 MK Masterseal or equivalent, Flush mounted accessories in the Office area shall be MK Albany MCO.

In the common areas the electric heaters supplied installed and connected by the Mechanical Contractor shall be fed via 13A switched fuse connectors wired on separate radial circuits. More than one heater may be connected onto one circuit providing the load does not exceed 2kW.

3.8.2. Office Areas

In the classrooms all the circuits shall be sized to allow for them to be extended at a future date by the incoming Tenant's fit out Contractor.

In the classrooms the sockets shall be mounted on a ~~three~~ two compartment dado trunking. The dado trunking shall generally be run above the skirting boards below the dado rail. However where there is panelling the trunking shall run above the Dado rail.

The Cat B fit out will include both small power for offices and teaching spaces and also any sockets required for safe use by cleaners.

In office areas which do not have VRV heating electric heaters shall be supplied installed and connected by the Mechanical Contractor shall be fed via 13A switched fuse connectors wired on separate radial circuits. More than one heater may be connected onto one circuit providing the load does not exceed 2kW

3.8.3. Kitchen

All services will be provided as a Cat B fit out.

3.8.4. Toilets

A flush mounted unswitched FCU shall be provided at each hand-drier position. The FCU's shall each be mounted at 2100mm AFFL, with a flush conduit for 'load' connections to a recessed accessory box behind the hand-drier, which shall be 1400mm AFFL generally, 1000mm AFFL in the disabled toilet.

Within the accessory box the Contractor shall provide a 3 way terminal block (having 60.3mm fixing centres) in which he shall terminate the 1.5m² single core 'load' connections.

A white plastic blanking plate shall be fitted to the box pending the future installation of hand dryers, by others. In the disabled person's toilets, the hand drier back-box shall be mounted 750mm AFFL.

Fused connection units shall be provided for the local toilet water heaters distributive around the building.

Supplies shall be provided for local and central located extract fans.

In the toilet areas the electric heaters supplied installed and connected by the Mechanical Contractor shall be fed via 13A switched fuse connectors wired on separate radial circuits. More than one heater may be connected onto one circuit providing the load does not exceed 2kW.

3.8.5. Plant Room

The following small power shall be provided:-

2No. twin 13A IP56 socket outlets (MK Master Seal) 1No. at 1400mm AFFL for general purpose power.

All the socket outlets shall be arranged over a two 32 amp ring circuit, protected by a combined MCB/RCD in the appropriate distribution board.

In the plant room areas the electric heaters supplied installed and connected by the Mechanical Contractor shall be fed via 13A switched fuse connectors wired on separate radial circuits. More than one heater may be connected onto one circuit providing the load does not exceed 2kW.

3.9. Electrical Installation for Mechanical Services

The Mechanical Services Contractor will supply the H&V Control Panels. Mechanical plant and accessories will be supplied and fixed by the MSC who shall also provide the associated electrical installation. The Contractor shall provide an XLPE/SWA/LSF sub-main cable between the main switch-gear and the isolating switch incomer of each main item of plant.

The Contractor shall also wire to selected items of mechanical plant (listed below) detailed by the MSC, including the provision of local isolation devices and final connections via flexible cable or conduit as appropriate.

All single phase extract fans shall be provided with an adjacent 3 pole isolator for maintenance isolation purposes,

All other Mechanical Services Controls and Electrical supplies will be carried out by the MSC's Controls Specialist.

3.10. Wire Free Analogue Addressable Radio Fire Alarm System

3.10.1. Introduction

Each of the buildings shall have a separate fire alarm system as follows, Building 16, Building 17 and combined Building 18 – 19.

The control and indication panel shall be able to operate the alarm in each building independently, however the systems shall be set up so that each of the Fire Alarm control panels shall be interfaced between each other so that any one Fire Alarm incident is copied onto each system.

Each of the area(s) shall be protected using wire free detectors, call points and sounders capable of transmitting their status back to a central control unit for interpretation of the data and action as appropriate.

The wire free radio fire alarm system shall be selected and installed in accordance with the following specification.

The Fire Alarm System shall be fully tested to confirm that it is suitable for incorporation into the wider wireless system covering the other buildings. Suitable wireless interface units shall be included and all sounders must be of identical sound quality for the whole development for compliance.

The Fire alarm system shall be interfaced to the gas solenoid valves and shall shut down the boilers for a fire alarm event.

