

# **3 Hardman Street**

## **LANDLORD'S SPECIFICATION**

### **Contents**

- 1.0 Introduction**
- 2.0 Structural Outline Specification**
- 3.0 External Cladding**
- 4.0 Façade Access Strategy**
- 5.0 Roofing**
- 6.0 Internal Elements & Finishes**
- 7.0 Basis of Building Services Design**
- 8.0 Mechanical Engineering Services**
- 9.0 Electrical Engineering Services**
- 10.0 Public Health Engineering Services**
- 11.0 Utilities**
- 12.0 Retail Provision**
- 13.0 Acoustics**
- 14.0 Environmental Issues**
- 15.0 External Works**
- 16.0 Security**

# LANDLORD'S SPECIFICATION

## 3 HARDMAN STREET

### 1.0 INTRODUCTION

This Landlords Specification provides an outline description of the works to be carried out by the Landlord in constructing the building and fitting out of the occupied areas to the agreed Category 'A' specification and finish, so as to satisfy the Tenant's requirements.

Where the Landlords Specification identifies specific manufacturers or suppliers other alternative equal or approved manufacturers or suppliers may be used subject to Tenant Approval, not to be unreasonably withheld, where the substitution of such materials are:

- a) properly required as a result of statute regulation or the requirement of any competent authorities;
- b) required because of the unavailability or likely unavailability of materials specified herein, provided that they are to be replaced with materials of a like nature or as near as possible equivalent in type, character and design and of an equivalent quality and performance; or
- c) required as a result of unforeseen ground conditions or artificial obstructions in relation to the Site.

All details and drawings contained within this Landlords Specification will be subject to the relevant British Standards and where such standards refer to tolerances these shall be considered to apply to the Works unless otherwise stated.

The reference herein to "Tenant" shall also refer to more than one tenant where applicable.

### 1.1 LOCATION

The project site is located in the Spinningfields area, close to Central Manchester. 3 Hardman Street presides over the key new landmark public space of Crown Square at the heart of Spinningfields. The boundaries of 3 Hardman Street are set by Austin Street and the new RBS Customer Facing Building to the east, Hardman Street to the south, the existing Crown Courts building to the west and the new Magistrates Courts to the north.

### 1.2 BUILDING DESCRIPTION

The functional arrangement of the building will be as follows:

- a) Basement: Car Parking, servicing and plant space on two levels.
- b) Ground Floor: The office entrances are from Hardman Street with the option for additional office entrances on the west elevation. Retail units are located along the north, west and south sides of the building. Main servicing is from Austin Street.
- c) Mezzanine Floor: Possibility of mezzanine level floors to retail units.
- d) Levels 1-14: Office floors with associated WC facilities.
- e) Roof: Plant enclosure at roof level.

Car parking spaces are provided in the basement level car park. Access to the basement car park is via a vehicle ramp off Hardman Street.

The building planning grid is 1.5m.

The siting of vertical circulation and WC's is designed to allow each floor to be capable of subdivision into four separate demises with shared fire escapes routes, lifts and WC's.

Fire escape is designed for a population density of 1 person / 7m<sup>2</sup> except Level 11 (1 person/ 9m<sup>2</sup>)

Disabled access is provided to the building entrance halls via pass doors, and all floors via the lifts.

### 1.3 GENERAL PROVISIONS

The design of the external elevations and interior finishes will be developed with sustainability as one of the key criteria.

Natural finishes such as stone and timber for entrance areas have been specified, as detailed in the following sections, to reflect the proposed use of the building.

Materials are to be selected in accordance with 'Good Practice in the Selection of the Construction Materials' (1997: Ove Arup & Partners).

The Landlords works will comply with the following standards:

- Town and County Planning Act and associated Acts
- Building Regulations
- British Standards Specifications & Codes of Practice
- Local Authority Environmental Health, Fire, Petroleum and Building Control Regulations
- Offices, Shops and Railways Premises Act: 1963
- Health and Safety at Work Act : 1974
- Workplace (Health and Safety and Welfare) regulations
- The Construction (Design and Management) Regulations 1994
- COSHH Regulations
- Requirements of Utility Supply Companies
- Local By-Laws
- Gas Supply Regulations
- Water Authority By-Laws
- IEE Regulations
- CIBSE Recommendations and Design Guides
- CIBSE Commissioning Guides
- BSRIA Commissioning Codes
- HVCA Ductwork Specifications
- Disability Discrimination Act : 1995

and any other relevant Standards.

### 1.4 LIFE EXPECTANCY OF THE BUILDING AND COMPONENT PARTS

The Design Life of the building shall be in accordance with BS 7543:2003 "normal life, minimum period 60 years".

Individual elements/component/assemblies shall be designed and specified to achieve the design life as listed below and in accordance with BS 7543 Table 2.

* structural frame	60 years
* external masonry walls	60 years
* external cladding/curtain walling	25 years
* roof covering	25 years
* internal walls, partitions and cubicles	15-20 years
* mechanical and electrical services generally	10-25 years
* external works/roads/hard landscaping	25 years

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

Materials for the building individual elements/components/assemblies shall be selected during the Detailed Design phase by the Principal Professionals, Principal Contractor and Design Sub-contractors for their durability, low maintenance and service life requirements in accordance with BS 7543:2003 'Guide to Durability of Buildings and building elements, products and components'.

It is assumed that maintenance is to be undertaken as recommended by the manufacturers and suppliers to reflect the recommended Service Life of individual components and that the building is not to be used in a manner likely to cause undue wear and tear. Materials shall be used solely for the purposes intended by the manufacturer and to satisfy the performance and other requirements of the specifications and drawings produced during the detailed design phase.

**1.5 CRITICAL PARAMETERS AND DIMENSIONS**

<u>Setting out Module</u>	<u>Office</u>
Planning Grid	1.5m
Structural Grid (Generally)	9.0m x 15.0m and 9.0m x 18.0m c/s primary structure and 3.0m c/s secondary beams

<u>Heights</u>	<u>Office</u>
1. Floor to ceiling	2850mm
2. Raised floor zone overall (incl deflection, tolerance and floor tile)	150mm
3. Structural zone (including deflection excluding tolerance)	950mm
4. Ceiling construction & Lighting zone	125mm

Car Park headroom to be 2.1m min, in accordance with the Institution of Structural Engineers "Design Recommendations for Multi-Storey Car Parks" 3<sup>rd</sup> Edition: 2002

Vertical dimensions are designed to British Standard tolerances.

**1.6 OCCUPANCY RATES**

WC provision floor-by-floor proportion by sex (M/F) disabled facilities	1:10m <sup>2</sup> 50/60 Male:Female Unisex per floor The WCs are designed to target a population density of 1 person per 10 sqm based on a 110% population (50:60 male : female ratio), with provision of a separate (additional) unisex wheelchair accessible WC cubicle per floor.
Lifts	1:10m <sup>2</sup> net allowing for 20% absenteeism
Air Conditioning	1:10m <sup>2</sup>
Fresh Air	1:10m <sup>2</sup>
Cold Water Storage	1:12m <sup>2</sup> (assuming 24/7 operation)
Means of Escape	1:7 m <sup>2</sup> except Level 11 which is 1:9m <sup>2</sup>

**1.7 ENVIRONMENTAL ISSUES**

A BREEAM assessment will be made on the design. Both the Landlord and the Tenants will work together to ensure that a 'Very Good' rating is achieved using the BREEAM Assessment 2004 for offices within the terms of this Specification.

