

WILLOW HOUSE**STRATHCLYDE BUSINESS PARK****SPECIFICATION****98029/AC(0)01****1.00 Substructure**

Concrete Pad foundations and strip foundations as shown on engineers drawings for warrant application. (Dead and imposed loads shall be calculated in accordance with BS. 6399: Part 1: 1984)

Ground Floor 150mm Concrete slab with 50mm screed powerfloat finish with damp proof membrane as required .

Design imposed floor load shall be 4.0kN/m² plus an allowance of 1kN/m² for partitions.

Stair loads to be 4.0 kN/m².

Weights of building materials to be obtained from BS648: 1964.

2.00 Superstructure**2.01 Frame**

Structural steel frame with composite reinforced concrete floor construction as shown on engineers drawings for warrant application. Finished floor to ceiling heights to be 2700mm.

Overall size of 418mm between underside of slab to underside of ground floor ceiling to allow for option of Recessed Fan Coil units.

All structural steelwork shall comply with BS 5950: Parts 1-5 and part 8:1990. All structural works of aluminium shall comply with CP 118: 1969. All structural timber shall comply with BS 5268: Part 2: 1988 and BS 5268: Part 3 1985. Wind loads shall be calculated in accordance with CP 3: Chapter V: Part 2: 1972. All plain concrete, reinforced concrete, or

PRESTRESSED concrete shall comply with CP 8110: Part 1 and 2.

All masonry construction shall comply with BS 5628: Part 1: 1978.

FIRE PROTECTION

Ceilings:

Sprayed fire protection within ceiling zone.

Ground Floor Columns:

Intumescent paint treatment (60 minutes) brush applied required to protect steel faces within curved column encasures.

First Floor Columns:

Fireline Board or equal on metal framing to internal faces

Second Floor Columns:

Fireline Board or equal on metal framing to internal faces

Steelwork to be fire protected to meet Local Authority's standard of fire protection (60minutes.)

Fire protection generally to be in accordance with the Building Regulations.

STEELWORK

All external exposed steel lintols to be galvanised with oil & grease removed,treated with mordent solution,one primer zinc phosphate,two under coats (mid grey) and one finish gloss (grey).

Fabrication: fabricate components carefully and accurately to ensure compliance with design and performance requirements. Do not permit contact between dissimilar metals in components which are to be fixed where moisture may be present or occur. Finished components are to be rigid and free from distortion, cracks, burrs and sharp arrises. Unless specified otherwise, mitre corner junctions of identical sections.

Finishing welded/brazed joints: Butt joints which will be visible in completed work to be smooth, flush with adjacent edges. Fillet joints which will be visible in completed work to be executed neatly. Grind smooth where specified.

All structural steelwork except that on the perimeter of the building shall not be painted.

Perimeter beams, columns and secondary steelwork shall be shot blasted to SA2.5 and primed with high build zinc phosphate primer (75 microns, min. DFT). Shelf angles to support brick cladding shall be galvanized and bitumen painted,

All exposed external steelwork to be factory shopblasted to swedish grade SA2.5 and given 2 pack zinc rich epoxy (25 microns) with 2 pack epoxy M.I.O(2 coats of 85 microns). Finish to have high build chlorinated rubber (75 microns).Colour White.

2.02 Upper Floors

Concrete slab 150mm thick of Holorib deck with powerfloat finish.

Design imposed floor load shall be 4.0kN/m² plus an allowance of 1kN/m² for partitions.

Raised Access floor 150mm Thorsman Torfloor Medium Grade system to all floors to receive carpet finish. Floor cavity barriers: Rockwool Access Floor Fire Stop at no more than 20m in any direction.

2.03 Roof

Pitched

Pitch 10° generally.

Roof Construction to be built up system by Kalzip or equal.

To be built up with Natural stucco aluminium top sheet onto ST clip spacers onto 180mm Rockwool compressed to 155mm on a breather membrane onto Kal-Liner 35/200sheet secured onto sheeting rails or purlins as necessary. Flashings as required to be aluminium with polyester powder finish grey colour.

Roof ventilation to satisfy all statutory Local Authority Regulations.

Insulation as required to comply with all regulations. (U-Value= 0.24 W/m²°C)

Flat Roof

Ballusted flat roof to comprise: 600x600x50mm precast concrete paving slabs on Caro slab supports on Sarnafil TG 66 15 F.P.O. single ply roofing membrane on loose laid Polyfoam Plus 220 extruded polystyrene roof board on Sarnavap 1000 vapour control layer on screed laid to falls on concrete slab to engineers design (u-value=0.39 w/m²deg c.

