

Development Specification

for

Speculative Industrial Unit with Office

at

**Crosslink 6/46
Rothley Lodge Commercial Park
Rothley
Leicester
LE7 7LS**

June 2020

PROJECT PARTICULARS

THE PROJECT

Name: Rothley Lodge, Crosslink 6/46, Leicester
Nature: New warehouse/production unit with ground and first floor office accommodation complete with external and associated works (the "Development").
Location : Rothley Lodge Commercial Park, A6, Rothley, Leicester

DEVELOPER / EMPLOYER

Rotherhill Developments Limited
The Hunting Lodge
Pera Business Park
Nottingham Road
Melton Mowbray
LE13 0PB

OCCUPIER / PURCHASER

PROJECT MANAGER / EMPLOYERS AGENT

Benchmark Property Limited
Wilson House
Leicester Road
Ibstock
LE67 6HP

ARCHITECT

Stephen George and Partners
Waterfront House
2a Smith Way
Grove Park
Enderby
Leicester
LE19 1SX

PRINCIPAL DESIGNER (CDM REGULATIONS 2015)

Stephen George and Partners

CONSULTING ENGINEER

BWB Consulting
5th Floor
Waterfront House
Station Street
Nottingham
NG2 3DQ

APPROVED INSPECTOR

Building Consents (Approved Inspector Services).
East Midlands Office
Castle Park House
Castle Park
Frodsham
WA6 6SB

SBEM AND ENERGY PERFORMANCE ASSESSOR

Contractor shall appoint

LANDSCAPING CONSULTING

Golby & Luck
Wilson House
Leicester Road
Ibstock
LE67 6HP

CONTRACTOR

To be appointed

GENERAL REQUIREMENTS

INTERPRETATION OF SPECIFICATION

This specification shall be read in conjunction with the Architect's design drawings and the Architects design drawings shall take precedence over this specification in the event of a conflict between them.

In the event of conflict between the Agreement between the Employer or Employers Agent and the Employer or Employers Agent and this specification and/or the Architects design drawings then the Agreement shall take precedence over all.

STANDARDS

All elements of the Development (also termed the "Works"), materials and workmanship shall be designed, constructed and completed generally in accordance with the latest editions of the following "Standards" where relevant, applicable and current at the date of this document.

- The Building Regulations and current amendments.
- The British Standards and Codes of Practice.
- Requirements of the selected Building Control Officer.
- Specific requirements of the Utility Supplies, Local Authorities and Local Planning Authorities.
- Current Health and Safety at Work Etc Act.
- Local Acts of Parliament and Local Authority Bye-laws and/or Regulations.
- The Factories Act.
- Construction (Design and Management) Regulations.
- The Regulatory Reform (Fire Safety) Order (RRO).
- The local Fire Officers Requirements. The Building Act. The Gas Safety (Installation and Use) Regulations. The Construction Products Regulations.
- The Equality Act and Disability Duty from the Disability Discrimination Act.
- The Water Industry Act.
- The Environmental Protection Act.
- The Electricity Supply Act.
- BS 7671 Requirements for Electrical Installations.
- The CIBSE Guides including Technical Memorandums
- The Energy Performance of Buildings Regulations.
- The Site Waste Management Plans Regulations.
- The Control of Asbestos at Work Regulations.

PROPRIETARY NAMES

The term “or equal approved by the Employer or Employers Agent” is deemed to be implied where all proprietary products are specifically mentioned by name.

Where materials are specified to be supplied by a particular manufacturer, the Contractor may substitute an alternative provided it is of equivalent specification, quality and colour (if relevant) and prior approved by the Employer or Employers Agent, such approval shall be obtained in writing.

FINISHES

Prior to finalising colour schedules, all paintwork, wall finishes, floor finishes and suchlike shall be agreed by the Architect and approved by the Employer or Employers Agent.

FIRE REQUIREMENTS

The building shall be designed and constructed in compliance with the requirements of The Regulatory Reform (Fire Safety) Order (RRO) as far as reasonably possible with respect to means of escape, internal fire spread, external fire spread and facilities for the fire service.

The building in occupation shall require the Occupier to evolve this preliminary stage of the RRO to a more detailed plan in compliance with the Workplace Regulations which requires details of how the building shall be occupied and the space operated.

ENERGY PERFORMANCE

The Contractor is required to provide the Employer or Employers Agent with an Energy Performance Certificate and Recommendation Report in accordance with The Energy Performance of Buildings Regulations and subsequent amendments.

The Energy Performance Assessor appointed by the Contractor shall evaluate the SBEM requirements progressively during detailed design and submit a fully compliant SBEM as part of their overall design duties, including making allowance for the full design, procurement and installation of required renewables as required for compliance.

The Contractor shall liaise with and supply to the Energy Performance Assessor such services and building information to allow for detailed and final SBEM calculations to be concluded and for the Energy Performance Certificates to be properly concluded and lodged.

The Works shall be designed and constructed to exceed the minimum standards set out in Building Regulations Part L2 and the following shall be provided to the Employer or Employers Agent by the Employer or Employers Agent prior to the date of Practical Completion:

- Target Carbon Index Emission Rate (TER) calculated using the Simplified Building Energy Model (SBEM) and the production of the final Building Emission Rate (BER) for the as built building.
- The Contractor shall provide all necessary assistance with the Energy Performance Assessors programme for the measurement and mitigation of embodied carbon, including recording energy use, preparing quantities, convening sustainability workshops and providing details of the supply chain.
- An air leakage test shall be carried out by the Contractor prior to the date of Practical Completion and the test should as a minimum comply with BS EN 13829 and achieve the minimum requirement of 2.5m³/hr/m² (for buildings over 100,000 ft²) or 5m³/hr/m² (for buildings under 100,000 ft²) at 50 pascals air pressure and a copy of the compliance report shall be provided to the Employer or Employers Agent.
- Should the Contractor wish to vary the air test assumed in the preliminary design SBEM, he shall firstly seek approval from the Energy Performance Assessor to do so and if permission is granted, the

Contractor shall enhance the building and services installations design accordingly to achieve an SBEM pass. All associated costs shall be included within the Contractors Contract Sum.

Building fabric values incorporated into the above calculations should exceed the performance for the standard of thermal elements and controlled fittings in Approved Document L2B which set the following minimum U-values:

- Floors: 0.22 W/m²K
- Walls: 0.26 W/m²K
- Flat roof or roof with integral insulation: 0.18 W/m²K
- Windows/roof lights: 1.60 W/m²K
- Glazed doors: 1.80 W/m²K

For buildings over 100,000 ft² the target Energy Performance Certificate (EPC) CO₂ Index rating for the building shall be A-25 or better.

MAINTENANCE REQUIREMENTS

Any item requiring periodic maintenance of five years or less shall be positioned to allow safe access for servicing staff and any items requiring all round access shall be provided with a service gantry or similar to provide safe means of access. All plant installed shall be provided with clear safe access to areas requiring servicing.

FLOOR AREAS

The gross internal floor area shall be as follows:

Unit	Warehouse GIA ft ²	Offices GIA ft ²	Mezzanine floor GIA ft ²	Total GIA ft ²	Note

Areas measured in accordance with the current RICS Code of Measuring Practice for Commercial Buildings.

CAR PARKING PROVISION

Unit	Car Parking Spaces (Offices)	Car Parking Spaces (provided and delineated as part of Yard)	Total

HEIGHTS

Unit	Warehouse Clear Under Haunch Height (mm)	Offices (Ground floor) mm	Offices (First floor) mm

- Warehouse: Clear designed heights shall be achieved from finished floor to the underside of steelwork haunch or underside of lowest structural beam.
- Offices: clear designed heights shall be achieved from finished floor to the underside of suspended ceilings or ceilings generally.

LOADINGS- WAREHOUSE AND FLATNESS

The Occupier shall provide their proposed layout of the warehouse racking and any proposed mezzanine floor to be deployed within the warehouse area.

The layout shall generally include proposed leg and floor post locations and imposed loads at each point inclusive of anticipated imposed loads.

Unit	Warehouse UDL	Warehouse Maximum Racking Leg Load	Mezzanine Floors with UDL Loading (assuming a leg grid of 5m x 6m)	Warehouse Flatness Rating (Concrete Society Technical Report 34 Fourth Edition (2013))
	50kN/m ²	75kN	5kN/m ²	FM2

LOADINGS- OFFICES

Unit	Ground floor	First Floor
	5kn/m ² plus 1kn/m ² for partitions	As above

MATERIALS AND WORKMANSHIP

All materials, design and workmanship shall comply with the British Standard Specification, British Standard Codes of Practice and the recommendations of the Building Research Station where appropriate. Where no British Standard exists, the materials shall be of a quality consistent with the performance criteria required.

The whole of the Works shall be executed in a good and workmanlike manner with good and proper materials.