In order to achieve this 'Very Good' rating it is assumed that :

- (i) Any humidification installed by the Tenant under Category B Works will be generated by steam;
- (ii) Blinds will be added by the Tenant as part of his Category B Works for glare control on all elevations;
- (iii) Metering will be provided by the Tenant as part of his Category B Works for underfloor power as part of the distribution boards;
- (iv) Lighting control : Landlord will provide occupancy and daylight control to open plan layout (control zones no greater than 28m<sup>2</sup>). Tenant to provide any additional control to cellular space.

Factors affecting the global environment include the contribution of energy use to accumulating greenhouse gases, ozone depletion, use of timbers from sustainable managed sources and space for occupants to store materials for recycling.

The building services installation is to be designed to alleviate consequential environmental effects-both passive and active.

Consideration is therefore to be given to the global neighbourhood and internal environment by the following:-

- Limiting carbon dioxide production.
- Utilising refrigerants having zero ozone depletion potential
- Reducing the risk of refrigerant leakage.
- Using insulants free from CFC's where possible.
- Mitigating against the risk of Legionnaire's Disease.
- Exceeding minimum ventilation rates to CIBSE standards.
- Sub-metering of major plant items and tenant areas.
- Use of timber from managed and regulated sources to FSC or PEFC standards.
- Providing space for storage of recyclable materials.
- Avoiding lead based paints.
- Avoiding asbestos products.
- Reducing the emissions of Nitrogen Oxides (cause of acid rain).
- Taking account of water economy.
- Promoting energy efficiency.
- Appropriate use of wood preservatives.
- Minimising risks of discomfort due to overheating.
- Using paints with low or zero VOC's.

**1.8 PROHIBITED MATERIALS**

The Building Works shall be carried out and completed without using any materials generally known to be, or classified as, deleterious in the context of their use and not materially in accordance with the 'Good Practice in Selection of Construction Materials' (1997:Ove Arup & Partners).

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

**1.9 SAMPLES AND BENCHMARKS**

The Landlord acknowledges that during the development of the design the Tenant will have particular interest in the specification of the wall, floor and ceiling finishes and the lighting to the entrance hall, lift lobbies and stairs, toilets (and cubicles) and offices and interface details between building works, ceiling, walls and services equipment installation at perimeter floor zones.

The further designs to be developed from this Specification for these elements shall be presented (drawings, specifications, samples, benchmarks as appropriate) to the Tenant.

**1.10 NOISE & VIBRATION CRITERIA**

Internal

The base building will be designed and constructed to achieve the limiting noise levels set out in the Acoustic Targets Section 7.4 of this Specification.

External

Base building plant will be designed to limit external noise levels to levels that will permit the systems to be run 24 hours per day, 7 days per week. When combined, noise levels from the base building and tenant plant shall not exceed the Local Authority's limitations on noise at the façade of neighbouring buildings. The base building plant and the tenants plant systems shall each, separately, meet a noise level of 3dB below the Local Authority's limitation, in order that external noise requirements are met at all times.

Vibration

The maximum permissible vibration amplitude within lettable space, with all services operating (excluding alarms and emergency equipment), will be designed so as not exceed Curve 4 as described in BS6472 : 1992.

**1.11 DISABLED ACCESS**

The building and its approaches including Hardman Street and the pedestrian routes through Crown Square will achieve level access.

3 Hardman Street will be designed with regard to current requirements and best practices, including the specific guidance outlined in Building Regulations Document M and British Standards 8300, and with reference to the Disability Discrimination Act 1995 (DDA).

An Inclusive Access Statement will be produced. In particular, door thresholds and emergency escape routes will be designed for wheelchair access. All hand controls, such as buttons, lavatory flushes, grab rails and taps will be of a size and shape that facilitates maximum usability.

**2.0 STRUCTURAL OUTLINE SPECIFICATION**

**2.1 GENERAL**

The building rises to a height of 16 storeys (ground, mezzanine, office levels 1-14) plus two plant levels. It is designed with reinforced concrete/steel/composite core shear walls as vertical strong points providing global stability to the superstructure frame of steelwork columns and beams. The steelwork floor beams act compositely with the concrete slab that is supported on profiled metal deck.

The facade system is supported on the top surface of each floor slab at approximately 1.5m centres.

External columns and core areas are founded on pad foundations bearing on to the underlying sandstone.

**2.2 STRUCTURAL DESIGN PARAMETERS**

The structure will be designed for the following additional gravitational loads (other than self weight):  
Superimposed Dead Load:

Ceiling etc	=	0.10kN/m <sup>2</sup>
Access flooring	=	0.50kN/m <sup>2</sup>
Services	=	0.40kN/m <sup>2</sup>
Total Dead Load (excl. self weights)	=	1.0kN/m <sup>2</sup>

Imposed Loads:

Office Areas: Super	=	3.5kN/m <sup>2</sup>
Partitions	=	1.0kN/m <sup>2</sup>
Total Imposed Load	=	4.5kN/m <sup>2</sup>
Basement Plant Areas (including plinths and spreaders)	=	7.5kN/m <sup>2</sup>
Office Entrance areas	=	5.0kN/m <sup>2</sup>
External plaza areas of ground floor	=	10.0 kN/m <sup>2</sup>
Roof Plant Areas	=	7.5 kN/m <sup>2</sup>
Office file storage (max area 5% of floor in locations around the cores)	=	7.5 kN/m <sup>2</sup>
Car Park	=	1.5 kN/m <sup>2</sup>
Retail Units (excluding partitions)	=	5.0 kN/m <sup>2</sup>

**2.3 MATERIALS**

The structural elements of the building will be formed from a combination of reinforced concrete and structural steelwork.

**2.4 SUBSTRUCTURE**

The basement structure is to be a ground bearing slab founded directly on sandstone. The fire rating for the basement structure is generally 90 minutes.

**2.5 SUPERSTRUCTURE**

The superstructure will comprise a steel frame formed by columns and floor beams. The beams will have a series of circular holes positioned along the centre of the beam web to allow services to be distributed across the floor within the depth of the beam.

A core made from linked reinforced concrete/steel/composite shear walls will provide the building's lateral stability. Horizontal loads will be transmitted from the façade by the floor plate diaphragm to the shear walls and then in turn to the foundations. The foundation piles will be designed to resist the lateral shear.

Staircases – Precast concrete flights with precast or in-situ landings or steel with pan treads for infill. Fire fighting shafts to be provided to requisite levels of fire resistance.

Internal steelwork is generally to be unpainted unless otherwise specified by the Architect.

For fire protection of beams, where fire rating is above 90 minutes the fire protection will be by board, spray or concrete encasement. For 90 minutes and below 90 minutes the beams will be protected by intumescent paint.

Columns of all fire rating shall be protected by spray or board at office and retail / entrance levels.

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

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**3.0 EXTERNAL CLADDING**

**3.1 GENERAL**

The external cladding will be formed from a continuous floor to floor wrap around unitised glazed and aluminium curtain walling system with an external brise soleil to control solar gain.

**3.2 GLAZED CURTAIN WALLING**

Glazing generally to be a curtain walling system of glass and aluminium designed to comply with current legislation including the requirements of Part L of the Building Regulations 2006.

