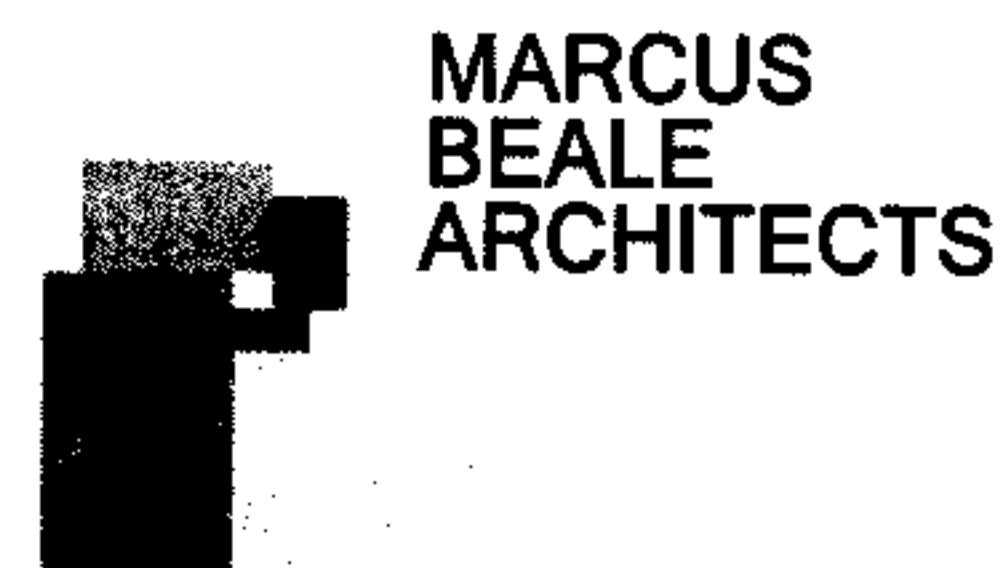


**APPENDIX III  
MECHANICAL ENGINEER'S STATEMENT**

11-12 Great James Street WC2

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## **Mechanical & Electrical Services Outline Design Statement**

February 2008  
Issue 01

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## **1.0 PURPOSE OF OUTLINE DESIGN STATEMENT**

- 1.1 The purpose of this Design Statement is to outline the scope and type of Mechanical Building Services and Electrical Services Systems which will be designed for installation at 11-12 Great James Street, London, WC2
- 1.2 It is understood that the properties are Grade II\* Listed Buildings deemed as "particularly important buildings of more than special interest" and will therefore require approval by the Conservation Officer responsible for this area of London.
- 1.3 The services are to be designed and co-ordinated with the building layouts in order that conservation requirements are satisfied. The services are also to be designed in accordance with the requirements of current Building Regulations and statutory requirements.

## 2.0 DESIGN CRITERIA

2.1 The following design criteria will be used for the purposes of this design:

**External temperature:**

Winter: -5°C Sat.  
Summer: 28°C dry bulb, 19°C wet bulb

**Internal temperature:**

Family Rooms	21°C
Bedrooms	21°C
Dining Rooms	21°C
Reception Rooms	21°C
Morning Rooms	21°C
Studies	21°C
Drawing Rooms	21°C
Kitchens	18°C
Bathrooms	18°C
Dressing Rooms	18°C
Stairs	18°C
Corridors / Landings	18°C

2.2 It is understood that no comfort cooling / air conditioning is required by the client. Therefore temperatures during summer months may exceed those stated above.

### **3.0 INCOMING MECHANICAL SERVICES**

- 3.1 Incoming Mechanical Utilities to the buildings comprise of mains water and gas supplies entering the properties at Basement Level.
- 3.2 Local utilities services providers are to be confirmed and notified of the project requirements.
- 3.3 The service meters will be located in positions which will be decided upon by the utility provider, but will be in positions accessible to them for the purposes of future collection of consumption data.

#### **4.0 PUBLIC HEALTH ENGINEERING**

- 4.1 The domestic internal public health installation will consist of a series of toilet, shower and kitchen areas which will be provided in line with the requirements of current legislation.
- 4.2 Where possible, all toilet areas will have fully concealed pipe work services, which will be installed within the floor joists of each level.
- 4.3 Where showers are installed they will be of the thermostatic mixer type which will allow the user to blend the water temperature to their personal preference.
- 4.4 Existing soil and vent stacks to the rear of the building are to be utilised where possible and new pipework installed in these areas are to be in keeping – appearance wise - with the current installations.

## **5.0 ABOVE GROUND DRAINAGE**

- 5.1 Waste from toilet, shower and tea prep/kitchen areas will be via soil & vent (S&V) pipe work which will be run in concealed zones where practicable.
- 5.2 Pipework routes are to be agreed with the architect and take into consideration the aesthetic requirements of a building of this grade. Where possible, pipework routes shall be hidden within service voids without affecting the existing internal features of the building.
- 5.3 The pipe work installation will be undertaken using uPVC tube and solvent weld fittings.
- 5.4 Vent pipe work will discharge to atmosphere where possible, in the event that this is not practicable, automatic air release valves will be installed to ensure that back pressures do not exist and banks of sanitary appliances will not be detrimentally affected.
- 5.5 Each individual appliance will have an individual water trap. WHBs, urinals and sinks (in kitchen/tea prep areas) will be fitted with a pre formed bottle trap with threaded connections to allow for future maintenance.
- 5.6 Vertical soil stacks within the building will be kept to a minimum and the design will pay careful attention to the requirement to ensure that as little sub surface drainage within the building envelope occurs as is practicable.
- 5.7 Waste floats serving the toilet blocks will also be designed to ensure that siphoning does not occur, with anti siphon pipe work installed where necessary.
- 5.8 All above ground waste pipe work will be air pressure tested to ensure that no leakage of waste or unpleasant odours can occur.



