# cuprum

CADOGAN SQUARE | GLASGOW

## technical specification

# contents

# key specification
# features

| | |
|---|---|
| 1 | Prominent city centre location within the International Financial Services District |
| 2 | 98,426 sq ft (9,144.1 sq m) net lettable office space over 6 floors |
| 3 | Easily sub-divisible floor plates for maximum flexibility |
| 4 | 37 secure car parking spaces at ground floor |
| 5 | Generous double height reception |
| 6 | Reception offices at ground and mezzanine floors |
| 7 | 4 x 13 person passenger lifts in central core |
| 8 | High-performance curtain walling to main elevations |
| 9 | ‘Carea’ textured resin cladding system to feature wall over entrance |
| 10 | 58.3 metres clear span floor plates with no central columns |
| 11 | Deep floorspace supporting triple-zone office planning |
| 12 | Flexible and responsive VRV system |
| 13 | Male, female,DDA compliant toilets and showers on each floor level |
| 14 | Floor to ceiling height of 2.7m on all office floors |
| 15 | Superimposed floor loading capacity of 4 $kN/m^2$ + 1 $kN/m^2$ for partitions |

# section 1
# general features

The Outline Building Specification is a description of the office building known as Cuprum. This document incorporates designs and materials agreed and specified to date.

## 1.1 Building Description

The site of the building is at the Cadogan Square development on the north side of Argyle Street between Cadzow Street and Oak Street in west central Glasgow adjacent to the Europa Building next to Douglas Street.

The development comprises a 6 storey building containing the following:

Ground Level - principal office entrance hallway serving pedestrians arriving by adjacent public transport links, reception office space, concierge desk, toilets and direct access to the central lift lobby and main staircase. 37 private and secure parking spaces are provided at ground level accessed by private lane from Cadzow Street with security barriers.

Mechanical and electrical plant is accommodated at ground and mezzanine levels within the car park, and also on the roof. A secure compound is provided for refuse collection.

Levels 1 – 5 provide five equally sized office floorplates of 1,517 sq metres net with gable-end fire escape staircases and riser ducts at each end. Each floor can be subdivided with each part having independent access to the central lift lobby and toilet facilities.

Level 6 provides office accommodation principally to the Argyle Street frontage extending to 1,065 sq metres net, and has access to a roof plant area.

The building has been fully finished inside and out. The structure is of fire protected structural steel supported on insitu bored concrete piles with concrete composite floors, stair and lift shafts. Roofs are concrete composite decks throughout. Site work within the site boundary includes natural stone paving in accordance with City Centre public realm design policies. Distribution of services within the building is provided from mechanical and electrical plant rooms and extends via risers within each staircore.

### Design Criteria

The building complies with the requirements of the relevant Scottish Building Regulations and all relevant statutes, British and European Codes of Practice.

## 1.2 Acoustic Criteria

No standards apply to office premises in relation to external noise. A background target noise level of 45dBA during daytime has been adopted.

## 1.3 Occupancy Standards

The building has been designed for a maximum occupancy in accordance with the Building Standards (Scotland) of 6 $m^2$/person. Toilet provision designed in line with BCO occupancy of 10$m^2$ / person.

Mechanical and electrical systems support an average occupancy of 10 $m^2$ / person over the lettable area.

## 1.4 Plant Space Allowance

Plant space is available at 6$^{th}$ floor roof level for additional tenants' cooling units. Stand-by generators could be located in the car park, and possibly at high level to preserve the car parking provision.

## 1.5 Fire Evacuation Strategy

The fire evacuation strategy is served by three fire protected escape cores, the main central core containing one protected staircase and four lifts one of which has been designated and equipped as the firefighter's lift. The central escape staircase and lifts open into a protected lobby at each floor level from which the office area on each floor is entered directly through a 1 hour rated SCFR doorset. The protected lobby has a ventilated shaft and is fitted with a dry riser at levels 1-6.

The secondary fire escape stairs are both lobby protected and naturally ventilated and evacuate directly to an external place of safety at ground level.

The building is separated into fire compartments floor by floor, apartment by apartment, and internal hallway partitions and doors are also fire resistant. Roofs are fire resistant concrete to protect against the spread of flame to any adjoining building.

## 1.6 Thermal Performance

U-values to be achieved by the fabric are – (w/sqm.degC)

| | |
|---|---|
| Roof | - 0.25 |
| Walls overall | - 0.22 |
| Glazing overall | - 1.25 |
| Exposed Soffits | - 0.25 |

## 1.7 Environmental Credentials

- An Energy Performance rating of C+ has been achieved.
- The building has been awarded a Very Good BREEAM rating.

# section 2
# structure and external fabric

## 2.1 Substructure

Structural steel frame and stability cores are supported by reinforced concrete bored cast in-situ piles supported on rock. Pile caps are reinforced concrete pile caps.

## 2.2 Superstructure

The superstructure for the office building is a structural steel frame. Main columns are generally at 6m centres with the main structural floor beams at 3m centres spanning 18m. The floor beams have 8 No prefabricated holes in the web for services to pass through. Floor and roof slabs are 130mm thick reinforced concrete on profiled metal permanent decking.

Structural stability is achieved by the reinforced concrete walls of the stair and lift cores.

Staircases are pre-cast concrete for the fire escape stairs and steel for the main circulation core stair.

The car park is a ground bearing reinforced concrete slab.

## 2.3 Loading Criteria

The building has been designed for the following criteria:

- Car park - 7.5kN/m$^2$
- Office areas - 4.0kN/m$^2$ (plus 1.0kN/m$^2$ for partitions and equipment)
- Lobby areas - 4.0kN/m$^2$
- Plant room areas - 7.5kN/m$^2$
- Roof - 1.5kN/m$^2$
- Designated area for roof plant 7.5kN/m$^2$
- Designated areas for roof access 3.0kN/m$^2$

## 2.4 External Cladding

### 2.4.1. Main Elevations to Argyle and Cadzow Streets

High performance double glazed pressure equalised, thermally isolated aluminium curtain walling with floor to ceiling solar control argon filled double glazed units to vision areas, double glazed and insulated spandrel panels, and cladding-faced insulated units to frame and floor edges.

### 2.4.2 Feature gable to Cadzow Street

Proprietary sheet claddings typically 11 & 14mm thick with smooth or fine textured masonry face. ‘Carea’ resin cladding system fixed as a rainscreen cladding over a composite, metal framed, sheeted and insulated external wall system bolted between floor slabs.
(not edge fixed)

### 2.4.3 Rear and Gable Elevations

Proprietary pre-mixed polymer bonded render system.