Installation in accordance with manufacturers instructions.

Insulated roof light kerb to roof lights.

Water Tanks

Water tanks supported on piers on concrete floor slab over toilet core.

Access to tanks via external flat roof area.

Gutters/RWPs

2mm Aluminium Bullnose Gutter in 3.0m lengths onto 50x5 Galvanised butt strap supports with Polyester Powder Coated Finish-Ral 7000. Internal gutter itself 1.5mm Steel gutter continuous .Overflows at ends of runs.

0.7mm Aluminium flashing above and below external U-Channel bonded onto 9mm Plywood. 25x25 steel angle fixings behind aluminium flashings to fix to U-Channel with clear silicone Mastic Pointing between.

0.7mm Butt straps between continous panel sections.

Wall Mounted Aluminium 0.7mm Polyester Powder Coated RWP Bracket 150mm centred off wall to receive 100mm Aluminium Polyester Powder coated dia pipe.

Rooflights

Coxdome 2000 ventilation units 1500x1500mm with electrical remote motorised opening unit Opaque polycarbonate double skinned.

Roof Anchors

Individual roof anchors by Centurian or equal to be fixed to brick walls at flat roof height with roof anchors on slope of main roof to cover access to all metal roofs.

Roof Fall Arrest System

Roof Anka type eyebolts by Centurain on roof fixed through to the cold rolled roof purlins. Decktite flashing required. Allow 8 anchors per roof slope with design.

Installation to be approved by Kalzip with respect to weathering and integrity of the built up roof system.

2.04 Stairs**Main Stair-Steel**

Internal access feature stair adjacent to entrance hall to be steel painted with trays and landings to take granular fill and tile - finish.

Stair and landings top and mid to have 50mm ash timber handrail with 75x15mm mild steel balustrades at landings and mid-flights and 15mm mild steel Diameter Bars @ 150mm Centres.

Handrail Section at first and second floor to be 50mm ash timber handrail with 75x15mm mild steel balustrades and 15mm Diameter mild steel Bars @ 150mm Centres

Stair bottom plate to be recessed in slab to allow carpet over plate.

Mild steel to be factory shotblasted to Swedish grade SA2.5 and given 2 pack epoxy (25 microns) with 2 pack epoxy M10 (2 coats of 85 microns). Finish to have high build chlorinated rubber (75 microns). Colour white.

Handrail to extend and wreathed 300mm beyond first and last step nosing.

Going - 250mm Rise - 168.48mm (21no.) Pitch - 33.98°.

Internal Escape Stairs-Concrete

Internal escape stairs to be precast concrete risers, treads .

Stair to have 50mm tubular mild steel handrails with 75x15mm balustrades at landings and mid-flights and 15mm Diameter Mild Steel Bars @ 150mm Centres.

All steelwork to be factory shotblasted to Swedish grade SA2.5

and given 2 pack zinc rich epoxy (25 microns) with 2 pack epoxy M.I.O(2 coats of 85 microns). Colour white

Going - 250mm Rise - 187.79mm (19No.) Pitch - 36.91°.

Minimum clear width to be 1200mm.

Wheelchair refuges to be provided as required.

Balustrades to all stairs to be fully in accordance with Building Regulations. Handrail both sides, fixed between 840mm and 1000mm vertically above pitch line. Protective barrier to all landings 1100mm high.

Internal Balconies

Landings to have 50mm ash timber handrail with clear structural toughened glazing from floor to Handrail.

Roof ladder

Mild steel ladder fixed back to walls at the top of fire escape stair..

All steelwork to be factory shopblasted to swedish grade SA2.5

and given 2 pack zinc rich epoxy (25 microns) with 2 pack epoxy M.I.O(2 coats of 85 microns).Colour white.

Welding to all stairs

Welding: Surfaces to be joined to be thoroughly cleaned. Accurate fit to be ensured using clamps and jigs where practicable, tack welds to be used only for temporary attachment. Joints to be made with parent and filler metal fully bonded throughout with no inclusions, holes, porosity

or cracks. Weld spatter to be prevented from falling on surfaces of materials which will be self-finished and visible in completed work. All traces of flux residue, slag and weld spatter to be removed.

Finishing welded/brazed joints: Butt joints which will be visible in completed work to be smooth,flush with adjacent edges. Fillet joints which will be visible in completed work to be executed neatly. Grind smooth where specified.

2.05 External Walls**Cavity wall construction.**

100mm facing brick - Ibstock Nostell Harewood Weatherby buff with Tilcon Y6 mortar.

100mm Blue contrasting brick-Ibstock Blue Brindle with Tilcon Dark Grey Mortar to match brick.