Floor to floor glazing. All cladding to align with 1500 mm internal cladding grid.

Double height office entrance lobby to be flush mounted butt jointed double glazed on aluminium mullions set out to 1500mm module.

Retail elevations to be full height silicon butt jointed single glazing on aluminium mullions / transoms on 1.5m grid set back from office floors above. Fully glazed double doors 2.5m high to retail spaces.

Aluminium soffit panels to any overhangs.

Cladding to be thermally insulated in accordance with the requirements of the Building Regulations 2006.

Full single height aluminium framed revolving doors in fully glazed enclosure (including roof). Glazed pass doors to side for deliveries and disabled use only. Doors to be lockable with wireways for tenants own security installation

**3.3 EXTERNAL DOORS**

A framed glass revolving door shall be provided at each main reception to the building together with an automatic operation pass door for means of escape, deliveries and disabled access.

The revolving doors are aluminium framed glass drum enclosures with aluminium framed glass revolving door leafs and circular glass lids.

Pass doors are intended for disabled access and occasional service deliveries only. Each set within a 1.5m wide cladding module. The pass doors are automatically activated on demand by local push button, for travel in either direction.

Vertically mounted side emitting air curtains are located between the pass door and revolving door 'neck' at the side of the revolving door. The heating columns are integrated into the cladding system to provide warm air cover to the pass door openings and inner revolving door opening, on an automatically controlled as-needed basis.

Dimensions are approximate and will be refined during detailed design.

External escape doors shall match adjacent cladding systems.

**4.0 FAÇADE ACCESS STRATEGY**

External cleaning facilities to be provided to all elevations.

Telescopic jib with demountable cradle to run on track around roof perimeter. Enclosed parking bay to be incorporated into main roof plantroom enclosure. Access to ground floor recessed glazing by mobile high level access platform.

Life safety latchway system or regularly spaced safety anchor points to be provided to all areas of the roof where required.

**5.0 ROOFING**

Thermal performance of roof to comply with Building Regulations Part L (2006). Flat roof areas shall generally be of inverted construction comprising two coat polymer modified asphalt waterproofing system covered with an insulation board filter layer and 20-40mm pebble ballast or concrete paving flags on proprietary support pads.

Plant to be supported on continuous or individual concrete upstands or steel posts with a primary steel grillage with steelwork between.

Down pipes or syphonic drainage to be provided to drain the roof and gutters in accordance with British Standards.

**6.0 INTERNAL ELEMENTS & FINISHES**

**6.1 OFFICES**

**Raised floor**

Medium grade (to PSA) Method of Building Performance Specification MOB PF2 PS/SPU (March 1992) raised access flooring comprising 600 x 600mm modular tiles together with fire breaks and closure details. Pedestals shall be mechanically fixed or glued to suit raised floor loadings.

**Carpet**

Carpet to be cut pile heat set and fusion bonded contract grade tiles with PVC 1 fibreglass.

Flammability: When tested to BS 4790 for factor of ignition (hot metal nut test) the carpet shall achieve a low radius of char (up to 35mm).

Spread of flame: When subjected to the radiant panel test to ASTM E 648 the carpet shall achieve a minimum class 1 rating.

Stroll test: The carpet shall have been tested using the stroll test as described in BS EN 1815 to demonstrate that the level of static propensity does not exceed 2.0kV.

**Walls**

Walls to be plaster or taped and jointed dry lined to accept silk emulsion painted finish (one mist; two finishing coats).

Scratch resistance: Paints used shall comply with the minimum requirements of BS EN ISO 1518 'scratch test'.

Life Expectancy: Life expectancy to first maintenance for paint finishes shall be a minimum of 4-5 years.

Compatibility: Where surfaces have been treated with preservatives or fire retardants, the layer coating materials shall be compatible with the treatment and shall not inhibit its performance.

**Skirtings**

Skirting to perimeter of core walls to be MDF with a painted finish.

**Suspended Ceiling**

Acoustic metal tile suspended ceiling in metal grid shall be provided as specialist ceiling system comprising polyester powder coated perforated and solid pressed metal components fixed into purpose designed suspension system with sound-absorbent mineral wool pads sealed in flame-retardant bags.

The ceiling module shall be capable of partitioning on a 1.5m x 1.5m grid. The ceiling shall be accessible via the ceiling tiles excepting those in which sprinkler heads are fixed.

All light fittings and air conditioning diffusers shall be designed and shall be compatible with the ceiling system and fitted flush with the ceiling plane (except, possibly, for light diffusers which may be

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

semi-recessed to comply with CIBSE LG 7). Sprinkler heads will be FOC approved type fitted below the ceiling zone.

**Doors**

Full height doors to entrances to office areas to be hardwood veneered solid core with satin stainless steel ironmongery. Hardwood door frames and architraves. Fire resistance and vision panels as necessary.

Access doors to service risers to office areas to be painted finish with satin stainless steel ironmongery. Painted architraves and frames all to match adjacent wall finish. Fire resistance as necessary.

**6.2 ENTRANCE LOBBIES**

Floors (including ground floor lift lobby) to have natural stone tiles, or similar bedded on a sand/cement screed. Recessed entrance mat to revolving entrance and pass door and extended to suit footfall.

Walls to be r taped and jointed plasterboard dry lining with 3 coats of emulsion paint. Feature walls to reception area . to be glazed or stone tiled or timber panelling

Suspended ceilings to be plasterboard finish or metal tiles with acoustic inserts and access panels (design and location to be agreed with the Tenant in their demised areas).

Doors to be hardwood veneered solid core with satin stainless steel ironmongery. Hardwood door frames and architraves. Fire resistance and vision panels as required.

Full height access doors to service risers to be panellised and painted to co-ordinate with painted wall finish adjacent and to have satin stainless steel ironmongery, painted frames and architraves. Fire resistance as necessary.

Reception desk to be provided. Designed with good quality materials to complement the main entrance design.

**WC to be provided adjacent to entrance lobby**

**6.3 IRONMONGERY**

The ironmongery shall be high quality for visual ironmongery, ie handles, levels, escutcheons etc. Hinges, door closers and un-seen ironmongery to be compatible to visual ironmongery.

**6.4 STAIRCASES AND CORES**

Floor finish to the core stairs from ground floor to upper floors to be vinyl or carpet with contrasting nosings.

Floor finish to stair flights to basement and roof plant level be painted concrete.

Walls to be two coat plaster on blockwork or concrete or where drylined plasterboard, taped and jointed and all finished with 3 coats of matt emulsion paint. MDF skirting. Hardwood veneered solid core doors with satin stainless steel ironmongery and hardwood frames and architraves to office floors. Painted hardwood doors in hardwood frames to car park areas. Hinged access doors to service risers to be painted to co-ordinate with painted wall finish adjacent and to have satin stainless steel ironmongery, painted frames and architraves. Fire resistance and vision panels as required.

Painted mild steel balustrade and stainless steel handrail

Statutory signage and floor numbers to stair lobbies will be provided.

**6.5 LIFTS AND LIFT LANDINGS**

Passenger lift cores to contain 9 (West) and 6 (East) lifts. Finishes / style of lift interiors customised to match entrance and lobby finishes and typically hardwood veneer or stainless steel panelling and

Walls to be plaster or taped and jointed dry lined to accept silk emulsion painted finish (one mist; two finishing coats).