### 2.4.4 Windows

Proprietary high-performance aluminium thermally-isolated double-glazed fixed windows.

### 2.4.5 Glazing Generally

All seals and gaskets are UV resistant.

All glazing below 800mm above FFL and at critical areas as defined in BS 6262 is toughened.

### 2.4.6 Ground Floor Cladding

Precast reconstructed portland stone profiled units with ventilation slot detail to car park behind. Acid etched pre-cast stone surface sealed and treated against graffiti.

### 2.4.7 Entrance Area

External free standing columns at ground level are of polished and sealed concrete.

Entrances / External Doors are automatic bi-parting sliding doors with internal barrier matting to draught lobby. Doors are fail-safe to open in direction of escape on activation of the fire alarm. All doors have stainless steel push/pull handles.

## 2.5 Roofs

Roof coverings are Hydrotech Roof System, with inverted rigid insulation, protected by white precast concrete slabs and pebble ballast. Roof perimeters feature profiled copper effect eaves details front and rear with projection to Argyle Street. The resulting parapets form a permanent roof edge safety barrier for routine roof access.

Provision has been made for a ballasted anchorage system onto the roof to allow cleaning and maintenance of the façade by abseiling techniques.

Mansafe A Latchway safety cable anchor system to BS EN 795 provided at Argyle Street projection. A fence screened compound containing cooler units and other roof plant with access via personnel gates.

## 2.6 Drainage

Surface water run-off from roof and hardstanding areas is collected, attenuated prior to discharge into the Scottish Water combined sewer. Car park drainage is intercepted prior to discharge into the attenuation system.

Foul drainage is discharged into the combined sewer via a new connecting manhole. The existing sewer is approximately 8m below existing ground level.

# section 3
# internal specification -
# fixtures and fittings

## 3.1 Landlords Areas

### 3.1.1 Ground Level Entrance Lobby Reception and Lift Lobby

Floors: Slip resistant porcelain tiles with barrier mat to draught lobby.

Walls: Porcelain tiles on core walls.

Stair: Steel pre-fabricated feature staircase to mezzanine floor with structural glass balustrade and polished stainless steel handrails.

Internal doors and joinery: Solid core doors, fire rated where necessary and with concealed intumescent strips and rebated smoke seals, finished in European Maple in maple frames with maple architraves, door checks and skirtings all clear finished in satin gloss varnish.

Lifts: Otis Gen 2 lift. Lift cars lined with toughened glass mirrors on 1 side. Door elevation and separate full height control and indicator panel of polished stainless steel with backlighting. Plain steel ceiling panel with halogen spotlight in each corner. Stainless steel lift doors and architraves 2.1m high. Floor finishes match reception / mezzanine area.

Ceilings: 600 sq perforated enamel coated steel lay-in grid system with glassfibre infill tile Grid set in perimeter cornice edged surround of flush jointed plasterboard with concealed lighting.

Concierge accommodation and facilities adjoining.

Access doors to car park.

### 3.1.2 Main Staircase

Prefabricated steel staircase supporting open pan steel treads and landings for filling with concrete screed.

Balustrading of steel rod with steel handrails both sides.

Doors and glazed screen to lift lobbies of solid hardwood (maple) framing with clear pyran glazing and intumescent smoke and fire seals to doors FR30 rated.

Staircase lighting by large diameter circular wall mounted diffuser fittings.

### 3.1.2 Upper Floor Lobbies

Painted plasterboard walls, carpet finish to floors.

Fittings: Statutory signage.

Doors to office space with glazed openings in each leaf with pyrostop glass to achieve fire rating.

### 3.1.3 Core Walls & Partitions

Lift shaft walls of steel frame with blockwork infill with plasterboard sheeting paint finish. Perimeter lobby walls of plasterboard and metal studwork, all flush jointed for finishes. Internal partitions of steel stud and MR grade plasterboard to washrooms and showers all flush jointed for finishes.

### 3.1.4 Toilets

Full height cubicle partitions of laminated plasterboard with ceramic tile finishes.- (Interplan Cubicles).

Walls finished with ceramic tiles.

Floors finished with slip resistant porcelain tiles.

Bespoke freestanding vanity units with countertop washbasins and taps.

Mirror above and behind washbasins.

Full height but 75mm short cubicle doors of solid construction with veneered finish – to fall closed.

Polished stainless steel ironmongery and cubicle accessories.

Integrated hand dryer systems.

White porcelain sanitary ware by Twyfords with back-to-wall WCs with concealed cisterns.

Laminate faced post-formed IPS system to form fully accessible (upper) back wall of WC cubicles.

Ceilings: flush jointed plasterboard ceiling with recessed luminaires, and perimeter concealed lighting.

## 3.2 Tenants' / Office Areas

### 3.2.1 Floors

Steel-faced 150mm full-access raised floor.

### 3.2.2 Walls

Plaster or flush jointed plasterboard with vinyl emulsion paint finish. 95 x 15 square edged MDF skirtings.

### 3.2.3 Ceilings

Ceilings: 600mm sq perforated enamel coated steel lay-in grid system in 15mm x 600mm sq grid set in flat surrounding margins of 12mm flush jointed plasterboard or stepped GRG surrounds to main elevations with curtain walling. Flush mounted recessed lighting and ventilation fittings.

### 3.2.4 Internal Doors, Frames and Ironmongery

Solid core doors, fire rated where necessary and with concealed intumescent strips and rebated smoke seals, finished in European Maple in maple frames with maple architraves, door checks and skirtings all clear finished in satin gloss varnish.

Riser duct doors within office spaces are painted timber doors in flush timber frames. Riser doors are maple.

Polished stainless steel ironmongery.

## 3.3 Fire Escape Staircases

### 3.3.1 Staircases

Concrete stairs with mild steel balustrade framing and handrails each side.

Treads and landings finished in concrete with contrasting nosings.

Stair soffits off-shutter precast.

Staircase lighting by large diameter circular wall mounted diffuser fittings.

## 3.4 Car Park

### 3.4.1 Floor

Insitu reinforced concrete floor laid to falls and cross falls to drainage gullies, concrete finished with fine brushed texture and sealed to prevent salt penetration.

### 3.4.2 Walls

Internal fair face of precast units to frontage.

Insitu concrete stair shaft walls.

Plant room walls of 140 mm thick fairfaced medium density concrete blockwork with bucket handle joints.