50mm clear cavity minimum.

33mm thick Celotex insulation board dressed down outer face of inner leaf to foundation fixed per BS 8000.

Inner leaf 100mm blockwork – 7N/sqmm. dense aggregate insulating block per BS 6073.

Pistol bricks above first floor windows.

Both leaves to be tied at 450mm centres vertically and 900mm centres horizontally using

stainless steel wall ties to BS 1243 Double triangle with shot fired ties onto column positions.

Cavity construction below ground level to be filled with weak concrete slurry,

angled to drain cavity through perpend joints spaced every 1.2m in external leaf.

Weepholes to be Permantic- Perplug Fibre Filters.

Wall U-Value= 0.45 W/m²°C.

External walls shall be designed in accordance with BS 5628 Part 1 1978 to transmit all lateral and vertical loads to the main structure and foundations from which they obtain support.

Wall Cladding

7.5mm Eternit Glasal Panel on breather paper on 38x63mm SW grounds fixed back to 9mm Plywood on Framing. Colour -Pewter

Alucobond flat and curved panels to stairs and curved office section on walls and to soffit.

Full Kasset unit on sZ 20 top hat section groove and tongue design with coloured mastic seal. Insulation packed behind and sealed with plasterboard.

Cladding to escape stair enclosures (within 2metres of building) to have 1 hour fire resistance for integrity from outside as highlighted on Architect's drawings. This area to have British Gypsum shaftwall system to provide 60 minutes fire protection.

Allow for anchor points as shown on elevations at curtain walling screens

Anchors to be by Centurion or equal to suit Alucobond system.

Precast Concrete

Feature Precast Concrete Cills & continuous string course as shown on elevations, cill to entrance screen and cills to external door openings.

Finish to be smooth with consistent colour with 10 mm joint to line with brick expansion joints where applicable.

Flexible Damp Proof Courses/Cavity Trays

Damp proof course to be Permanite Permabit DPC or equal.

Preformed cavity trays to be Visqueen. Installation to BS 8000: Part 3 section 3.3.

Leading edge of DPC's/Cavity trays to project 5mm from face of wall at all conditions to be trimmed top Employers Agent discretion.

Damp Proofing

A damp proof course to BS 743 to be provided at a minimum height of 150mm above ground level throughout.

DPC's to be provided at all door and window jambs and cills with cavity trays above.

Movement joints to External walls

Filler to be 20mm flexible cellular polyurethane or similar to match design width of joint.

Sealant - one part polysulphide sealant (external finish - light bucket handle)

Colour - to match brickwork.

Cavity Barriers/Fire stops

Floor & Ceilings

Cavity barriers to be Rockwool quilt above and below both ground and first floor levels.

External Walls

Cavity barriers as per Architects drawing to external cavity walls.

Vertical Rockwool SP60 Firestop Insulation fixed to all perimeter Columns.

Floors

All service penetrations between floors to be firestopped with intumescent collars and fire collars to any item of a diameter greater than 60mm diameter.

Thermal Insulation

The following minimum thermal insulation values shall apply.

Masonry walls and flat roof $u=0.45\text{W/m}^2\text{°C}$.

Pitched roof $u=0.25\text{W/m}^2\text{°C}$.

Glazing (including framing) $u=2.8\text{W/m}^2\text{°C}$.

All to satisfy part J2.3 elemental approach (method 1) of the Building Standards (Scotland) Regulations 1990.

Sunshading

Sunshading to be Levolux Matrix Anodised Aluminium manufactured by Western Avery Ltd or similar and approved by Employers Agent and fixed in accordance with Manufacturers instructions.

Lintols

Lintols to be designed by Engineer but if galvanised then external surfaces to receive external paint finish.

Anchor Bolts

One Anchor bolt required to top floor only to every bay (6075mm) to allow window cleaning fixed through to floor.

2.06 Window/External Doors/Curtain Walling

Aluminium Windows & Doors

Kawneer or equal 502 series aluminium windows thermally broken with locking handles and 350 series aluminium doors.

Windows to be Interlocking action with integral restrictor in the exposed Pivot.

Aluminium sections both internal & external to be Polyester powder coated to standard (syntha Pulvin) range double glazed with clear double glazing.

All windows to be lockable.

Second floor window head to tie in with aluminium flashing.

Fixed lights to be Ceramalite factory fired glass-Graphite.

Curtain Walling

Aluminium double glazed curtain walling polyester power coated entrance screen Kawneer Series 1200 Curtain Walling. Motorised units for opening windows in the screens.

