RYBKA

125 HIGH HOLBORN

OUTLINE PLANNING
STAGE DOCUMENT

MECHANICAL, ELECTRICAL AND LIFT SERVICES

RYBKA
JANUARY 2005

CONTENTS

1.00 MECHANICAL SERVICES

1.01 EXTERNAL DESIGN CRITERIA

The system has been designed to accommodate the following external design criteria:

Temperature and Humidity	Summer	29°Cdb 20°Cwb
future	Winter	-4°Cdb100 % saturation (for building heat loss and sizing of steam humidifier) 10°Cdb (for building frost protection and air handling unit frost coil selection)
External noise from plant	To comply with local authority requirements and to achieve internal noise design criteria	

1.02 INTERNAL DESIGN CRITERIA

Internal Conditions

Offices	Dry bulb temperature	22 oC (±2 °C) during occupied hours 10 oC Minimum during unoccupied hours	
	Humidity	No direct control of high limit. The upper level will be limited by the inherent de-humidification provided by the fan coil unit system and fresh air supply	
	Design Occupancy	1 Person per 12.5 m² of net lettable floor area (NLA) 1 Person per 10 m² used for vertical transportation, and toilet provision	
	Internal Noise Level	NR 35 maximum for open plan arrangement	
	Ventilation	16 Litres/s/person of outside air Provision for up rating to 1.8 Litres/s/m2 for 10 % of NLA	
	Internal Heat Loads	Occupancy	90W per person (sensible) 40W per person (latent)
		Lighting	15W/m²
		Equipment	20W/m² 10W/m2 spare capacity available at chilled water riser
Toilets	Dry bulb temperature	18°C db Minimum Upper limit of no greater than office ambient temperature + 3°C 10 °C Minimum during unoccupied hours	
	Internal Noise Level	NR40-45	
	Ventilation	10 air changes / hour extract 8 air changes / hour supply	
Corridors and stair wells	Dry bulb temperature	18°C db Minimum No cooling 10°C Minimum during unoccupied hours	
	Internal Noise Level	NR40-45	
Atrium	Dry bulb temperature	Occupied ground floor areas	20°C minimum during occupied hrs 25°C maximum during occupied hrs
		10°C Minimum during unoccupied hours	
	Internal Noise Level	NR 40 Maximum within occupied zone	
Water storage	20 Litres / person inclusive of catering provision		

1.03 PLANT GENERAL

Plant has been located at roof and basement areas depending on its function and access requirement.

Basement
- Office supply air handling units
- Office extract fans
- Smoke ventilation plant for the basement
- Chilled and heating water pumps
- Gas fired boilers
- HV/LV substation
- Cold water storage tank and pumps
- Sprinkler tank (should the atrium require drenching)
- Standby generator
- Car park extract fans
- Chiller

Roof
- Dry Air Coolers
- Toilet extract fans
- Space for retail extract fans and heat rejection

1.04 OFFICES VENTILATION

2 No constant volume air handling units located at basement level will supply 100% outside air at a constant temperature to the intake of each fan coil unit. The outside will be air filter, heated or cool it as necessary to achieve the supply air temperature and shall distribute air to each floor via ductwork risers. Branch connections to each office floor will distribute supply air to each fan coil unit. The ventilation plant arrangement will incorporate space for a tenant to fit a steam humidifier.

Air will be extracted from the office ceiling voids by the return air handling units via extract risers with branch connections to the ceiling void of each office floor.

1.05 COOLING SYSTEM

Central cooling will be provided by water cooled chiller located at basement. The heat from these chillers will be rejected by dry coolers located at roof level. A constant volume primary pump associated with each chiller will circulate water when the chiller will circulate water when the chiller is called into operation. These pumps will circulate water to the secondary circuit. Secondary constant temperature, variable volume pump will distripute water to the air handling units and all fan coil units in the office areas via pipe risers located within the plant towers. Branch connections will be provided to each level as necessary.

1. 06 HEATING SYSTEM

Central low temperature hot water heating will be provided by gas fired boiler plant located at basement level. A constant volume primary pump associated with each boiler will circulate water when the boiler is called into operation. These pumps will circulate water to the secondary circuit. Secondary constant temperature, variable volume primary pumps will serve the air handling units, all fan coil units in the office areas and the atrium trench heaters via pipe risers located within the plant towers. Branch connections will be provided to each level as necessary. A pumped variable temperature circuit will serve the atrium under floor heating.