Scratch resistance: Paints used shall comply with the minimum requirements of BS EN ISO 1518 'scratch test'.

Life Expectancy: Life expectancy to first maintenance for paint finishes shall be a minimum of 4-5 years.

Compatibility: Where surfaces have been treated with preservatives or fire retardants, the layer coating materials shall be compatible with the treatment and shall not inhibit its performance.

Lift landings to have medium quality carpet tiles as office areas.

Glass / stainless steel balustrade to bridge links across the atria

Ceilings to lift landings to be painted plasterboard with inset down lighters with metal ceiling tiles with access panels for services.

Statutory signage and floor numbers to lift lobbies will be provided.

**6.6 TOILETS**

The quantity of WC's, urinals and wash basins shall be designed in accordance with BS 6465 : 1994.

The WCs are designed to target a population density of 1 person per 10m<sup>2</sup> net area, based on a 110% population (50:60 male:female ratio), with an adjustment made to recognise the provision of a separate (additional) unisex wheelchair accessible WC cubicle per floor.

Floors to have ceramic floor tiles. Walls generally to be painted plasterboard. Large format ceramic tiles on feature walls. Tiled skirtings throughout.

Laminate faced full height IPS system to walls with service ducts.

Suspended ceiling to be painted plasterboard with inset down lighters.

Toilet cubicles to be from proprietary partition system with full height partitions and doors finished in laminate to match IPS coming with toilet roll holder, coat hook and door lock.

All sanitary ware to be white ceramic. Vanity units to be stone or similar with white ceramic basins. Full height mirror from vanity top to ceiling. Soap dispensers and paper towel dispensers will be provided by the Tenants.

Sanitary ware to the disabled WC's to be white ceramic. Part M pack to disabled WC's to be stainless steel finish.

Cleaner's cupboards including butler's sink with tiled splashback to have painted walls and plasterboard ceiling and painted screeded floor.

**6.7 BASEMENT SHOWERS / CHANGING FACILITIES FOR CYCLISTS**

Ceramic tiled walls, vinyl floor, plasterboard ceiling

**7.0 BASIS OF BUILDING SERVICES DESIGN**

**7.1 BUILDING ENVELOPE PERFORMANCE**

Cladding design including the selection of glass and extent of solid and shaded areas shall meet the requirements of the Building Regulations 2006 and generally restrict maximum perimeter cooling loads generally to 125.0 W/m<sup>2</sup> inclusive of base provision heat gain allowances for small power,

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

people, lighting and ventilation/infiltration (145w/m<sup>2</sup> in corner zones). U-Value for glazing system not to exceed 1.7 W/m<sup>2</sup>K.

All proposed cladding/curtain wall contractors and suppliers shall comply with the BS/EN Standards as stipulated in the Building Regulations.

Cladding/glazing and external wall thermal performance figures shall be equal to or better than those required to meet Part L2 of the Building Regulations.

System U-Values shall be in accordance with EN673 (1999), Glass G-Values shall be in accordance with EN410 (1998) and ISO 9050 (1990).

**7.2 MECHANICAL SERVICES**

The basis of design data has been taken from the following documentation:-

- BCO Guide 2005
- British Standards, Codes of Practice and Building Regulations
- CIBSE Guides and Technical Memoranda
- Local and Statutory Authority Requirements
- Supply Authority Regulations

**Temperature and Humidity**

<b>Outdoor Design Conditions:</b>	CIBSE DSY weather file for Manchester
Air Conditioning	Summer 29°C db, 19°C wb Winter -4.5°C (saturated).
Frost Coils	Sized at -8°C db (saturated)
Cooling Plant Selection	Selected at 32°C db (heat rejection) but capable of operating at up to 35°C at reduced capacity.
<b>Internal Design Conditions:</b>	
Offices	22°C ± 2°C db during occupied hours 50% RH ± 20% (estimated, not controlled)
Entrance Lobby	20°C - 26°C within lobby / reception area (comfort cooled and heated) Electric heaters will be provided in the vicinity of the doors to mitigate any instantaneous heat loss (sometimes to below 20°C in the vicinity of the doors) due to the opening of doors into the lobby area.
Toilets	18°C db (minimum)
Staircases	18°C dry bulb minimum (heating only)
Package Plant Rooms and Service Areas	Naturally ventilated. 10°C dry bulb minimum (heating only)

HV switchgear & transformer rooms	Mechanically or naturally ventilated 10°C dry bulb minimum (heating only)
<b>Occupancy:</b>	
HVAC Design Density	1 person per 10m <sup>2</sup> (office floors)
<b>Casual Gains:</b>	
Occupancy	14 W/m <sup>2</sup> sensible 7W/m <sup>2</sup> latent
Lighting	12 W/m <sup>2</sup> in office areas
Equipment/Small Power	Base Provision – 25 W/m <sup>2</sup> in office areas (fan coil duties) Upgrade Allowance – 15 W/m <sup>2</sup> at riser and central plant Diversity - Central plant diversity to be 80% of total riser capacity related to small power cooling load only.
<b>Ventilation Rates:</b>	
<b>Offices Outside Air:</b>	
Base Provision	12 l/s per person minimum based on 1 person per 10m <sup>2</sup>
Upgrade Allowance	10% for tenant use for specified kitchens and meeting rooms
Toilet Ventilation	10 air changes/hour extract 8 air changes/hour transfer
Plant Rooms	1 air changes/hour minimum
Storage Areas - Outside Air	1.0 l/s per m <sup>2</sup>
Car Park	3-6 air changes per hour under normal operation
<b>Infiltration:</b>	
Offices Floors	Summer - 0.25 air changes per hour for 4.5 m from perimeter. Winter - 0.50 air changes per hour for 4.5m from perimeter. Air testing in accordance with Building Regulations Part L (2006)
<b>Filtration:</b>	Will be to BS EN 779 Secondary F6, Primary G2
<b>Water Storage / Break Tanks:</b>	
Domestic Water Category I	2 l/person with 1 person per 12m <sup>2</sup>
Category II	20 l/person with 1 person per 12m <sup>2</sup>

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

**Sprinklers Installation:**

Offices and Ancillary Areas: Ordinary Hazard Group	III
Density of Heads	1 per 12m <sup>2</sup> maximum
Area of Operation	216m <sup>2</sup>
Type of Heads	LPC approved exposed heads
Max Distance Between Sprinklers	4m (4.6m staggered)
Sprinkler Operating Temperature	68°C

combined with workstation furniture at 1 per 10m<sup>2</sup> will provide an overall working plane cavity reflectance of at least 30%.