3.10.2. System Component

The fire alarm system shall be analogue addressable and devices are to be installed throughout the zones nominated on the drawings.

The system shall consist of an analogue addressable fire alarm control panel, radio wire free optical and heat detectors, call points and electronic sounders.

3.10.3. Control Panel

The Radio Fire Alarm System Control Panels shall be analogue addressable. It shall have a minimum of 12 zones, a vacuum fluorescent display for clarity of displayed information, a numeric keypad to allow access and operation of a menu function to facilitate on site amendments to text and programming information, two hardwired sounder circuits, a hardwired interface for the provision of call points etc and must be able to accept either hardwired or radio operated bomb alert and class change facilities.

The control panel shall have individual zonal LED display.

The control panel shall be capable of self-testing and analysing its batteries on a daily basis and reporting any internal battery fault immediately.

The control panel shall have a VHF (173.245 MHz) receiver and UHF(458.50 MHz) transmitter/receiver.

The unit must be capable of handling a maximum of 252 devices selectable from detectors, call points, sounders and interface accessories.

The control panel shall be capable of displaying and actioning as appropriate, pre-alarm, alarm and fault conditions along with service and near service conditions and providing remote outputs for fire and fault signalling to external sounders and auxiliary equipment.

The control panel shall be designed in accordance with the requirements of BS5839 part 4 and EN54 part 2.

The 230 volt supply to the panel shall be taken direct from the main MCCB board supply.

3.10.4. VHF Transponder

A transponder signal processor which receives VHF (173.245 MHz) signals from local devices and transmits those signals on UHF (458.5 MHz) at 500mw via a remote receiver may be installed as required.

The transponder will have a 240 volt supply and be complete with an integral power supply unit

The transponder will be fitted with VHF and UHF helical aerials as standard with the provision for VHF half wave dipole remote aerials to be fitted if required.

There should be a maximum of four transponders reporting to each control panel.

3.10.5. UHF Transponder

4.1 A UHF transponder to extend the range of radio sounders and pagers may be incorporated in the System if determined by the radio survey.

A UHF transponder will receive UHF (458.5 MHz) signals from the control panel and will relay these to sounders, input/output units and pagers.

The UHF transponder will require 230 volt supply and be complete with integral power supply unit.

The remote transponder will be fitted with an integral UHF aerial but be capable of being fitted with a UHF remote dipole aerial.

3.10.6. VHF Remote Receiver

5.1 A VHF remote receiver which receives VHF (173.245 MHz) signals from local VHF transmitters may be installed as required.

The VHF remote receiver may be located as determined by the radio survey and transmit signals by Beldon cable link directly to the main control panel. The connecting Beldon cable shall be in fire protected casing.

No more than 3 remote receivers may be used for direct connection to the main control panel.

The remote receiver requires 230 volt supply and shall be complete with an integral power supply unit.

Signals from the remote receiver to the main control panel shall be fully monitored.

3.10.7. Optical Analogue Addressable Smoke Detectors

All detector assemblies used shall be of a three part construction:

- Smoke detector head
- Radio address module and battery board
- Ceiling mount
- The detector shall be self-testing and be analogue addressable.
- The radio address module shall have 1mw ERP power output.
- The radio address module shall house a separate battery board which has four 3.7 volt primary lithium batteries and a micro processor control unit.
- The detector head shall operate at 3.2 volts.
- The radio address module shall contain a factory programmed unique identity code.
- The unit shall be fitted with an integral tamper switch which shall make contact with the surface to which the device is fitted.
- The detector shall have the option of four selectable sensitivity levels switchable within the detector head - high, medium, low and normal plus 16 additional verification checks. The sensitivity setting shall be communicated to the panel data bank.
- The unit shall be capable of indicating low battery warning with a minimum of thirty days notice of impending failure and provision to energise the sounder at its full operating level for a further thirty minute period.
- The unit will transmit its battery pack condition indicating when a replacement is due.
- The device shall have non-volatile memory.
- The device shall be capable of being logged on to the appropriate control panel and addressed using either the panel keypad or a lap-top computer program.

3.10.8. Analogue Addressable Heat Detector

The detector shall be of the same specification as the optical detector and have the following heat detector features.

The detector head shall have selectable heat ranges switchable within the detector head, giving 3 x fixed temperature and 1 x rate of rise and the selected setting shall be communicated to the panel data bank.

3.10.9. Call points

Call points are to be of such manufacture as currently used within the fire industry.