Toilets will be heated using the supply air. Radiators controlled by thermostatic valves will heat the stairs. The atrium will be heated by fan assisted trench heating located adjacent to the glazing, under floor heating and where necessary the fan coil units.

1.07 OFFICES FAN COIL UNIT SYSTEM

Individually controlled fan coil units located within the suspended ceiling zone will supply conditioned air via ceiling grilles or diffusers. The density of fan coil units will be not less than 1 unit per 27m2 of perimeter zone and 1 unit per 60m2 in the internal zone. Each unit will draw air from the space via air handling light fittings, unused sections of linear diffusers and, if necessary, return air grilles. The air will then be heated or cooled as necessary to maintain the space air temperature based on the sensed return air temperature. Units will be capable of being grouped together under the control of a single room or return air temperature sensor.

1.08 RECEPTION AREAS FAN COIL UNITS

The occupied areas will be heated and cooled to achieve the design conditions indicated. Fan coil units will provide heating and cooling to the ground floor reception ducted return air.

1.09 CONDENSATE DRAINAGE

A network of drainage pipework will be provided in the ceiling void to serve the fan coil units. This pipework will drain by gravity back to a series of down pipes. The down pipes will be collected together in the floor void of the ground floor and will then be routed to discharge over floor gullies in the plant towers.

1.10 TOILET VENTILATION

Air will be extracted from each individual toilet via a ducted system. Make up air will be supplied from a separate branch from the offices supply air system that will also provide heating using an in duct re-heater battery. Duty and standby extract fans will be provided.

1.11 KITCHENETTE SERVICES

Drainage, drinking water and extract ventilation risers will be provided in each wing with capped connections at each level for use by the tenants.

1.13 BMS SYSTEM

The control and monitoring system will consist of single outstations located in each main control panel (MCP).

The outstations will be networked and have the capability of being connected in the future by the tenant to a central supervisor, printer and modem for remote monitoring.

The head end personal computer, maintenance and alarm printer will not be provided.

Hardware and Software will be provided to achieve the functions listed below. Any items not specifically mentioned will not be included in the Shell & Core provision.

Generally, the system will include the following functions:

- Optimum stop/start routines.
- Multiple time programmes.
- Alarm handling.
- Primary energy consumption monitoring with modem facility to the clients energy manager.
- Weather compensation control.
- Run time summation.
- Duty cycling of plant.
- Sequence interlocking.
- Status monitoring of all connected plant
- Group switching of fan coil units provided under the Cat 'A' fit out.

The tenant can incorporate additional temperature and energy monitoring. 25% spare points will be provided for the tenants' use.

The fan coil units will be group switched in zones by the BMS. Individually addressable fan coil unit controls will not be provided.

1.14 DISPOSAL INSTALLATIONS

Generally the drainage, rainwater, sanitation and waste systems are to be designed and installed to the Local authority requirements, BS5572, BS 8301 and BS 6367.

1.15 SANITATION AND WASTE SYSTEMS

The sanitation and waste systems will collect discharge from all the sanitary appliances within each core area. Dedicated soil waste and vent pipes will be located within the toilet pods. Soil and vent stacks will be located in the mechanical service areas with capped connections for future tenant requirements.

1.16 RAINWATER SYSTEM

The rainwater installation will be a gravity system with outlets located at roof level

The system will be designed to accommodate a 100mm rainfall in 1 hour to BS 6367

1.17 DRAINAGE OUTFALLS

Soil and rain water discharges will be via separate connections to the sewerage systems.

1.18 OVERFLOWS AND SAFETY BLOWDOWN DRAINAGE

All overflows and safety blow down pipes from tanks, equipment, water heaters and appliances will discharge separately into tundishes before emptying into floor gullies located in the plant towers.

Each tundish will incorporate a leak detection point.

1.19 HOT AND COLD WATER SERVICES

The incoming mains cold water service to each building will be supplied via a connection to the utility service.

The supplies will feed separate potable and non-potable water storage tanks in each building. Each tank will be complete with a water booster set installation.

