

SUPPORTING DESIGN STATEMENT FOR PROPOSED ROOF TOP PLANT ENCLOSURE

Proposed development at 106-109 Saffron Hill, London EC1N 8QS



Applicant: Chartered Institution of Water and Environmental Management (CIWEM)

Planning Consultant: Rolfe Judd, Old Church Court, Claylands Road, The Oval, London, SW8 1NZ

Architect: Nash Partnership LLP, 23a Sydney Building, Bath, BA2 6BZ

Date: 15th December 2011

INTRODUCTION

This Statement report has been written to accompany the current Planning submission for the above named site with the aim to provide an overview of the proposed new roof top plant enclosure desing. The design team for the project consists of an appointed Architect, Mechanical and Electrical Engineers, Structural Engineer plus an Energy Consultant. Throughout the development of the project, the team have worked closely together in order to detail a space efficient services strategy for the building that aims to maximise useable floor space (residential and commercial) and provide the high level of sustainability performance that our client is actively looking to achieve as end users of the building. With the building occupying a tight urban site, this was a real challenge for the design team, especially when considering the impact of the services strategy on the building plus any impacts upon the site's context.

CURRENT PLANNING SCHEME

The current approved planning scheme drawings were prepared early 2010, with the submission drawings being issued in summer (August) 2010. These drawings consisted of plant areas within the basement area plus a small plant room located at Fourth Floor level. When reviewed by the team during the planning application, these plant spaces were sensibly located and sized to service the building. However, subsequent to the planning submission and approval, the new 2010 Part L suite of Approved Documents were brought into force, with all new developments from the beginning of this year (2011) requiring to meet the new stringent standards necessary to comply with the Building Regulations. Upon review of the new Part L standards by the team, it became evident that the level of plant space would not allow the development to meet the new energy performance required of building regulations.

This above review by the design team resulted in further discussions as to how the building could not only be serviced and accommodate the required plant to meet the new Part L standards, but also how the designs could achieve our client's commendable aspirations for the sustainability performance / credentials of the building – i.e. meeting CFSH Level 4 (residential) and BREEAM Excellent (Officer). With the understanding, via a close inspection of the Part L regulations with the BREEAM requirements, the appointed Energy Consultant advised the team that the servicing strategy and the use of renewable on-site energy technologies were key to not only achieving BREEAM 'Excellent' rating, but also to achieve a Part L pass for Building Regulations. With the realisation that BREEAM Excellent rating was correlated to the new Part L standards, the design team set about reviewing the internal layout design of the building in order to propose a servicing strategy that achieved both the client's aspiration but also the statutory requirements. In doing this, the design team were fully aware - at all times - that the additional challenge was to achieve a successful sustainable development without compromising the key planning issues of 'visual impact' upon the neighbouring buildings and at street level along Saffron Hill.

BUILDING REGULATIONS – FIRE STRATEGY

With the design team working hard to meet the above requirements and aspirations for the services strategy, design consultation was also undertaken with Building Control to review the fire strategy of the proposed building. In order to maximise the useable space within the building, the development has been designed with two staircases, however the design team received the instruction from the Building Control Inspector that additional unforeseen plant equipment would be required to pressurize the second residential staircase. This was due to the basement accommodation using the staircase as a means of escape (this was important to retain to comply with Part B of the building regulations). This additional piece of equipment has been effectively incorporated within the new roof top enclosure above the lift shaft overrun, however this meant that valuable plant space had been filled prior to the design of the key ventilation and heating/cooling plant equipment.