The unit shall be fitted with an integral tamper switch which shall make contact with the surface to which the device is fitted.

The call point shall have four 3.7 volt primary lithium batteries and a micro processor control unit.

The call point will be fitted with a frangible glass substitute card as standard which allows for the strict and controlled introduction of devices into the protected area.

The call point shall have its own unique identity code installed during manufacture.

The unit shall be capable of indicating low battery warning with a minimum of thirty days notice of impending failure and provision to energise the sounder at its full operating level for a further thirty minute period.

The unit will transmit its battery pack condition indicating when a replacement is due.

A weatherproof unit manufactured and tested to achieve IP65 Standard shall be available for appropriate areas.

The device shall have non-volatile memory.

The device shall be capable of being logged on to the appropriate control panel and addressed using either the panel keypad or a lap-top computer program.

3.10.10. Addressable Radio Input Transmitter

Addressable Radio Input Transmitters are to be of such manufacture as currently used within the fire industry.

The unit shall be fitted with an integral tamper switch which shall make contact with the surface to which the device is fitted.

The unit shall have four 3.7 volt primary lithium batteries and a micro processor control unit.

The unit shall provide the facility of transmitting alarm signals from beam detection, aspirating detection systems and other ancillary equipment or fire related systems which require monitoring by the fire control panel. The Radio Input Transmitter shall be fully monitored.

The unit shall be capable of indicating low battery warning with a minimum of thirty days notice of impending failure.

The unit will transmit its battery pack condition indicating when a replacement is due.

The device shall have non-volatile memory.

The device shall be capable of being logged on to the appropriate control panel and addressed using either the panel keypad or a lap-top computer program.

3.10.11. Addressable Radio Input / Output Transmitter

10.1 Addressable Radio Input/Output Transmitters are to be of such manufacture as currently used within the fire industry.

The unit shall be fitted with an integral tamper switch.

The unit shall have five 3.7 volt primary lithium batteries and a micro processor control unit.

The unit shall provide the facility of transmitting alarm signals from beam detection, aspirating detection systems and other ancillary equipment or fire related systems which require monitoring by the fire control panel. The Radio Input Transmitter shall be fully monitored.

The unit shall provide the facility of receiving command signals from the control panel to devices, which require remote activation, including magnetic door release units, staircase ventilation systems or other ancillary equipment.

The unit shall house both a radio transmitter and a receiver on VHF (173.245 MHz) and UHF (458.5 MHz) frequencies.

The unit shall be capable of indicating low battery warning with a minimum of thirty days notice of impending failure.

The unit will transmit its battery pack condition indicating when a replacement is due.

The device shall have non-volatile memory.

The device shall be capable of being logged on to the appropriate control panel and addressed using either the panel keypad or a lap-top computer program.

3.10.12. Wire Free Electronic Sounder

Sounders are to be of such manufacture as currently used within the fire industry.

The unit shall house both a radio transmitter and a receiver on VHF (173.245 MHz) and UHF (458.5 MHz) frequencies.

The unit shall be capable of generating four different sounds for the following alerts:-

- Fire
- Alert

- Bomb Alert

The unit shall have an in-built microphone allowing for a rapid and unobstructed test of every sounder, generated and reporting to the control panel.

The unit shall house five AA size 3.7 volt primary lithium batteries mounted on a battery board with micro processor control.

The unit shall have an interface for a hardwired call point.

The unit shall have an interface for an auxiliary contact board for the operation of auxiliary equipment.

The unit shall have 1mw ERP power output.

The unit shall be fitted with an integral tamper switch which shall make contact with the surface to which the device is fitted.

The unit shall be capable of indicating low battery warning with a minimum of thirty days notice of impending failure and provision to energise the sounder at its full operating level for a further thirty minute period.

The unit will transmit its battery pack condition indicating when a replacement is due.

The device shall have non-volatile memory.

The device shall be capable of being logged on to the appropriate control panel and addressed using either the panel keypad or a lap-top computer program.

Where provided externally, e.g. to serve roof and basement lightwells, they shall be to IP65 or higher degree of protection.

3.10.13. Radio Fire Alarm System Design

The Contractor shall submit with the tender, all drawings and detail required for the design of the fire protection system as governed by the requirements below.

The detection system shall be arranged to comply with the requirements of BS5839 part 1 2003 and ensure optimum efficiency of smoke detection coverage commensurate with aesthetics and practical constraints.