The non-potable water will be boosted throughout the building to serve all sanitary appliances and water heaters.

The potable water supply will be boosted to both plant towers in each building where a riser with valved connection for future use will be provided.

The hot water service will be fed from localised individual water heaters located within the toilet. The hot water service to each range of appliances will be trace heated in order to maintain the required temperature.

1.20 RETAIL AREAS

Space has been allocated within the risers and at roof level to enable retail tennants to install their ventilation and conditioning plant.

2.00 ELECTRICAL SERVICES

2.01 DESIGN CRITERIA

Lighting levels	Offices	350-400 Lux
	Reception areas	300 Lux with feature lighting
	Circulation areas / stairs	150 Lux
	Toilets / cleaners cupboards	200 Lux
	Atrium / lift lobbies	Bespoke system to complement architectural design
	Plant rooms / stores	300 Lux at floor level
Ancillary power	20 W/m2 of NLA	Equipment load
	10 W/m2 of NLA	Spare capacity at Tenants distribution board

2.02 LIGHTING

Lighting will be provided to all office areas and the design criteria will be to achieve 350-400 lux average maintained at the working plane. The lighting will conform with CIBSE Code for Interior Lighting Requirements, LG3. All luminaires will have high frequency control gear and utilise fluorescent linear (Triphosphor) or compact fluorescent lamps with a lamp colour temperature of 4000 K.

The lighting will be controlled by stand alone PIR detectors in order to comply with Part L of the Building Regulations and will be capable of being upgraded by a tenant to incorporate a fully addressable PC switching system with dimming and daylight control. The office lighting will be wired back to the tenants distribution board on each office floor.

Emergency lighting will be provided on the office floors all in accordance with BS 5266 utilising self contained modules within
luminaires.

Lighting will be provided to escape routes, circulation areas, cores, entrance areas and plant rooms. Emergency lighting will be provided to all of these areas and at specific egress points from the building all in accordance with BS 5266 utilising self contained modules within luminaires. The lighting design will be in accordance with the design criteria included in the proceeding section.

2.03 LANDLORDS SMALL POWER INSTALLATION

Switched 13 amp small power outlets will be provided to all landlord areas, including circulation areas, cores, plant rooms, entrance and lift lobbies and at selected locations in the office space.

2.04 TENANTS SMALL POWER INSTALLATION

Three compartment floor outlet boxes will be provided free issue for installation by the tenant, equivalent to a density of 1 floor box per 10 m2. It will be the responsibility of the tenant to provide wiring to the floor boxes, from the tenants distribution board.

The installation will include power wiring to the tenants fan coil units. These will be wired back to the tenants distribution board.

2.05 MAINS DISTRIBUTION AND SUB DISTRIBUTION

The LV electrical switch room will be located at basement level. Power supply will be routed from basement level to individual distribution loads located at each floor level and motor control centres located within plant areas.

The main LV distribution panel, rising mains and on floor distribution boards will incorporate spare capacity allowance as detailed in the design criteria.

2.06 ELECTRICITY METERING

Space will be provided in the electrical switch room of each building for 24/7 electric services metering, On each floor, space for check meters for tenants supplies to enable resale of electricity to the tenant by the landlord will also be provided.

2.07 FIRE DETECTION AND ALARM SYSTEM

The fire alarm system will provide an automatic response to a fire condition in the building fulfilling the requirements for single stage evacuation of occupants. The system will be analogue addressable type L2/P2 system and will be in accordance with the local authority requirements and BS 5839 and European standards.

The actuation of any manual break glass unit, smoke or heat detector will cause an alarm throughout the building covered by the panel. Alarm initiating devices will be identified at the analogue addressable panel. The system will be designed to ensure that any number of detectors can be removed from the circuit without affecting the integrity of the alarm circuit.

The installation will cover all landlord and tenant areas.

2.08 TELEPHONE SYSTEM

A complete system of incoming ducts, and a containment system will be provided. The containment will provide a link from the telephone incoming point to the telephone frame room and a connection to the base of each riser. Each electrical riser will be provided with a tray running the full height of the riser.

2.09 SECURITY

A security alarm system will be provided to monitor all external doors including doors to external escape stairs. A containment system will be provided that will enable tenants to provide an access control system serving the main and rear entrance doors and to facilitate the control of a car park barrier system.