DESIGN OF THE NEW ROOF TOP PLANT ENCLOSURE

In order to achieve the aspired Code For Sustainable Homes Level 4 rating plus BREEAM 'Excellent' Rating (equivalent to meeting the new Part L regulations), it became apparent that the design team could not locate all of the plant within the building. Decisions such as not to include a gas supply throughout the building and focus on an 'electrical' services strategy allowed the team to minimise the number of risers and plant equipment that would be required to heat, cool and power the building. It was therefore concluded that to accommodate the proposed good quality sustainable mechanical plant equipment a small rooftop plant enclosure on the roof of the building would be required. With various pieces of the kit that constituted the services design requiring ventilation, an issue that would be difficult to achieve if installed within the building, the idea of an acoustic ventilated enclosure was decided as the only solution in allowing the building to achieve its statutory requirements and sustainability aspirations. The rooftop enclosure has therefore been carefully designed as an 'acoustic louvered' enclosure, a principle that has allowed the design team to minimise the size of the enclosure in comparison to a 'solid' enclosure. The appointed M&E Engineers worked closely with an appointed acoustic enclosure supplier to ensure that the internal spaces were kept to a minimum and to minimise the height of the enclosure.

The design team were fully aware of the visual implications of having a rooftop enclosure and therefore worked closely to ensure, via the use of drawings (please refer to our revised Section drawing – 108 - that considers sightlines from street level and from adjacent windows) plus 3D modelling (please refer to our street perspective images – drawing 010); that the enclosure's impact on the building's context would be minimised.

M&E Designs and Supporting Statement

To support the above justification for the requirement of a new roof top enclosure, please find enclosed a series of drawings prepared by MK Consulting Engineers Ltd that reflects the level of detailed design and exploration the whole design team have undertaken to minimise the size of the plantroom. These drawings are as follows:

- MK/ 703/ AC 05 – Roof Level. VRF System and Ventilation Layout.
- MK/ 703/ AC 06 – Roof Level. VRF System and Ventilation Layout.
- MK/ 703/ AC 07 – Roof Level. VRF System and Ventilation Layout.
- MK/ 703/ AC 08 – Roof Level. Plantroom Section B-B and C-C
- MK/ 703/ AC 08 – Roof Level. Plantroom Section D-D
- MK/ 703/ AC 08 – Roof Level. Roof Plantroom Plan

Together with the enclosed drawings listed above, the M&E Engineer has also provided the following supporting statements, which we hope will assist your discussions and answer any queries or concerns you may have:

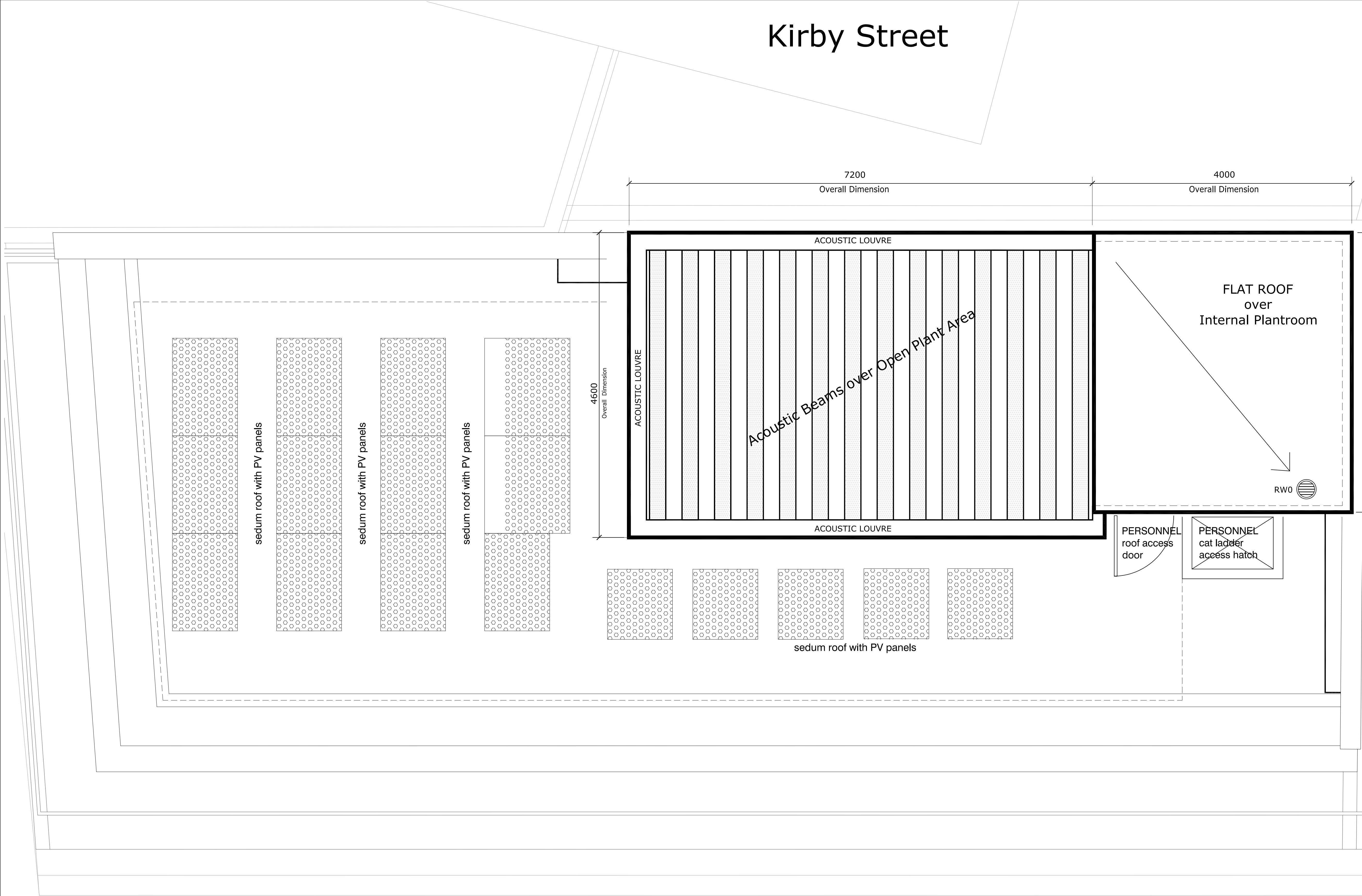
An extensive exercise took place to design the plant layout to successfully achieve usage of the minimum foot print area on plan. Minimum space around each plant item has been allowed for two reasons:

- 1. To accord with manufacturers required / recommended maintenance access requirements and CDM requirements*
- 2. To allow adequate air flow around the plant for the plant to work efficiently to design and not hence achieve the minimum energy input.*

The foot print area cannot be reduced further given the current systems required within the building. The minimum personnel access space required is clearly shown on the drawings as hatched areas.

The height of the plant enclosure has been engineered to a minimum to allow for the plant, air flow space and the acoustic beam 'roof'.

For further details of the submitted revisions of the current planning submission with supporting images and drawing references, please refer to Nash Partnership's 'Design and Access Statement' report.



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- General Notes**
- 1.00 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CO-ORDINATION, DESIGN OF BRACKETS, SUPPORT WORK AND BUILDERSWORK
 - 2.00 INSTALL AND CERTIFY THE WORKS IN ACCORDANCE WITH INDUSTRY STANDARD HEALTH & SAFETY & BUILDING CONTROL REQUIREMENTS
 - 3.00 THE MECHANICAL CONTRACTOR SHALL SET TO WORK THE WHOLE OF THE INSTALLATIONS, FULLY COMMISSION THE SYSTEMS, IN ACCORDANCE WITH ALL INDUSTRY STANDARDS, BUILDING CONTROL, CLIENT REQUIREMENTS AND GOOD PRACTICE
 - 4.00 THE CONTRACTOR SHALL SUBMIT RISK ASSESSMENTS AND METHOD STATEMENTS TO PROJECT MANAGER FOR ALL ELEMENTS OF THE WORKS PRIOR TO WORKS TAKING PLACE
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Contractors' Coordination Responsibility

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Important Specification Note

READ ALL NOTES, SCHEDULES & INSTALLATION INSTRUCTIONS ON THIS DRAWING.

NOTES, SCHEDULES AND INSTRUCTIONS FORM PART OF THE SPECIFICATION FOR THE WORKS, AND MAY NOT BE REPEATED IN THE WRITTEN SPECIFICATION.