Prior to installation the dealer shall submit working drawings with engineering design details endorsed by the manufacturer.

The system shall be commissioned by the manufacturers approved dealer who is trained to survey, install, commission and maintain the system.

The system and all of its sensors/devices shall be manufactured by a company working and accredited to the disciplined requirements of the IS9000 Quality System.

3.11. Lift Installation

The two electric lifts shall be refurbished under a separate sub-contract. The Contractor shall provide a power supply for the lift comprising isolating switch in the lift motor room.

For tendering purposes allowance shall be made for a 32A TPN supply together with a 63A SPN supplies for lift motor room distribution board allied circuits by others.

Exact requirements shall be determined from the specialist lift supplier when appointed.

3.12. Panel Heaters

~~Where LPHW radiators cannot be provided due to the listed building complexities the Contractor shall allow for providing 2kW Panel Heaters as Dimplex PLXN/TI or equivalent complete with integral timer.~~

~~Typical areas could include:-~~

- ~~Disabled Toilet~~
- ~~Female Toilet~~
- ~~Male Toilet~~
- ~~Staff toilet~~
- ~~Staff Room~~
- ~~Manager's office.~~

Please refer to Mechanical Section

3.13. CCTV and Security Equipment

CCTV will not form part of the contract. Any CCTV will be procured by the tenant as a fit out contract to suit their specific requirements.

3.14. Extract Fans

The Contractor shall provide single phase extract fans complete with automatic overrun timers to the rooms listed below.

The fans shall be controlled via the local lighting circuit and shall be programmed to overrun by 10 minutes after the lighting is turned off.

The fans shall be Vent Axia VA150A, complete with a Timespan overrun timer part No. 563519 or equivalent.

The Contractor shall provide a 3 pole fan isolator adjacent each fan for maintenance purposes.

Staff toilets

Disabled toilets

3.15. Lightning Protection

The contractor shall allow for testing and inspection the existing lightning protection system.

Redundant roof lightning protection tapes shall be removed.

3.16. Spares

On handover the Contractor shall supply a total of 5No glasses for fire alarm pushes, 20% of the total of each type of lamp/tube used with a minimum of 2No.

At the end of the defects period the quantities of the spare lamps shall be made up to the original amounts and a signed receipt obtained from the Employer's Agent's.

3.17. Record Documentation

At "builders completion" the Contractor shall submit two copies of the draft operating and maintenance manual and Record Drawings, one for retention on site, the other for the Consultant to comment upon.

Prior to operational handover the Contractor shall issue five approved copies of the record documentation, one for retention on site, one to the Clients Head Office, one to the Planning Supervisor, and one to the nominated Maintenance Contractor for the site.

4.0 MECHANICAL SERVICES

4.1. Scope of Works

The mechanical services at 16 – 19 Southampton Place shall be retained described in this document, they shall be replaced as necessary or new services installed in accordance with these requirements.

The Mechanical Services installation for all properties shall comprise:-

- Design and working drawings
- ~~LPHW Pipework~~
- ~~Refurbish existing Boilers and installing New Boilers Including Flues~~
- ~~Boiler Controls~~
- ~~Radiators~~
- Electric Panel Heaters
- Ventilation Systems
- Licensed removal and degassing Redundant AC Condensers.
- Installing new AC Condensers
- Installing new room units
- Testing and Commissioning
- Record documentation
- Spares

The site comprises what were originally four separate properties and these properties have been linked at various places.

~~The intent is that the mechanical services should remain serving the notional demise of each of the four properties independently except building 18 and 19 shall be combined. This should be achieved wherever possible.~~

The intent is that the mechanical services shall be configured to serve the four buildings as two separate pairs whereby each pair shall consist of two buildings i.e. No16 & No17 and No18 & No19.

The materials selected shall generally match those currently installed unless specifically noted otherwise. Prior to installing any services the contractor shall confirm the proposed materials to be used with the Engineer.

The contractor shall confirm capacities of plant and equipment.

4.2. Mechanical Services Design Criteria

The following shall be used as the basis of the design for the mechanical services on the project:-

Design Temperature Criteria:

Internal Heating: 20°C ± 2°C

Internal Cooling 24°C ± 2°C

External Winter : -4°C @ 100%R.H

External Summer: 28°Cdb 19°Cwb

Ventilation Criteria:

Occupancy: 1 per 10m²

Fresh Air Rate: 10 l/s per person

Toilet Ventilation: As per Building Regulations

4.3. Heating

4.3.1. Existing Installation

The heating installation comprises a number of gas fired boilers servicing steel radiators located throughout the buildings.