The requirements, printed instructions and recommendations of manufacturers shall be strictly adhered to in the use, installation and application of those materials and products.

Asbestos based products and materials or substances generally known to or believed to be deleterious shall not be specified or used in the Works.

PARTICULAR REQUIREMENTS

SITE CLEARANCE

Site clearance where necessary shall be carried out with the clearance and removal of all undergrowth, structures above and below ground, any hardstanding and the like and the site reduced in level to ground floor formation level.

The formation level shall thereafter be graded, trimmed and compacted prior to formation layers being constructed all as per the Consulting Engineers specification and drawings.

GROUND IMPROVEMENT

Any necessary ground improvement works shall be carried out in full accordance with the requirements of the Consulting Engineer and to the approval of the Approved Inspector.

SUBSTRUCTURES AND FOUNDATIONS

All excavated materials shall be assessed to determine its suitability for re-use as engineered fill and any unsuitable materials shall not be used. The assessment should include field trials if necessary, to determine suitability of fill material and type of compaction plant and methods to be used.

- Earth moving operations shall be carried out with due regard to separately stockpiling topsoil for re-use within these Works or where volumes are surplus then the topsoil shall be located in a dedicated topsoil mound (location to be agreed with the Employer) for re-use elsewhere within the development.
- Earth moving operations shall be carried out with due regard to separately stockpiling suitable soils and sub-soils for re-use within these Works or where volumes are surplus then the soils shall be located in a dedicated spoil mound (location to be agreed with the Employer) for re-use elsewhere within the development.
- Where soils are deemed not suitable for re-use or where volumes exceed those required then they shall be used in soft landscaping areas prior to having topsoil over or they shall be removed from site.
- The Contractor shall evolve the Consulting Engineers earthmoving strategy for the site and such that a cut and fill balance can be achieved by re-working the site sub-soils, where nominal changes in proposed levels are required to achieve this then they shall be agreed with the Consulting Engineer and to avoid removal of surplus materials off site.
- Generally, there shall be no surplus excavated materials to be removed from site.

Applied test procedures shall be undertaken at stages throughout any fill placement operations to confirm the density and degree of compaction achieved. These test procedures should include field and laboratory tests all carried out in accordance with British Standards. Test results shall be validated by the Consulting Engineer who in turn shall confirm any non-compliances and proposed remedial works to the Contractor and copied to the Employer.

The substructure foundations shall be constructed and completed to the Consulting Engineers design. The structure shall be designed in such a manner that all loads are safely transmitted to the substructure foundations. Provision shall be incorporated into the design to accommodate thermal and shrinkage movements in the structure.

- The area is understood not to have elevated levels of Radon.
- The site has been characterised as Characteristic Situation 2 (CS2). Building Type D is considered to be the most appropriate classification for the proposed structure and in accordance with Table 4 of BS 8485:2015, the minimum gas protection score for the site is 1.5 points. Therefore, specific ground gas

protection measures are considered to be required for the proposed structure at the site. A suitable combination of protective measures will act to mitigate the risk from potential ground gases entering the proposed structure.

- The ground slab shall be constructed on a suitably robust membrane with taped joints as may be required for ground gas protection laid on a layer of hardcore with a minimum thickness as stipulated on the Consulting Engineer’s drawings.
- The soils sulphate classification is AC-1.
- The substructure foundations shall be determined by the Consulting Engineer but are understood to be traditional pad and strip foundations.
- The external perimeter of the building shall use a permanent galvanised steel channel former detail.

LIFT PIT AND LIFT

The Contractor shall provide a lift pit, shaft and passenger lift as stipulated in the matrix below.

The Contractor shall include for the cost of supplying and installing an enclosed hydraulic passenger lift of internal dimensions as indicated on the Architect’s drawings. The Contractor shall include for providing a lift plant room if required within the stairwell adjacent to the lift shaft and for all works associated works, including power and commissioning.

The Contractor shall include for providing a fully commissioned programmed (with activated SIM) emergency call phone to each installed lift using a GSM auto dialler (Windcrest or similar approved) with battery backup.

Unit	Passenger lift shaft & plant room shall be provided?	Passenger Lift shall be provided?
	To be agreed	To be agreed

STRUCTURAL STEELWORK

The structural steel frame shall be in steelwork, designed by the Consulting Engineer with connections designed by the steelwork sub-contractor. The basic parameters of the steel frame shall not be altered from the Architect and Consulting Engineers design, without the prior approval of the Employer.

Diagonal bracing shall be circular hollow section and kept within the cavity wherever possible and clear of openings.

- No isolated internal columns shall be permitted other than those expressly shown on the Architects drawings and as approved by the Employer.
- All steelwork shall be shot blasted to BS 7079, second quality, before painting with one coat of epoxy 2 pack high build zinc phosphate with a satin finish to a nominal dry film thickness of 75 microns to give 10 years life to first maintenance, finished colour shall be light grey. Dependant on the required level of fire protection the decoration of the steel may be fully or partly achieved by way an intumescent coating system.
- Cold formed sections will be manufactured from hot dipped galvanised coil.
- Bituminous paint (RIW) shall be applied to steel work within the cavities of external walls or as otherwise indicated on the Architect’s details.

- The structural steel frame shall be designed to accommodate the imposed loadings from the services installations suspended from it and to allow at least 0.25 kN /m2.

All columns shall be designed with pinned bases except where required for Fire Collapse by Building Regulations where the bolts and baseplates shall be partially fixed in accordance with the “Steel Construction Institute” guidance SC1-P313.

Where remedial works are required to webs, flanges, beams, columns or other steelwork that is visible in the completed building the whole area of the affected steelwork will be cleaned and re-coated to provide a uniform appearance.

- COST OPTION:** The structural steel frame shall be painted full gloss white to nearest match the cladding liner panels.

SECONDARY STEELWORK

Secondary brickwork, masonry support or restraint steelwork such as shelf angles, wind posts and the like shall be designed by the steelwork sub-contractor in conjunction with any specialist supplier taking advice where appropriate from the Consulting Engineer, with due regard to the situation, appearance and specific feature requirements of the Employer or Employers Agent.

- Support steelwork for warehouse shutter doors shall be provided as required.

FIRE PROTECTION STRATEGY

The fire protection strategy shall be designed in accordance with Part B of the Building Regulations and to the requirements of the Approved Inspector and the Fire Authority under the Regulatory Reform Order (RRO).

Specifically, fire protection of the warehouse steel frame shall be to the required resistance utilising:

- Intumescent paint to steelwork generally (white).

Where protection of steel stanchions and frames in the offices is necessary, this will be carried out internally in fire proof sheeting or similar cladding or intumescent paint treatment, all to the satisfaction of the Approved Inspector and as required by the Building Regulations.

- The Contractor shall provide to the Employer or Employers Agent all copies of application certificates for all intumescent paint applications prior to closing or covering up any such applications.

GROUND FLOOR SLAB

FLOOR LEVELS

The Contractors shall include for achieving the recommended floor levels contained in the BWB Flood Risk Assessment. This provides for finished floor levels to be a minimum of 150mm above surrounding ground levels

The ground floor structural slab shall be mesh or bar reinforced concrete to the Consulting Engineers design.

- The reinforced concrete warehouse area ground slab shall be minimum 175mm thick.
- The reinforced concrete proposed offices area ground slab shall be minimum 150mm thick.
- The ground slab shall be constructed on a suitably robust membrane with taped joints as may be required for ground gas protection laid on a layer of hardcore with a minimum thickness as stipulated on the Consulting Engineer’s drawings.

- Designed and constructed in accordance with the Concrete Society Technical Report 34 Fourth Edition "TR34".
- The top surface tolerances shall comply with FM2 as defined in Concrete Society Technical Report 34 Fourth Edition (2013) and all associated amendments, for free movement areas of the slab. The floor shall be surveyed to prove its compliance within fourteen days of construction.
- The wearing surface shall have a maximum abrasion depth of 0.1mm when tested in accordance with EN 13892-4 2002. Abrasion testing shall confirm that the appropriate abrasion resistance has been achieved.
- After the final power floating operation, the floor slab shall be sprayed with an acrylic based, curing sealing and hardening coat then cured using a suitable method following the completion of saw cuts for a minimum of seven days.
- The floor shall not be trafficked by any vehicles until the concrete has reached its suitable design strength.

Where joints are provided in the construction of the floor, they should be generally detailed in accordance with TR34 and all associated amendments and designed so that no vertical movement occurs across the joint.

- Where possible the number of joints should be kept to a minimum.
- The Contractor shall prepare a design programme including a proposed design freeze date for the Occupiers racking layout. The Contractor shall co-ordinate joint locations with the racking layout and agree a final joint layout drawing with the Employer or Employers Agent.

All efforts should be made in the construction and detailing of the floor to reduce the possibility of non-induced cracking.

- Maintenance of floor joints following Practical Completion shall be the responsibility of the Occupier.
- There shall be no manholes, rodding access points or inspection chambers within the floor slab.

