OME

Project:	227 Shepherds Bush Road	Document:	Issue Sheet
Service:	Mechanical, Electrical & Public Health	Project No:	P1208
Client	227 SBR Ltd	(Tender)	

		1	2	3	4	5	6	7	8	9	10
Project Manager / Client	227 SBR Ltd	X									
Architect	Space Agent Architects Ltd	X									
Structural & Civil	HDR	X									
	Issue Code	S									
DRG. NO:	**DOCUMENT TITLE:**	19.02.26									
	100 Series - Mechanical Services										
P1208-M-100.1	Domestic Water Services - Ground Floor	T1									
P1208-M-100.2	Domestic Water Services - Mezz Floor	T1									
P1208-M-101	Domestic Water Services - First Floor	T1									
P1208-M-102	Domestic Water Services - Second Floor	T1									
P1208-M-103	Domestic Water Services - Third Floor	T1									
P1208-M-104	Domestic Water Services - Fourth Floor	T1									
P1208-M-105	Domestic Water Services - Fifth Floor	T1									
P1208-M-110.1	HVAC Services - Ground Floor	T1									
P1208-M-110.2	HVAC Services - Mezz Floor	T1									
P1208-M-111	HVAC Services - First Floor	T1									
P1208-M-112	HVAC Services - Second Floor	T1									
P1208-M-113	HVAC Services - Third Floor	T1									
P1208-M-114	HVAC Services - Fourth Floor	T1									
P1208-M-115	HVAC Services - Fifth Floor	T1									
	200 Series - Electrical Services										
P1208-E-200.1	Small Power and Ancillaries - Ground Floor	T1									
P1208-E-200.2	Small Power and Ancillaries - Mezz Floor	T1									
P1208-E-201	Small Power and Ancillaries - First Floor	T1									
P1208-E-202	Small Power and Ancillaries - Second Floor	T1									
P1208-E-203	Small Power and Ancillaries - Third Floor	T1									
P1208-E-204	Small Power and Ancillaries - Fourth Floor	T1									
P1208-E-205	Small Power and Ancillaries - Fifth Floor	T1									
P1208-E-210.1	Lighting Layout - Ground Floor	T1									
P1208-E-210.2	Lighting Layout - Mezz Floor	T1									
P1208-E-211	Lighting Layout - First Floor	T1									
P1208-E-212	Lighting Layout - Second Floor	T1									
P1208-E-213	Lighting Layout - Third Floor	T1									
P1208-E-214	Lighting Layout - Fourth Floor	T1									
P1208-E-215	Lighting Layout - Fifth Floor	T1									

S - Softcopy; H - Hardcopy;

Issue Code: P - Preliminary; T - Tender; C - Construction; I - Information

OME

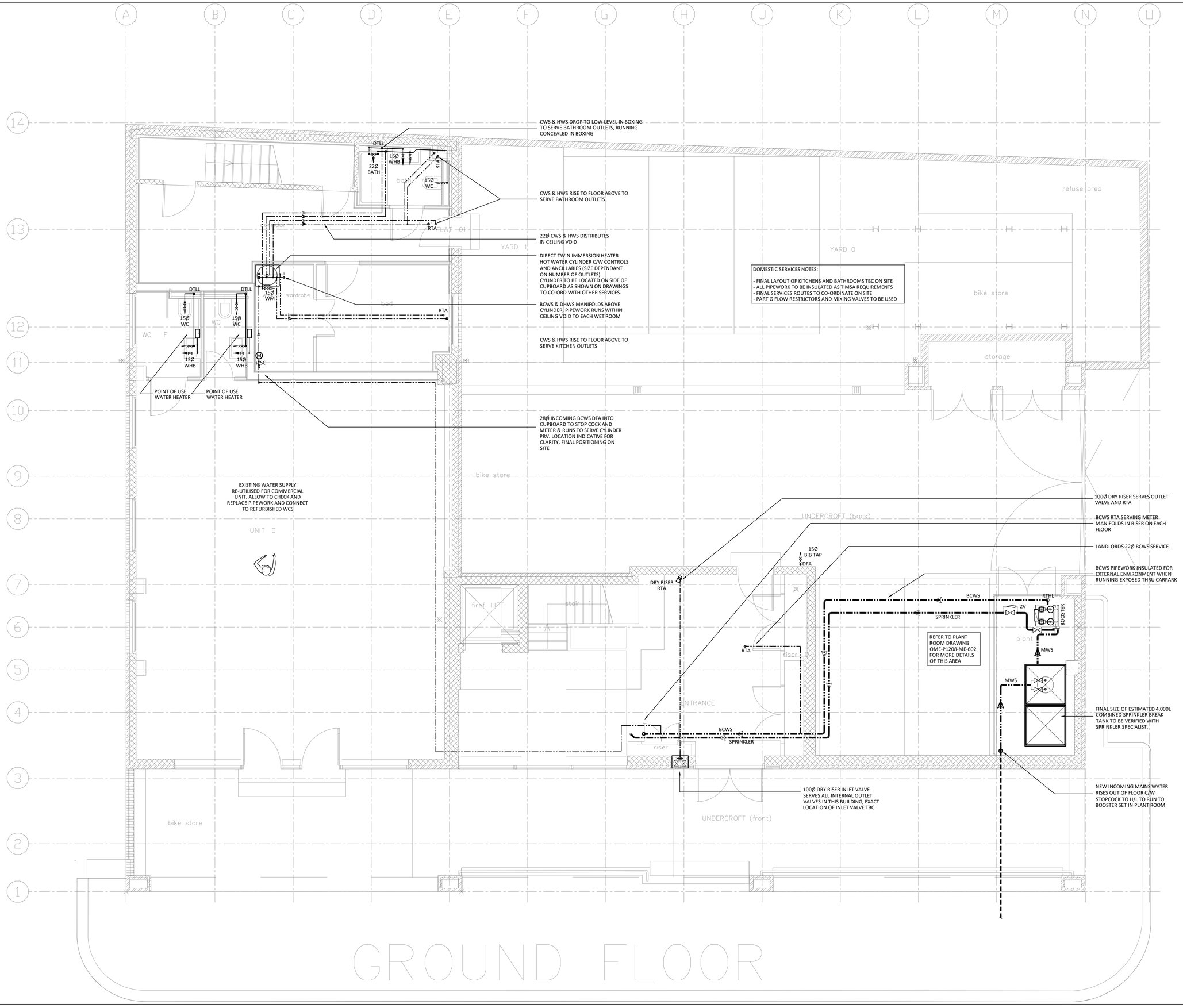
Project:	227 Shepherds Bush Road	Document:	Issue Sheet
Service:	Mechanical, Electrical & Public Health	Project No:	P1208
Client	227 SBR Ltd	(Tender)	

		1	2	3	4	5	6	7	8	9	10
Project Manager / Client	227 SBR Ltd	X									
Architect	Space Agent Architects Ltd	X									
Structural & Civil	HDR	X									
	Issue Code	S									
DRG. NO:	**DOCUMENT TITLE:**	19.02.26									
	300 Series - Public Health										
P1208-PH-310.1	Above Grd Drainage - Ground Floor	T1									
P1208-PH-310.2	Above Grd Drainage - Mezz Floor	T1									
P1208-PH-301	Above Grd Drainage - First Floor	T1									
P1208-PH-302	Above Grd Drainage - Second Floor	T1									
P1208-PH-303	Above Grd Drainage - Third Floor	T1									
P1208-PH-304	Above Grd Drainage - Fourth Floor	T1									
P1208-PH-305	Above Grd Drainage - Fifth Floor	T1									
	500 Series - Infrastructure										
P1208-IF-500	Boosted Cold Water Schematic	T1									
P1208-IF-502	Electrical LV Schematic 1 of 2	T1									
P1208-IF-503	Electrical LV Schematic 2 of 2	T1									
P1208-IF-504	Data Schematic	T1									
P1208-IF-505	Access Schematic	T1									
	600 Series - MEPH Details										
P1208-ME-600	MEPH Misc Details	T1									
P1208-ME-601	MEPH Typical Apt Utility Cupboards	T1									
P1208-ME-602	MEPH Plantroom Area Details										
P1208-ME-603	MEPH Riser Details										
P1208-ME-604	MEPH Design Intent Sections										
	700 Series - MEPH Co-ordination										
P1208-CO-700.1	Grd Floor MEPH Typical Co-ordination										
P1208-CO-700.2	Grd Floor MEPH Typical Co-ordination										
P1208-CO-701	1st Floor MEPH Typical Co-ordination										
P1208-CO-704	4th Floor MEPH Typical Co-ordination										
P1208-CO-705	5th Floor MEPH Typical Co-ordination										
P1208-CO-706	Roof Level MEPH Typical Co-ordination	T1									
	Specification & Supporting Documents										
	MEPH Particulars Specification	T1									
	Design Risk Assessment	v1									