The existing gas-fired low temperature hot water heater (LTHW) system shall be stripped-out, removed from site and safely disposed of in its entirety.

~~The existing boiler for No. 16 shall be refurbished and re-used, the Boiler for No. 17 shall be new and the Boiler for No. 18 and 19 shall be refurbished or replaced with new.~~

~~The boiler for No. 16 is located at the rear of the basement. The boiler for No. 17 and the boiler serving No. 18 & 19 are located in plant areas on the top floor of their respective buildings.~~

~~The contractor shall ensure adequate ventilation is provided for the safe operation of the selected boilers.~~

~~The boiler serves domestic hot water calorifiers in some building.~~

~~The heating system is distributed via in-line pumps and a copper pipework system.~~

~~There is a heating controller for each building and most radiators are provided with thermostatic radiator valves.~~

~~4.3.2. Boilers~~

~~All pipework and electrical connections shall be modified to suit the selected boilers. The boilers shall be gas fired and low NO_x. New flue connections shall be provided from the boilers to atmosphere including all necessary weather proofing required.~~

~~The capacity of the boilers shall be determined to offset heat losses from building fabric and infiltration allowing also for the natural ventilation, make up air to extract systems and any likely stack effect from existing fireplaces.~~

~~Existing fireplaces should be blanked off except to allow any minimum ventilation that may be required.~~

~~Boilers shall be complete with electric controls providing on/off, temperature setting, alarms and ability to interface with external temperature and optimisation control devices.~~

~~The boilers shall be suitable for low pressure hot water.~~

~~The design flow temperatures shall be matched to suit the radiators located in the building.~~

~~It is intended to provide all the hot water via local point of use electric heaters.~~

~~4.3.3. Low Pressure Hot Water Pipework~~

~~The existing pipework systems shall be retained in general. All the pipework shall be tested to examine the internal condition of the pipework and establish likely levels of water treatment that have been provided to date.~~

~~Inspections may require the cutting out of sections of pipework.~~

~~These shall be done in locations agreed with the engineer who may choose to attend such exercises.~~

~~The existing pipework is believed to be copper throughout and new pipework should also be in copper. Any variation to this shall be brought to the attention of the Engineer.~~

~~All pipework insulation shall be repaired where damaged and replaced where missing. New pipework shall be run to link any new radiators required with due respect to the buildings listed status.~~

~~All routes to be agreed with the Employer's Agent and Engineer prior to commencing any works.~~

~~In the event the pipework is considered satisfactory to retain, the systems shall be flushed and cleaned thoroughly. A dynamic flush, following BSRIA procedures, will be required.~~

~~**4.3.4. Pumps**~~

~~The pumps shall be replaced throughout to a similar style as those existing and of such capacity to suit the new boilers and pipework distribution system.~~

~~**4.3.5. Radiators**~~

~~There are a number of existing radiators shown on the drawings.~~

~~The contractor shall familiarise himself with these and confirm the existing radiators are of adequate capacity.~~

~~If additional heating output is required this should be by providing larger radiators than those existing rather then additional radiators.~~

~~This is to minimise pipework modifications. All radiators shall be provided with new thermostatic control valves.~~

~~Where existing DX fan coil units are being removed the contractor shall provide additional heating to those spaces by means of installing radiators or fan convectors.~~

~~It may be possible to provide electric fan convectors in place of LPHW units should this be necessary.~~

~~The style and manufacturer of radiators varies throughout the buildings. New radiators – if required shall match the style and manufacturer of those in the immediate vicinity.~~

~~The contractor shall allow to remove and refit all radiators to enable redecorations. All radiators shall be flushed through prior to re-fixing.~~

~~Where the existing walls are to be removed the existing radiators shall be relocated if adequately sized for the new space.~~

~~If the radiator is not adequately sized, then the radiator shall be removed and the pipework cut back to a point agreed with the Engineer.~~

4.3.6. New Electric Heating System

New electric panel heaters shall be installed to cater for the heating requirement of areas not served by the new simultaneous heating and cooling VRV air-conditioning system.

The capacity of the panel heaters shall be determined to offset heat losses from the buildings to maintain the environmental conditions prescribed in Section 4.2 of this document.