The office ground floor slab shall be designed as above except that:

- The surface tolerance and finish shall be appropriate to the specified floor finishes.
- The requirement for any floor boxes shall be noted to the ground floor offices slab where a raised flooring system is not specified.

GROUND BEAMS

Ground beams shall be galvanised steel channels to the Consulting Engineer's details.

- Steelwork used below or at ground level shall have suitable treatment to suit its location.

UPPER FLOOR CONSTRUCTION

The upper floors of the offices shall be constructed in in-situ reinforced concrete with permanent metal decking:

- Upper floors shall be designed and installed to the Consulting Engineers design and details.
- Surface finish shall be suitable to receive raised access floor and in-situ concrete shall be power floated smooth.

Areas not specified with a raised floor shall have a minimum 50 mm thick fine concrete screed laid over the

floor and include a layer of structural fabric reinforcement. The top surface of the screed shall be finished to receive floor finishes.

MEZZANINE FLOOR WITH FIRST FLOOR OFFICE WITH KITCHENETTE AND W.C'S BELOW. (PRODUCTION AREA OFF WAREHOUSE)

A steel framed mezzanine floor comprising main steels and secondary purlins shall be provided, to include a steel access stair, creating 300 sq. ft (GIA) of office space on the mezzanine level.

The office shall be enclosed with Gyproc metal stud partition system (clamp & cover) and provided with proprietary insulated suspended ceiling with lay in 600 x 600 LED luminaires.

- Toilets and kitchenette below mezzanine.
- All as the Architects and Consulting Engineer's drawings.
- Include for decoration of the partition panels.
- Emergency lighting and fire/smoke detection shall be provided to comply with building control and fire officer's requirements.

STAIRCASES

The staircases and landings from upper floor offices shall be designed and constructed in precast concrete to the Consulting Engineer's details.

- Balustrades shall be formed in circular brushed stainless-steel hollow section with matching handrails.
- Balustrade infill shall be laminated glass in brackets to match balustrades.

CLADDING

The general wall cladding shall comprise:

- Euroclad Elite 32/1000W profile built up system.
- Laid vertically and horizontally as shown on the Architects Drawings.
- System shall comprise 0.7mm thick HPS200 Ultra (colour from standard colour range and being Gull Grey / Merlin Grey). Non-combustible insulation laid onto 0.4mm thick white liner panel.
- The wall sheets shall be placed and fixed to a bracket and bar system complete with brackets to cold rolled steel purlins with c/w stainless steel self-drilling / self-tapping screws in accordance with the manufacturer's standard details and recommendations.
- Provide all necessary and recommended profiled fillers, fixings and sealants.
- Wall system to achieve a 0.26 W/m²K "U – value

The offices feature wall cladding shall comprise:

- Kingspan K1000 MR Composite Wall Panel System.
- Laid horizontally as shown on the Architects Drawings.
- System shall comprise 0.63mm thick "XL FORTE" (colour from standard colour range and being, RAL Grey White and Anthracite) externally coated finish steel, micro rib profiled sheet incorporating 80mm

thick EcoSafe LPCB / FM - PIR insulation core with 0.40mm thick standard bright white lining enamel coated finish steel internal panel sheet.

- The wall panels shall be laid and fixed to panel joint rails with Grade 316 stainless steel self-drilling / self-tapping screws in accordance with the manufacturer's standard details and recommendations.

Wall Panel system to achieve a 0.26 W/m²K "U" – value.

The wall cladding generally shall have:

- A Confidex® Guarantee for a minimum period of 25 years on Euroclad.
- A minimum period of 25 years XL Forte Guarantee.
- Stainless steel fixings used throughout.
- All flashings and details shall be provided in accordance with the Architects drawings and details.
- Where required, under the Building Regulations to provide fire protection to an external wall, then the non-composite construction shall be upgraded to a firewall status as required by the manufacturer's recommendations.

Profile choice, colour arrangement, orientation and layout of panels shall be as shown on the Architects drawings and in accordance with the requirements of the local planning authority.

The cladding shall be designed to comply with wind loads calculated in accordance with current EuroCode EN 1991.

ROOFING

The roof shall comprise:

- Kingspan KS1000 RW Composite Roof Panel System.
- System shall comprise 0.63mm thick "XL FORTE" externally coated finish steel, Trapezoidal profiled outer sheet (colour to be one taken from manufacturers standard BS / RAL range) incorporating 80mm thick Quadcore EcoSafe LPCB / FM - PIR insulation core; with 0.40mm thick standard bright white lining enamel coated finish steel internal panel sheet.
- The Roof Panels being laid and fixed to cold rolled steel Roof at 1,800 mm centres with colour head Grade 316 stainless steel self-drilling / self-tapping screws in accordance with the manufacturer's standard details and recommendations.
- Stainless steel fixings used throughout.
- A Confidex® Guarantee for a minimum period of 25 years.
- A minimum period of 25 years XL Forte Guarantee.

Detail work to eaves, hip and verge shall be in accordance with the manufacturer's recommendations and standard approved design details.

Rooflights shall be triple skinned GRP:

- Brett Martin, Trilite Class B rooflights or similar approved, 1.60 W/m²k rooflights triple skin to 10% of the warehouse / production floor area.

- Non-Fragile for a period of 20 years.
- The disposition of rooflights over the warehouse/production area shall be as even as possible, subject to constraints imposed by any applicable Fire and Boundary Conditions.

ROOF ACCESS

Roof access hatches are not required unless determined by the CDM H&S Risk Assessments, in which case the Contractor shall include for providing an integrated system roof access system.

The Contractor shall however include for providing a proprietary lifeline system which provides a safe method of accessing, & then safely undertaking, the regular maintenance and cleaning of valley gutters and rooflights and in a manner which provides both fall restraint and fall arrest. The system specified should be of a type as approved by the roof sheet manufacturer, and shall be designed, installed and certified by a specialist provider.

The Contractor shall provide a method statement and risk assessment in the Operations Manual that fully describes for the end user the system, its maintenance requirements and safe method of use.

RAINWATER GOODS

Valley and perimeter gutters shall be membrane lined gutters (single skin or insulated depending on location).

Boundary and valley gutter material shall be a minimum 1.2mm thick nominal pre-galvanised steel, complete with minimum 1.2mm PVC pre-laminated membrane, in accordance with guidance from the Metal Gutter Manufacturers Association (MGMA).

- The gutter system shall have a minimum 25 year guarantee to match the roof system.
- All internal gutters will be factory insulated using rigid 50mm (minimum) thick rock fibre insulation.
- Rainwater outlets shall be tapered to improve water flow down.
- Weir overflow outlets shall be provided at either end and in positions to be approved.
- The gutters dimensions (width and depth), downpipes and the system and be designed to preclude rainwater from flooding in to the building envelope in severe rainfall events.
- The central valley gutter shall be generously sized and include a secondary overflow system and generous weir outlets at both ends for full width of gutter.
- The Contractor shall note that the Architects and Consulting Engineer's drawings of the roof and gutters are indicative. The Contractor shall include for a substantial gutter depth and overall capacity has allowed for anticipated higher UK rainfalls and more frequent extreme weather events.
- The Contractor shall be required to demonstrate that the system as a whole and the gutter capacities are adequately designed before the design is offered to the Employer or the Employers Agent.
- Rainfall design calculations shall take be based upon the recommendations of BS EN 12056 - :2000 and the UK climate change rainfall models for the anticipated life of building as provided by the Met Office UK Climate Change Projections
- The system shall be adequately sized and designed such that water cannot ingress into the building envelope under any condition whatsoever.
- The location of Internal downpipes shall where possible be located to avoid mechanical damage from the Occupiers operations and in locations to be agreed with the Employer.

- External exposed downpipes are to be avoided but where unavoidable will match the colour of the adjacent cladding, unless specified otherwise and their positions shall be agreed.

SIPHONIC ROOF DRAINAGE SYSTEM

Rainwater shall be taken from the gutters by a siphonic drainage system which shall be designed in conjunction with the overall roof and gutter design as well as the underground surface water design to achieve a holistic solution that is fit for purpose and in accordance current good practice and current version of BS EN 12056-3.

The system shall be designed and installed by a recognised specialist sub-contractor such as RWP HDPE Siphonic Rainwater System or similar approved.