Rear 'walls' formed in galvanised steel flat plate screen mounted on base angles.

### 3.4.3 Soffits

100mm thick rigid batts foil faced rigid insulation boards mechanically fixed to soffit of the mezz or 1st floors above the car park using proprietary pins and washers.

### 3.4.4 Security Grilles

Electrically operated roller shutter grilles of galvanised steel with solid gearbox drive and manual emergency chain with low-level engagement mechanism. Operated by swipe cards/fob units issued to tenants.

# section 4
# electrical specification

### 4.1 Equipment Performance

Systems and equipment selected have a successful proven performance track record of not less than 2 years under comparable applications.

### 4.2 Utilities

#### 4.2.1 Electricity

New dedicated substation at ground level on the Cadzow Street elevation with external access doors: approximately 850 kVA with a separate independent LV supply for emergency services such as firefighting lift etc estimated at 25kVA.

LV switchgear located at ground plantroom level within the building

A dedicated automatic changeover unit with distribution board has been provided for the independent supply connection.

#### 4.2.2 Telecoms

4 No. Separate telecom duct systems from the site boundary to incoming locations within the building are provided. Drawpits only shall be provided for BT within the footpath. Allowance made for British Telecom, NTL Cabletel, Thus, Cable & Wireless, all with active networks in the vicinity of the building.

#### 4.2.3 Public Street Lighting

A fully adoptable public street lighting facility to Argyle Street.

Column mounted lanterns in locations agreed with Land Services Street Lighting Engineer.

Power derived from the Scottish Power infrastructure including point of supply and metering, terminating in a new feeder pillar. All of the above supplied and installed by the Street Lighting Department including all cabling, columns, lanterns and control gear.

### 4.3 Power Distribution

Switchgear provided for distribution of the full incoming supply capacity to all power, lighting HVAC systems, external lighting and miscellaneous supplies as required throughout the facility. Distribution Boards are T P & N housing MCB panels for control of final circuit distribution. Metering and sub-metering are as indicated on the outline Schematic Drawing.

Switchgear includes electronic multi-meter instrumentation features including:-Voltmeter Ammeter (instantaneous and maximum demand), KVA (instantaneous and maximum demand), Power Factor.

Circuit cabling is provided for lighting to offices, toilets, circulation and cleaning sockets and all environmental and plumbing systems.

Switchgear includes power factor correction equipment staged and arranged for automatic switching to provide an operational power factor of .98 lagging. Account taken of a total potential load up to 1000kVA. Power supply capacity is in line with BCO 2005 at 25 Watts/sqm across the net area.

### 4.4 Power Outlets – Offices

Power outlets for general cleaning are individual flush mounted socket outlets. Cleaning sockets spaced to ensure all areas can be accessed with a maximum flex length of 13 metres. Local power supplies provided to all HVAC plant including ceiling mounted units, condensate pumps and control equipment.

Underfloor power distribution and outlets is excluded and is to be provided as Tenant fit-out works.

### 4.5 Small Power Containment

Small power installation carried out in LSF single cables run in cable trunking and steel conduits contained/concealed within the structure/fabric.

### 4.6 Cable Containment – IT Wiring

Cable trays provided within each electrical riser to the full height.

4 no x 150mm or 2 No 300mm trays in each of east and west riser as appropriate.

### 4.7 Lighting: Internal

#### 4.7.1 Offices

400 Lux with good uniformity ratio by fully recessed high frequency modular luminaires in all open plan areas designed and installed to CIBSE Guide LG3: 2001 and LG7: 2005.

Each luminaire has power factor correction.

Additional fluorescent wall washing downlighters around plasterboard margins and columns on all office areas.

The lighting installation is carried out in LSF single cables run in galvanised steel trunking and steel conduits contained/concealed within the structure/fabric. Wiring of lighting to open plan areas configured to readily facilitate the future introduction of cellular offices i.e. local proprietary connection boxes directly fed from the distribution boards and incorporating terminals to afford the retrofit of switch wiring.

Local switching is provided to each individual space and to open plan areas such that no more than 9no luminaires are switched together and as required for compliance with the Building Regulations.

A zone of approximately 150mm has been provided between the underside of beams (including fire protection where applicable) and the underside of suspended ceilings for locating recessed luminaires.

An automatic lighting control system incorporating zoned presence detection has been provided.

#### 4.7.2 Reception and Staircases

Special feature lighting to reception as described above at 3.1.1. design to include fully recessed floor mounted uplighters inside and out around entrance.

Large diameter circular wall mounted fittings in stairwells at each landing.

### 4.8 Toilets/Core

Luminaires are fully recessed high frequency compact fluorescent units with architectural trims. Switching is by local manual switches or by presence detection.

### 4.9 Plantrooms/Risers

Lighting to provide average illumination of 150 LUX.

Lighting provided at each level to each plant/electrical riser shaft.

### 4.10 Emergency Lighting

Emergency lighting has been designed and installed to meet the requirements of BS 5266 in full and to local Building Control and Fire Officer requirements.

The system has been provided on the basis of non-defined escape routes using self contained luminaires with 3 hour duration and provided to cover all means of escape throughout the building including a provision of illuminated exit signs having European directive format. A simple central testing system has been included providing the facility of automatic or manual operation to satisfy the requirements of British and European Standard BS 5266 Part 1 and EN 50172.

### 4.11 Fire alarms

A fully automatic analogue addressable fire alarm system has been provided and installed throughout to give audible indication of fire in the event of operation of manual break glass call points or automatic smoke or heat detectors.

The system has been designed to Protection of Life Category L1 of BS5839 for Landlords (Common) areas and zoned to suit the fire compartmentation of the building with minimum requirement of zone for each level.

Interface facilities, manual call points and sounders/beacons have been provided to each section (East and West) of each floor to allow future installation of automatic detection by the Tenants.

The fire alarm panel has been located within and at the point of fire fighting entry to the building for the fire service. Auto direct signalling to receiving station shall be included.

Interface facilities has been provided for Air Handling Plant, Lifts. Escape Stair Ventilation etc, all as required to satisfy the Building Regulations.

### 4.12 Access Control / Security System – Cable Containment

Cable containment has been by flush conduits (to flush outlet boxes) linked to a light gauge cable tray backbone.

The system is designed to allow capacity for retrofitting various security systems and devices, in particular allowance made to connect to perimeter doors and monitoring points within circulation corridors leading into the reception area from the car park.