T	TENDER ISSUE	13/06/2011
Rev	Description	Date

client THE CHARTERED INSTITUTION OF WATER AND ENVIRONMENTAL MANAGEMENT

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architect NASH Partnership

project 106-109 SAFFRON HILL, LONDON EC1N 8QS

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Drawing Title
MECHANICAL SERVICES
ROOF PLAN
VRF SYSTEM AND VENTILATION LAYOUT

Scale	1:30 @ A1	Drawn	AK
Date	JUNE 2011	Checked	AK

Drawing Number MK/703/AC 10	Revision T
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Drawing Status
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Roof Level Plan
Scale 1:30 @ A1

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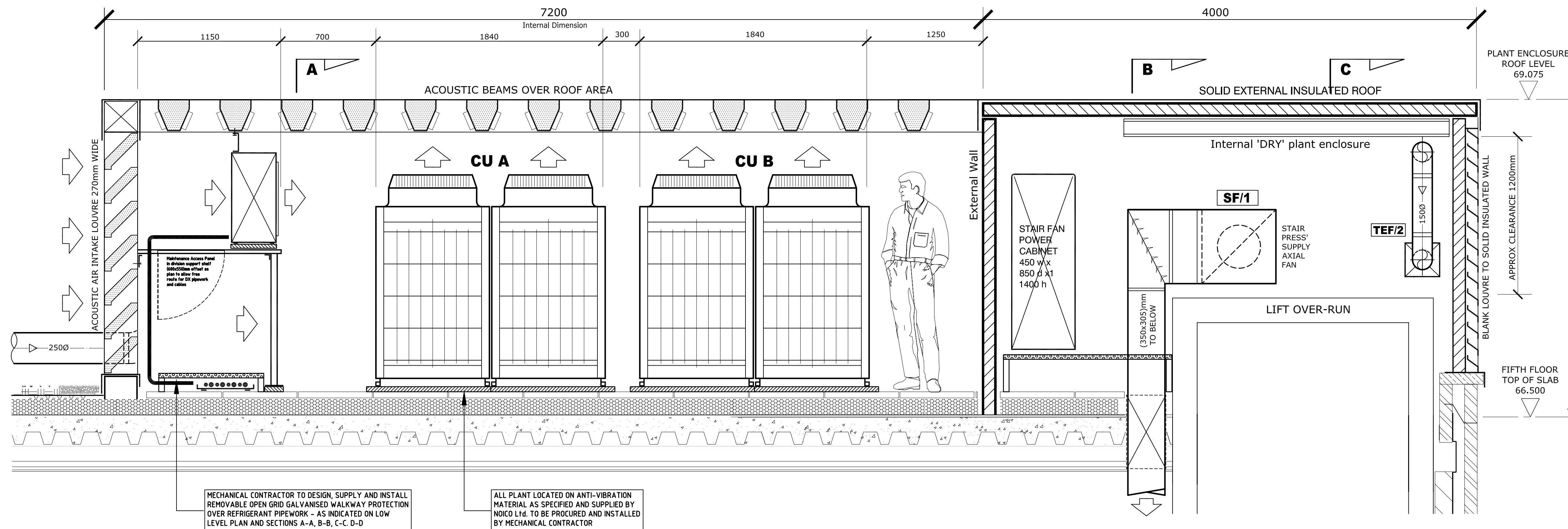
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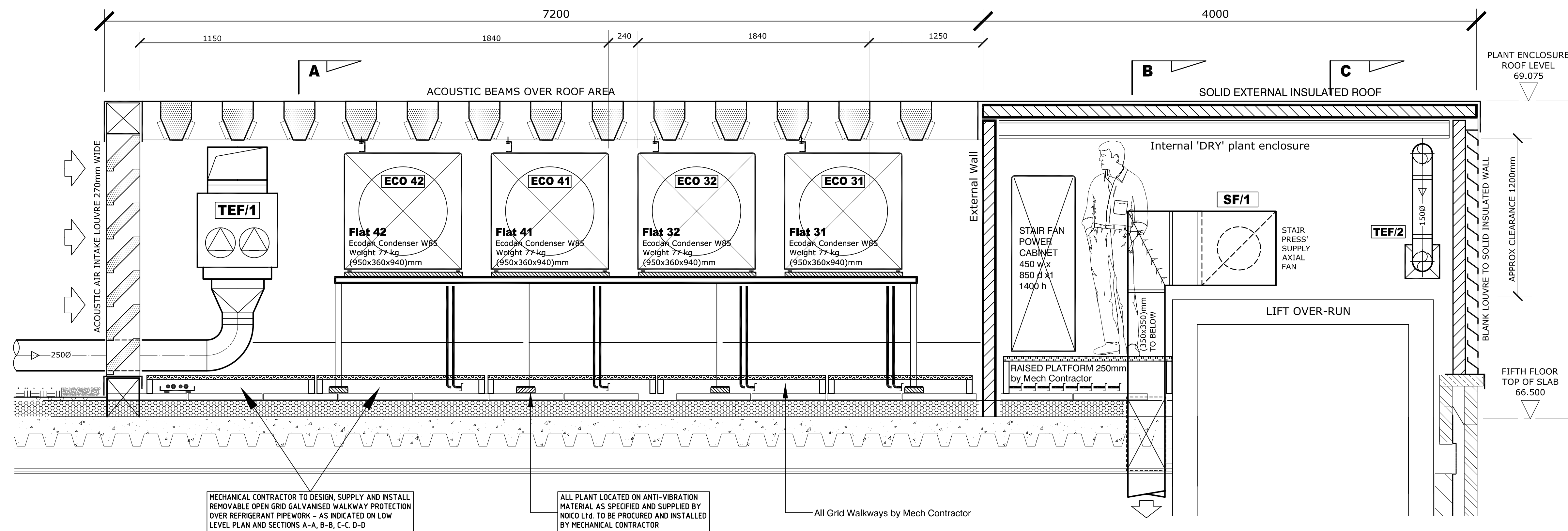
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Roof Plant Section D-D
Scale 1:20 @ A1