## **6.0 MAINS COLD WATER**

- 6.1 Mains Cold Water enters the properties at basement level and shall be installed with meters and associated isolation valves and non return valves in accordance with Water Byelaws.
- 6.2 The mains water pipework shall be distributed throughout the buildings to serve the kitchen sinks and domestic appliances. Service valves shall be installed for each distribution outlet.
- 6.3 Where possible and within service voids and floor voids, the pipework shall be insulated.
- 6.4 Pipework routes are to be agreed with the architect and take into consideration the aesthetic requirements of a building of this grade. Where possible, pipework routes shall be hidden within service voids without affecting the existing internal features of the building.

## **7.0 DOMESTIC HOT WATER SYSTEM**

- 7.1 Within the basement utility room, adequate domestic hot water cylinders shall be installed.
- 7.2 The cylinders will be sized to allow for adequate storage to offset the congested simultaneous demands likely at peak times.
- 7.3 The HWS cylinders shall be indirectly fed from the LPHW Heating circuit with back-up electrical immersion heaters.
- 7.4 In order to minimise distribution pipework, an electrical trace heating system will be installed allowing hot water at point of use and eliminating cold dead-legs. This will be in place of a return pipework system and circulation pump.
- 7.5 Where possible and within service voids and floor voids, the pipework shall be insulated.
- 7.6 Pipework routes are to be agreed with the architect and take into consideration the aesthetic requirements of a building of this grade. Where possible, pipework routes shall be hidden within service voids without affecting the existing internal features of the building.

## **8.0 LOW PRESSURE HOT WATER HEATING**

- 8.1 Within the properties, space heating to offset sensible heat loss through the building fabric will be provided by a Low Pressure Hot Water (LPHW) heating system which connects a central boiler plant, located within the basement utility room, to a series of heat emitters positioned within rooms. These emitters will either be conventional radiator systems or underfloor heating systems and associated manifolds.
- 8.2 Modular gas fired Lo Nox; high efficiency condensing boilers will be installed within the utility rooms. Each boiler will be individually monitored for gas consumption by an electronic pulse meter which will be monitored by the BMS.
- 8.3 The boiler selection will be based on the sum of the heat losses and system losses, with the required CIBSE margin allowed.
- 8.4 The boilers will discharge the products of combustion direct to atmosphere via a common stainless steel flue located within the existing chimney stacks.
- 8.5 The LPHW system will be of the closed type, system working pressure will be achieved by the installation of a packaged pressurisation unit containing integral expansion vessel, pump and control panel. The unit will automatically adjust to any expansion or contraction of the volume of LPHW within the system and maintain a constant system pressure.
- 8.6 Where possible and within service voids and floor voids, the pipework shall be insulated.
- 8.7 Pipework routes are to be agreed with the architect and take into consideration the aesthetic requirements of a building of this grade. Where possible, pipework routes shall be hidden within service voids without affecting the existing internal features of the building.

## **9.0 TOILET / BATHROOM EXTRACT VENTILATION**

- 9.1 Toilet / Bathroom ventilation will either be by means of openable windows or by forced extraction.
- 9.2 Forced extraction systems will be provided by means of individual extract fans located within the ceiling void spaces and low profile extraction ductwork with discharge via the existing chimney stacks.
- 9.3 Controls of the extract fans will be via light switches and / or PIR switches for the rooms with run-on timers.

## **10.0 INCOMING ELECTRICAL SERVICE**

- 10.1 Due to the previous use of the building the existing electrical installation will be stripped out, the meter position and distribution to the local main sub board will be rationalized, liaison between EDF (LEB) will take place to bring the main power service into the building into either a new meter cupboard accessed from the bottom of the external basement stairs or the existing panels in the proposed new kitchen reduced in size.
- 10.2 Electrical intake and metering are located to the basement in the passage way to the under pavement storage area and the basement room.
- 10.3 From the 100A Three Phase Main Distribution Point sub-main cables will feed into the property.
- 10.4 Main supply cables running to the other floors will be concealed or incorporated with in the basement kitchen units.
- 10.5 Cabling and other services rising up the property will be boxed-in as indicated on the accompanying drawings within the stairs.
- 10.6 Distribution Boards will be located throughout the property, concealed wherever possible.
- 10.7 From the concealed Distribution Boards sub-circuits will run where possible within the fabric of the building, complying with BS7671 guidance notes.
- 10.8 Distribution Boards will be positioned to reduce the final circuit cable lengths.
- 10.9 Power and Lighting will be designed for the property in conjunction with the client's description/specification.
- 10.10 Cable containment has been allowed for the running of comms, phone lines, fire detection, small power and lighting and control cabling.
- 10.11 Cable to be installed within the floor voids will require careful lifting of the existing floor boards, the drilling of floor joists will be kept to a minimum and only carried out once agreed with the conservation representative.

## **11.0 LIGHTING**

- 11.1 Lighting will be designed using current CIBSE Guidelines for the building use.

## **12.0 EXTERNAL LIGHTING**

- 12.1 External lighting will be provided for both out of hours use and security cover. Controls will be applied to suite the facilities use. The lighting will be positioned to reduce any impact to local residences.