### 4.13 External Lighting

External lighting has been provided to illuminate all external car parking, access routes and landscaped areas to a minimum average level of 20 lux. Switchgear with time controls, photocell and manual override facility has been provided.

### 4.14 Passenger Lifts

Four 13 person 1000kg, 1.6m/s passenger lift in compliance with Building Standards (Scotland) Regulation 1990 Part 1 providing access and facilities for disabled persons is provided. One lift has been equipped and constructed for use as fire fighting lift. The lifts are in accordance with BS5655. The lifts have standard quality finish and are fitted with stainless steel doors and door frames and stainless steel handrail. Lifts are each equipped with emergency telephone linked to remote monitoring station.

The service level is in accordance with BCO 2005 with an average interval of 30 seconds and a handling capacity of 15% within a 5 minute period.

### 4.15 Lightning Protection

A system of lightning protection in compliance with BS6651 has been provided.

Earth connections are provided by connections from the base of structural steel columns to ground mounted connection test points with driven earth rods, or by connection to pilecap steelwork. Test pits are housed in access chambers suitable for the installation location. All equipment should be by Furse or equal and approved.

### 4.16 Fire / Smoke Compartmentation

Where electrical services penetrate a fire compartment wall or floor and where smoke barriers are penetrated then such penetrations have been fire stopped with suitably rated (for each application) material. Typically this is by fire collars incorporating intumescent material.

# section 4
# electrical specification cont'd

### 4.17 CCTV System

4 No externally mounted and 2 Nr internally mounted miniature CCD colour cameras mounted in suitable housings with telemetry capability for P.T.Z has been provided, with the facility to connect the system via an ADSL telephone line to a 24 hour manned station.

Additionally cable containment has been provided such that cameras may be operated from the reception area at ground floor of new office development should this be required by a future occupier.

### 4.18 Car Park

Lighting provided throughout with a good uniformity to achieve the following levels :-

- Parking Bays, access lanes
  - 75 Lux
- Ramps, corners, intersections
  - 150 Lux
- Entrance / Exit zones (Vehicular)
  - 75 Lux (night) 300 Lux (day)
- Pedestrian Areas
  - 100 Lux

### 4.19 Access Barriers

Power supplies and containment has been provided to support all required vehicle and personnel access barriers.

### 4.20 Disabled Refuge Alarm

A disabled refuge alarm system has been provided to all staircases including 2 way communication to a central point (ground floor), as per BS 5588 Part 8 : 1999.

### 4.21 Disabled WC Alarm

A disabled WC alarm has been provided to each disabled WC including pullcord assistance, reset facility & audible & visual alarm outside the WC. Communication to the main reception has been provided.

# section 5
# mechanical specification

Designs are in accordance with the CIBSE Design Guides (A, B and C), Technical Memoranda and where applicable the latest British Standards as the current Building Standards (Scotland) Regulations.

### 5.1 Offices HVAC

All areas of the lettable offices have been provided with comfort cooling and heating by the provision of reverse cycle heat pump (VRV) systems.

Design Parameters (heating and cooling) – Lettable Offices

Internal Temperature 21°C Winter / 22°C +2°C Summer

Internal Humidity Control Not required

Winter External Design Temperature -4°C

Summer External Design Temperature 25°C

### 5.2 Design Parameters (Ventilation)

Mechanical ventilation is provided to ensure occupancy fresh air ventilation of 8 l/s per person at an assumed occupancy of 1 person per 10/m2 of net lettable area.

### 5.3 Heat Pump System

Specified occupied areas are heated and comfort cooled utilising a 3 pipe VRV system. The system has been sized and selected to deal with solar, occupancy and equipment gains. (Equipment gains to be 25 W/m$^2$).

Office area heating and comfort cooling is provided via concealed ceiling suspended VRV fan coil units. Refrigerant pipework from roof mounted condensing units to each fan coil allows the flexibility of simultaneous heating and cooling in different areas when necessary, and peak demand heating or cooling in extreme seasonal conditions. Temperature controlled supply air to be delivered to the space via a combination of perimeter slot diffusers and centrally located "swirl" type ceiling diffusers.  Recirculation air is via the ceiling plenum with non-ducted transfer of air to the void via recirculation sections in the perimeter slot diffusers and other centrally located grilles. The outdoor plant is located on the roof of the building in a screened enclosure to provide an installation in accordance with the manufacturers' recommendations.

Proprietary pipe/cable transit systems are utilised throughout. The systems complete with all necessary condensate pipework and connections including traps and tappings to rainwater pipe stacks.

### 5.4 Mechanical Ventilation System

Mechanical ventilation systems are provided to each floor and shall incorporate supply, extract and heat recovery elements. The heat recovery system shall utilise thermal wheels.

Central air handling plant for tenants areas is located on platformed plant areas within the double height ground floor car park with louvre connections to fresh air. Fresh air intake and discharge points are located to avoid cross contamination and suitably installed to prevent the ingress of water into the AHUs. Plant has been configured with separate plant for East and West sections of the building. Supply and extract ventilation ductwork installed in service risers with horizontal connections on a floor by floor basis. Balancing dampers provided such that full commissioning can be carried out at completion. Hot water for air handling plant heater batteries is from gas fired boiler plant, located in a Mezzanine Plantroom above the car park. Air handling units are complete with panel and bag filtration to EU3 and EU5 respectively.

The structure incorporates openings in steel beams and ductwork has been sized to allow routing to pass through the preformed openings in the beams. Ducting has been installed to the location of the concealed heat pump fan coil units which deliver the air to the space. Where ductwork passes through a fire compartment then automatically operated and suitably rated fire dampers have been installed.

A separate air handling unit provides supply and extract ventilation to all central core areas, including toilets, lobbies and the Entrance area.

### 5.5 Automatic Controls

Heating, comfort cooling and ventilation to the office areas are controlled via a central control and monitoring system supplied and commissioned by the plant equipment manufacturer. The system provides:-

- On/off control for all VRV units
- Temperature set points for all VRV units
- Timer operation for all VRV units
- Optimised start-up operation for all VRV units
- Fabric Protection via VRV units
- Maintenance, fault reporting and diagnosis guide for all VRV plant
- Data print-out facility
- Calculation of Energy used for all VRV units. KWh meters are provided for total electrical input to the VRV units.