S - Softcopy; H - Hardcopy;

Issue Code: P - Preliminary; T - Tender; C - Construction; I - Information

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
Ground Floor

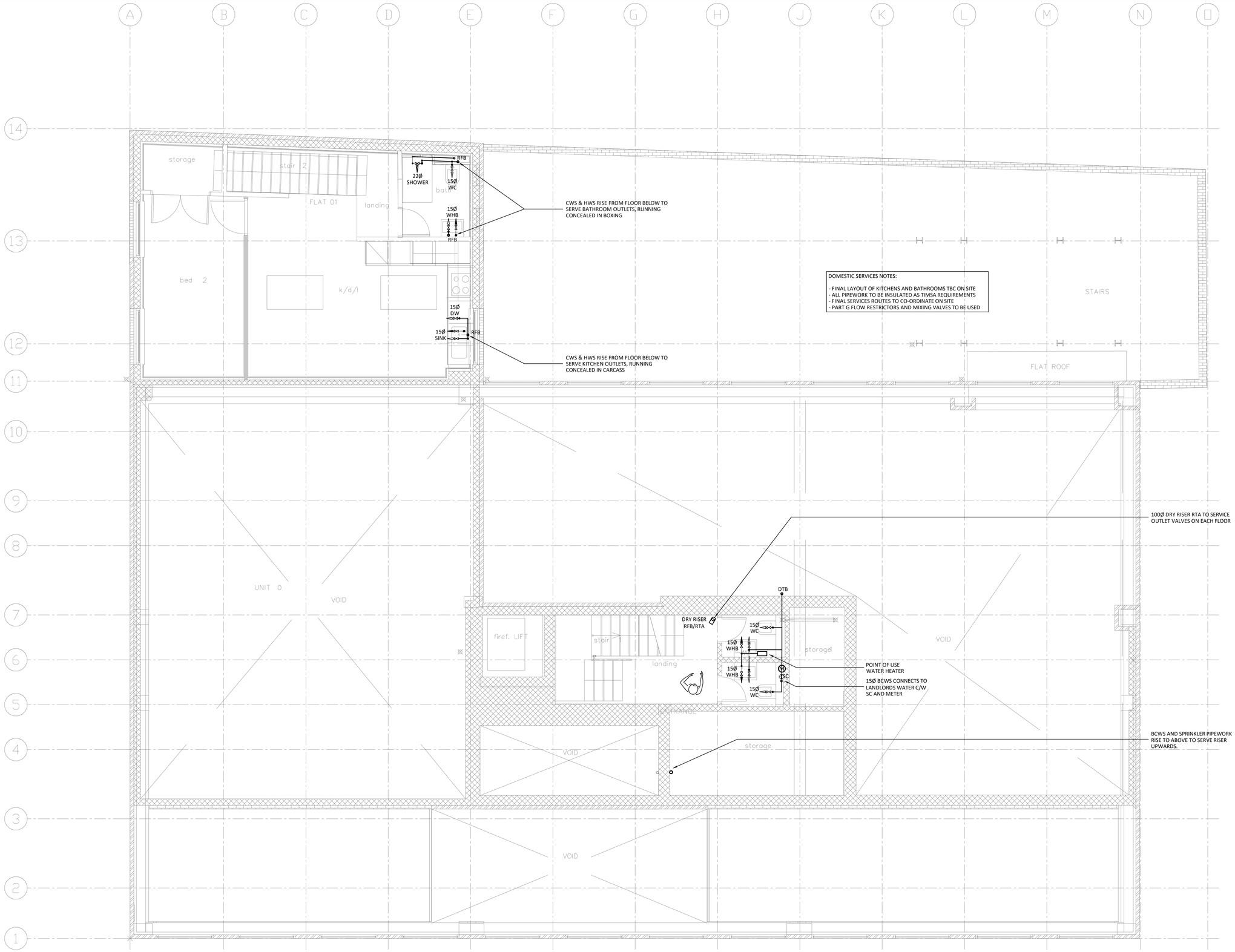
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-100.1	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



MEZZANINE

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
Ground Floor (Mezz)

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-100.2	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

DOMESTIC SERVICES NOTES:

- FINAL LAYOUT OF KITCHENS AND BATHROOMS TBC ON SITE
- ALL PIPEWORK TO BE INSULATED AS TIMSA REQUIREMENTS
- FINAL SERVICES ROUTES TO CO-ORDINATE ON SITE
- PART G FLOW RESTRICTORS AND MIXING VALVES TO BE USED

22Ø CWS & HWS DISTRIBUTES IN CEILING VOID

CWS & HWS DROP TO LOW LEVEL IN CUPBOARD TO SERVE KITCHEN OUTLETS, RUNNING CONCEALED IN CARCASS

CWS & HWS DROP TO LOW LEVEL IN SHOWER BOXING TO SERVE BATHROOM OUTLETS, RUNNING CONCEALED IN BOXING

DIRECT TWIN IMMERSION HEATER HOT WATER CYLINDER C/W CONTROLS AND ANCILLARIES (SIZE DEPENDANT ON NUMBER OF OUTLETS). CYLINDER TO BE LOCATED ON SIDE OF CUPBOARD AS SHOWN ON DRAWINGS TO CO-ORD WITH OTHER SERVICES.

BCWS & DHWS MANIFOLDS ABOVE CYLINDER, PIPEWORK RUNS WITHIN CEILING VOID TO EACH WET ROOM

28Ø INCOMING BCWS DFA INTO CUPBOARD TO STOP COCK & RUNS TO SERVE CYLINDER PRV. LOCATION INDICATIVE FOR CLARITY, FINAL POSITIONING ON SITE

SPRINKLER LAYOUT IN APARTMENTS TO BE CONFIRMED BY SPECIALIST DEPENDANT ON COVERAGE, WHERE 150mm CEILING VOID IS NOT AVAILABLE BULKHEADS OR HORIZONTAL HEADS TO BE UTILISED.

100Ø DRY RISER FROM BELOW SERVES OUTLET VALVE AND RTA

BCWS RRB SERVING METER MANIFOLDS ON THIS FLOOR 7x WATER METERS

INDIVIDUAL 28Ø BCWS FEEDS TO EACH APT IN CORRIDOR CEILING VOID

DRY RISER OUTLET

FOR TYPICAL NOTES REFER TO FLATS 2 & 3

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
First Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-101	T1

FIRST FLOOR

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

DOMESTIC SERVICES NOTES:

- FINAL LAYOUT OF KITCHENS AND BATHROOMS TBC ON SITE
- ALL PIPEWORK TO BE INSULATED AS TIMSA REQUIREMENTS
- FINAL SERVICES ROUTES TO CO-ORDINATE ON SITE
- PART G FLOW RESTRICTORS AND MIXING VALVES TO BE USED

balc. 09

k/d/l

bed

bed 1

bed 2

corridor

FLAT 15

FLAT 14

FLAT 13

FLAT 12

FLAT 09

FLAT 11

bath

storage

lobby 2

lobby 1

stair 1

firef. LIFT

riser 2

riser 1

studio

FOR TYPICAL NOTES REFER TO FLATS 9 &10

15Ø SINK
15Ø DW
DTLL
HWC
15Ø WM
15Ø WC
22Ø SHOWER
15Ø WHB
DTLL
SC
DFA

22Ø BATH

DRY RISER OUTLET

100Ø DRY RISER FROM BELOW SERVES OUTLET VALVE AND RTA

BCWS RRB SERVING METER MANIFOLDS ON THIS FLOOR 7x WATER METERS

INDIVIDUAL 28Ø BCWS FEEDS TO EACH APT IN CORRIDOR CEILING VOID

SPRINKLER

ZV

AOV 1

22Ø CWS & HWS DISTRIBUTES IN CEILING VOID

CWS & HWS DROP TO LOW LEVEL IN CUPBOARD TO SERVE KITCHEN OUTLETS, RUNNING CONCEALED IN CARCASS

CWS & HWS DROP TO LOW LEVEL IN SHOWER BOXING TO SERVE BATHROOM OUTLETS, RUNNING CONCEALED IN BOXING

DIRECT TWIN IMMERSION HEATER HOT WATER CYLINDER C/W CONTROLS AND ANCILLARIES (SIZE DEPENDANT ON NUMBER OF OUTLETS). CYLINDER TO BE LOCATED ON SIDE OF CUPBOARD AS SHOWN ON DRAWINGS TO CO-ORD WITH OTHER SERVICES.