Clear glazed incorporating double entrance doors with stainless steel polished cranked pull Handles both sides 900mm long

350 series door to glazed door opening at upper floor level and two ground floor doors.

Revolving Door

To be Boon Edam Tourniket Manual Four Door Pivot Revolving Door.

All Sections to be aluminium Polyester Powder Coated with stainless steel 300mm band above door.

Curved Walls glazed.

Matwell recessed in floor with aluminium strips .

General

Glazing (including framing) U-Value=2.8W/m²C.

All windows to be thermally broken.

Ability to clean windows to be in accordance with workplace Health and Safety and Welfare Regulations 1992 (approved code of practice) and CP 153 Part 1.

Second Floor fixed lights cleaned by latchway Pushlock anchor by Centurian fixed into concrete deck. Allow 1 per bay. Location and design of bolts and fixings to be by specialist contractor.

Fixed glazing to escape stair enclosures (within 2metres of building) to have 1 hour fire resistance for integrity from outside. Pyran or equal with steel frame with polyester powder coating as highlighted on Architect's drawings.

Limiting Air Infiltration

Junctions around external window and door frames to be mastic sealed.

Vapour control membrane to the timber framed panels to the external walling to be sealed at laps and junctions.

Service penetrations through external enclosure to be sealed with proprietary flashings.

External doors and windows to be draught stripped.

2.07 Internal Partitions Lift

All walls to be 190mm thick 7.0N/mm² to achieve minimum 60 minutes fire resistance.

Main Core/Toilets

All walls to toilets to be 140mm and 100mm thick 7.0N/mm²

Walls to be plastered to inside and outside toilets.

Internal Walls Between Office Units

2 layers of 12.5mm plasterboard either side of 70mm Gyproc metal studs at 600mm centres with 25mm sound deafening quilt insulation (minimum density 19.5Kgmm²) to achieve 54Rw dB noise reduction. Partitions to be from top of structural concrete floor to underside of concrete floor (or composite roof sheeting) above and sealed to achieve 60 minutes fire rating. Wallboard to be taped & filled to receive paint finish.

Internal Walls Between Offices and Communication areas

2 layers of 12.5mm plasterboard either side of 70mm Gyproc metal studs at 600mm centres with 25mm sound deafening quilt insulation (minimum density 19.5Kgmm²) to achieve 54Rw dB noise reduction. Partitions to be from top of structural concrete floor to underside of concrete floor (or composite roof sheeting) above and sealed to achieve 60 minutes fire rating. Wallboard to be taped & filled to receive paint finish.

Finish to Inner Leaf External Wall/Office Face Core Walls

12.5mm wallboard taped & filled with paint finish.

Internal Columns

12.5mm Fireline Board surround to Columns.

Internal Stair Enclosure

Walls to be min.1 Hr. fire rated and continue to u/s of roof structure over.

Cubicles & Vanity Units

Laminated IPS access panelling to back of cubicles to be Postformed edges. By Thrislington or equal with consealed cisterns.

Full height blockwork wall between Male and Female toilets.

200x100mm glazed tiles to blockwork division walls.

Fixtures include coat hook, indicator bolt, & toilet roll holder.

Vanity Units

Vanity top to be Corian-Jewel-Black quartz.

Vanity unit to be open below underslung sink with chrome trap to whbs.

All pipework below sinks to be chrome plated.

Vanity unit support to be mild steel bracket painted .

Laminated access panelling hiding plumbing below vanity top to be by Perstop Waverite with Postformed edges.

Mirrors

Full mirror above each vanity unit..

Recessed downlighters between sinks as per plan.

Internal Glazed Screens

Internal Glazed screens to meeting and conference to be Neslo relocatable Trimwall Partitioning System with anodised aluminium frames and integral blinds.

Solid wall ground facing stair and Trimwall to other floors.

Doors to be solid core ash as per office doors solidcore leaderflush which are book matched woodgrain with D-Line Pull Handle with lever latch, kickplates and door overpanel in ash.

All walls above and below partitions to be 2 layers of 12.5mm plasterboard either side of 50mm Gyproc metal studs at 600mm centres with 25mm sound deafening quilt insulation (minimum density 19.5Kgmm²) to achieve 49Rw dB noise reduction.

Automatic Smoke Curtains

Variospeed automatic smoke blinds by Cooper Blinds Ltd to first and second floor void and Kitchen to three floors.

In the event of power failure and in the event of fire/ smoke alarm being activated, the smoke blinds will descend in a controlled manner using a gravity fail-safe operation.

2.08 Internal Doors

All unit entrance doors to be 54mm solid core (FD 60 S) ash veneered crown cut both sides with clear satin finish with Ash Hardwood frames both sides.