The lighting design is based on luminaires with a luminance limit of 1000 cd/m<sup>2</sup> above the luminance limit angle of 65° and assumes the use of Class I or II VDT screens with some negative polarity software

**7.3 ELECTRICAL SERVICES**

The basis of design data has been taken from the following documentation:-

- BCO Guide 2005
- British Standards, Codes of Practice and Building Regulations
- CIBSE Guides and Technical memoranda
- IEE Wiring Regulations (BS7671)
- Local and Statutory Authority Requirements
- Supply Authority Regulations

**Net Office Areas Base Provision**

Lighting:	15W/m <sup>2</sup> (busbar capacity)
Small Power:	25W/m <sup>2</sup> (busbar capacity)
FCU Terminal Reheat Allowance:	60W/m <sup>2</sup> perimeter office (busbar capacity)

**Upgrade Allowances**

Office Areas:	15 W/m <sup>2</sup> (busbar capacity)
Central Plant:	10% additional spare capacity on transformers

**Storage Areas**

Lighting:	10W/m <sup>2</sup>
Small Power:	5W/m <sup>2</sup>

**Plant Rooms**

Lighting:	10W/m <sup>2</sup>
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**Fire Detection/Alarms**

Category:	BS 5839 Type L2
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**Illumination Levels**

Offices:	350 – 500 lux average, maintained level in open plan on working plane with semi-matt diffusers and high frequency control gear. Cavity reflectance will need to be controlled to achieve illuminance ratios compliant with CIBSE / SLL LG7. The calculations and lighting layout will cater for the likely carpet reflectances (ie 20-30% reflectance) which, when
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Toilets	100 lux with enhanced lighting giving approximately 500 lux over vanity units
Corridors and Stairs	150 lux average (100 lux min on stair treads)
Plant Rooms	200 lux
Electrical Switchrooms	200 lux
<b>Miscellaneous</b>	
Plant	50 - 60 W/m <sup>2</sup>
Lifts	5 - 10 W/m <sup>2</sup>

**7.4 ACOUSTIC TARGETS**

The base building will be designed to achieve the following limiting noise levels from the engineering services and is subject to completion of the fit-out in accordance with the Category A Works to the required standard.

Area/Space	Max NR
Open Plan Offices	38
Public Circulation	40-45
Reception Foyer/Entrance	40-45
Toilets	40-45

These relate to any point at least 1m from any room surface.

A relaxation of the above criteria by 10 dB would apply to noise generated by emergency systems.

**7.5 PASSENGER LIFTS**

The basis of design is as follows:-

**General Target Performance**

Handling Capacity:	15% of above ground population in a 5 minute up peak period
Average Interval:	No more than 30 seconds
Occupancy:	1 per 10m <sup>2</sup> net allowing for 20% for absenteeism.
Car Loading:	No more than 80% of rated capacity

**Car Details**

**Passenger Lifts - West (9 No.)**

Type:	Electric Traction Machine Above
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**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

Rated Loading/Capacity:	26 Person / 2000kg
Speed	4.0m/s
Car Size:	2000mm wide x 1900mm deep x 2300mm high
Door Size:	1100mm wide x 2100mm high
Floors Served:	Ground and floors 1 to 13 inclusive

**Passenger Lifts - East (6 No.)**

Type:	Electric Traction Machine Above
Rated Loading/Capacity:	21 Person / 1600kg
Speed	2.5m/s
Car Size:	2000mm wide x 1700mm deep x 2300mm high
Door Size:	1100mm wide x 2100mm high
Floors Served:	Ground and floors 1 to 10 inclusive

**Note – the passenger lifts will include destination control**

**7.6 OTHER LIFTS**

**Goods Lifts (2 No.)**

Type:	Electric Traction Machine-Room-Less (MRL)
Rated Loading/Capacity:	30 Person / 2250kg
Speed	1.6m/s
Car Size:	1500mm wide x 3000mm deep x 2300mm high
Door Size:	1300mm wide x 2100mm high
Floors Served:	Basements, ground and floors 1 to 14 Inclusive (West) and Ground and Floors 1 to 10 inclusive (East)

**Fire Fighting Lifts )/ Car Park Access Lifts (2 No.)**

Type:	Electric Traction Machine-Room-Less (MRL)
Rated Capacity:	8 Person / 630kg
Car Size:	1100mm wide x 1400mm deep x 2200mm high
Speed:	1.6 m/s minimum
Door Size:	800mm wide x 2000mm high
Floors Served:	Basements, Ground, floors 1 to 14 Inclusive (West) and Basements, Ground, Floors 1 to 10 inclusive (East)
Security	A card access system will be provided to prevent access via the fire fighting lifts/car park access lifts to levels above ground floor (other than in the event of a fire).

**High Level Shuttle Lifts (2 No.)**

Type:	Electric Traction Machine-Room-Less (MRL)
Rated Capacity:	8 Person / 630kg
Car Size:	1100mm wide x 1400mm deep x 2200mm high
Speed:	1.0 m/s minimum

Door Size:	800mm wide x 2000mm high
Floors Served:	Floors 13 to 14 (West) and Floors 10 to 11 (East)

**8.0 MECHANICAL ENGINEERING SERVICES**

**8.1 AIR CONDITIONING**

**Office Areas**

The offices will be comfort cooled and heated by a two-pipe fan coil system . Outside air will be supplied at constant volume and scheduled variable temperature (21+/-3°C scheduled) by a central air handling units located at roof level. Constant volume regulators will be provided on supply system risers at floor interfaces.

Space provision will be made in the AHU for future humidification to be installed by the Tenant. Heat recovery will be provided within the main air handling plant.

The open plan office areas will be served by fan coil units to provide heating and cooling under individual local control. Each fan coil unit would typically serve either a 25-30 m<sup>2</sup> perimeter zone or internal zone of up to 81 sqm Secondary ductwork connecting the fan coils to the diffuser plenums will be insulated.

The fan coils will be linked to the base building chilled water system at riser/core interfaces. They will be provided with dampers on each discharge spigot.

Outside air will be distributed from base building core interfaces via an uninsulated ductwork distribution system complete with volume control dampers to the back of the fan coil units. The fan coil units will have air side control utilising pulsed or thyristor control for the heating. Return/extract air will be via the ceiling void into ductwork extract spigots at the core or suction inlets at each fan coil.

Condensate drainage will be provided to link each fan coil to vertical drains provided in the cores or adjacent to columns. Pipework to be insulated for first 3m off fan coil.

**Entrance Hall / Reception Area**

The entrance halls / atriums will be comfort cooled and heated using a dedicated air-handling units, which provides facilities for filtration, heating and cooling. The glass façade will be provided with supplementary local electric heating.

Electric heaters will be provided in the vicinity of the doors to mitigate any instantaneous heat loss due to the opening of doors into the lobby area.

**8.2 TOILET VENTILATION**

Air will be transferred to the toilet lobby areas from the adjacent office ceiling void, using cased fan coil units, which incorporate cooling coils for connection to the Cat A fit-out works.

Air will be extracted from above toilet cubicles and urinals into a ductwork system to roof mounted extract fans which discharge direct to the atmosphere. The extract units will incorporate duty and standby fans with automatic changeover.

**8.3 GENERATOR VENTILATION**

The landlord's generator will be housed in an acoustic enclosure. The landlord's generator is located at roof level.

**8.4 UNITED UTILITIES HV SWITCHGEAR AND TRANSFORMER ROOMS**

The supply authority HV intake substation, located externally at basement level, will be naturally ventilated direct to atmosphere to United Utility standard requirements.

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

**8.5 GENERAL VENTILATION SYSTEMS**

IT Utility Rooms	Naturally vented and/or mechanically assisted, heating to a minimum temperature of 10°C.
Water Storage	Naturally vented and/or mechanically assisted.
Gas Meter Room	Naturally ventilated to outside in accordance with Utility requirements.
Firefighting Lobbies and Stairs	Natural ventilation to vertical shafts or direct to external locations.
Sprinkler Pump Room	Natural and/or mechanically assisted.