BCWS & DHWS MANIFOLDS ABOVE CYLINDER, PIPEWORK RUNS WITHIN CEILING VOID TO EACH WET ROOM

28Ø INCOMING BCWS DFA INTO CUPBOARD TO STOP COCK & RUNS TO SERVE CYLINDER PRV. LOCATION INDICATIVE FOR CLARITY, FINAL POSITIONING ON SITE

SPRINKLER LAYOUT IN APARTMENTS TO BE CONFIRMED BY SPECIALIST DEPENDANT ON COVERAGE, WHERE 150mm CEILING VOID IS NOT AVAILABLE BULKHEADS OR HORIZONTAL HEADS TO BE UTILISED.

SECOND FLOOR

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
2nd Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

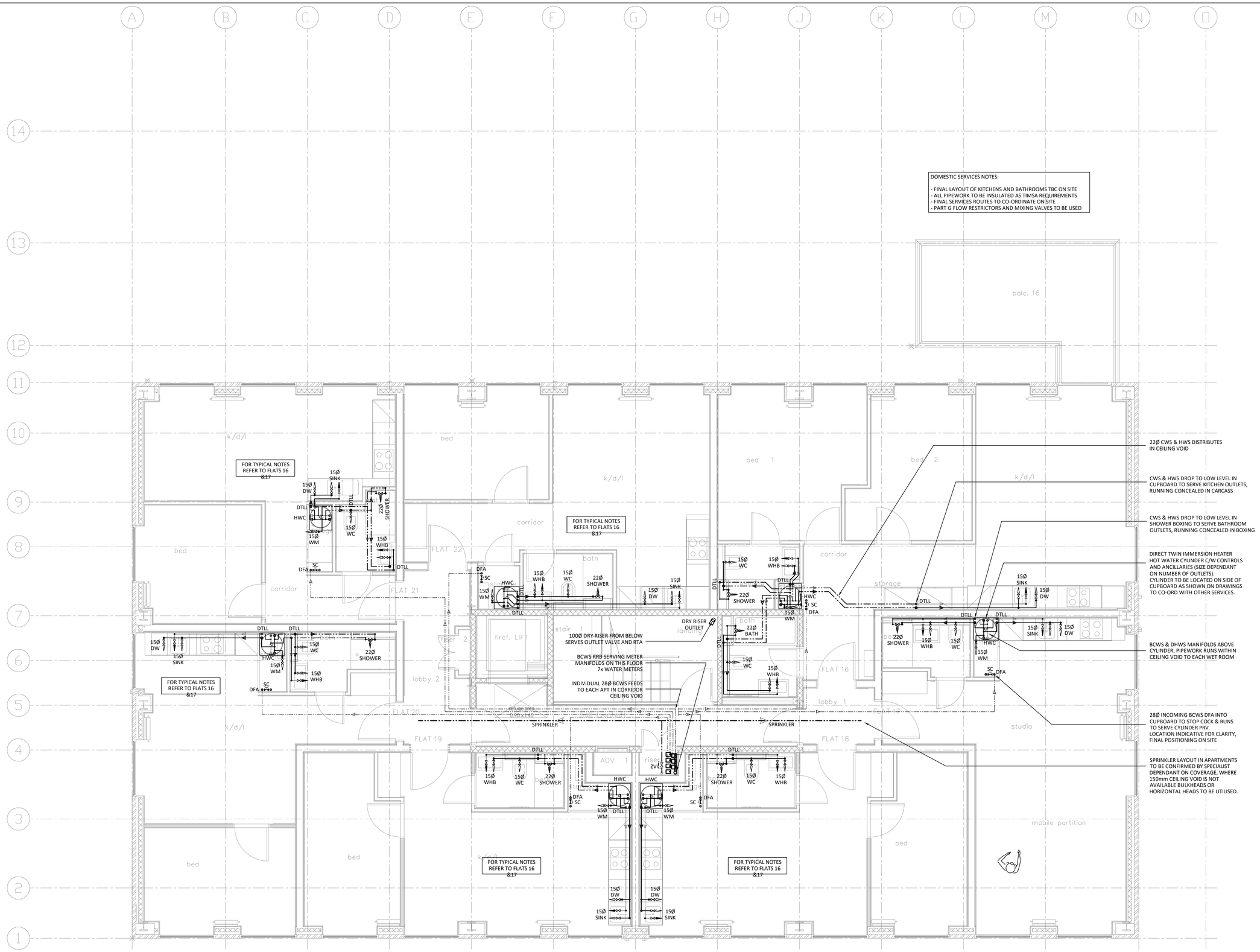
Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-102	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

DOMESTIC SERVICES NOTES:

- FINAL LAYOUT OF KITCHENS AND BATHROOMS TBC ON SITE
- ALL PIPEWORK TO BE INSULATED AS TIMSA REQUIREMENTS
- FINAL SERVICES ROUTES TO CO-ORDINATE ON SITE
- PART G FLOW RESTRICTORS AND MIXING VALVES TO BE USED



THIRD FLOOR

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
3rd Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
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Drawing Number:	Rev:
P1208-M-103	T1