All of the above functions are controlled via a PC loaded with manufacturers software, and can be carried out on an individual unit, room, floor, system, tenant or whole site basis to suit the flexibility of letting for the building. The PC has been provided as part of the installation. Local user On/Off and set point adjustment control of the VRV units in the office areas can be performed at the Control Panel Modules located in the VRV riser cabinets on each floor. Each VRV unit has the facility to have its own dedicated controller.

### 5.6 Core, Toilets, Stairwells & Entrance Area

The core areas and toilets are heated by a central gas fired boiler plant with zoned distribution including steel panel radiators, door curtains and trench heating to satisfy parameters.

- Design Temperatures (winter)
- Toilets/Cleaners 18°C
- Reception 21°C (some cooling provided to limit summertime temperatures)
- Ventilation Rates
- Toilets 10 air changes extract
- Cleaners 10 air changes extract
- Reception 3 air changes supply and extract

### 5.7 Radiators

Radiators have been selected in collaboration with the Architects to ensure aesthetic compatibility with the finishes and colour scheme.

### 5.8 Entrance Door Curtain

A fully recirculating LPHW operated fan assisted air heater suitably rated to maintain the minimum specified temperature year round is located and installed over the entrance doors.

### 5.9 Reception Counter/Waiting Area and Stairwell

Steel panel radiators are provided to ensure temperature stability in these areas with thermostatic radiator valves being utilised.

### 5.10 Boiler Plant

A central boiler plant installation incorporating modular, gas fired boilers, is provided within a plant room to produce LPHW with a flow temperature of 82ºC and return temperature of 71ºC.

Boilerplant is sized on the basis of heat loss calculations carried out in accordance with CIBSE recommended calculation methods. U values taken to be maximum allowable under building regulation requirements. The heating system is based on a LPHW system pressurised via a pressurisation unit and associated expansion vessels

### 5.11 Automatic Controls

A mechanical services control panel has been supplied and installed in the boiler plantroom to monitor and control the services associated with the HVAC plant and hot and cold water plant.

The control panel is pre-wired and contains all starters and control equipment to provide the necessary system operation. The control system includes facilities for the following:-

- Boiler sequence control.
- Optimum start of heating plant.
- Outside and fabric frost protection.
- Fixed time start and control of DHW plant.
- Fixed time start and control of miscellaneous ventilation.
- Control and monitoring of boilerhouse automatic gas detection and shut-off system.
- Frost and fabric protection routines to all parts with internal and external sensors.

All field wiring from the control panel has been carried out as necessary.

### 5.12 Plant to Space Noise Levels

The plant equipment including air terminals, has been selected and applied to the following noise criteria :-

- Reception Area NR 40
- Office Accommodation NR 38
- Toilets NR 40

### 5.13 Water Service

Hot and cold water services are provided to meet the requirements of the current edition of the WRC Water Byelaws, BS6700 and HS(G)70.

### 5.14 Domestic Hot Water Generation Plant

The hot water installation has been generated via direct two equal sized indirect un-vented calorifiers located within the mezzanine plant room. The rating and sizing of these units meet with the peak loads of the building user in accordance with CIBSE Guides. The generation plant generates the hot water to 65°C while the secondary circulating return temperature requires to be 55°C minimum.

Local thermostatic control to ensure delivery of domestic hot water at 38°C, 41°C or 44ºC as appropriate, has been provided by means of blender valves or shower thermostatic mixing valves. This has been provided in all areas accessible to or used by staff and the public.

### 5.15 CWS Storage and Downservice

A centralized cold water storage tank complies with the current "Water Regulations Guide" and is suitable for potable water.

The tank has been sized to provide 24 hour storage provision.

The tank incorporates sealed covers and screened vents, access man ways and division in order to allow maintenance / cleaning of the tank whilst maintaining the potable cold water supply to the building. The tank serves all the cold water outlets and the hot water installation. Mains water used only to serve the potable storage tank.

A centralized booster pump set has been provided to meet the peak loads of the building user and the building requirements. This pump set will service both the cold water and hot water distribution networks.

# section 5
# mechanical specification cont'd

### 5.16 Drinking Water

The entire boosted cold water distribution installation is of a potable standard.

A single valved branch connection is provided on each floor level for future tea preparation facilities.

### 5.17 Internal Foul Drainage

Above ground drainage has been provided to serve the waste connections of all appliances and conforms to BS EN 12056, Section 2 and all Local Authority guidelines and requirements.

**Utilities:**

### 5.18 Water

Provision is made for all necessary valves, meters, access chambers and interconnecting pipework, underground pipework and incoming service pipework to the building.

### 5.19 Gas

A new metered gas connection is provided, with an approximate rating 400 kW.

Heat detectors, emergency knock-off buttons and slam-shut solenoid gas valves are provided as part of the gas safety system.

### 5.20 Fire Hydrants

An external fire fighting hydrant system is provided in line with the Building Regulations and the Local Fire Safety Officer's requirements.

### 5.21 Dry Riser

A dry riser system is provided to the main central staircase lobby which is designated as the single fire-fighting shaft containing both the dry riser and the fire-fighting lift.

### 5.22 Tenant's Plant

Space has been allocated for the future installation of Plant to support tenant fit-outs.

The space allocation has been distributed to match the base build servicing strategy with space provided at roof level to accommodate additional cooling/heat rejection plant. In addition, services risers are designed to allow some limited space for the installation of future tenant systems.

### 5.23 Service Yard Access Control

A remotely operated access control system is provided to open and close the gates at the entrance to the service area and car park, which is operated via a fob or swipe card & restricted to tenants with car parking spaces only.

### 5.24 Smoke Control

A passive BRE solution smoke shaft is for smoke control in the central core area. This system utilises automatic fire/smoke dampers at each core level which will operate in conjunction with the fire alarm detection system. A firemans' override/control panel is provided for this system at the entrance to the building.

In line with Building Control requirements, automatic ventilators, complete with firemans' override facilities, is provided in each of the 3 No emergency escape stairwells.

# section 6
# external works

### 6.1 Frontage footpaths (to Argyle Street with return into Cadzow Street)

Natural stone pavings and kerbings in accordance with Planning department Design Policy for the International Financial Services District.

### 6.2 Cadzow Street Footpath

In-situ granolithic fine concrete in panels finished with printed pattern whilst green.

### 6.3 Rear Access Lane (shared surface)

Coloured interlocking blockwork paving for heavily trafficked service areas on sand bed on full distributor road build-up incorporating flush concrete kerbs to define end of vehicle turning bay in the access lane from Cadzow Street. Includes concentric paving feature and circular screen fence, reconstituted plastics vehicle bollards at new entrance to Davaar House.