**8.6 SMOKE CONTROL VENTILATION**

**General**

Subject to the detailed resolution to the Fire Strategy and agreement with Building Control, the following systems are envisaged:-

**Natural Smoke Ventilation**

All ventilators and louvres for the ventilation systems will be provided to meet the Fire Strategy requirements and suit architectural design.

All necessary power wiring and fire alarm interlinks will be provided to suit the operating requirements of the systems.

- **Fire Fighting Shaft**

Smoke ventilation in accordance with BS5588 Part 5 and BRE Report No 79204.

- **Lift Shaft Ventilation**

Natural ventilation outlet direct to outside (min 0.1m<sup>2</sup> free area each shaft).

**8.7 LOW TEMPERATURE HOT WATER**

Low temperature hot water will be generated by low NOX boiler plant (less than 43mg/kWh) located at roof level. A constant temperature, constant volume pumped distribution system will serve the air handling plant. A pressurised system will be provided with the modular boiler plant served via primary circulating pumps located in a packaged pump module. Electric reheat will be provided where required on perimeter zone fan coil units. Water treatment provisions shall be incorporated into the systems to allow complete cleaning, flushing, treatment, testing and bacteriological cleanliness generally in accordance with BSRIA Guidance AG1/2001 (including strainers, venting, dirt pockets, etc.)

**8.8 CHILLED WATER**

Chilled water will be provided from air cooled chillers located at Roof Level to serve the AHU & fan coil units at constant temperature/constant flow via risers in the main cores. The chilled water system will be pressurised. All pumps will be located in a packaged pump module or integral to the chiller. Water treatment provisions shall be incorporated into the systems to allow cleaning, flushing, treatment, testing and bacteriological cleanliness generally in accordance with BSRIA guidance AG1/2001 (including strainers, venting, dirt pockets etc).

Additional cooling requirements for Cat 'B' ("Process") loads to be provided by separate tenant plant.

**8.9 FLUID CATEGORY 1 WATER SERVICE**

The main office accommodation within the building will be provided with a metered incoming water supply. The supply will connect to Category 1 and Category 2 storage tanks located at basement

level. The incoming supply flow rate will be monitored via the BMS to enable, via trend logging, potential leakage problems to be identified quickly.

A capped boosted cold water connection will be provided to serve future tenant services at each level in each main core.

**8.10 FLUID CATEGORY 2 WATER SERVICE**

A booster pump set will be provided to supply pressurisation units in plant areas and draw off points in sanitary accommodation throughout the building. Urinal water consumption will be controlled using presence detection. Spray taps will be used on all basins.

Provision will be included to allow the Category 2 water to be softened/conditioned if required, by the Tenant, in the future.

**8.11 DOMESTIC HOT WATER**

The toilets will be served with domestic hot water from local electric water heaters. These will be located within, or adjacent to, the toilet areas at each floor level in each main core and will connect to the boosted Category 2 water supply.

Pipework between the water heater and outlet to be trace heated as necessary in accordance with TM13 to minimise legionella risks.

**8.12 GAS**

A gas meter and governor will be located in the gas intake room at basement level. Gas mains will rise in the main cores to serve boiler modules at roof level. An electromagnetic dead weight valve linked to the fire alarms system will be located where the service pipe enters the building.

A valved and blanked connection will be left on the incoming main in the gas meter room at basement level for future tenant use.

**8.13 OIL**

Oil storage for standby generation will be sized to provide a minimum of 12-hour operation of the Landlords generator. The oil tank will be located at basement level in a fire-rated area. Oil from the main storage tank will be pumped to the generator day tank located adjacent to the generator at roof level.

**8.14 WET RISERS**

A wet riser system will be provided with tanks and pumps located at basement level. A wet riser outlet will be provided at each level to each fire fighting core.

**8.15 SPRINKLERS**

The building will be protected throughout by automatic sprinkler installation with the exception, subject to approval by Building Control, of the following areas:-

- Transformer and HV/LV Switchgear Rooms
- Telecommunications Rooms
- Oil Storage Chamber
- Fire Fighting Stairs and Lobbies
- Toilet Accommodation and Lobbies
- Main Entrance Lobbies
- Generator Enclosure

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

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- Means of Escape Corridors
- Basement Car Parks
- Retail Areas

The above areas will be separated from adjacent area by at least 30 minute construction.

False ceiling voids will be non-combustible and therefore will not be protected by the sprinkler installation.

**8.16 HOSE REELS**

Not required.

**8.17 TENANT PLANT & RISER SPACE**

**Office Tenant**

Future tenant plant space will be provided for future use at roof and basement levels.

Future tenant riser space will be provided within the core accessible on every floor.

**Retail Tenant**

Future retail tenant plant space will be provided at roof level and basement level.

Future retail tenant riser space will be provided. Retail tenant access to service risers will be from the office floors.

Space allocation for future office / retail tenant plant to be confirmed following detailed design development.

**9.0 ELECTRICAL ENGINEERING SERVICES**

**9.1 INCOMING SUPPLIES AND MAIN DISTRIBUTION**

**Incoming System Description**

The HV supply to the building will be derived from United Utilities' 6.6kV HV network

**Building Electrical Supplies and Main Distribution**

The building's electrical 6.6kV service will be routed from the United Utilities' switchroom to a landlord's transformer substation within the building.

The main building low voltage switchboard will be divided into two sections, i.e. tenants and landlords.

Power factor correction equipment and connection of the Landlord's generator is provided on the Landlord's section of the LV switchpanel. Space provision is made in the Tenant's LV section of the switchpanel for the addition of automatic power factor correction equipment. Automatic surge suppression equipment is provided in the Landlord's and Tenant's switchpanel. No dedicated provision will be made for the installation of central UPS equipment. If required, this will form part of the tenants fitting out Category B works. Provision will be made in the incoming electrical supply and switchgear provided in the Landlord's LV switchpanel for the power supply to the electric steam injection humidifiers on the main air handling plant.

**Landlords and Tenants Low Voltage Switchboard**

Space provision within Tenant's low voltage section of the switchboard will be provided to support incoming circuit breaker for future tenants standby generator.

Form of separation:

- Main LV panel – form 4 type 6
- Sub mains switchgear – form 4

**Tenants Standby Generator**

Space provision for tenants diesel standby generator and associated switchgear with controls will be provided on the roof.

**Sub-Main Distribution**

Electrical services for each floor will be supplied from rising busbar distribution systems. Each floor will be provided with three phase and neutral tap off points located within riser cupboards for connection to lighting and small power distribution boards. The neutral conductor will be the same size as the phase conductors. Clean earth provision is to be made in each power riser.

**Final Circuit Distribution**

Separate final circuits will be provided to common parts, i.e., staircases, entrance hall, plant rooms, etc., from the Landlord's distribution boards.

Key fire fighting plant and equipment will be supplied via a separately accommodated essential services low voltage switchboard. Duplicate feeds will be provided, via diverse routes, to the following plant:-

- Fire Fighting Lift
- Wet riser pumps
- Sprinkler Pumps

Reception small power, telephone and data will be provided via 2 compartment trunking.

**Electricity Sub-Metering**

To meet the requirements of Approved Document L2 electrical metering will be provided to the following:

Main LV distribution to all Landlords areas.