Roof Plant Section E-E
Scale 1:20 @ A1

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Drawing Title
MECHANICAL SERVICES
ROOF LEVEL PLANT AREA
SECTION D-D, E-E

Scale	1:20 @ A1	Drawn	AK
Date	JUNE 2011	Checked	AK

Drawing Number MK/703/AC 09	Revision T
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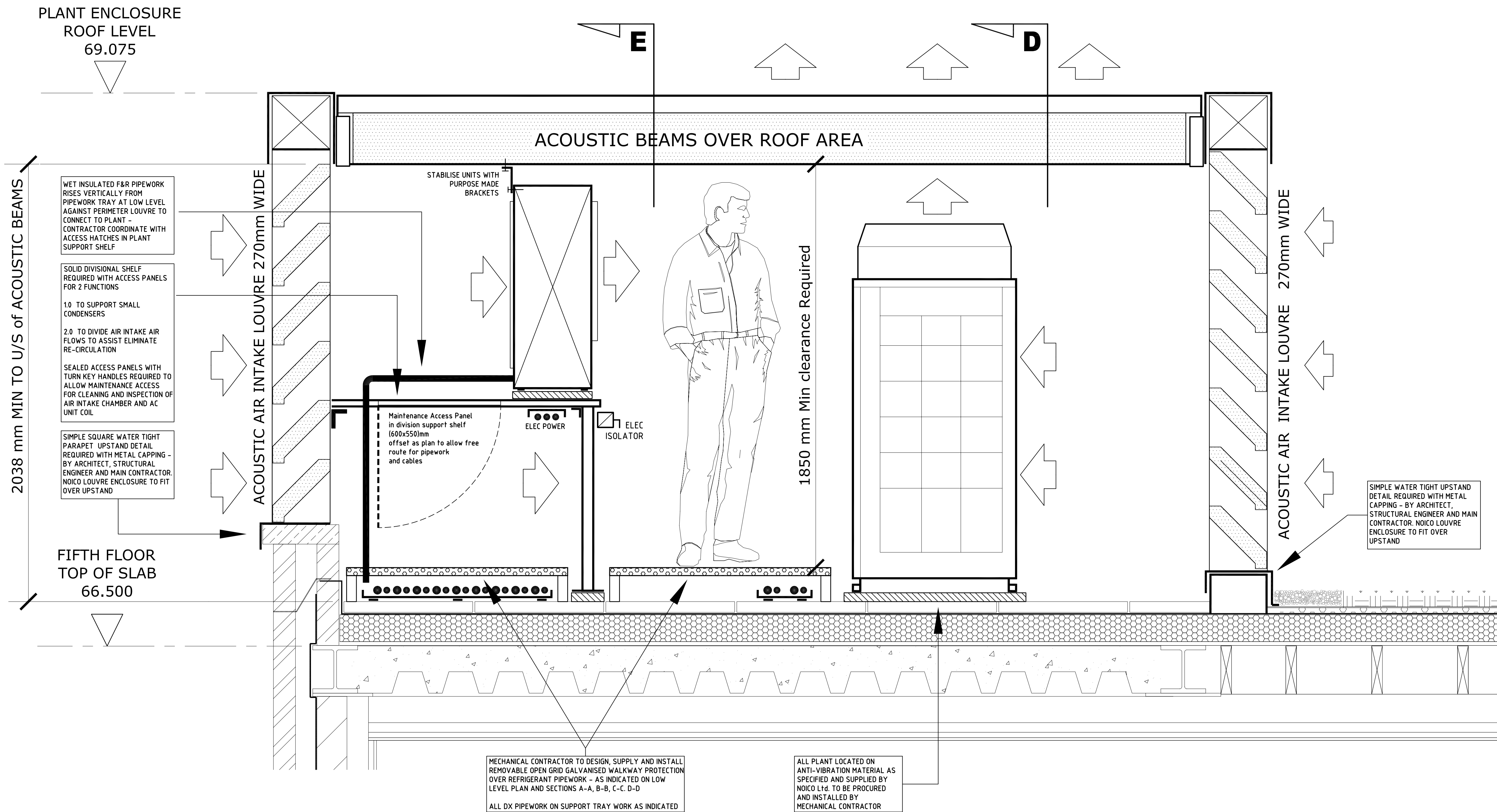
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Roof Plant Sections

Scale 1:20 @ A1

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Acoustic Roof Enclosure - Specification and division of responsibility

- 1.0 THE ACOSUTIC ROOF ENCLOSURE SHALL COMPRISE THE WHOLE OF THE 'WET' AND 'DRY' PLANTROOM WALLS AND ROOF SECTIONS. THE ENCLOSURE COMPRISES ACOUSTIC INTAKE LOUVRES, ACOUSTIC ROOF BEAMS, WEATHERPROOF AND INSULATED INTERNAL PLANT AREA WITH FALSE EXTERNAL LOUVRES, AND ALL ACCESS DOORS SHOWN. ROOF ACCESS HATCH AND HOISTING TRAPDOOR BY ARCHITECT AND MAIN CONTRACTOR
- 2.0 THE ACOUSTIC ROOF ENCLOSURE SHALL BE DESIGNED, FABRICATED, SUPPLIED (DELIVERED) TO SITE IN MANAGABLE 'FLAT PACK' SECTIONS SIZES TO SUIT SITE CONSIITONS, AND ERRECTED BY NOICO Ltd.
- 3.0 THE MAIN CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESS FOR DELIVERY TO ROOF AND ACCESS FOR ERRECTION - INCLUDING ALL SCAFFOLDING, HOISTING, CRANAGE AND SAFETY PROVISION. THE MAIN CONTRACTOR SHALL PROVIDE ALL NECESSARY SITE SUPERVISION ATTENDANCE FOR THE NOICO Ltd INSTALLATION WORKS.
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Drawing Title
MECHANICAL SERVICES
ROOF LEVEL PLANT AREA
SECTION A-A