2100mm high with one 400mm Diameter Pyran glazing vision panel.

All unit entrance doors, doors into escape stairs and external escape doors to be minimum 900mm clear width between stops. A minimum of 300mm to be maintained between leading edge of door leaf and adjacent walls.

All Duct & Toilet Cubicle Doors to be 44mm solid core ash veneered crown cut both sides with clear satin finish with Painted softwood frames both sides.

Two corridor doors per floor rebated into wall to be 54mm solid core

FD 30 S ash veneered crown cut with clear satin finish and ash hardwood frames. Doors held open on electromagnetic catches (in accordance with E5.7 (to comply with BS 5839, Part 3, 1988.)) Vision panel from 900 to 1500mm above floor level.

All doors must be selected from one of the following manufacturers: Leaderflush, Shapland & Petter, or Bolton & Paul.

All doors to be screwed & pelleted.

All doors and intergral sets must be manufactured off site in the factory to ensure perfect seals for quality of noise reductions.

All electronic ironmongery to be fitted in factory by door manufacturer and not on site.

All woodgrains must be bookmatched.

IRONMONGERY

All Ironmongery included within AC(0)02 document.

All ironmongery from Allgood d-line range

3.00 INTERNAL FINISHES

3.01 WALLS/FLOORS/CEILINGS

AREA	FLOOR	WALL	CEILING	SKIRTING
Offices	Carpet By Interface Heuga Tropicana	External Blockwork wall with 12.5mm plasterboard on dabs for paint finish. Internal walls - 12.5mm plasterboard on metal studs - paint finish. Colour:Apricot white (matt)	Donn White 600x600 Tegular 15mm with T15 grid.Edge trim L trim onto 35x50 SW packer .	Softwood painted skirting and cill and apron. Painted Gloss White

Ground Floor Common Corridors	Ceramiche Keope verde 300x300mm (Keover) one full tile concourse perimeter,main tile-Britannia Geo Natura 300x300 laid diagonally. With Sentinell Aluminium Matwell	Plasterboard taped & filled. matt emulsion finish	Ecophon Focus E XL1500x300mm Tegular with T15 grid to corridors. Edge trim L trim onto 35x50 SW packer .	Ceramiche Keope verde (100x300mm cut tile)
RECEPTION	Ceramiche Keope verde 300x300mm	Plasterboard taped & filled. matt emulsion finish	Plasterboard MF system with downstand area over reception.taped & filled and matt emulsion finish	Ceramiche Keope verde (100x300mm cut tile)
MAIN STAIR	Ceramiche Keope verde 300x300mm (Keover) to floor levels Carpet to stair treads by client		Plasterboard skimmed coated taped & filled matt emulsion	
KITCHEN	Ceramiche Keope verde 300x300mm (Keover)	Plasterboard taped & filled. matt emulsion finish Splashback-Decocer Blue & green in checker pattern 100x100mm	Plasterboard taped & filled coated with matt emulsion with downstand area over worktops.	Ceramiche Keope verde (100x300mm cut tile)
AREA	FLOOR	WALL	CEILING	SKIRTING

TOILETS & IVS	Ceramiche Keope verde 300x300mm (Keover)	Contessa light green 400x300mm full height CSA2	Ecophon Advantage E White 600x600 Tegular 15mm with T15 grid.Edge trim L trim onto 35x50 SW packer . Plasterboard over individual Cubicles and to Vanity Unit.	Ceramiche Keope verde (100x300mm cut tile)
DISABLED	Ceramiche Keope verde 300x300mm (Keover)	Plasterboard with emulsion finish.Tiled Splashback to sink.Splashback-Decocer Blue & green in checker pattern 100x100mm Glazed screens with solid stud walls between meeting rooms. Plasterboard with top skim taped & filled .matt emulsion finish. Integral blinds.	Ecophon Advantage E White 600x600 Tegular 15mm with T15 grid.Edge trim L trim onto 35x50 SW packer . Ecophon Advantage E white tegular (600x600mm nominal grid)with t15 edge trim.	Ceramiche Keope verde (100x300mm cut tile)
CONFERENCE/ MEETING	Carpet By Interface			Integral glazed screens
ELECTRICAL/ COMMS/STORE UPPER FLOOR CORRIDORS	Altro Impressionist Ceramiche Keope verde 300x300mm (Keover) one full tile to perimeter, main tile-Britannia Geo Natura 300x300 laid diagonally.	Plasterboard painted Colour matt white Plasterboard with top skim coat and matt emulsion finish	No ceiling Ecophon Focus E XL1500x300mm Tegular with T15 grid to corridors. Edge trim L trim onto 35x50 SW packer .	Gradus Cove skirting-Black Ash Skirting 100mm high to match door finishes.