Rev	Date	By	Description
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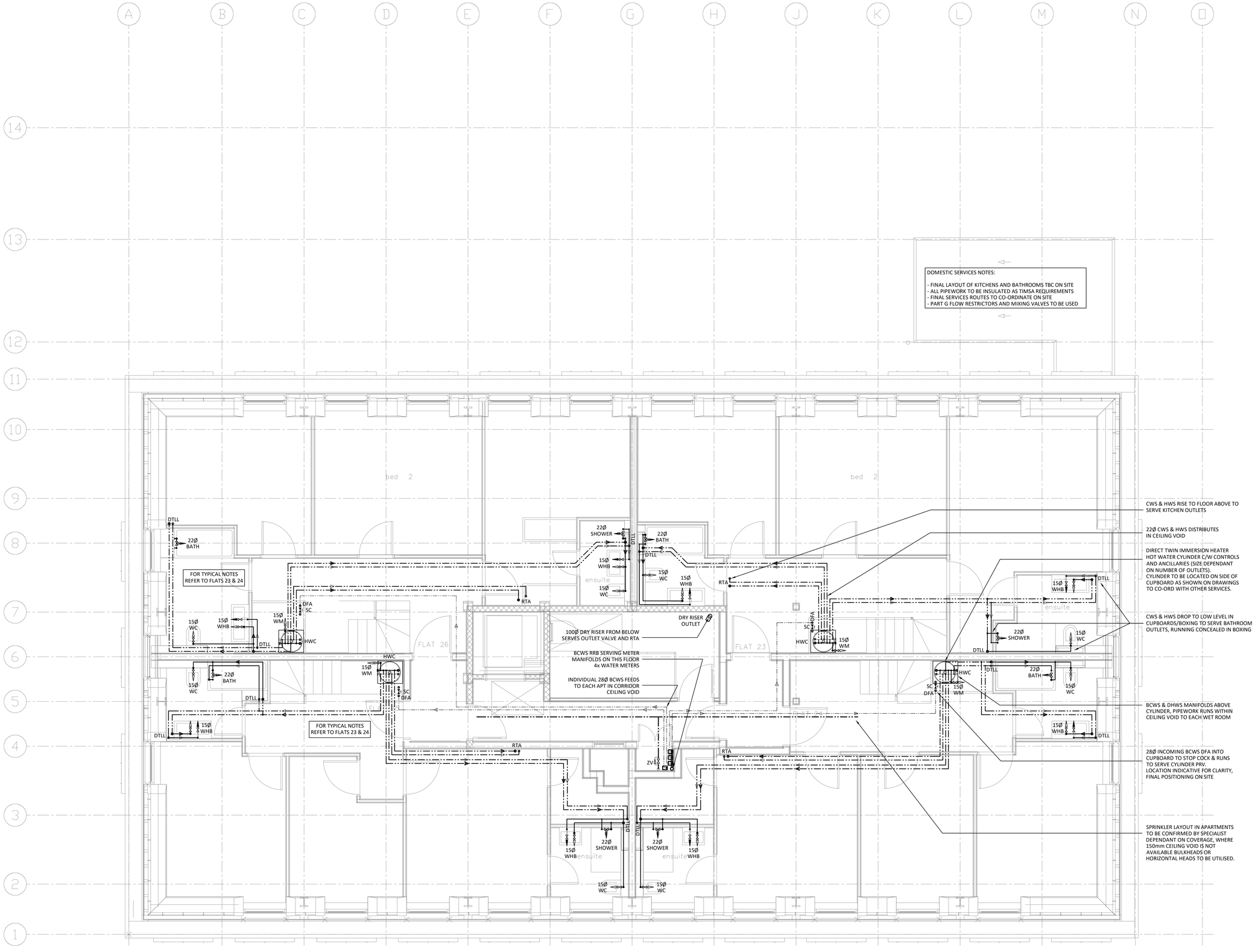

FOURTH FLOOR

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
4th Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
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Drawing Number:	Rev:
P1208-M-104	T1

Rev	Date	By	Description
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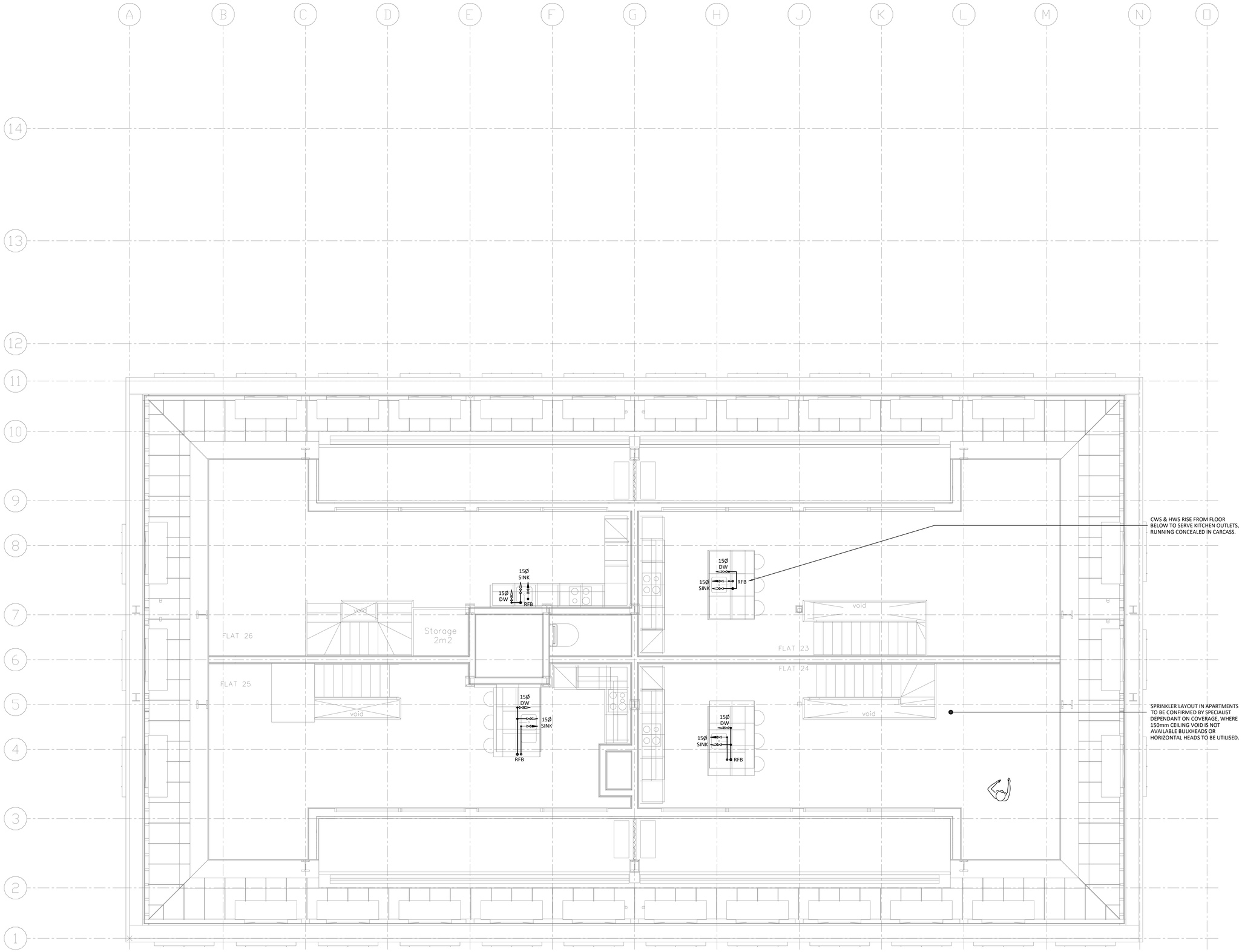

FIFTH FLOOR

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Water Services
5th Floor

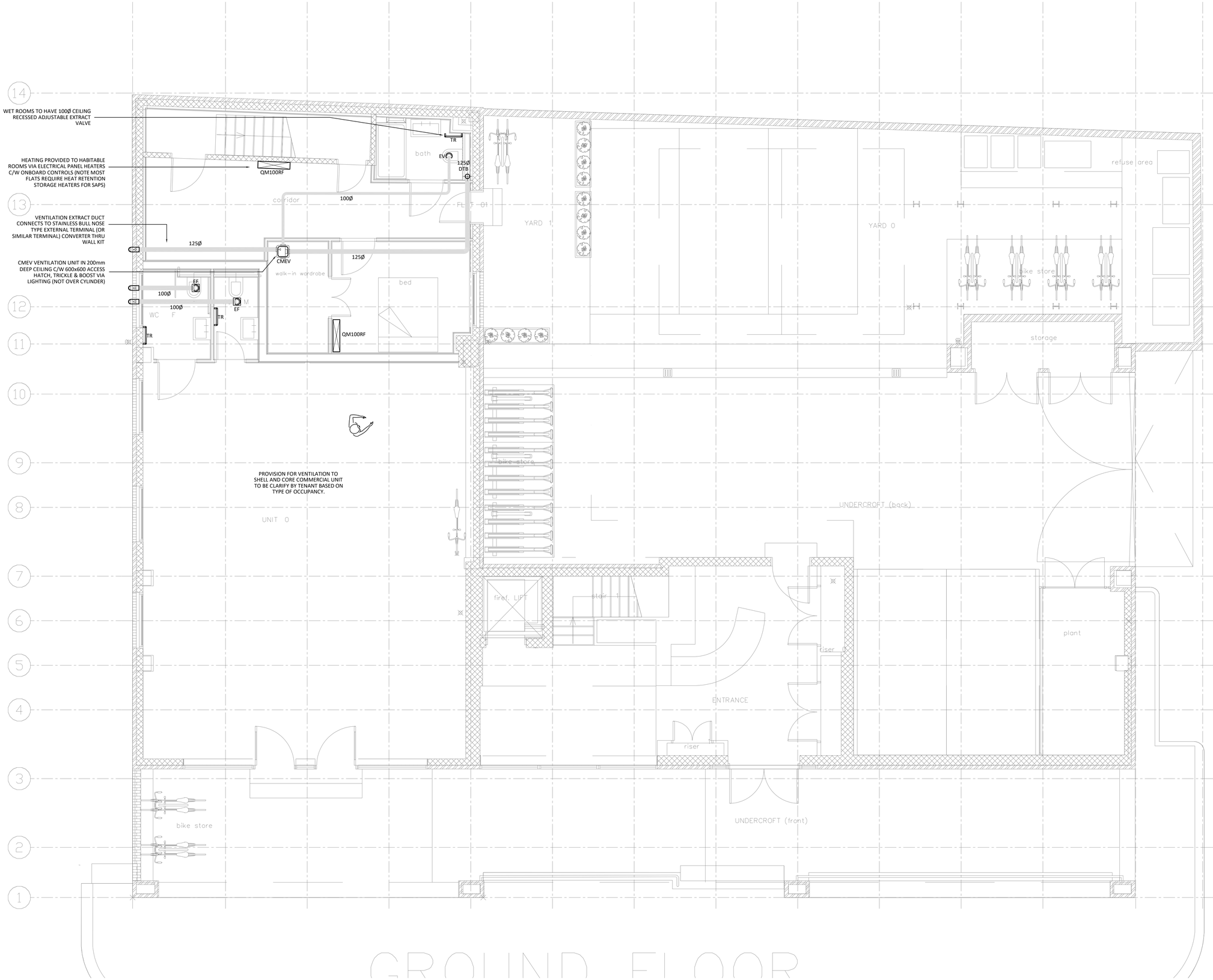
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-105	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
HVAC Services
Ground Floor