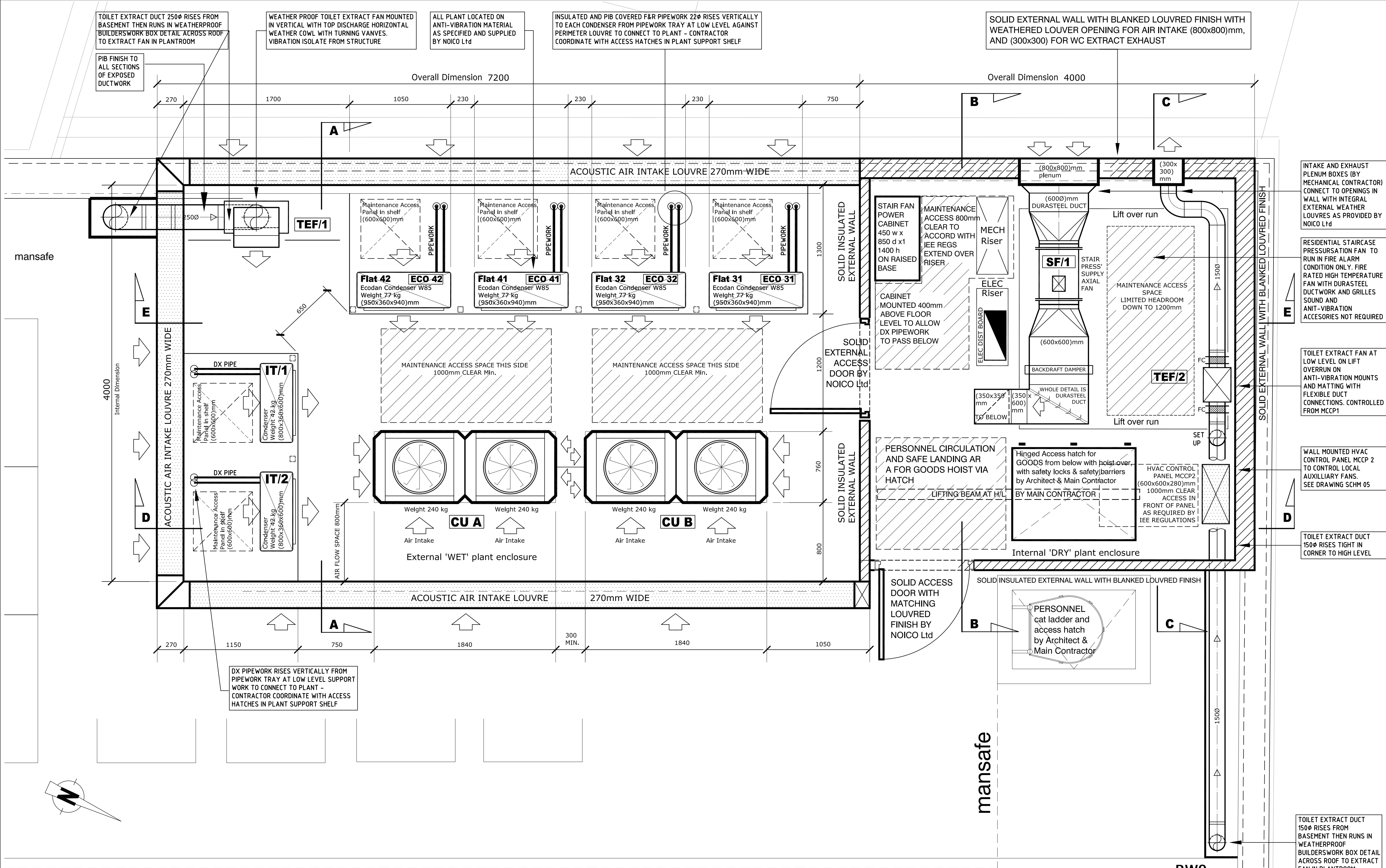
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Roof Plant Section A-A
Scale 1:10 @ A1