3.02 Painting/Intumescent Paint

All internal skirtings, cills and aprons to receive one coat primer, one coat undercoat and one coat gloss.

All plasterboard areas for painting 2 under coats put 1 coat vinyl matt emulsion.

All paints from Matthew MacLay and Manson Range or equal.

All Hardwood surfaces 1 primer thinner white spirit with 2 coats clear satin varnish finish coats.

Intumescent painting to steelwork to be approved by Engineer to required fire rating.

3.03 Fixtures & Fittings

KITCHEN

By Client

BREAKFAST BAR

By Client

RECEPTION DESK

By Client

SHELVING

By Client

3.04 Internal Fire Spread

Class of Surface to walls and ceilings to be as follows:

Class 1 generally.

Class 0 within fire escape stair wells.

Class 0 within protected zones.

4.00 Services

4.01 Utility Connections

2.1 Water

2.2 A single water supply has been brought onto the site by West of Scotland Water.

Electricity

2.3 Scottish Power have provided a substation to the north of the proposed building. The substation is fed via a 11kV ring.

The LV supplies enter via ducts located in the north of the building. One feeder is taken to a Bemco board and the other to the switchpanel on the first floor.

Telecoms

A British Telecom cable has been taken into the comms room. This cable runs from north to south. Where external to the building the cable is run in a 90mm duct laid in the ground at a depth of 350mm.

4.02 Drainage

Internal Drainage.

Drainage to be designed in accordance with BS 9301: 1985 and will be in accordance with Local Authority guidelines.

Disabled persons' toilets to be in accordance BS 5810.

All overflows to discharge to outside wall.

External Drainage

External Drainage designed by Engineer to Local Authority standards.

All underground external drainage systems shall be constructed to relevant Local Authority and West of Scotland Water adoptable standards and approval. Surface water pipelines shall be plastic 'twinwall' in accordance with BS 4660 or BS 5481 and foul drainage pipelines shall be plastic ultra-rib in accordance with WIS 4-31-05. All pipes shall have flexible joints and shall be bedded and surrounded in granular material to BS 882 or concrete as appropriate. Manholes shall be pre-cast concrete in accordance with BS 5911 and shall have heavy duty cast iron covers and frames to BS 497. All branches draining dedicated car parking areas shall be provided with petrol interceptors (Klargester ref. KB1 or equal). All drainage branches beneath roads and parking areas shall be backfilled with imported granular material conforming to the standard specification for D.O.T. Type 1 material, well compacted in layers.

4.03 Mechanical Services

Heating & Cooling installation

Heating & Cooling installation

The heating and cooling for the lettable office areas is served by a number of split direct expansion heat pump air conditioning units.

Two split direct expansion heat pump air conditioning units are installed within each 6 metre wide bay of the building, one unit adjacent to the external wall, one unit adjacent to the wall adjoining the central corridor area.

The split direct expansion heat pump units are ducted pattern, where heated/cooled air is supplied to the occupied space as necessary via flexible ductwork and ceiling mounted air diffusers.

The heating and cooling for the meeting areas within the central corridor area is served by a number of split direct expansion heat pump air conditioning units.

The split direct expansion heat pump units are ducted pattern, similar to those in the lettable office areas.

The heating and cooling for the central corridor area is served by a number of split direct expansion heat pump air conditioning units.

The split direct expansion heat pump units are ducted pattern, similar to those in the lettable office areas.

All split direct expansion heat pump air conditioning units are controlled from a central Building Management System giving time and temperature control. The split direct expansion heat pump air conditioning units within the lettable office areas can however be controlled from within the office areas.

Toilets and stairs are heated by wall mounted electric panel convactor heaters

Ventilation Installation

Internal meeting rooms within the central corridor area are supplied with fresh (heated) air to suit the occupancy of the rooms.

Two air handling units are installed on the flat part of the roof of the building and supply air via a network of distribution ductwork to the internal meeting rooms.

The air supplied to the internal meeting rooms is balanced by air extracted through a network of ductwork by two ceiling void mounted extract fans.

An extract fan installed within the second floor ceiling void extracts air from the toilets via a network of distribution ductwork.

Extract fans installed within the second floor ceiling void extract air from miscellaneous internal areas via distribution ductwork networks.

Water Services Installation

A cold water storage tank is located in a plantroom at roof level. Cold water is distributed through a pumped system of pipework to serve the toilets, kitchens and miscellaneous water outlets.