- LV distribution to tenant's busbars
- Electrical supplies to all principle items of mechanical plant including;
- Air cooled chillers
- Air handling units (supply & extract fans)
- Chilled water circulating pumps
- Boosted water pumps

Sub-metering will be provided to each tenant rising busbar at the main tenant switchboard.

Each office floor will be provided with check meters per tenancy (4 per floor) for metering lighting and fan coil power. The Tenant shall provide check meters within the small power distribution boards installed by the Tenant as part of their Cat B Works. Provision will be made for future connection of the Tenant's meters to the BMS by the Tenant from a local outstation on the floor.

**9.2 STANDBY GENERATOR**

A single set diesel driven standby generator system located at roof level will be provided to support the following:-

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

- Sprinkler pumps and controls
- Fireman's lifts
- Generator fuel transfer pumps
- Fire detection systems
- Passenger/goods lift (sequential homing in accordance with Building Control requirements with one lift remaining in operation)
- Building management systems including UPS back-up to key outstations
- Freeze protection
- Security system
- Cleaning equipment (homing)

**9.3 LIGHTING**

A full lighting installation will be provided throughout the building, with the office areas being supplied/installed under Category 'A', generally in accordance with relevant standards and Codes of Practice. Lighting installation in the office areas also to comply with Lighting Guide 7:2005.

**Artificial Lighting**

The artificial lighting installation will comprise generally of recessed modular fluorescent light fittings, incorporating T5 lamps and high frequency control gear. Overall luminaries efficacy to comply with Building Regulations Part K (2006).

Selected luminaires will be provided with integral battery packs and inverters to maintain operation of the lamps, at a reduced output, in event of power failure.

**Lighting Control**

An addressable lighting control system will be provided to suit split occupancy of each floor. Each port on the LCM will be individually addressable. The system will be fed via plug-in busbars and comprise of proprietary distribution boxes located on a grid within the suspended lighting system linked to switching stations located adjacent to the floor access positions. In addition PIR/illuminance sensors will provide occupancy control and daylight linking to perimeter.

A minimum provision of two spare ports on lighting control modules will be made available for the Tenant to enhance the Cat A lighting scheme to suit his Cat B fitout works.

**Common Areas**

Entrance Hall / Atriums, Staircases etc. To be developed with Architect/Specialist

Plant Rooms. Surface fluorescent, vapour proof.

Power supplies for the above lighting will be derived from the respective landlords distribution boards.

The lighting installation within the car park area/loading bay will be a completely surface installation with surface ceiling mounted luminaires and accessories.

Luminaires will be controlled from key switches via contactors. Lighting within cores and circulation areas will be switched centrally via the BMS.

Lighting installations within plant areas will be suspended on metal conduit/trunking, in positions co-ordinated with ductwork and mechanical plant. Typically these luminaires will be controlled locally.

**9.4 SMALL POWER**

**Fan Coil Units**

Power supplies to the fan coils will be taken from the lighting plug-in busbar system via fused tap-off units/flexible lead terminating on a modular plug/socket arrangement on the FCU.

**Underfloor Power**

All work will be undertaken by the Tenant as part of the Category 'B' Works.

**9.5 LIGHTNING PROTECTION**

An analysis of the building location, structure and contents indicates that lightning protection is recommended.

A system will be provided in accordance with the requirements of BS6651, comprised of the following 3 elements:-

Air Termination Network: Copper tapes at roof level/exposed metal work

Down Conductors: The steelwork structure of the building will be utilised as down conductors.

Earth Electrodes: Separate earth rods or dedicated reinforcement bars in the pile caps.

**9.6 TELECOMMUNICATIONS/DATA**

intake room will be provided for the termination of incoming service ducts from 2 diverse locations and the accommodation of equipment frames for British Telecom and other service providers.

Cable tray/trunking will be installed to inter link the intake room to each telecommunication riser.

2 x 300mm wide cableways will be provided in each IT riser as part of the base build installation for future tenants use.

A limited telephone installation will be provided to service Landlord's facilities as follows:-

- Reception Desk and Seating
- Local Supply Authority Remote Metering
- Direct Dial Security System (Red Care)
- Building Managers Office
- Entry Phone Systems
- Fire Fighting Lifts
- Roof Plant Area
- Basement Plant Area

**9.7 AUTOMATIC FIRE DETECTION & ALARM SYSTEMS**

Automatic fire detection and alarm systems will be provided in accordance with BS5839: Part 1 to achieve Category L2 compliance and the local requirements of Building Control.

The base building fire detection system will be extended, as part of the Category A Works, as required by BS5839, Part 1, 2002, to cover the open plan office accommodation.

**9.8 EMERGENCY LIGHTING**

Emergency lighting will be provided in accordance with BS5266.

The illumination levels achieved in open plan office areas will be in accordance with BS EN 1838. Within the core and staircase areas, luminaires will be provided with maintained 3 hour battery packs

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

and inverters to maintain operation of the standard fluorescent lamps in the event of a supply failure.

Within plantrooms, self-contained emergency lighting units complete with integral batter/inverter/charger units will be installed.

Central test key switches will be provided.

Operational autonomy under mains failure conditions will be 3-hours.

**9.9 DISABLED PERSON CALL SYSTEM**

A complete disabled person call system will be installed in all disabled WC areas to comply with relevant Statutory Regulations. The system shall link all disabled WC's to the status indicator panel located within the security room.

**9.10 DISABLED REFUGE ALARM SYSTEM**

An alarm system for use by disabled persons will be provided connected to call all disabled refuges within the fire fighting cores.

The installation will comprise a call station within the disabled refuge, and remote indication of the source of the call and facility for two way communication between the refuge and the remote central indicator station.

The remote indication/call panel will be located adjacent to the main fire alarm panel.

**9.11 BMS/CONTROLS**

The BMS room is located at basement level.

The BMS head-end installed as part of the base build and network configuration will have an interface for the Tenant to install a system as part of their Category B Works to enable central plant to operate the HVAC system on a floor by floor basis.

Each fan coil unit will be provided with DDC controls to facilitate local adjustment and switching from return air thermostats together with facilities to allow room mounted adjustable thermostats to be added by the Tenant. The head end computer, with system graphics will be accessible for the tenant to adjust the conditions within their space. Energy consumption measurements from BMS connected meters for all primary utilities will be provided.

A digital Building Management System (BMS) will be installed to monitor and control the major functions of the Engineering Services in the building.

To minimise energy usage the system will be arranged so that maintenance staff can interrogate the system using central or portable P.C equipment. An alarm printer and control centre will be provided in the BMS room.

Local stand alone micro processor based intelligent out-stations, networked via a data loop, will gather data from sensors and provided local DDC control. All office air conditioning terminal units will be provided with DDC controllers.

The building management system shall provide the facility on each tenant area (up to two tenants per floor) for the tenant to extend/prolong the operation of the primary air conditioning services outside of the normal core building working periods. This facility will need to be initiated from an override button/switch located within a designated floor area/position. The Tenant shall provide the override buttons/switches and the associated wiring to the nearest fan coil unit controller.

The infrastructure of the building management system shall allow the Tenant to connect a network PC or display device to initiate the override function as an alternative to the manual button/switch.