The electric panel heaters shall be fed via 13A switched fuse connectors wired on separate radial circuits. As guidance, more than one heater may be connected onto one circuit providing the load does not exceed 2kW. If this is not possible or suitable, the Contractor shall liaise with the Engineer to discuss a way forward.

4.3.7. Controls

Each separate heating system shall be provided with a new control unit with seven day time switch control and optimisation including all necessary internal and external temperature sensors.

4.4. Mechanical Ventilation

The majority of the existing spaces are naturally ventilated. The exceptions to this are some basement areas and WC's with no external windows.

The works shall comprise replacing existing WC fans.

The contractor shall ensure the fan volumes are in accordance with building regulations as a minimum. Where existing WC's are being stripped out the fans and associated components shall also be stripped out.

The new toilet blocks in the basements shall be ventilated by mechanical systems drawing fresh air and exhausting via heat recovery to external ambient air. Care shall be taken to avoid recirculation of exhaust air. The air volumes shall be based on the building regulation requirements.

Existing WC supply systems shall be removed along with all associated components. The contractor shall ensure that there is adequate means of make-up air ingress to the WC's via doorways or other openings.

Any fresh air supply ventilation units required where natural ventilation is not available shall be provided with heating; filtration; controls (on/off and temperature); heat recovery, where feasible; fans; and other components that are normal for such systems.

All mechanical ventilation systems will be controlled by PIR operation; such that the fans will run during occupation of the mechanically ventilated areas, with an adjustable run-on timer up to 15 minutes.

4.5. Air Conditioning

The existing condensing units in the basement light well shall be removed. The existing in room DX units shall be removed.

All gases shall be extracted and reclaimed in accordance with current regulations. The pipework associated with these units shall be removed and the existing routes identified on drawings for future tenants use.

4.5.1. External Condensers

A VRV comfort cooling system shall be installed in agreement with Camden for the Planning and Listed Building status.

This is envisaged to serve each of the buildings from central condensers located either at roof level or in the rear light wells as indicated on the Architects

drawings. The units shall be installed ~~located in the light wells~~ according to the manufacturer's information.

The condensers shall be selected to provide simultaneous heating and cooling to the BC box for distribution through the buildings.

The Contractor will be required to derive an electrical power supply dedicated to the proposed new cooling system. ~~Although it is believed that there is sufficient power for No. 16 & 17, it may be necessary to apply for an additional supply for the combined supply for No. 18 and 19.~~

The acoustic spectrum of the condensing units shall not exceed 60 dB(A) under design conditions and 50dB(A) under night time conditions. The need for acoustic treatment shall be considered by the Contractor to comply with the requirements of the local authority.

4.5.2. Internal Units

The internal units shall be located as indicated on the architect's layouts. There is a mixture of high level and low level units in the buildings.

The location of the units shall be agreed with the Architect and Engineer before installation.

The acoustic spectrum of the indoor units shall not exceed 40 dB(A).

The low level units shall be provided with a case by the manufacturer, unless agreed with the architect and the engineer. If a case is not required upon delivery, the case will be by others.

4.5.3. BC Box

There shall be one BC box per two floors of each building.

The BC box shall be located in the ceiling void above the WCs, with an accessible ceiling for maintenance.

4.5.4. Controls

The air conditioning units shall be controlled from a central position in the main entrance of each of the buildings.

The location of the controller is to be agreed with the Architect and Engineer.

~~4.6. Gas~~

~~The existing gas system comprises four separate supplies serving each boiler room. Each supply is separately metered. The meters are in the light wells at the front of the buildings.~~

~~The contractor shall ensure the incoming gas flow rates and pressures are suitable for the selected boilers.~~

~~The gas pipework distribution is via various means, some exposed and some running in voids. The contractor shall ensure that all the installation complies with current gas regulations an in particular the ventilation of gas pipes in voids or risers.~~

~~Gas solenoid shut-off valves shall be provided and linked to the fire alarm system so that in the event of any fire alarm all valves will close. Valves shall be reset manually.~~

~~A manual gas shut off button will also be provided in each boiler room to operate the gas solenoid valve associated with that particular boiler.~~

4.7. Testing and Commissioning

All the systems shall be tested and commissioned in accordance with CIBSE codes and recommendation.

Existing pipework systems being retained shall be flushed and treated in accordance with CIBSE guidelines.

Existing ductwork systems being retained shall be cleaned internally to current hygiene standards.