- Both primary and secondary siphonic systems shall be provided.
- The Siphonic systems shall be designed to Cat 2 Protection 25 year building life, which equates to an overall rainfall intensity of 0.051 l/s/m² (183.6 mm/hr) to BSEN 12056-3:2000.
- The primary system shall drain 50% of the design rainfall intensity and the secondary system shall drain the balance.
- The primary system shall be connected to the storm drainage system and the secondary system shall discharge to hard paved areas external to the building providing suitable protection to any parts of the building or landscaping that might be damaged by the flow of water from the secondary system.
- The secondary system rainwater outlets shall be evenly distributed along the total gutter length and the secondary discharge points shall be located at either end of the gutter and generally be located approximately 300 mm above FFL.
- Discharge locations shall be agreed with the Employer.
- Internally pipework shall be fully supported using an engineered railing system
- The external drainage shall be designed with regard to the peak flows from the primary siphonic system and connection between the siphonic system and the underground pipework will provide a break at atmospheric pressure. The siphonic system shall discharge into vented inspection chambers/manholes. Vents to be no less than the cross-sectional area of the discharge pipes.

Indicative weir outlets shall be provided to the ends of valley gutters and at 50 m intervals on perimeter gutters to provide advance warning of blockage of the siphonic system. This requirement applies to both single and dual pipe systems. Internal rainwater pipes shall be located within the web of the steel and suitably protected against accidental damage.

CURTAIN WALLING/WINDOWS/GLAZING

The curtain walling and glazing system shown to the office elevations shall utilise recycled aluminium (minimum 35% by volume), fully thermally broken system comprising polyester powder coated aluminium mullions and transoms complete with factory sealed double glazed units with glazed and insulated spandrel panels, where necessary.

- Glazing shall be in 6 mm Antisun on clear glass outer pane or similar approved, 16 mm argon filled space and 6 mm 'low e' clear inner pane to achieve a U value of 1.5 W/m² K.
- Spandrel panels, where necessary, will be in ultra-warm Permawall or similar, insulated panels.
- Opening lights will provided at a minimum ratio of 1:3 of the glazing modules, or as indicated on the Architects drawings, whichever provides the maximum natural ventilation capacity

- Opening lights shall have locking handles and shall have a 150mm opening lockable restrictor stays.
- Windows shall be internally beaded.
- The minimum exposure category under BS 6375 Part 1 shall be 1200Pa/m2.
- Colour of powder coating to windows shall be from standard range.
- Full glazed panels shall have manifestation as a double row of opaque spheres.

ENTRANCE DOORS

The aluminium framed fully glazed main entrance doors shall comprise a pair of doors, door swing to be as shown on the Architects drawings. The doors and windows shall be from the same manufacturer as the curtain walling and windows. Double glazed polyester powder coated aluminium framed doors.

- Colour to match adjacent curtain walling.
- Internal and external glazing below 1,500mm from FFL shall be toughened in accordance with Part K of the approved documents.
- Doors shall have concealed self-closing door devices that can be disabled on activation of the fire alarm.
- Part M compliant, with an opening force of less than 20N and at least a clear opening width of 1000mm.
- Full glazed panels shall have manifestation as a double row of opaque spheres.
- Level thresholds shall be achieved throughout.
- Anti-vandal glazing.
- Glazed screens and doors shall have manifestation as a double row of opaque spheres.
- Suitable ironmongery including insurance grade deadlocks (Europrofile cylinders) and 5No. sets of
- Letter plates shall not be fitted.
- The ground floor office entrance doors shall all be electronically operable comprising an electronic key pad and an intercom linked to the office reception desk and two further designated desks. Internally shall be push pad release. The electronic access shall also be compatible with the internal doors fob access.
- At least one original key (master key suited) and three copies shall be provided to all door locks complete with door identification.

DOOR ACCESS CONTROL

Electronic door access control shall be fitted and compatible with the main entrance access control comprising an electronic key pad and fob access to the following doors:

- Both doors off ground floor entrance core which access canteen and showroom areas.
- Both doors off first floor which access offices areas.
- Push plate egress in addition to access control.

EXTERNAL FIRE EXIT DOORS

External fire exit doors shall be full steel doorsets, located as shown on the Architects drawings.

- Standard ironmongery shall comprise panic bars with a 3-point locking mechanism and restrictor stay.
- Colour of external exit doors shall be from standard colour range.

All external fire exit doors which provide access from a works offices area, or from the warehouse areas, directly to the service/loading yard areas shall be provided with lockable handles set (Euro cylinder) to operate the internal panic bars.

- Provided with eight keys for each lockable external door

One of these doors will be agreed the Tenant/Occupier as the final exit and entry and shall be:

- Final exit door shall be fitted letter plate at lower level, colour matched to door and with lockable fire proof post box fitted to inside face of door.

All external fire exit doors shall be provided with an external steel restraint post to prevent doors opening beyond the straining point of the hinges (note that this can be one of the door defender bollards).

Final exit doors shall discharge onto a level access to the perimeter of the building and to comply with Building Regulations. Where doors exit onto a raised area or platform then any change in level shall be suitably protected with handrail or suchlike to safely direct staff away from the level changes. The raised area or platform should then be ramped down to finished grade level at no more than 1:12 and to comply with current legislation.

Unit.	Powered Sectional Level Access Doors	Dock Leveller & Doors	High Speed Internal Door
	To be agreed	To be agreed	To be agreed

SHUTTER DOORS

The external level access and shutter doors indicated on the Architects drawings shall be as manufactured by Hörmann UK Ltd, reference SPUF42 or similar approved and comprise:

- A445 electrically operated insulated, sectional panel, vertical lift doors with spring support beam at low level for ease of maintenance and 25 mm thermal movement provision on door tracks.
- Clear size 4,000 mm wide x 5,000 mm high with 3 no neutral acrylic double-glazed vision panels in the lower 3rd door section.
- All doors shall have full electrical operation including manual chain and shall operate one touch to open and push and hold to close.
- Doors shall be fitted with high speed electrical motors and door gear and bearings shall be of sufficiently heavy duty to allow 50,000 cycles.
- Fitted with sliding bolts electrically interlocked and anti-fall devices.
- External and internal colours from standard colour range.

The doors shall be composite construction comprising galvanized steel sheet inner and outer faces with

nominal 42 mm x 625 mm deep laminated door panels with micro rib profile to give optimum 'U' value of 0.5 W/m² K.

For personnel safety the door panels shall have an integral finger pinch protection on both sides built in at each moving joint. The bottom edge shall have a safe edge which will stop the door and return 150 mm in case of meeting an obstruction.

Door tracks and moving components at the jambs shall be fully encased with side-track covers.

DOCK LEVELLERS

There are no dock levellers.

WAREHOUSE DOORS: ELECTRICAL POWER & COMMISSIONING

The Contractor shall include for providing permanent power to all installed warehouse doors and dock levellers and for their commissioning.

INTERNAL WALLS

Internal walls where shown on the Architects drawings in blockwork shall be built solid in recycled aggregate (minimum 50% by volume) concrete blockwork laid in cement and keyed for plaster.

- There shall be a panel of blockwork behind the warehouse plant area for fixing of services, height to top of doors cold rolled rail.
- The thickness of the walls shall be as designed by the Consulting Engineer and built in blocks of minimum crushing strength 3.5kN/m² or as otherwise detailed by the Consulting Engineer.
- Within cavities, the cavity wall insulation shall be CFC/HCFC free urethane core board or expanded foam board partial fill or equivalent approved. Cavity barriers shall be provided as necessary within external walls depending on the ultimate cavity insulation regime utilised.
- Wall ties shall be stainless steel.
- Movement joints shall be provided as necessary with appropriately designed and applied sealant joints, typically silicone butt joints colour matched to mortar.
- Lintels as required over openings in blockwork shall be to the Consulting Engineer's requirements to the design and detail of the specialist supplier. Lintels shall be designed and supplied with due regard to the situation, appearance and specific feature requirements of the Employer.

Internal dividing, core area and partition walls constructed in lightweight stud partitioning shall comprise:

- Proprietary stud partitioning using high density board such as GTEC Lafarge Megadeco or similar.
- Where shown on the Architects drawings, compartment walls between the offices, warehouse and production areas shall provide a minimum one-hour fire resistance.
- Compartment wall to be formed in proprietary lightweight metal stud/plasterboard system between warehouse and workshop area to provide a minimum one-hour fire resistance and be taken to underside of portal frame. To be designed and constructed in full compliance with manufacturer's recommendations.

All stud walls shall be skimmed plaster finish.

- Full height to underside of first and second floor offices.

- Cellular offices and particularly meeting rooms shall have acoustic quilt taken to underside of soffit above or placed over suspended ceiling to mitigate noise breakthrough.

INTERNAL GLAZED SCREENS AND WALLS

- None.

INTERNAL DOORS

Internal doors throughout the offices shall be solid core flush doors with non-tropical American light oak hardwood veneers and concealed lipped.

- Frames and architraves shall be softwood, with hardwood where required for fire rating, paint finish full gloss.
- Where required doors shall have an appropriate fire rating and be fitted with intumescent strips, smoke seals and door closers.
- Vision panels shall be provided size 150 mm x 750 mm high in clear glass (safety glass where at low level and not Georgian wired) except to toilet and store doors as shown on the Architects drawings.