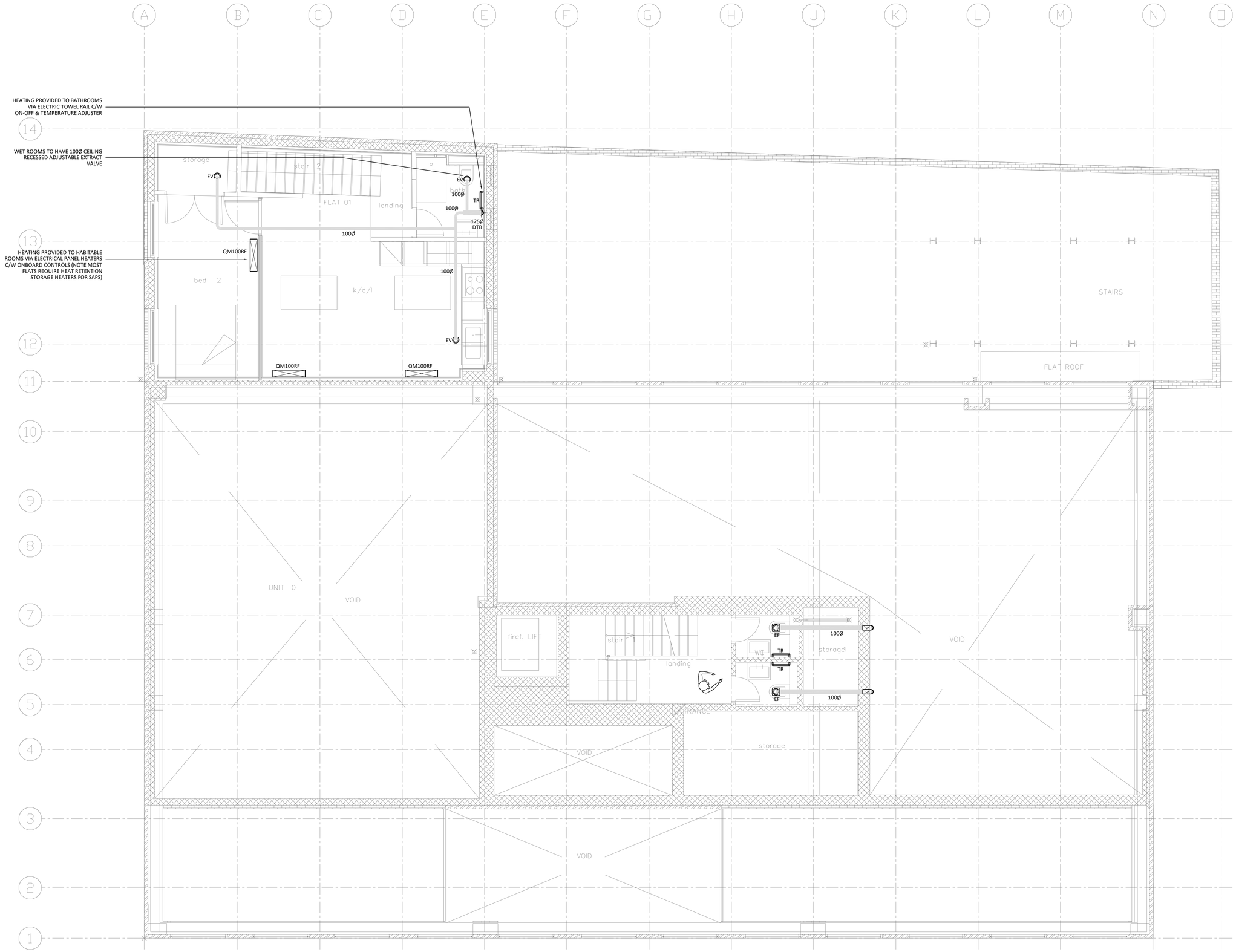
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-110.1	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
HVAC Services
Ground Floor (Mezz)

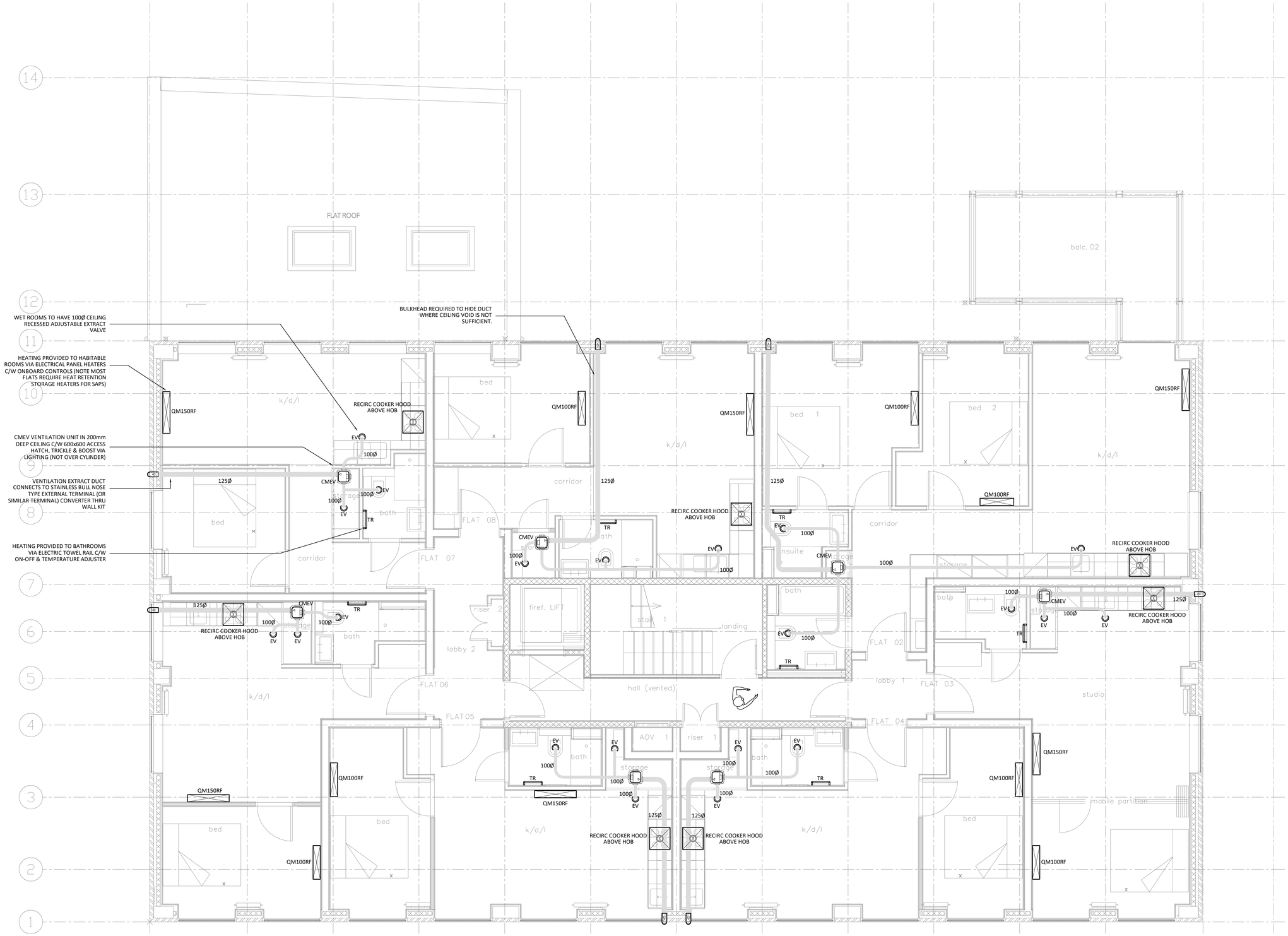
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-110.2	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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Call Us - 01403 785426

Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
HVAC Services
First Floor

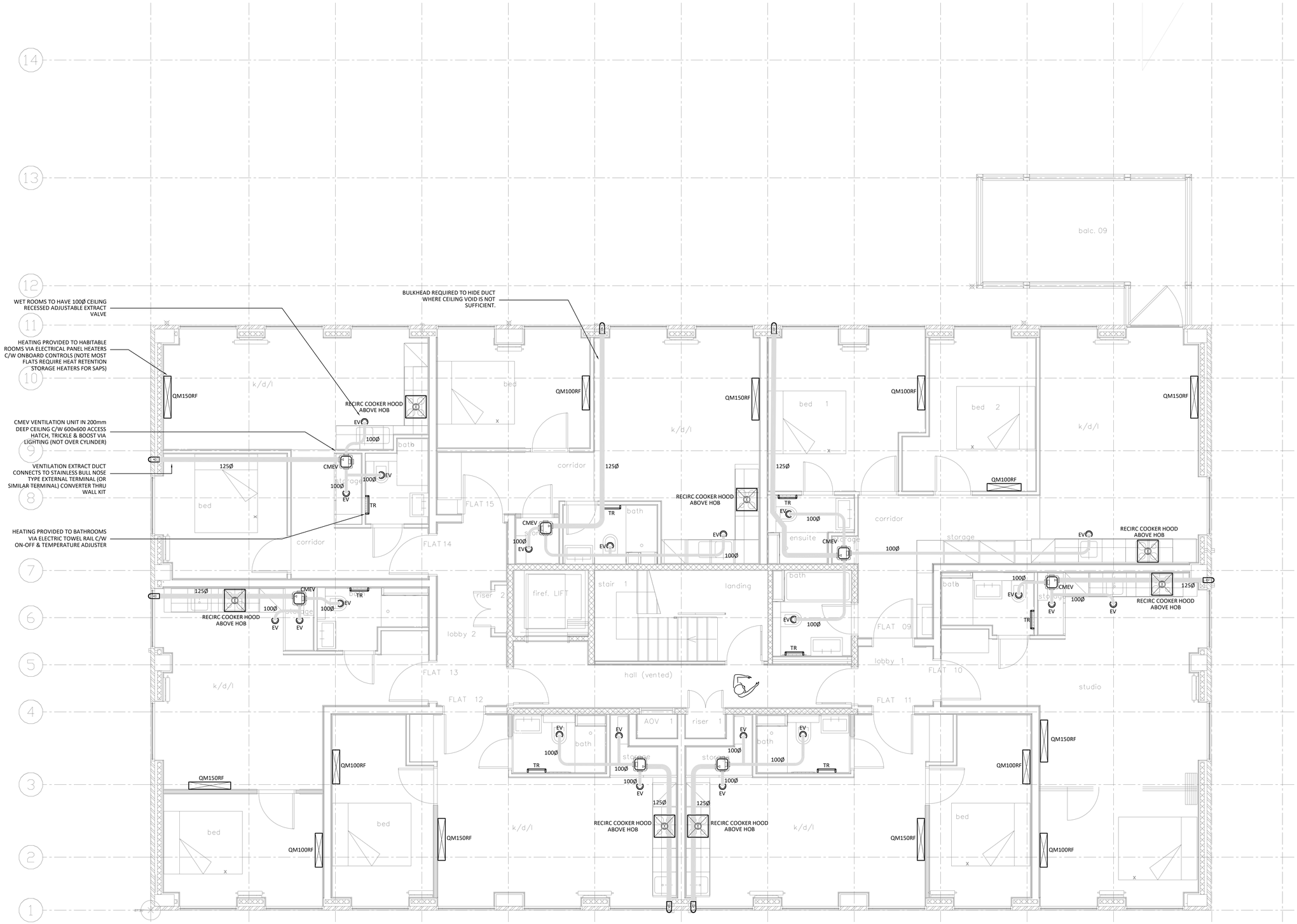
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-111	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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Call Us - 01403 785426

Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
HVAC Services
2nd Floor

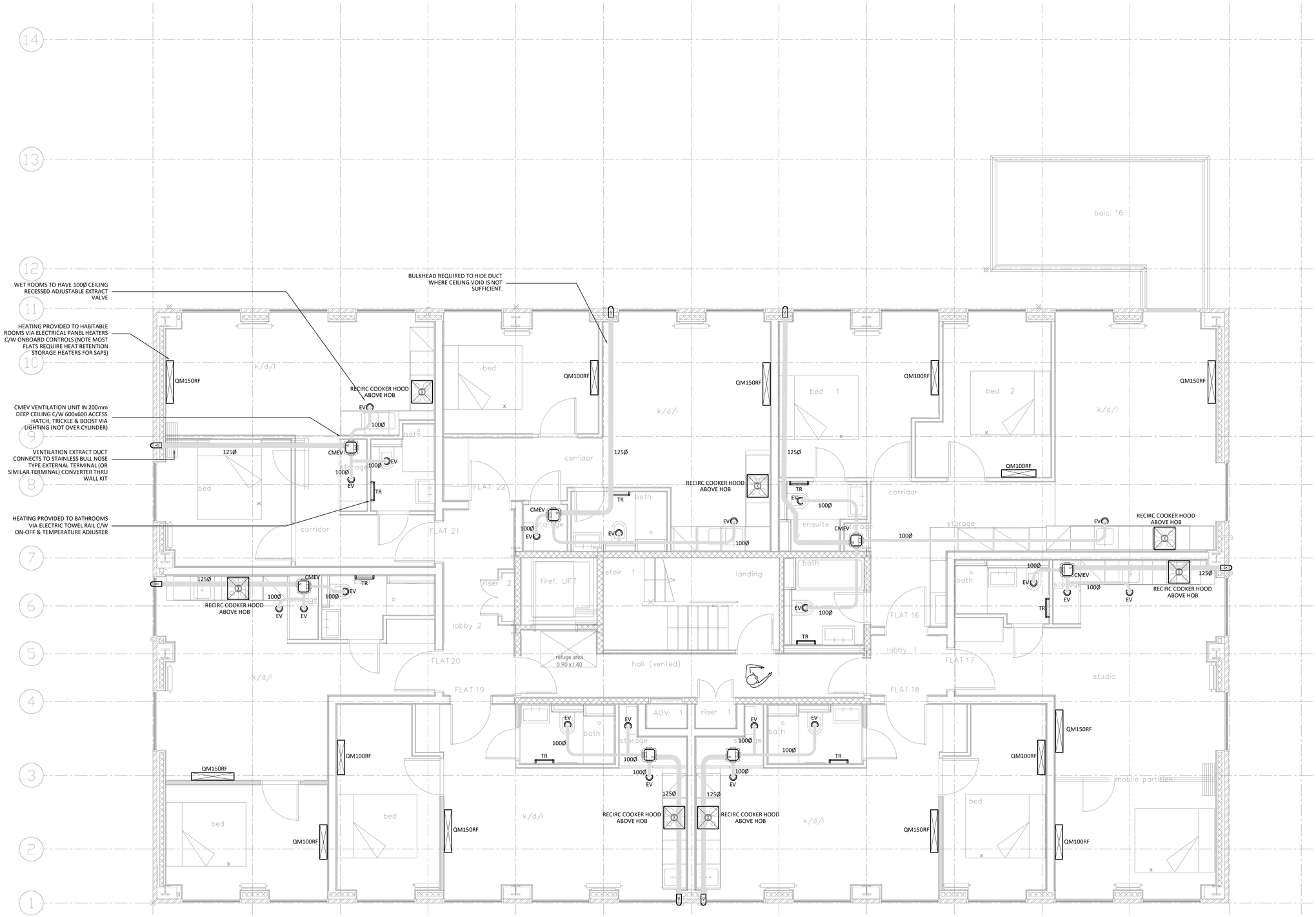
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-112	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
HVAC Services
3rd Floor