The contractor shall include for seasonal commissioning so that the commissioning is checked under extremes of summer and winter operation.

5.0 PUBLIC HEALTH SERVICES

5.1. Scope of Works

The site comprises of four separate properties known as No's 16 – 19 Southampton Place. These buildings have been physically linked and services interconnected at various places.

The Public Health services are to be cleaned, stripped out, replaced or new services installed in accordance with these requirements.

Materials selected shall be new and wherever possible match those currently installed unless noted or agreed otherwise. The Contractor shall prior to installation submit for acceptance all materials proposed to the Engineer.

The Contractor shall confirm the capacities and performance of equipment as follows:-

- Design and Working Drawings
- Submissions to all relevant authorities and the water supplier
- Sanitation System
- Domestic Water System
- Domestic Hot Water System
- Below Ground Drainage System
- Testing & Commissioning
- Spares

5.2. Design Standards

The Public Health services works shall comply with the current recommendations and requirements of the following:-

- All CIBSE, HSE, CIPHE and BSRIA Publications
- The fire Precautions Act and requirements of the Local Fire Officer
- Health and Safety Act 1974 and subsequent Amendments
- BS 7671 1EE Wiring Regulations, 17th Edition
- Electricity at Work Regulations
- Local Water Authority Regulations

- BS EN 12056:2000 Gravity Drainage Systems Inside Buildings
- The Building Regulations and Local Building Control Officer Requirements
- HSE document L8 Legionnaires' disease
- BS 6700: Specification for design, installation, testing and maintenance of services supplying water for domestic use within building and their curtilages
- BS EN 806 Specification for installations inside buildings conveying water for human consumption
- Water Supply (Water Fittings) Regulations 1999
- BS EN 752 Drain and Sewer Systems outside buildings

5.3. Sanitation System

5.3.1. Existing Installation

The existing sanitation installation consists of a number of gravity soil and vent pipes that drop through each building collecting discharges from sanitary appliances located at each floor level prior to connection to the buried drainage system at basement level.

Materials employed by these systems are for soil and vent pipes generally of cast iron with caulked lead joints, cast iron and copper for 50mm dia vent pipes and a mixture of copper and UPVC for small dia waste and anti siphon pipes.

5.3.2. Sanitation System

The Contractor shall connect all new sanitary appliances to the existing soil and waste stacks or new stacks as indicated or required to suit the new layouts and requirements of this document.

Cast iron stacks to be retained shall be modified employing similar materials.

New SVP’s and stub stacks at basement level shall be of UPVC.

Adequate means of access and ventilation provisions shall be provided.

Soil stacks considered suitable for retention and modification shall be subjected to the air tests required by the regulations and the local authority.

5.4. Rainwater Systems

5.4.1. Existing

The existing above ground rainwater systems comprise a mixture of surface mounted rectangular cast iron pipes with rainwater heads to the front elevations of the buildings and circular cast iron pipes in the light wells and back of house areas.

These rainwater pipes collect run off from the various roof levels and discharge to the combined buried drainage system at basement level.

5.4.2. Rainwater System

The existing exposed rainwater pipes shall be retained; where repairs are required these shall be made employing materials and products of an identical nature.
Existing rainwater heads, rainwater outlets and gutters shall be cleaned out with all debris being removed prior to flushing of the entire system with water.

5.5. Domestic Cold Water Systems

5.5.1. Existing

The existing domestic water systems for each building generally comprise a metered incoming mains cold water supply at basement level which has been routed to connect each sink, tea point or appliance that required drinking water, prior to running through the building to supply the main cold water storage and F&E tanks within the plant rooms at roof level.

Distribution pipework is generally of copper tube with some lead pipework.

5.5.2. Cold Water Supply System

The Contractor shall strip out the entire internal cold water supply distribution systems from the meter to each outlet including storage tanks.

The incoming mains water supply shall connect directly to all fixtures and appliances for provided that suitable supplies are procured or exist and that adequate working pressures are available.

Incoming mains water supply shall connect directly to all fixtures and appliances that require drinking water only. WC's, water heaters etc shall be fed from existing and new pre insulated cold water storage tanks located at roof level.

Tanks shall be designed to provide storage for a 4 hours interruption in supply.

Point of use water heaters shall be selected based upon the down service pressure available. PRV’s shall be incorporated if required by the manufacturer.