### 6.4 Traffic Barriers

Hydraulically actuated vehicle entrance and exit barriers on elevated central island with swipecard/ fob unit control for entry by tenants and voice intercom to reception desk for access by visitors. Free exit. Road induction loops are provided for fail-safe operation.

### 6.5.Refuse Enclosure

Fence screened enclosure within car park.

Enclosure has 1 pair of gates 4.0 metres wide with slip bolts to both leafs with overlapping padlock hasp and staple.

1 Gate 1550 wide.

### 6.6 External Lighting

External lighting to the building is provided to CIBSE recommendations at Ground level entrance and service/car park road accesses all controlled by central solar/ time clock. The Argyle and Cadzow Street elevations incorporate feature lighting to the façade and the footpaths by fully recessed pavement luminaires.

### 6.7 CCTV

The accesses and disabled parking bays are monitored by the landlord's CCTV system.

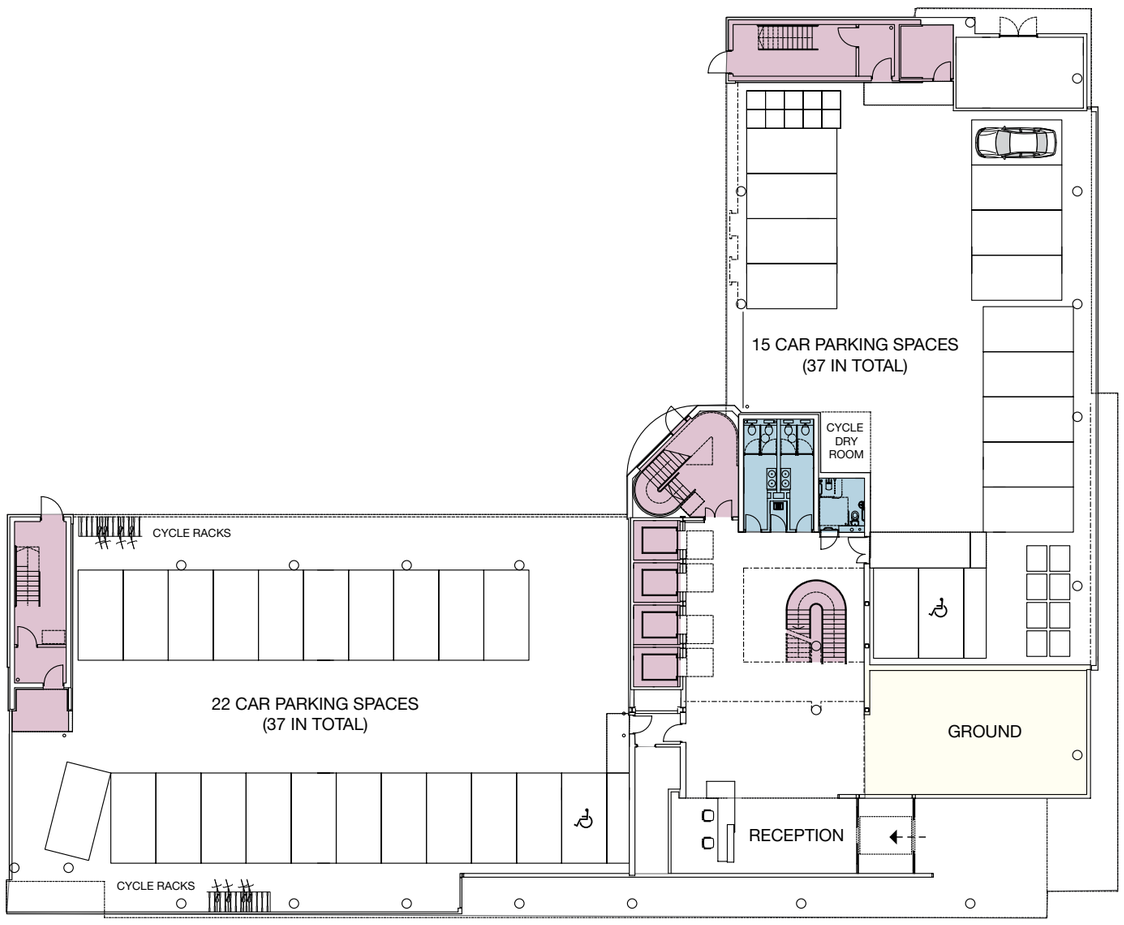
# floorplans

## Inspirational space providing flexible, functional accommodation

**Ground Floor & Reception**

| | sq ft | sq m |
|---|---|---|
| Ground | 840 | 78 |
| Reception | 1,810 | 168 |

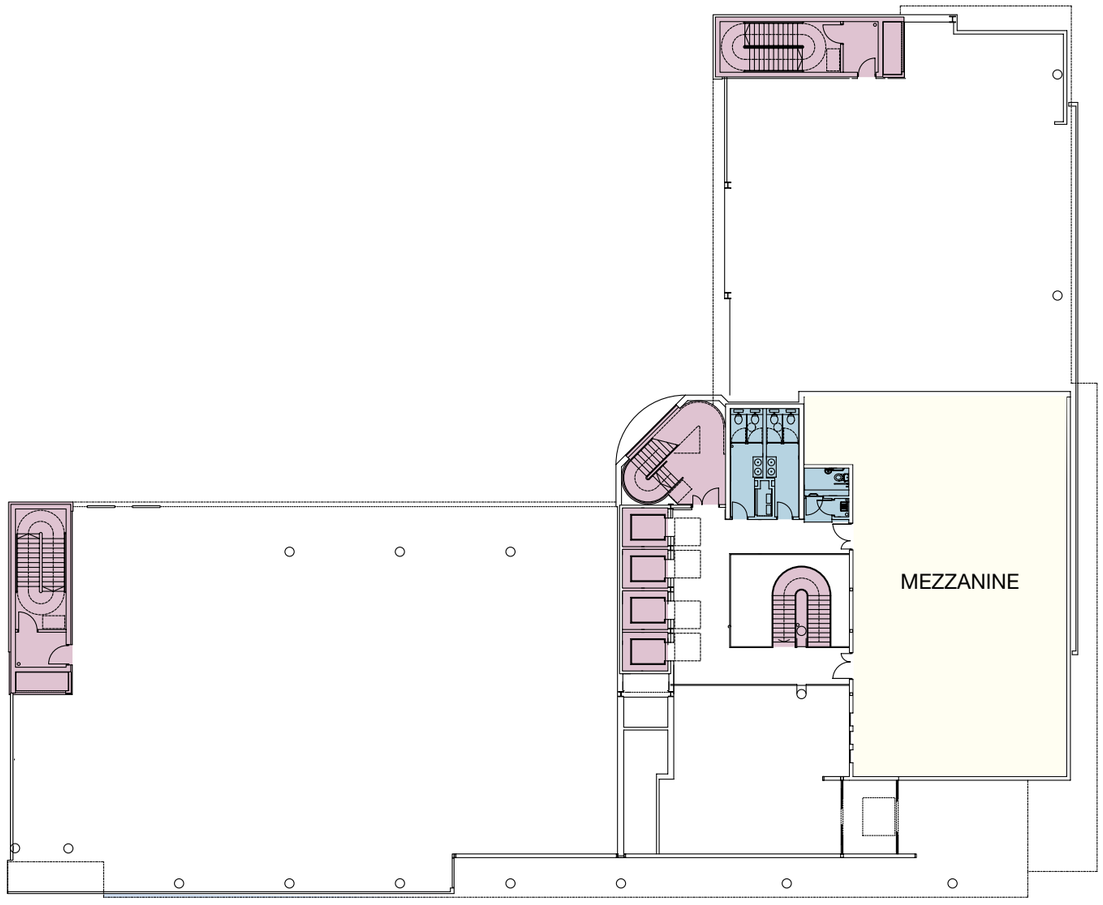
- Office Space
- Stairwells & Lifts
- Toilets
- Common Parts