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Drawing Title
MECHANICAL SERVICES
ROOF LEVEL PLANT AREA
PLANT LAYOUT - HIGH LEVEL

Scale 1:20 @ A1	Drawn AK
Date JUNE 2011	Checked AK

Drawing Number
MK/703/AC 06

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AC Condenser Plant Schedule

SUPPLIED / INSTALLED WITH PIPEWORK TWINNING KIT

REF	SYSTEM	OUTDOOR UNIT MODEL	ELECTRICAL DATA (Amps)				DIMS (mm)			WEIGHT kg	SOUND dBA	AIRFLOW l/s	CoP/EER
			PH	SC	RC	FUSE	L	D	Ht				
CU A	FIRST & SECOND	PURY EP 400 YSJM-A	3ph	8/8	18	20/20	920x920	760	1710	270x240	62	3083/3083	4.4/4.32
CU B	BASEMENT & GROUND	PURY EP 400 YSJM-A	3ph	8/8	18	20/20	920x920	760	1710	270x240	62	3083/3083	4.4/4.32

IT Room Condenser Plant Schedule

REF	SYSTEM	OUTDOOR UNIT MODEL	Ph	ELECTRICAL DETAILS				DIMS (mm)			WEIGHT kg	SOUND dBA	CHARGE	CONTROLLER
				SC	RC	FUSE	CABLE	L	D	H				
CON IT/1	COMMS ROOM 1	PUHZ-RP 71 VHA4	1Ph 240 V	5 A	6.7 A	16 A	3c+EARTH	(800x330x600)	42	46	R410A		PAR 30 MA-J plus CR22 and PAC-SF 40 RME	
CON IT/2	COMMS ROOM 2	PUHZ-RP 71 VHA4	1Ph 240 V	5 A	6.7 A	16 A	3c+EARTH	(800x330x600)	42	46	R410A		PAC-SF 40 RME	

Flats Condenser Plant Schedule

REF	SYSTEM	OUTDOOR UNIT MODEL	DUTY kW	ELECTRICAL DATA (Amps)				DIMS (mm)			WEIGHT kg	SOUND dBA	AIRFLOW l/s	CoP/EER
				PH	SC	RC	FUSE	L	D	Ht				
ECO 31	FLAT 31	PUHZ W85 VHA	8.5	1ph	3	10.3	25	950	360	940	77	42	900	4.18/3.50
ECO 32	FLAT 32	PUHZ W85 VHA	8.5	1ph	3	10.3	25	950	360	940	77	42	900	4.18/3.50
ECO 41	FLAT 41	PUHZ W85 VHA	8.5	1ph	3	10.3	25	950	360	940	77	42	900	4.18/3.50
ECO 42	FLAT 42	PUHZ W85 VHA	8.5	1ph	3	10.3	25	950	360	940	77	42	900	4.18/3.50

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Auxilliary Fan Plant Schedule

REF	SYSTEM	SUPPLIER	MODEL	TYPE	DESIGN DUTY l/s @ Pa	ELECTRICAL DATA (Amps)				DIMS (mm)			WEIGHT kg	SOUND dBA
						PH	MOTOR	RC	FUSE	L	D	Ht		
TEF / 1	OFFICES SOUTH	SYSTEMAIR Ltd	KVK DUO 315 M	OUTDOOR UNIT	270 @ 200	1 ph	-	-	-	-	-	-	-	-
TEF / 2	OFFICES NORTH	SYSTEMAIR Ltd	KVK DUO 200	INDOOR UNIT	125 @ 150	1 ph	-	-	-	-	-	-	-	-
SF / 1	STAIRCASE PRESSURISATION	SYSTEMAIR Ltd	AXC 450-718 -2 SMOKE RATED	INDOOR UNIT	800 @ 150	3 ph	0.55 kW	1.4	-	500	400ø		21	75

Roof Plant Layout - HIGH LEVEL

Scale 1:20 @ A1