Ironmongery shall be appropriate to the location of the door and be Grade 316 stainless steel door furniture with ancillary fittings.

- Manufacturer shall be selected by Architect and approved by Employer.
- All doors shall be lockable with a master key to all doors, sub master key to all ground floor doors and a sub master key to all first-floor doors and three keys per lock.
- Matching kick plates shall be fitted throughout.

RAISED ACCESS FLOOR

Generally, throughout the offices areas provide a Kingspan Access Floors or similar approved:

- RMG 600 PF2 PS/SPU Medium Grade Access Flooring System.
- RMG system for 4.5kN over 300 x 300mm square and DRF system where greater loads exist.
- Panels 600 x 600mm galvanized steel cased with oversize panels at perimeters as necessary.
- Full accessibility.
- Zinc plated pedestals with panel attachment, clamping washer and screw.
- Note that RMG 600 panels are a nominal 31mm thick.
- Sub floor shall be swept clean and vacuumed prior to installing the raised floor system and sub floor shall be sealed in a sealant compatible with the pedestal adhesive resin.

CARPET TILES

Carpet tiles shall be provided to the offices areas, including staircases and comprise:

- Modulys On-line 2 Range heavy contract carpet tiles. (or similar approved)
- 500mm x 500mm low level cut loop pile tufted laid in a quarter turn or tessellated pattern or similar

approved.

- Colours from standard colour range.
- The carpet tiles shall be laid chequerboard.
- Include Gradus nosing to staircases.

ENTRANCE MATTING

The main and secondary entrance shall have Heckmondwicke Dreadnought barrier matting or similar approved to office lobby entrance area.

- Allow a minimum area of 3m deep x width of entrance doors.
- Brushed aluminium framed edging to tiles.
- Ribs at ninety degrees.
- Colour to be agreed from standard range.

VINYL SHEET

Moisture barrier shall be provided by the Contractor to suit moisture content of sub-floor and proprietary movement joints to be used if required.

No materials are to be ordered prior to agreement of the material and colour scheme with the employer's agent.

Vinyl sheeting shall be Polysafe Standard PUR anti-slip, colour from standard range and located generally to the following areas:

- Corridors and passageways from warehouse staff entrances and routes providing access to warehouse staff facilities (where applicable)

TILING GENERALLY

The Contractor shall provide samples and propose and agree a coherent tiling scheme for floor and walls with the employer's agent prior to the order of any materials.

The scheme will allow for contrast for visually impairment, be appropriate for the proposed location with regards to finish and colour and comply with the slip resistance recommended by the manufacturer for the proposed location and application.

No materials are to be ordered prior to agreement of the material and colour scheme with the Employer or Employers Agent.

FLOOR TILING

Floor tiling shall be Johnson's tiles, Absolute Collection Mode Range or Solus Solid Basics and located generally to the following areas:

- Main entrance reception & lobby areas at ground and first floor.
- Toilets at ground and first floor.
- Tea preparation/kitchenette areas – allow two tiles wide in front of the units where situated in an open plan area, or the full floor area of the room where the kitchenette/tea point is enclosed

- Shower areas & Cleaners rooms

The tiles shall be:

- 600mm x 600mm x 11mm thick.
- Epoxy based grout.
- Colour from standard range.
- Compliant with the R Value (slip grading) recommended by the tile manufacturer for the proposed use & location.

WALL TILING

Wall tiling shall be Johnson's tiles, Absolute Collection or Solus Camouflage Range and located generally to the following areas:

The wall tiling shall comprise:

- Toilets to top of door height.
- Showers shall be full height.
- 600mm x 300mm Johnsons tile, Mode Range, colour from standard range.
- Contrast band course at door head height to perimeter and skirting height.
- Note full height mirrors behind wash hand basins shall not require tiles behind.
- Provide quadrants to all external corners and exposed edges of tiles and proprietary movement joints to be used where required.
- Epoxy based grout.
- Wall tiling in shower areas shall be applied to proprietary waterproof tile backer boards installed as manufacturers recommendations.

SUSPENDED CEILINGS

Suspended ceilings shall be as shown on the Architects ceiling plans:

- Armstrong Dune Evo 600mm x 600mm Tegular tiles in lay-in grid system with a stove enamelled finish on wire hangers.
- Toilets and shower shall have Armstrong Dune Evo 600 mm x 600 mm moisture resistant tiles in lay-in grid system.
- An Armstrong Shadowline trim BPT1506H shall be provided.
- The suspended ceiling system shall be earth bonded and to the suspended ceiling manufacturers recommendations.
- Ceilings to stairwells or lobbies to be suitably clipped or incorporate suitable means of accommodating fluctuations in wind pressure. Solid plastered ceilings to be considered as an alternative.
- Cavity barriers shall be provided within suspended ceiling voids as required by applicable legislation.

HARDWOOD /SOFTWOOD/ MDF ITEMS

MDF shall be low formaldehyde MDF.

- Architraves shall be 75mm x 19mm square edge with 10mm chamfer.
- Skirting shall be 100mm x 18mm square edge with 10mm chamfer.
- Window boards shall be 30mm square edge with 3mm chamfer to edge.
- Pipework and drainage boxing where required to toilets shall be constructed in metal stud and plaster.

The entrance lobby areas shall have American light oak hardwood skirting, architraves and woodwork to the ground floor area sized as above and matt lacquer finish.

PAINTING AND DECORATION

All decoration/colours shall be in accordance with the finishes schedule but generally as follows with colours selected by the Architect and approved by the Employer from standard range.

The Contractor shall obtain the architects advice and recommendations with regards to colour contrast in relation to design best practice for building users with visual impairment and in compliance with Part M and recommendations of British Standard 8300:2009

- Softwood/MDF items to be satin finish painted.
- Exposed copper pipework to be chrome plated.
- Plaster finish to be vinyl matt emulsion painted.
- Skimmed soffits and strings to stairs to be vinyl matt emulsion painted.
- Internal general metalwork to be smooth painted.
- Cut edges of veneered finish doors shall be matt lacquered.

FITTINGS AND FIXTURES

The demountable toilet panelling system shall be Amwell Systems Ltd, Ground Floor, Suite 2, Middlesex House, Meadway Corporate Centre, Rutherford Close, Stevenage, Herts, SG1 2EF T: 01763 276200 F: 01763 276222

- Plastic laminate faced (Gloss) made to measure panels in a full height three panel set.
- 20mm board thickness in moisture resistant 650kg/m³ chipboard to V313 with 0.8mm high pressure laminate facings and edges.
- Colour to be confirmed by Architect from the Amwell full Formica washroom range.
- Each toilet cubicle shall have a thumb turn with indicator lock, toilet roll holder and cloaks hook with rubber buffer to back of cubicle door.

The vanity units shall be to the Architects details and comprising:

- 20mm board thickness in moisture resistant 650kg/m³ chipboard to V313 with 0.8mm high pressure laminate facings and edges.

The kitchen units, fittings and splash backs shall be designed, supplied and installed by The Symphony Group or similar approved and generally the canteen shall comprise stainless steel one piece heavy duty sink and drainer, single mixer zip tap, under counter integrated fridge, wall units over all base units, gloss white cabinet doors on white carcass, stainless steel T-bar handles and black granite effect 38mm matt finish worktop.

The first-floor tea preparation area shall comprise base and wall units with an integrated dishwasher and fridge under, circular sink without drainer and single mixer zip tap.

- Allow a Provisional Sum of **£4,000** for the tea point.

The Contractor shall be deemed to have allowed elsewhere for fused electrical spurs above the wall units for the low voltage lighting and for fused electrical spurs, waste pipes terminated to a capped trap and hot and cold-water pipes terminated with a stop valve all as required for the kitchen sink, fridge and dishwasher

The kitchen appliances shall be supplied and installed by The Symphony Group or similar approved.

- Integrated under counter fridge (to first floor tea preparation).
- Integrated dish washer (to first floor tea preparation).

Allow a Prime Cost Sum of **£2,000** for each kitchen for kitchen appliances.

SANITARY APPLIANCES / FITTINGS

All sanitary ware shall be by Vitra or similar approved by Employer

- Basin: Vitra semi-recessed basin 55cm
- Basin Mixer: Vitra wall mounted sensor basin mixer tap.
- Soap: Vitra wall mounted refillable soap dispenser.
- Basin Waste: Chrome popup waste.
- Shower Tray: Ideal Standard Simplicity Range
- Shower: Alto Ecotherm Exposed Shower Pack with thermostatic shower mixer
- Shower Screen: Aqua lux Pivot shower door and side panel, polished silver frame, 1,850mm high.
- Shower DDA: Doc M. Concept Freedom shower pack
- WC Pan: Vitra M line wall hung WC pan, 48cm, short projection.
- WC Seat: Soft close quick release lid and seat, white.
- Flush: Vitra dual flush pneumatic matt chrome plate.
- Urinal: Vitra with auto flush and adjustable timer and cistern miser fitted.
- Mirror: Full width 1,200 high mirror to vanity wall, silver mirror and concealed fixings.
- Locks: Satin stainless-steel finish.