2.10 DATA INSTALLATION

Containment will be included for distribution of data within the vertical risers.

2.11 LIGHTNING PROTECTION SYSTEM

A lightning protection system will be installed, in accordance with BS 6651:1992, together with surge protection on the incoming supply.

2.12 DISABLED PERSONS CALL ALARM SYSTEM

A call alarm system will be provided to serve all the disabled WC facilities throughout each building. This will consist of pull switches located within the WC areas, with a visual alarm local to each and a central alarm panel situated in an agreed location.

2.13 SUB DIVISIBILITY

The electrical distribution is designed such that it is possible to have different tenants on each floor and within each core. Further metered sub division (half a core tenancy) will not be possible, given the proposed electrical distribution.

3.0 LIFTS

3.01 PASSENGER LIFTS

Vertical transportation will be designed and provided to achieve a fully compliant standard of service of an interval time of less than 30 seconds, with 17% of the population transported within 5 minutes.

5 No 16 person lifts will be provided to achieve the above criteria.

The lifts shall be suitable for operation by disabled persons, and shall fully comply with the Building Regulations Part M.

Rev.	Date.	By.	Chkd.	Amendment.
B	11/01/05	RB	MJD	REVISED TO SUIT ARCHITECTS CHANGES
A	24/12/04	RB	MJD	REVISED TO SUIT ARCHITECTS CHANGES
–	25/01/02	APN	CB	SCHEME DESIGN ISSUE

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Project Title.
BETTER PROPERTIES LTD
125 HIGH HOLBORN