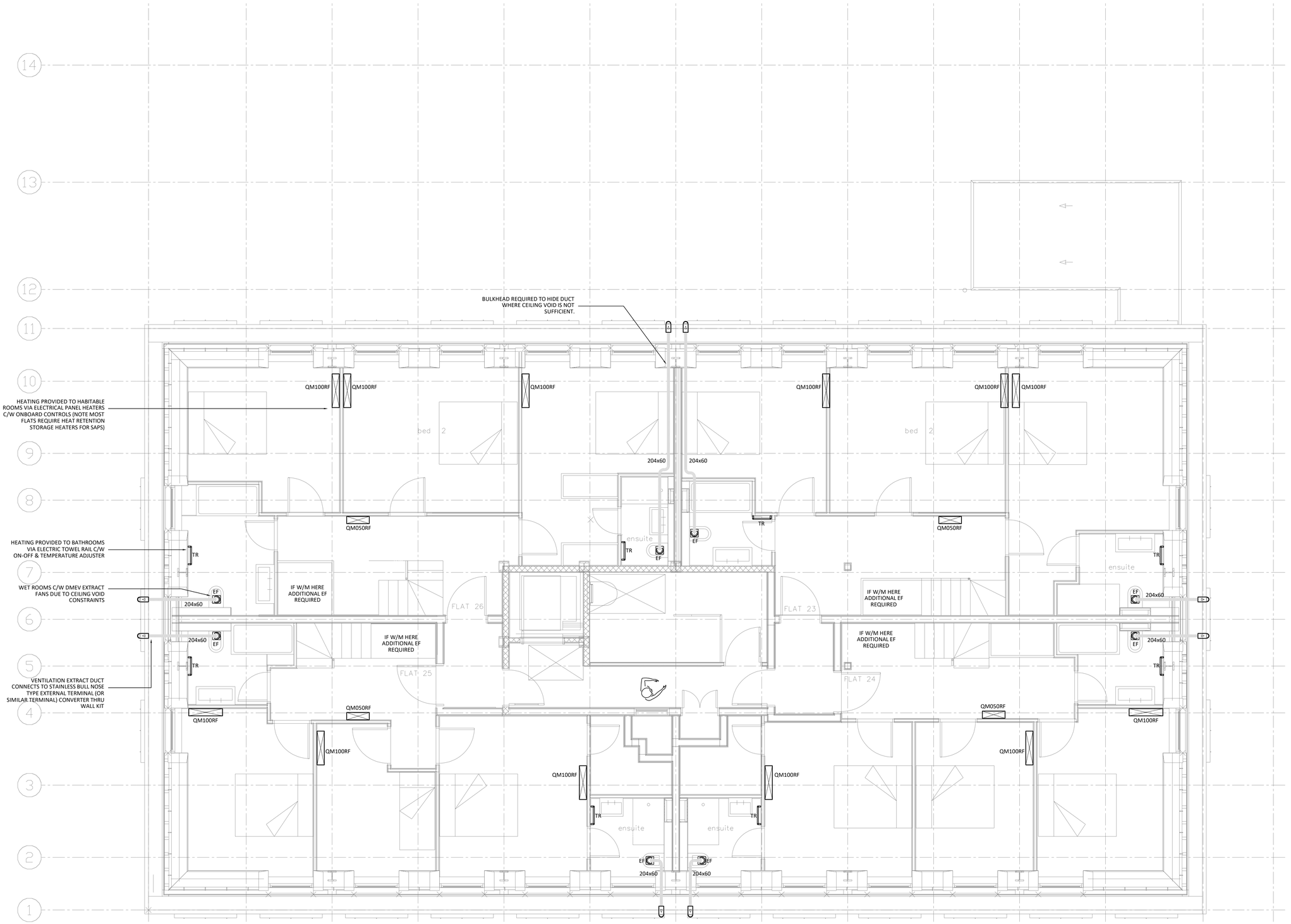
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-113	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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Project:
227 Shepherds Bush Road
London W6 7AS

Title:
HVAC Services
4th Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
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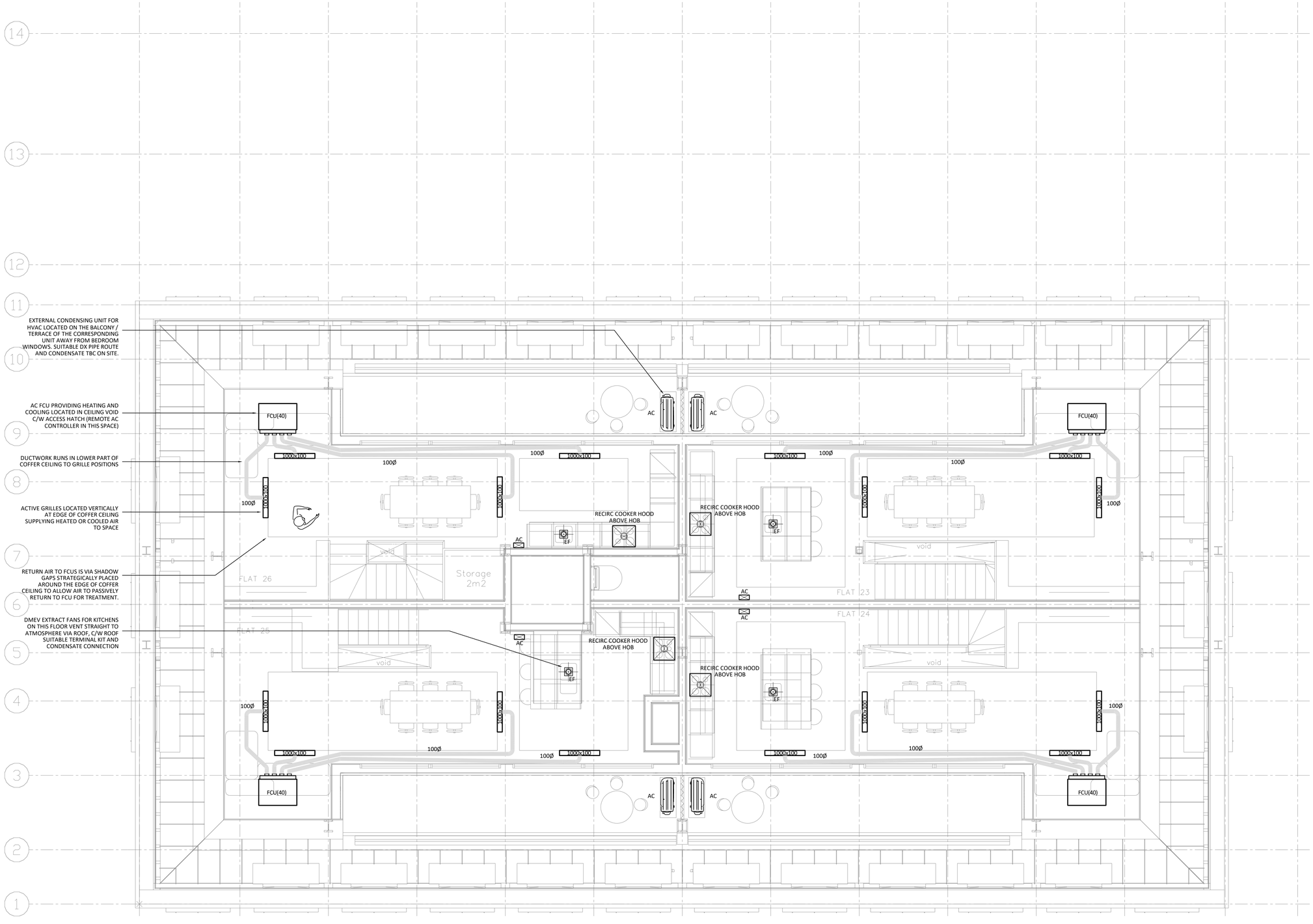
Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-114	T1