Accessible toilets shall be modified with:

- Ideal Standard Doc M pack.

- Satin stainless-steel grab rails.
- Doc M wall mounted packs S6972A

Each toilet shall be fitted with a white fused spur and an air blade type automatic hand drier.

Where applicable the Cleaners rooms shall have:

- Armitage Shanks or similar Alder cleaners sink with built in splashback and grating.
- Wall mounted heavy duty medium reach hot and cold wall mounted taps.

DRAINAGE ABOVE GROUND

Plastic pipework for WC connections, soil and vent pipes and wastes shall be grey where concealed within voids and white where visible with manufacturers markings concealed.

DRAINAGE BELOW GROUND

Connections from the site boundary to main foul and surface water sewers shall be made in accordance with the requirements of the Local Authority, Statutory Undertaker, and in the case of the private systems, to the Consulting Engineers design.

SURFACE WATER DRAINAGE

The Consulting Engineer shall provide a surface water drainage solution which satisfies the statutory bodies and allows the discharge of all related planning conditions prior to commencement of the works.

The private drainage systems shall be designed and constructed to meet the requirements of the 'Building Regulations Part H' latest revision.

Surface water shall not be connected to the existing pumped system which is now for sewerage only.

The contractor's attention is drawn to the Consulting Engineers document "DRAINAGE STATEMENT" which proposes a surface water drainage strategy.

The surface water strategy proposed by the Consulting Engineer envisages the use of the estates existing surface water system but with additional attenuation by way of the use of oversized pipework to allow for current climate change design requirements.

Below ground drainage shall also generally be to the Consulting Engineers drawings and specification.

The use of flexible drainage systems (e.g. UPVC) are permitted subject to compliance with the above-mentioned documents and manufacturer's recommendations.

Manholes shall be avoided within buildings, heavy circulation areas and adjacent main entrances.

- The car park drainage shall be precast concrete road gullies trapped with rodding eye and fitted with heavy duty cast iron gully grate and frame.

Drainage required to pedestrian areas shall be a linear ACO channel system with heel arrest grate.

- The service yard drainage shall generally be a linear ACO channel system, S Range or the Qmax system and located away from the building and level access doors.
- Alarmed petrol/oil interceptors and full retention separators will be installed as required by the engineer's design or the Local Authority or Environment Agency shall be installed and ventilated to

serve the surface water drainage system with the alarm panels located with the incoming services in the warehouse area.

A full camera survey shall be carried out before Practical Completion to all rainwater and foul drains within the site. The drainage survey results shall be provided to the Consulting Engineer for approval prior to Practical Completion and for direction on any remedial repairs undertaken. A copy of the report and video shall also be provided within the Health and Safety file.

EXTERNAL WORKS

SERVICE ACCESS AND YARD

The service access and yard shall be designed to allow for a standard 24 metre turning circle and surfaced with reinforced in situ concrete with a brushed finish and trowelled margins to the Consulting Engineers design.

- To carry 44 tonne delivery vehicles. The service yard shall be flush with the internal floor slab at shutter door thresholds with a maximum fall of 1:12, falling away from the building.
- The service yard generally shall have a minimum 1:80 fall for drainage away from the building.
- Installation of ACCO drains running across the roller shutter door entrance is not permitted.

CAR PARK

The car parking area shall be as the engineers drawings and notes and shall comprise:

- Macadam surfacing to car parking bays and car park access road minimum 150 mm thick.
- Macadam footpaths.
- White linings to car parking areas, 75 mm width.
- Flush kerbs and tactile paving to all designated pedestrian crossings and pedestrian access points.
- A vehicle height restriction gate shall not be provided to the entrance/exit of the car park.
- Parking bays in concrete yard areas as indicated on the architect's plans shall be marked with white chlorinated rubber line paint or solvent based epoxy marking paint.
- Parking to tarmac areas as indicated on the architect's plans shall be marked with thermoplastic line marking paint
- Disabled bays shall be demarked in yellow lining and include the approved disabled logo and hatched manoeuvring strips.

SERVICE YARD

The service yard shall be as the engineer's drawings and notes and be brushed mesh reinforced concrete with trowelled margins.

- Bay sizes and all longitudinal, contraction, induced expansion and isolation joints shall be formed in accordance with the recommendations of the Consulting Engineer.
- The surface of the concrete shall be finished using a serrated float or wire brush, to provide grooves parallel to the slope of the pavement, with 100 mm trowelled margins and adjacent to the shutters.
- The surface tolerance for the concrete pavement should be ± 10 mm.
- Drainage channels with steel gratings shall not be used in areas of the service yard where they can be trafficked by turning vehicles.

OTHER AREAS

The perimeter building access strip shall be a grey stone aggregate placed upon a suitable membrane and base course with concrete edging.

The shared access road shall be constructed in Asphalt to an adoptable standard but not adopted.

The raised service yard strip can be a lightly brushed concrete blinding or a grey aggregate.

CYCLES STORAGE

Sheltered cycle store(s) shall be provided for each Unit for staff and visitors and located as indicated on the Architects drawings.

- The shelters shall have racks or hoops for minimum of ten cycles, or for more where required by planning, and provide protection from the weather. To have powder coated frames (colour to be agreed) with curved polycarbonate (fire and UV resistant) roof taken down to low level. The Contractors shall include for a minimum 125mm RC brush finished slab shelters laid on compacted hardcore to which the shelter will anchored to.

SMOKING SHELTERS

Excluded.

EXTERNAL SERVICE DUCTS

Mains service cables and pipework shall be provided and extended into the building for data, telephony, electricity, gas and water meter connections.

- Two ducts shall be laid into the building for telephone cables, located at the services entry point and extended to back of adopted highway or the estate road and permanently marked.
- Duct work and draw strings for the supply of electricity from the car park lighting circuit to the position allocated for the totem pole sign shall to be provided.
- Ducts shall terminate in the warehouse plant area.

FIRE EXIT RAMPS

Where ramps are required from fire exit doors these shall take the form of a level landing immediately outside of the doors for the full width of the pavement and a maximum 1:12 slope down to each side in the same direction as the footpath. The edge of the landing and slopes shall be built up with reinforced concrete or brickwork complete with a tubular steel balustrade. The landing and slopes shall be paved to match the footpaths.

- General feathering of the footpath to the level of the fire exits is not acceptable.

INTERNAL AND EXTERNAL BOLLARDS.

Provide 125mm diameter steel bollards on base plates bolted to the concrete floor slab and hardstanding to each side of all vehicle doors both internally and externally.

- Bollards shall be concrete filled.
- Bollards shall be painted black and yellow banded.

FENCING, BARRIERS AND GATES

Where indicated on the site layout drawing to the perimeter of the site and individual Units and to the service yards provide:

- 2.40 m high galvanised paladin fencing, colour green. Pair of manually operated lockable vehicular gates and indicated pedestrian gates.
- Include for 100m duct from each gate to the plant area and for future electrification of gates or voice access and control.

TOTEM SIGNS

The Contractor shall provide an illuminated entrance Totem signs (one to each unit) and foundations to the Architects details. Allow for a curved face aluminium Totem of width 1,000 mm x 3,000 mm (height) x 200 mm depth. Include for duct to switch gear and 24/7 digital timeclock with photocell control.

LANDSCAPING

Generally, to areas as denoted on Architects drawings and in accordance with the requirements of the local planning authority and generally as per the Landscape Architects drawings.

- The Contractor shall prune and tidy any existing trees, hedgerows and highways areas as may be required to be retained suitably protected to facilitate construction of the works.
- The Landscape Architects planting plan shall be complied with and the Contractor shall have produced a more detailed planting plan subject to approval and obtain the approval of the local planning authority.

Grassed areas, trees and shrubs and other planting shall be detailed and described on a landscape plan and agreed with the Local Planning Authority. All to be planted during the construction period with bark mulching, watered, staked and supported as necessary.

- Soft landscaping to have nominal 100mm bark mulch, left slightly below top of adjacent edgings and kerbs.
- Stock to be semi-mature.
- Stock to be bare-rooted.
- Trees planted shall be adequately staked.
- New planting shall take place in the appropriate season.

Maintenance for 12 months or any extended period specified by the local planning authority shall be provided by the Contractor together with protective rabbit and rodent guard fencing. The maintenance obligations shall include weed removal, making up levels, any necessary tying up or spraying as well as the replacement of any dead, dying or damaged plants.

- New planting shall take place in the appropriate season.
- The detailed landscaping proposal shall be agreed with the Employer or Employers Agent in writing.