Drawing Title.
SERVICES SCHEME
BASEMENT

Drwg Status.
SCHEME DESIGN

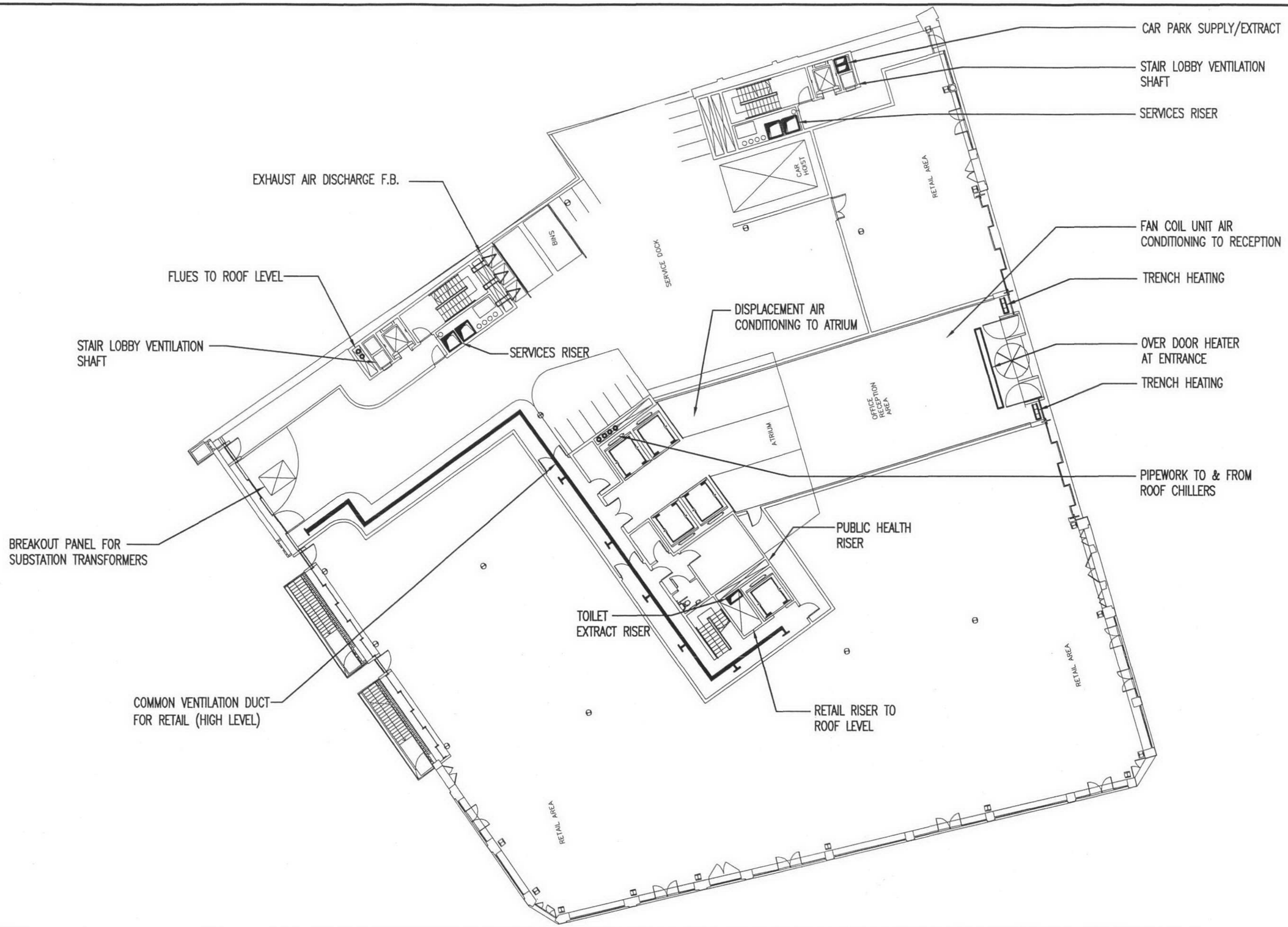
Scale. 1:250 Date. JAN 02

Drn. APN Chkd. CB Passed.

Project No. 300.055.00

Drwg No. SK45(B)1

Rev. B



Rev.	Date.	By.	Chkd.	Amendment.