**Hardware**

Sensors will be provided to monitor the following system conditions :

- High and low level alarms for tanks and sumps
- Temperatures : External ambient, typical Internal ambient (office spaces, computer rooms)
- Air handling system supply and return temperature
- Chilled water system flow and return temperatures
- LTHW system flow and return temperatures
- Fault alarms from major items of plant and equipment
- Fire alarm system fault status
- Fire alarm active
- Mains power and generator status
- Incoming water mains flow rate
- Metering of power consumption for air cooled chillers, air handling units and fans
- Energy monitoring facility will be capable of monitoring the energy usage of individual tenants per floor

The BMS will have the facility to control the following plant functions:

- Start/stop all air handling plant and fans
- Enable/disable chilled water systems
- Enable / disable chilled LTHW systems
- Start/stop toilet ventilation and other miscellaneous systems
- Building optimisation

The BMS will have the facility to reset chilled water flow temperatures

Designated BMS system out-stations only will have un-interruptible power supply to cater for power-failure conditions. Out-stations will be distributed throughout the building as appropriate.

**Software**

The following software will be provided to supervise system operation:

- Graphic system display with dynamic update of system parameters
- Monitor and log any combination of control/sensor points
- Intelligent optimum start and stop of all thermal control systems
- Time programme stop/start
- DDC control algorithms as necessary
- Intelligent indication only of lead/lag and duty/standby plant cycling
- Password access to various security levels of BMS facilities
- Power failure restart schedule (limited to plant items that BMS can enable)
- Trend logging of incoming water flow with alarm
- Monitoring of lifts

**LANDLORD'S SPECIFICATION  
3 HARDMAN STREET**

- Colour graphics facility and associated software
- Software for preparation of energy consumption report
- Maintenance management software
- Trend logging/historical data functions
- Energy usage monitoring
- Maintenance scheduling
- Power consumption monitoring on a floor-by floor basis

**Main Plant Drives**

Fans and pumps to be provided with inverter drives located adjacent to the associated plant. The motive power will be derived from plant power centres (ppc's) located in plantroom areas.

BMS outstations will be distributed throughout plantrooms to monitor and control the M&E services. They will typically have 20% spare points capacity to allow flexibility and expansion.

**9.12 COMMISSIONING**

Commissioning shall be undertaken in a progressive manner in general accordance with the recommendations in the CIBSE commissioning codes, with pre-checks undertaken on system cleanliness, static completion and the like, prior to the pre-commissioning, testing, commissioning and witness testing of each of the building services systems.

**10.0 PUBLIC HEALTH ENGINEERING SERVICES**

**10.1 SANITARY PLUMBING & RAINWATER**

**Sanitary Plumbing System**

The sanitary plumbing pipework system will be designed in accordance with the criteria set down within relevant Codes and the Building Regulations. A ventilated system will be provided to serve all toilet areas, plant rooms and floor gullies.

Capped connections will be provided for future tenant services

**Surface Water Collection System**

The roof areas will be served by syphonic rainwater systems designed in accordance with the criteria set down within the codes, BSEN 12056 part 3 and the Building Regulations Part H3.

**Condensate Drainage**

Separate condensate drainage will be in plastic pipework. Condensate stacks will be provided and will terminate over floor gullies at ground / basement level.

**Drainage Outfall**

The soil and rainwater systems will discharge via new separate connections to the network utilities.

**11.0 UTILITIES**

**Locations**

Investigations have determined services belonging to the utility companies, which are located in either the highways or pavements adjacent to the proposed Spinningfields development site.

Sewer Connections

In accordance with United Utilities requirements, foul water shall discharge to the 'combined' external sewer.

Rainwater and surface water run off shall discharge to the separate surface water sewer.

Both foul and surface water sewers are located in Hardman Street.

Incoming Power

Described in Section 9.1 above.

Telecommunications / Data Services

Diverse routes into and up the building are to be provided with space for 2 service providers.

Allowance to be made for 10 incoming ducts from the Spinningfields site-wide telecommunications duct infrastructure to the building in two separate locations, which will directly connect into the telecommunications intake rooms.

Gas

There will be one main gas supply entering the building at ground level and routed to the gas meter room at basement level.

Final connection arrangements are subject to detailed discussions with the respective suppliers.

Plantrooms associated with the utility services are to be located at the perimeter of a building as close to the point of entry as practical.

**12.0 RETAIL PROVISION**

Segregation between retail and offices to be 90 mins fire rated.

Each retail unit will be provided with a separate monitored feed from the building's central sprinkler system.

Future retail riser space will be provided with links to the retail areas.

Retail tenant access to any roof plant space will be from Landlord's areas. Retail tenant access to service risers will be from landlords areas and /or office areas as necessary.

A dedicated low voltage supply will be taken from United Utilities LV panel to each retail unit terminating at a wall mounted isolating switch. Meters to be installed by others.

Each unit will have a water supply (separate from that from the supply to the office building), which will terminate with an isolation valve and sub-meter.

Each unit will have a separate drainage provision terminating adjacent to the water supply.

A fire alarm interface will be provided in each retail unit linked to an interface module located within the main building.

Containment will be provided to each retail unit from the main building for telecom services.

A valved and blanked connection will be left on the incoming gas main to serve future retail units, if required. Meters to be installed by future retail tenants needing gas.

**13.0 ACOUSTICS**

**13.1 INTRUSIVE NOISE**

Noise break-in to office areas from typical environmental sources will be designed to comply with the design criteria for open plan offices as given in the BCO Guide 2005 'Best Practice in the Specification for Offices'.

**13.2 BUILDING SERVICES**

In order to satisfy both the Manchester City Council's noise requirements specified above and internal design noise criteria, noise limits will be established as an initial guide for mechanical and electrical design. These area specific limits will be narrowed down, as far as is feasible, to item specific limits when item schedules and exact placements are finalised.

Appropriate measure will be adopted to ensure that the noise criterion outside the nearest affected premises is achieved. Measures may include:

- Low noise equipment;
- Double-skin casings to air-handling plant;
- In-duct attenuators;
- Acoustic lagging and lining to ductwork;
- Screening/acoustic louvres.

In order to control transmission of vibration to the building, suitable anti-vibration measures will be installed to vibration generating plant and connected ductwork/pipework, where appropriate.

**14.0 ENVIRONMENTAL ISSUES**

**14.1 PART-L2**

The building will comply with the Building Regulations 2006 utilising the practical guidance provided within the Approved Document L2.

**14.2 BREEAM**

The building will be designed to target a 'Very Good' under the 'Building Research Establishment's Environmental Assessment Method for Offices 2004' (BREEAM).

**15.0 EXTERNAL WORKS**

For further details refer to the Public Realm Works Specification.

External Lighting will be provided to meet Local Authority standards as elsewhere on the Spinningfields Estate. Typically this will provide illumination levels of 30 lux average and 15 lux minimum. The entrance canopies, loading bay and car park entrances will be lit with dedicated lighting to further enhance their profile.

**16.0 SECURITY**

Wire ways for security system wiring will be provided and incorporated within the building fabric as required for perimeter protection at entrance level to openable doors and stairs.

Wire ways for future tenant security system to be installed to each door to office areas.

Provision for a door intercom phone system will be provided to the external entrance doors together with appropriate wire ways.

A CCTV integrated system will be installed at critical areas of the building for surveillance. One colour monitor will be provided at the reception desk for the CCTV monitoring, with control equipment located in the BMS room.