**Mezzanine**

| | sq ft | sq m |
|---|---|---|
| Mezzanine | 2,685 | 249 |

- Office Space
- Stairwells & Lifts
- Toilets
- Common Parts



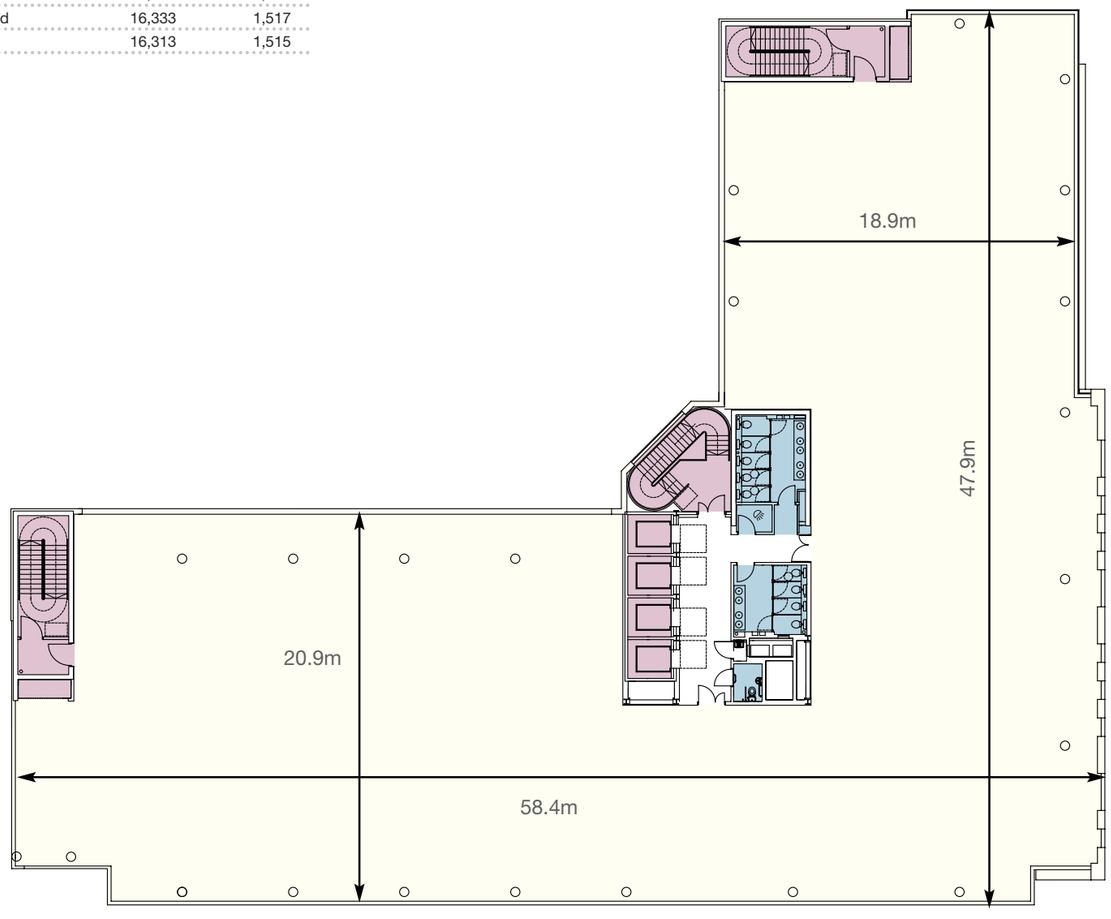
# floorplans

## Inspirational space providing flexible, functional accommodation

**Floors 1 - 5**

| | sq ft | sq m |
|---|---|---|
| Fifth | 16,341 | 1,518 |
| Fourth | 16,312 | 1,515 |
| Third | 16,324 | 1,516 |
| Second | 16,333 | 1,517 |
| First | 16,313 | 1,515 |