An electrical water heating plant is located in a plantroom at roof level. Hot water is distributed through a pumped system of pipework to serve toilets and kitchens.

4.04 Electrical Services

Main Electrical Power Supply

The building has been supplied via 2 No LV supplies. The first LV metered supply feeds the landlords 14 way TP&N switchboard which is located in the first floor store room.

The second LV supply feeds a 12 way TP&N Scottish Power Bemco board. From this Bemco board a metered supply is then taken out to each 12 way SP&N final CCT distribution boards. Each sub-tenant therefore has a separately metered 12 way SP&N distribution board.

Sub Main Cabling

Sub main cabling to the distribution boards was XLPE/SWA/LSF type cable. In the main this cabling was installed on cable tray.

4.3 Final Circuit Distribution Boards

Final circuit miniature circuit breaker (MCB) distribution boards for tenant and landlord use have been located throughout the building at strategic points. All distribution boards will be capable of accepting residual current devices (RCD's).

4.4 Small Power

Small power in subtenant units have been supplied via underfloor busbar trunking. The floor boxes supplied via the busbar was the 3 compartment type, containing 1 No twin switched socket outlet. The floor box also contain 1 No quad outlet RJ45 socket.

4.5

Lighting Installation

4.5.1 General

Illumination levels for the complete building comply with the requirements of the CIBSE 'Code for Interior Lighting' and the appropriate Lighting Design Guides.

4.5.2 Tenant Areas

Lighting has been provided by 600 x 600mm recessed modules. They are manually switched via 2 & 3 gang switches as appropriate. LG3 CAT 2 louvres have been fitted on lighting modules. Illumination on working plane is 350 LUX.

4.5.3 General Circulation Areas/Toilets

High frequency compact fluorescent luminaires have been used in general circulation and toilet areas. Lighting in circulation areas has been supplied from the Landlords distribution boards.

4.5.4 External/Car Park Lighting

Car park lighting is provided as part of the landlord services. Lighting have been provided using a "son" light source mounted on 5m columns. Additional lighting has been provided by local bollard lighting.

4.5.5 Energy Efficiency

Where possible high frequency compact fluorescent luminaires will be used throughout. Where linear fluorescents are used, high efficacy lamps will be utilised.

4.6 Emergency Lighting

The emergency lighting installation has been designed to comply with the requirements of all current regulations and guides, principally BS5266.

The system has been designed to operate for 3hrs in the event of mains failure. Emergency exit signage has been provided throughout the building.

The system comprises of self contained emergency lighting battery/inverter packs contained within individual luminaires.

Key switches will be provided to facilitate testing of emergency lighting.

4.7 Fire Alarm Installation

An analogue addressable fire alarm system designed to comply with the requirements of L2 with enhancements, as specified in BS5839, has been provided throughout all areas of the building. The system comprises of the main analogue addressable control panel, automatic optical and heat detectors, manual break glass units and fire alarm electronic sounders located throughout the building.

4.8 Disabled Alarms

The following provisions have been made for disabled persons:

- a) Each alarm system in disabled WC's will consist of a pull cord and high level reset switch. Outside the toilet an alarm indicator has been mounted above the door.
- b) The lift has been designed, constructed and installed in accordance with the BSEN81 and the requirements of Part T of the Scottish Building Regulations.

4.9 Lighting Protection System

4.10 A lighting protection system installed is in full compliance with the requirements of BS6651. The building structure has been utilised where possible to minimise the installation of visible down conductors.

4.11 Intruder Detection/Door Entry

An intruder detection system has been provided to cover landlord and perimeter areas. This consists of a central control panel, keypad, external strobe housing and a monitored telephone connection to a permanently manned station. Detection devices includes wall and ceiling mounted PIR's, door contacts and panic alarms.

The door entry system will allow entry to building to be facilitated from remote location(s).

Voice/IT Systems

Containment was provided for the voice/data network.

4.12

4.05 Lift

1 No 10 Person Monospace Lift by Kone.

Satin Anodised aluminium finished panels with central mirrors.

FD 60S entrance doors.

Lift to comply with BS 5655. In addition, a clear landing of 1500x1500mm to be provided in front of lift entrance doors, clear door opening width of 800mm to be provided, lift car minimum 1100x1400mm, controls sited between 900 and 1200mm above lift floor and at least 400mm from the front of the lift and the lift must be provided with tactile call buttons on each storey and tactile storey selector buttons within the lift.

4.06 Sanitaryware

WC-Olympian –Twyfords with Twyfords Pan.

Wash Basin-Shires Bathrooms- Pavan

Cistern- Twyfords for Olympian unit-

Taps chrome plated Medici monoblock

Belfast Cleaners sink.