The internal domestic water services shall be copper tube to BS EN 1057 with soldered capillary joints or equal and approved.

The supply and distribution system shall be insulated.

All fixtures and appliance connections shall be provided with a service valve with flow limiting cartridge insert to suit application.

5.6. Domestic Hot Water Systems

5.6.1. Existing

Domestic hot water is provided by a mixture of systems.

Distribution pipework is generally of copper tube.

5.6.2. Domestic Hot Water Supply System

The Contractor shall strip out the entire internal domestic hot water systems, including the hot water storage calorifiers, water heaters and distribution pipework.

Local point of use unvented electric water heaters and electric showers shall be provided subject to suitable working pressures being available.

Open vented water heaters may be required in areas with limited supply pressures or where tank fed. Water heaters shall be 7kW instantaneous for single basins 3kW 7 litre capacity for 1-2 basins; 3kW - 15litres for 3-4 basins; 3kW - 30litres for sinks; and 11kW for showers.

All fixtures and appliance connections shall be provided with a service valve with flow limiting cartridge insert to suit application.

Each wash hand basin and sink shall be provided with a TMV2 thermostatic mixing valve set at the required temperature. TMV's shall include isolating valves and check valves.

All hot water supply and distribution pipework shall be provided with thermal insulation and trace heated.

Temperature and/or pressure relief safety valve discharges shall discharge at a suitable location external to the building.

Each point of use electric water heater or shower shall be fitted with a scale – buster by the Rodin Group.

5.7. Below Ground Drainage Systems

The existing below ground buried drainage systems shall be retained and maintained throughout the works.
Connections to these systems shall be made at manholes where indicated on the drawings or as required.

Buried drainage pipes shall be of flexibly jointed cast iron to BS437-Timesaver. Manholes shall be of class B engineering brick construction with double seal, infill covers to the Employer's Agents specification.

All existing drain runs, gullies and manholes shall be cleaned out and flushed through prior to handover to ensure that the systems are clear, free from obstruction and are sound.

5.8. Testing & Commissioning

All the systems referred to in this document shall be tested and commissioned in accordance with the relevant regulations and local authority requirements.

The Contractor shall undertake a CCTV survey of the entire below ground buried drainage systems just prior to handover to confirm that the requirements of this documents have been complied with and that they are sound, clear and free from internal obstruction, 2 colour copies of the survey shall be provided.

5.9. Alternative Domestic Water Distribution System

The Contractor shall submit an alternative price for providing a suitable packaged cold water storage tank and duplicate pump set located at basement level for each building

APPENDIX A

SCHEDULE OF DRAWINGS

APPENDIX A

SCHEDULE OF DRAWINGS

Drawing No.	Title	Scale
4579/V/501	Rainwater Drainage	1:100
4579/S/301	Mechanical Services Lighting Layout – First Floor	1:50

APPENDIX B

SCHEDULE OF MANUFACTURERS

APPENDIX B

SCHEDULE OF MANUFACTURERS

System	Supplier/Manufacturer
Floor Boxes	Remove existing.
Containment	LEGRAND (Swifts) ELECTRIC LIMITED Great King Street North, Birmingham, B19 2LF Tel : 0870 608 9000 Fax : 0870 608 9004 E-mail : legrand.sales@legrand.co.uk
Fire Alarm	EMS Radio Fire & Security Systems Limited Technology House Sea Street Herne Bay Kent CT6 8JZ T:+44 (0) 1227 369 570 F:+44 (0) 1227 369 679
Mains Cables	AEI Cables Durham Road Birley Co Durham DH3 2RA Contact:- Ian Watts Mobile:- +44 7802 336 102
Final Circuit Wiring Protec	AEI Cables Durham Road Birley Co Durham DH3 2RA Contact:- Ian Watts Mobile:- +44 7802 336 102
Fire Control Cables	FP Enhanced Prysmian Cables & Systems Ltd., Chickenhall Lane, Eastleigh, Hants SO50 6YU Tel: 023 8029 5029 Fax: 023 8029 5437 Email: cables.marketing.uk@prysmian.com
Accessories	MK Electric Albany Honeywell The Arnold Centre Paycoke Road Basildon Essex SS14 3EA

System	Supplier/Manufacturer
Lighting	Luxonic. Sarah Davis, Area Sales Manager Mobile: 07748 776049 Tel: 01256 363090 Email: sarahd@luxonic.co.uk Web: luxonic.co.uk