A	24/12/04	RB	MJD	REVISED TO SUIT ARCHITECTS CHANGES
–	25/01/02	APN	CB	SCHEME DESIGN ISSUE

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Project Title.
BETTER PROPERTIES LTD
125 HIGH HOLBORN

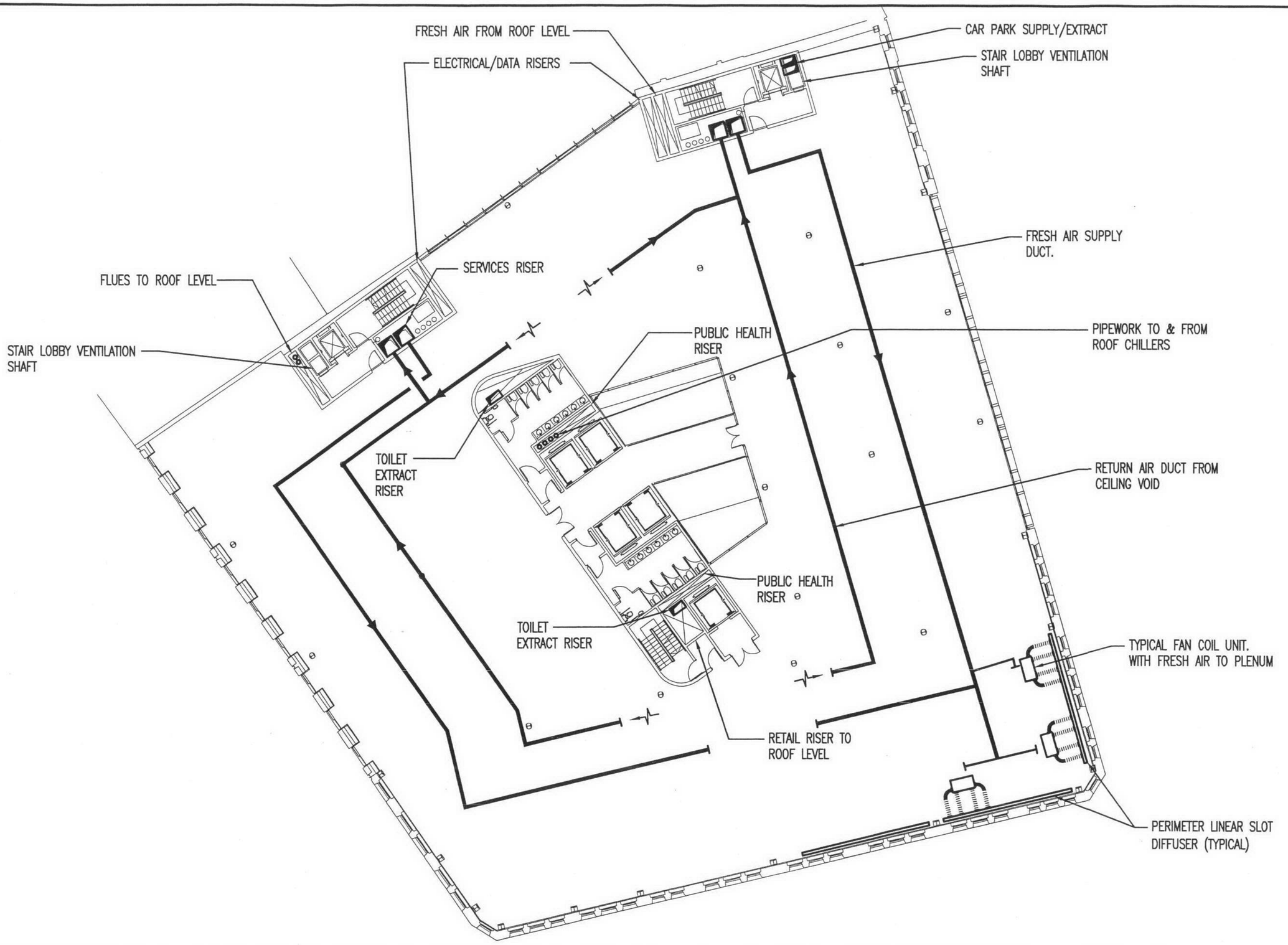
Drawing Title.
SERVICES SCHEME
GROUND FLOOR