MECHANICAL AND ELECTRICAL SERVICES

SYSTEM DESIGN CRITERIA

Occupancy

Designed occupancy shall be:

- Offices: 1 person/7.5m²

External Conditions

Designed external conditions shall assume:

- Winter: -4°C dry bulb at 100% relative humidity.
- Summer: 28°C dry bulb / 19°C wet bulb for thermal comfort without the need for mechanical cooling.

Office Internal Conditions

The heating system shall be capable of achieving a winter internal temperature of at least:

- Offices: 21°C winter / Summer control as per CIBSE Guide A, table 1.7.
- Reception: 21°C winter / summer not controlled.
- Toilets: 19°C winter / summer not controlled.
- Circulation: 18°C winter / summer not controlled.
- Stores: 16°C winter / summer not controlled.

Room temperatures for any areas not specifically mentioned above or elsewhere within this specification shall be based on the recommendations of the CIBSE Guides.

Heating systems shall be designed to maintain the above temperatures considering targeted building leakage / infiltration rates within the Part L Assessment Model.

The cooling system shall assume equipment heat gains of 40 W/m² and lighting heat gains of 15 W/m².

Office Fresh Air Supply Ventilation Rates

Ventilation shall be provided to areas as follows:

- Offices: 12 litres/sec/person (supply and extract).
- Toilets: 10 ach-1 (extract), 8 ach-1 (supply)
- Kitchen: 10 ach-1 (extract)

Office Filtration

Infiltration rates shall be taken for the relevant areas as detailed within the CIBSE guidelines.

Noise Criteria

The mechanical system shall comply with the following noise criteria with all finishes and furnishings in position when measured at 1.5m from a grille/diffuser:

- Offices: NR 38dB
- Toilets & Circulation: NR 40dB

External noise criteria shall be agreed with relevant Building Control Officer and Environmental Health Department.

Hot and Cold Water Services

- Maximum velocity: 1.5m/s (2.0m/s for mains water only).
- Pressure drop: To suit available head requirements.

Temperature drop on secondary return circulation shall be 10°C max

WATER SUPPLY

The Contractor shall include for organising and connecting the site and individual buildings to the Severn Trent main installed in the road and verge running parallel to the site which is located as described in the Severn Trent drawing.

The Contractor shall bring in a supply in one or more locations into the site from the utility company supply which is adequate to meet the demands of the proposed buildings and is sized to meet the demand that would be expected by each building considering the overall size, type of use and extent of office accommodation and anticipated total number of staff.

The sizing of the supply(s) should allow for:

- Occupiers potential requirements to install sprinklers systems to accommodate racking and mezzanine floors.
- Fire Hydrants.

The mains supply may be subject to water network fluctuations in pressure.

The new supply shall be metered by the Occupiers nominated service provider and the meter shall be ordered, supplied, paid for and installed by the Contractor for the Occupier.

- The water meters shall be located externally and in a secured location.

The water pipe shall then be brought into the building within the warehouse plant area and distributed from there.

The Building Contract shall provide a **PROVISIONAL SUM** which allows for all the Contractor to procure and provide works to the meter and for the meter only, with below ground supply pipework within the site by the Contractor.

Incoming water supply shall be fed into the building(s) at the single point of entry and located as per the Architects drawings and as approved by the Employer or Employers Agent.

COLD WATER SERVICE

The mains incoming water service shall be extended to serve all requirements detailed within this specification and including all WC's, cisterns, basins and sinks as necessary.

The incoming main shall be provided with a main isolation valve, sterilisation injection point, drain cock, check valve/DRV/RPZ valve, drain cock and isolation valve, all devices shall be provided with unions or flat seats for easy maintenance. Cold and hot water pipework shall be adequately insulated against heat loss and frost damage with Armaflex or similar approved.

Include a building mounted external tap (location adjacent incoming supply) with lockable turning wheel for watering purposes in the location generally as indicated on the drawings or as agreed with the Employer, including an internal isolation valve, back flow prevention device and a wing back hose union bib tap.

Water connections shall be provided with the relevant back flow prevention valves for the water category of outlets being connected. Draw-off points shall be fitted with chrome plated Ballofix valves for maintenance.

HOT WATER SERVICE

Provide un-vented electric instantaneous water heater(s) for hot water supply to all basins and sinks. Location to be above suspended ceiling or within IPS panels or subject to the Employers approval, beneath wash hand basins and other sinks.

- The units shall be immediately local to each hot tap and with one unit to serve each of the wash basin locations in each toilet.

UTILITY SERVICES AND CONNECTIONS

Unit No.	Electric (KVA)	Gas (kWh)	Water (litres / sec)	Notes/Comments

NATURAL GAS SUPPLY

A new gas supply will be required to serve the site.

- The Contractor shall liaise with the gas infrastructure provider (Fulcrum) as necessary to enable the gas supply to be brought into the site from the estate road.
- The Contractor shall include for all the works and materials required to provide appropriately sized underground MDPE pipework installation from the Fulcrum gas meter housings, sized to provide the stated load, to the incoming services location in the warehouse plant area. As well as connecting the office supply the Contractor shall include for providing valved and capped off connection points for the Occupiers to connect their warehouse heating pipework.
- The Contractor shall include for supplying and installing an automatically resetting gas solenoid isolation valvet before any connections or "T off's". Include for linking to the fire detection system.
- The new supply shall be metered by the Occupiers nominated service provider and the meter shall be ordered, supplied, paid for and installed by the Contractor for the Occupier.
- The meter shall be located in the designated warehouse plant area in a location to be agreed with the

Employer and Occupier.

WATER SUPPLY

The Contractor shall liaise with Severn Trent as necessary to enable the water supply to be brought into the site to the water meter point from the supply in the estate road.

- The Contractor shall provide underground MDPE pipework within the Site to the incoming services location in the warehouse plant area and shall include for indicating the location of the incoming supplies with a permanent marker adjacent the adopted highway or estate road.
- The meter shall be located in the designated warehouse plant area in a location to be agreed with the Employer and Occupier.

ELECTRICITY SUPPLY

The electricity supply shall be provided to the buildings at:

- Low voltage, []
- The metered electricity supply shall be procured to provide the Kva given in the table utilities table above
- The meter shall be located in the designated warehouse plant area in a location to be agreed with the Employer and Occupier.

The new supply shall be metered by the Occupiers nominated service provider and the meter shall be ordered, supplied, paid for and installed by the Contractor for the Occupier.

UTILITIES GENERALLY

The Building Contract shall provide a **PROVISIONAL SUM** which allows for the cost of the utility infrastructure provider bringing the supplies to the site boundary in the required locations. The Contractor shall include for connecting the building to these supplies, including the provision of trenching and ducts.

In the case of the electricity supply the Contractor shall liaise with, and make provision for, the siting of the meter within the building in the location agreed with the Employer and connecting the meter to the distribution system. This shall include for the provision of all necessary earthing and bonding.

BUILDING LV DISTRIBUTION

The LV distribution switchboard for the building shall be fitted with a lock and two keys. The switchboard shall be sized to provide sufficient MCCB type outgoing ways for the installation provided by the Contractor plus a further 25% spare ways for future requirements.

- All switchgear has been specified as Schneider.
- The electrical supply to each floor shall be sufficient for a minimum 40W/m² plus lighting load, with a diversified capacity of 30W/m² plus lighting load, between occupied areas.
- Separate sub-main supplies shall be taken directly from the main LV switchboard to serve significant items of equipment such as:

SMALL POWER SYSTEMS

Small power shall be provided to office areas as follows:

Within the raised access floor office areas, floor boxes with recessed lids for carpet inset shall be provided on the basis of 1 per 8m² of net floor area. The boxes shall be suitable for a raised floor system specified elsewhere.

- The boxes shall be located to suit the Employer or Employers Agents proposed desk layouts.
- The boxes shall be pre-wired with power outlets and data outlets.

Within the ground floor offices area without a raised floor then the following shall be provided:

- Boardrooms, where included for, shall have three floor boxes located under the meeting room table and ducted to the wall mounted TV location. The TV wall shall have power and data connections back to the floor boxes under the meeting room table. Wall mounted double switched sockets shall then be set to the perimeter wall equally spaced to all walls except for the glazed partition, seven in total.

Each box shall be three compartment and include:

- A 3 metre flexible power connection to cable trunking systems in the floor void.
- In compartment one - Two 13 amp switch socket outlets.
- In compartment two – Two RJ45 data / phone plates.
- In compartment three – Spare for future installation of outlet plates.
- 13 Amp sockets in floor boxes shall not be individually RCD protected.
- Wall or column mounted socket outlets for cleaning purposes shall be provided throughout circulation areas, corridors and entrance area. These socket outlets shall be hard wired direct from the distribution board on each relevant floor.
- Galvanised metal surface wall mounted 13Amp power outlets shall be provided with galvanised metal conduit where surface mounted to blockwork walls or where fitted in plant room or plant areas.
- Power supplies shall be located within toilet areas for electric hand dryers and terminated to a switched fused spur.
- Spurs shall be positioned away from panel heaters wherever possible.
- Electric blade type hand dryers shall be supplied and installed.
- Small power systems shall NOT be provided to the warehouse area.