Disabled set to be Twyfords Avalon Doc M. or equal.

Toilet roll holders to be interleaved toilet tissue type with lockable dispenser.

Liquid soap dispensers by Kingfisher Bee.

Hand dryers to be Warner Howard model A48, 230v.

5.00 SITE WORKS

5.01 HARDWORKS

Refer to Landscape Architect Specification.

5.02 SOFTWORKS

Refer to Landscape Architect Specification

REVISIONS

REVISION A
14/5/99

- 2.03 Fall arrest system added.
- 2.04 Stair treads to glass/ base plate recessed below floor.
- 2.06 Anchor Bolts added.
- 2.07 silicone jointed glazing substituted for solid wall ground floor and trimwall 1st and 2nd
- 2.07 IPS systems replaced with Blockwork tiled. Individual mirror spec added.
- 2.07/2.08 all doors must be bookmatched woodgrain.
- 2.08 Doors to be 2100mm high with single 150x150 window
- 2.08 Ironmongery referenced to AC(0)02.

3.01 Carpet client supply.

Office Ceilings to Ecophon Advantage E

Ground corridors to slate/walls skimmed and painted

Reception to slate/walls skimmed and painted

Stair treads glass and upstand plasterboard skim coated.

Kitchen slate floor walls plasterboard skim coated.

Toilets ceiling to ecophon advantage E

Conference carpet by client/ ceiling to ecophon advantage E

Upper corridors carpet by client/walls skim coated /curved ceilings skim coated

3.02 Internal skirtings etc gloss.

3.03 Kitchen /Breakfast Bar /Reception Desk/Shelving by Client

wonderwall by client.

4.05 WC pan added.

REVISION B
3/6/99

2.01 Intumescent paint treatment specified for all perimeter columns.

2.03 Roof U-values amended to suit Building Control requirements.

Flat roof specification added.

2.04 Internal escape stair widths increased to 1200mm clear width to suit Building Control requirements.

Stair construction noted as steel, not precast concrete.

2.05 U-values amended to suit Building Control requirements.

Note added regarding 60 minutes fire resistance of cladding to escape stair enclosures within 2m of adjacent building.

Note added regarding limiting air infiltration in accordance with Building Control

requirements.

2.07 Specification for walls between offices added.

Vanity unit and cubicle specifications updated to accord with revised detail drawings.

2.08 Note added regarding door widths.

Corridor doors changed to FD 30 S with vision panels.

3.01 Ceilings to communication areas changed to Ecophon Focus E XL tile.

Wallpaper to conference/ meeting rooms deleted, paint finish added at client's request.

Note added regarding approval of hard floor finishes.

3.04 Clause regarding internal fire spread added to suit Building Control requirements.

4.04 FD 60 S rating to lift doors added, BS reference added and notes regarding provision for disabled persons' use added to suit Building Control requirements.

4.05 Notes regarding toilet roll holders, hand dryers, airfreshners and soap dispensers adjusted to suit client requirements.

REVISION C 2.06 Inner leaf of external wall changed from timber stud to partial fill cavity
29/6/99 Insulation with dense blockwork and plasterboard on dabs.

REVISION D 2.07 Automatic smoke blinds added to first and second floor voids.
8/7/99

REVISION E
20/10/99

2.01 Fire Protection altered to mixture board/paint

2.03 Flat roof and walkway spec amended.

Water tanks sit on piers on concrete slab.

Roof Fall Arrest System altered to Roof Anchors

2.04 Stair 1 steel

Internal Balconies to have toughened glazing

2.05 Spec for SP60 Insulation given

British Gypsum shaftwall for 60 minutes protection to external wall.

2.06 Kawneer window range altered from 202 to 502

All windows to be lockable.

Revolving Door Spec amended to Manual.

Internal Safety Anchors added to second floor.

2.07 Mirrors individual by Hurry Bros

Colour & range of corain given

Automatic smoke curtain to central void and kitchens

3.01 Finishes amended-Corridor floors/reception floors/main stairs floors /
kitchen floors & walls/Toilet Floors & walls

4.01 All overflows to discharge outside wall.

4.04 Lift by Kone Monospace

3.01 Office ceiling tile to Donn

All wall & ceiling finishes to be taped and filled.

Carpet to stair treads

2.02 Central Slab 130 to 150mm

Raised Access floor to Thorsmann & Cavity barriers from 10 to 20m.

2.03 Pitch roof Kingspan to Kalzip.

2.08 Glazing altered to 400mm dia.

REVISION F
30/11/99

REVISION G
05/04/00