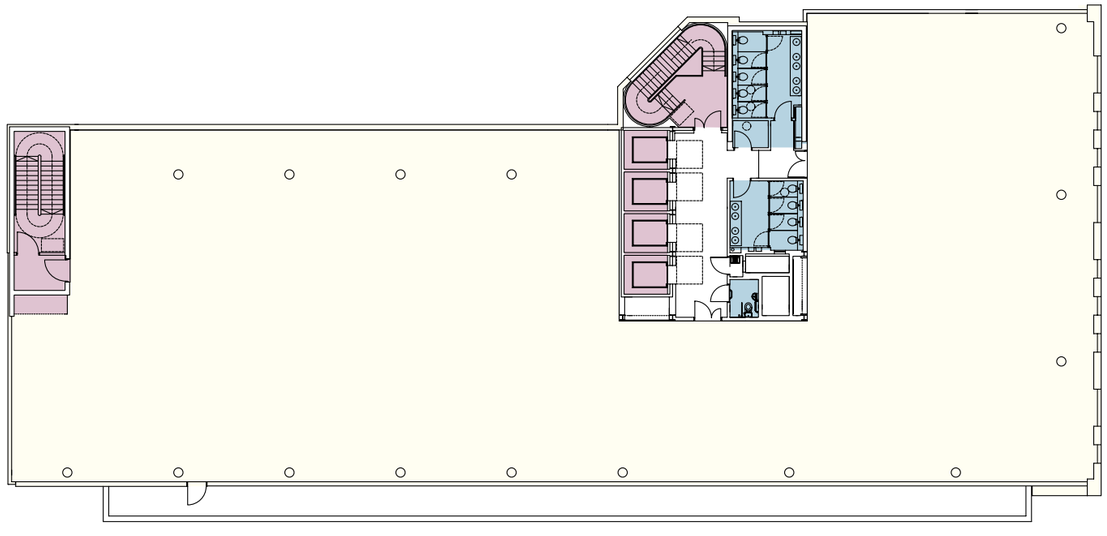
- Office Space
- Stairwells & Lifts
- Toilets
- Common Parts




**Floor 6**

| | sq ft | sq m |
|---|---|---|
| Sixth | 11,468 | 1,065 |

- Office Space
- Stairwells & Lifts
- Toilets
- Common Parts



# spaceplans

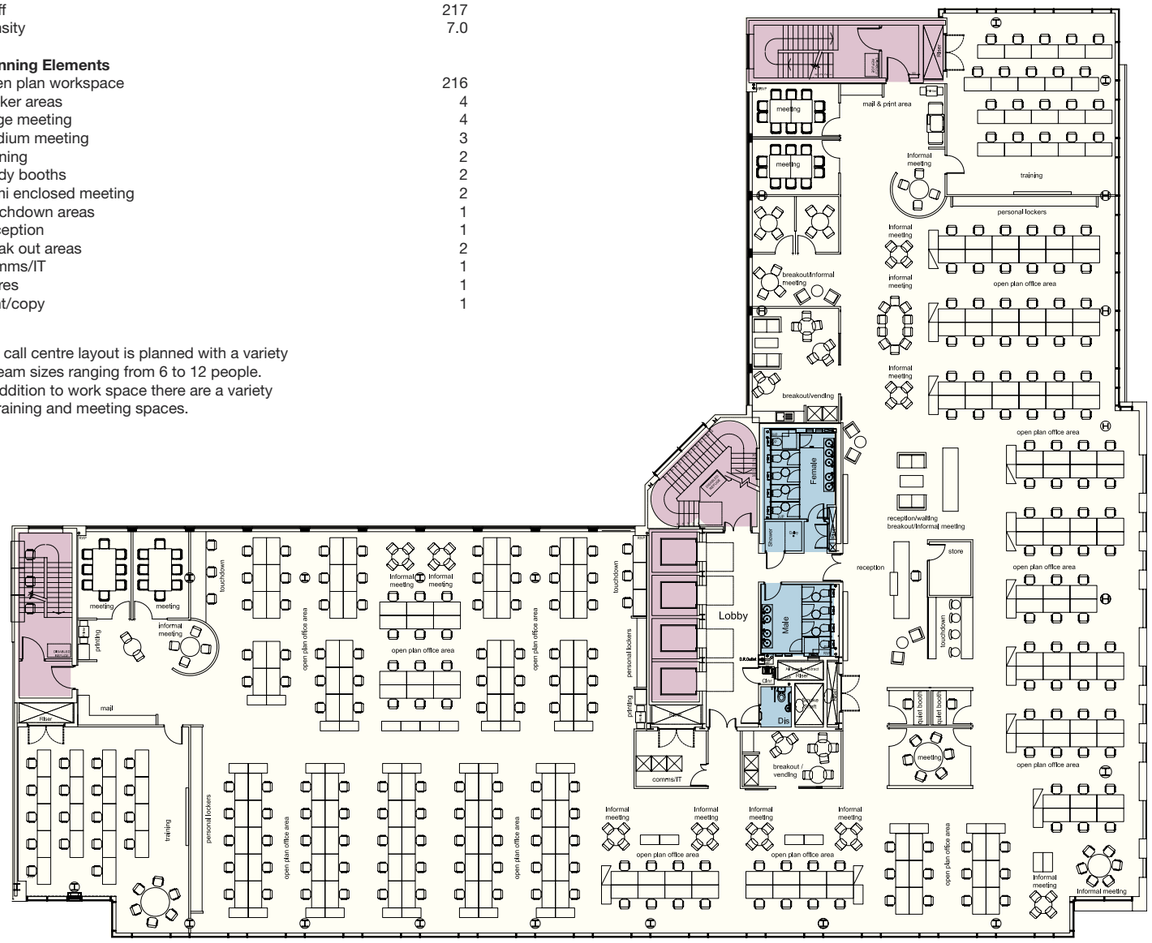
## Inspirational space providing flexible, functional planning

### Financial Services - Call Centre

| | sq m |
|---|---|
| NIA | 1518 |
| Staff | 217 |
| Density | 7.0 |
| **Planning Elements** | |
| Open plan workspace | 216 |
| Locker areas | 4 |
| Large meeting | 4 |
| Medium meeting | 3 |
| Training | 2 |
| Study booths | 2 |
| Semi enclosed meeting | 2 |
| Touchdown areas | 1 |
| Reception | 1 |
| Break out areas | 2 |
| Comms/IT | 1 |
| Stores | 1 |
| Print/copy | 1 |

The call centre layout is planned with a variety of team sizes ranging from 6 to 12 people. In addition to work space there are a variety of training and meeting spaces.

- Office Space
- Stairwells & Lifts
- Toilets
- Common Parts




Further space plan options are available on the website

### Public Sector

| | sq m |
|---|---|
| NIA | 1518 |
| Staff | 120 |
| Density | 12.7 |
| **Planning Elements** | |
| Open plan workspace + reception | 114 |
| Enclosed workspace | 1 |
| Large meeting | 4 |
| Medium meeting | 3 |
| Training | 3 |
| Study booths | 8 |
| Touchdown areas | 2 |
| Kitchen | 1 |
| Break out areas | 2 |
| Vending / coffee | 1 |
| Comms/IT | 1 |
| Stores | 2 |
| Print/copy | 3 |

The planning for the public sector layout utilises the best natural light for workspace, with the deeper central space saved for ancillary and support.

- Office Space
- Stairwells & Lifts
- Toilets
- Common Parts

# project team

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