LIGHTING SYSTEMS AND CONTROLS

Within office areas which includes the reception and all ancillary areas within the office structure, lighting will be provided for and designed generally in accordance with the current edition of the CIBSE code for interior lighting and the principles set out in CIBSE LG3 addendum.

- 600mm x 600mm modular LED luminaries shall be provided within the suspended ceiling grid to office areas, complete with switch start control gear.
- Fittings shall be warm white.
- Control to office areas shall be achieved by manual switching, zoned per structural bay.
- Individual rooms such as small offices and meeting rooms, stores and kitchenettes shall be controlled

with absence detectors.

- Toilet lights shall be recessed LED fittings controlled via a movement detector on an adjustable timer.
- There shall be an “all lights off switch” at the final exit point.

Additional lighting may be required to be installed to suit the Occupiers office furniture scheme.

The lighting installation design calculations shall be based on the average luminance method to give the following average values on the working plane for the initial layout:

- Office Areas: 450 Lux at desk level with 0.85 uniformity to LG7.
- Entrance Lobby: 300 Lux at desk level with 0.85 uniformity to LG7.
- Others: 300 Lux at floor level.

The above values are minimum maintained (2,000 hr) illumination levels, as defined in the CIBSE Guides.

WAREHOUSE LIGHTING

Provide **COST OPTION** for:

- LED high bay fittings
- Warehouse lighting shall be designed to suit the Occupiers racking and warehouse layouts.
- Free movement area shall be zoned on and off switched.
- Aisles shall be zoned on and off per aisle and able to be set PIR only.
- 170 lux average illuminance to the aisles
- 300 lux average to the open areas.

EXTERNAL LIGHTING SYSTEMS

Car parking, pedestrian and access road areas shall be provided with LED lighting at a maintained services luminance to achieve an even spread of light of 20 Lux, measured at ground level, controlled by a photo electric cell and digital 24hr/7-day time clock as a minimum or as may be required by the Local Authority (planning).

- Wall mounted LED floodlights shall be provided to service yard areas positioned above loading doors.
- Lighting columns where required shall be of the tubular steel base compartment type and shall be hot dip galvanised and "T" washed.
- Feature entrance illuminated bollards to main entrance.
- Wall mounted light over works entrance door.

Floodlights shall be supplemented with further building mounted and column mounted (four minimum) luminaries positioned to service yard and car parking areas to provide a lighting level of 20 lux.

Lighting will be designed, located, controlled and angled to avoid unnecessary impact on neighbouring properties and as far reasonably practical minimise light pollution & aim to conform to “Dark Skies” good practice.

EMERGENCY/ESCAPE LIGHTING SYSTEMS

Provide an emergency/escape lighting system to the requirements of the Approved inspector and local Fire Officer.

- The emergency lighting systems shall comprise a three-hour self-contained non-maintained system converting designated general-purpose luminaires within office areas or utilising devoted fittings.
- Within open plan office areas, emergency lighting mounted in open plan ceiling areas shall be provided to cover notional escape routes using recessed single LED downlights 3hr non-maintained
- Emergency exit signs shall be the hang down illuminated blade style.
- Emergency lighting shall be provided to the warehouse external fire exit doors.
- Emergency Lighting lamps shall generally be LED
- Test key switches will be included to provide ease of testing for each area/zone.

VOICE AND DATA SYSTEMS

The main entrance door shall be electronically operable from within each office suite and using an electronic lock release with a voice intercom and override electronic key pad adjacent the entrance door externally.

- Voice and data cabling shall generally be provided.
- Voice and data systems within the building shall terminate at a patch panel located in a rack within the server room
- The main entrance lobby shall have two floor boxes in a location to be agreed with the Occupier for an intercom and telephone handset.

FIRE ALARM SYSTEM

Provide fire alarm system in accordance with British Standard BS 5839-1:2013, (**Type L1**) with manual call points and all to the requirements of the local Building Control & Fire Officer.

- The main enunciator panel shall be located within the main reception area and shall be fitted flush, not surface mounted.
- The system will include an addressable control panel.
- The panel shall be capable of supporting Redcare, or similar monitoring, by landline and GSM module and this monitoring shall be provided for the first year.
- The panel capacity shall be designed to accommodate additional devices and zones to meet the reasonable expectations of the occupier/tenant when racking out the warehouse area.

OFFICE HEATING AND VENTILATION

A combined all electric heating and cooling system including condensers, above ceiling cassettes with diffusers and heat recovery units.

The Contractor shall provide with the tender return a brief specification for a heating and combined cooling system with an explanatory note on how the system can be extended to accommodate further cellurisation by the Occupier.

The Contractor shall advise the Employer of the make, number and locations of the cassette units at tender stage.

- Provide suitable integrated electronic controls and zone controls.
- Provide a central control unit capable of overriding local controls to programme and set times and days and temperatures.
- The number of ceiling mounted cassette units allowed shall be minimum _____.
- All pipework shall be concealed.

Heating shall be provided to the mezzanine workshop office (applies Unit 3 only), disabled toilet and all other toilet areas by means of slim-line electric wall mounted heaters with integral timer, thermostat and on/off controls. The fused spur shall be positioned below and partly behind the unit such that it is concealed from view. The Contractor shall state where this option has been used.

VENTILATION

Mechanical extract ventilation to toilet facilities shall consist of in-line fans.

- Ground floor toilet facilities shall each have their own in line fan mounted within the ceiling void and extracted to the exterior of the building. First floor toilet facilities shall have their own in line fan mounted within the ceiling void and extracted to the exterior of the building.
- For both of the above a control panel mounted above the ceiling void for each fan shall control the fan automatically and which shall have facility to avoid unnecessary running time.
- Provide a mechanical extract ventilation system capable of providing 6 air changes per hour to all toilet facilities.
- Provide mechanical extract above the kitchen and shower areas. Kitchens & Shower areas will be provided with enhanced levels of mechanical extract (20ach). Shower areas controlled by ceiling mounted humidistats. Kitchen shall be provided with variable speed-controlled extraction. Balancing passive air intakes shall be provided.
- External grilles shall be neatly located and colour matched to surrounding cladding panels.

The unit shall be complete with automatic changeover and the fan shall run on for 15 minutes after the lights are turned off.

WIRING FOR MECHANICAL SYSTEMS

Power and control wiring systems shall be provided to fully support all mechanical engineering systems.

LIGHTNING PROTECTION

The building shall be supplied with lightning protection to meet BS EN 62305-1 Protection against lightning Part 1: General principles and BS EN 62305-2 2006 Protection against lightning Part 2: Risk Management.

SECURITY INSTALLATION

Provide a **COST OPTION** for a security installation comprising:

- Remote keypad in the main entrance lobby and final exit point.
- Keypad style with cover flap and mounted opposite door access and higher (than normal) level.

- PIR coverage of all ground floor office areas with external windows and to offices side of the warehouse wall.
- Auto-dial system to connect to up to five telephone numbers via landline and via GSM dialler module
- The first auto-dial contact numbers shall be provided by the Employer or Employers Agent and then Redcare or similar will be the fifth number plus Redcare or similar will continually monitor the telecoms link.
- This would be a combined installation with the fire alarm.

CCTV INSTALLATION

Provide a **COST OPTION** for a CCTV installation comprising:

- Dome cameras located at each external corner of the building.
- Dome camera coverage of main entrance, works entrance and shutter doors area.
- General coverage of car park, yard and each side of the building.
- Colour high definition.
- Seven day recording back-up server and monitor located within Server Room.
- Remote viewing via an addressable IP Address for viewing on phones or computers.

EXCLUSIONS

Specifically, the following items are excluded from the specification:

- Warehouse racking.
- Furniture, fittings and fixtures except where specifically identified here.
- Telephone instruments and equipment (cabling, patch panel and outlet plates are included).
- Comms/Server Room unless specifically identified in the Architect's drawings
- Computer equipment.
- Commercial Standard canteen/ catering kitchen catering equipment, servery and fittings.
- Provision for RFI screening or other data security measures and any special provision to protect equipment from static electricity effects.
- Standby generation or uninterruptible power supplies.
- All portable firefighting equipment, sprinkler installations, hose reels, and any other firefighting equipment as a requirement of the Local Authority Building Regulations and/or Bye Laws, the Fire Officer, or the specific requirements of the Employer or Employers Agent's insurer
- Maintenance on movement joints after Practical Completion.
- Any external signage (For avoidance of doubt Totem Estate signs are NOT excluded).
- Heating and electrical installations within the warehouse area are excluded, unless required to achieve a Building Control Completion Certificate for the Employer or Employers Agent's shell. Final Exit internal emergency lighting, sounders and call points in the warehouse area are therefore NOT excluded).