Drwg Status.
SCHEME DESIGN

Scale. 1:250 Date. JAN 02

Drn. APN Chkd. CB Passed.

Project No.	Drwg No.	Rev.
300.055.00	SK45(G)1	A



Rev.	Date.	By.	Chkd.	Amendment.
A	24/12/04	RB	MJD	REVISED TO SUIT ARCHITECTS CHANGES
–	25/01/02	APN	CB	SCHEME DESIGN ISSUE

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Project Title.
BETTER PROPERTIES LTD
125 HIGH HOLBORN

Drawing Title.
SERVICES SCHEME
TYPICAL FLOORS 1– 5

Drwg Status.
SCHEME DESIGN

Scale. 1:250 Date. JAN 02

Drn. APN Chkd. CB Passed.

Project No. 300.055.00

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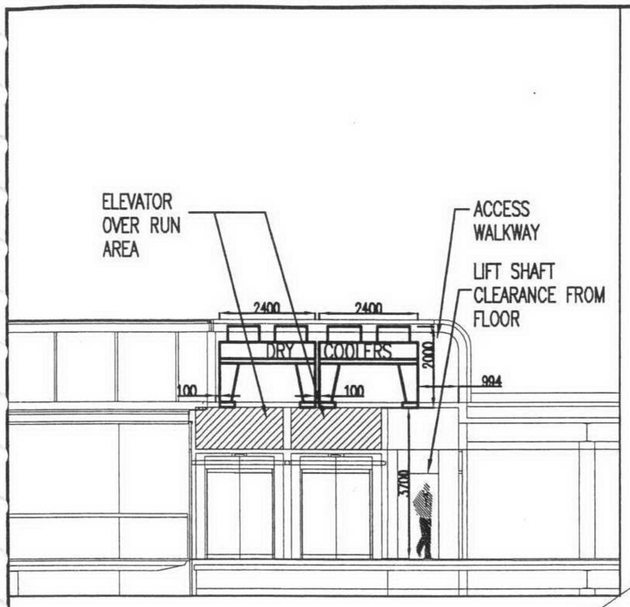
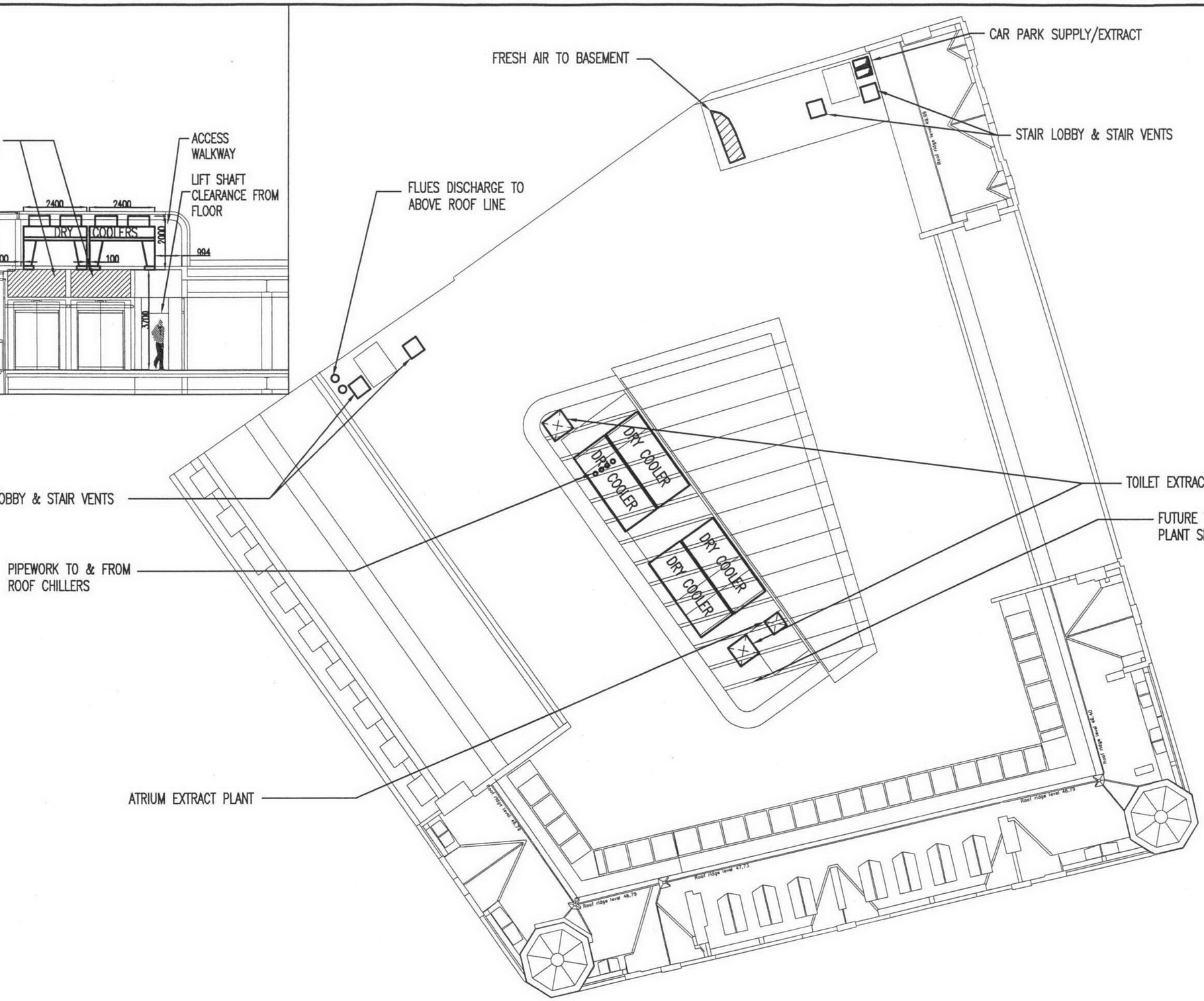
Rev. A





Rev.	Date.	By.	Chkd.	Amendment.
B	11/01/05	RB	CM	REVISED TO SUIT ARCHITECTS CHANGES
A	24/12/04	RB	MJD	REVISED TO SUIT ARCHITECTS CHANGES
–	25/01/02	APN	CB	SCHEME DESIGN ISSUE

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Project Title.
BETTER PROPERTIES LTD
125 HIGH HOLBORN

Drawing Title.
SERVICES SCHEME
ROOF PLAN

Drwg Status.
SCHEME DESIGN

Scale. 1:250 Date. JAN 02

Drn. APN Chkd. CB Passed. CM

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Rev. B