Rev	Date	By	Description
T1	19.02.25	JSO	Tender Issue



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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

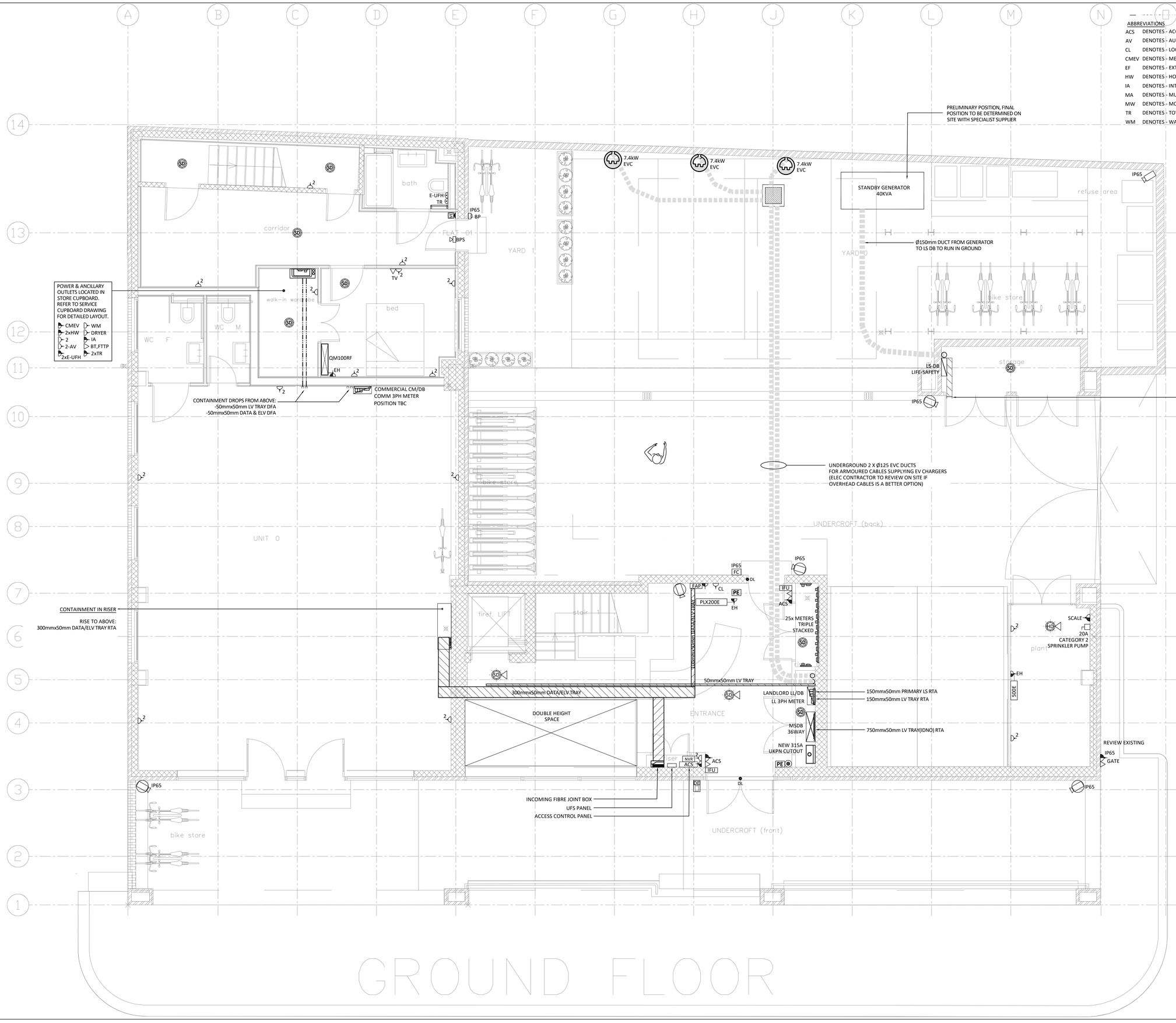
Title:
HVAC Services
5th Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-M-115	T1



ABBREVIATIONS

ACS	DENOTES - ACCESS CONTROL SYSTEM
AV	DENOTES - AUDIO VISUAL
CL	DENOTES - LOCKABLE CLEANER SOCKET
CMEV	DENOTES - MECH VENTILATION UNIT
EF	DENOTES - EXTRACT FAN
HW	DENOTES - HOT WATER IMMERSION HEATER
IA	DENOTES - INTRUDER ALARM
MA	DENOTES - MUSIC AMPLIFIER
MW	DENOTES - MOTORIZED WINDOW
TR	DENOTES - TOWEL RAIL
WM	DENOTES - WASHING MACHINE

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

POWER & ANCILLARY LEGEND

- TWIN 13A SWITCHED SOCKET OUTLET (USB DENOTES INTEGRATED USB OUTLETS)
- SINGLE 13A UN-SWITCHED SOCKET OUTLET
- CL SINGLE 13A CLEANER SOCKET OUTLET (LOCKED)
- DOUBLE POLE SWITCHED FUSED SPUR (RATED AT 13A UNLESS OTHERWISE NOTED)
- DOUBLE POLE UNSWITCHED FUSED SPUR (RATED AT 13A UNLESS OTHERWISE NOTED)
- FLEX OUTLET
- SHAVER POINT
- HEATING THERMOSTAT (FCU)
- G MULTI-GANG GRID PLATE C/W FUSES SUITABLY ENGRAVED FOR SUPPLY TO KITCHEN
- 45A DOUBLE POLE SWITCH FOR ELECTRIC HOB CONTROL UNIT
- H ELECTRIC HOB CONNECTION UNIT (MOUNTED AT LOW LEVEL)
- CONSUMER UNIT
- TEL/DATA POINT
- PE MAIN ENTRANCE PUSH TO EXIT BREAK GLASS
- DE MAIN ENTRANCE DOOR ENTRY PANEL - PAXTON NET 2
- VE VIDEO ENTRY UNIT
- FAP FIRE ALARM PANEL
- IFU FIRE ALARM INTERFACE UNIT
- SD SMOKE DETECTOR C/W BATTERY BACK UP
- HD HEAT DETECTOR C/W BATTERY BACK UP
- SD SMOKE DETECTOR INCLUDING SOUNDER AND BEACON
- BREAK GLASS
- M ELECTRIC METER
- FC FOB AND CODE ENTRY
- DL ELECTRIC DOOR LOCK
- CCTV CAMERA POE DOME 1080P
- CCTV CAMERA POE BULLET 1080P
- NVR NETWORK VIDEO RECORDER
- ZA ZONE AMPLIFIER
- 16W MUSIC SPEAKER
- KEY SECURITY INTRUDER ALARM KEYPAD
- SEC INTRUDER ALARM SECURITY PANEL
- DUAL TECHNOLOGY PASSIVE INFRA RED & MICROWAVE DETECTOR
- INTRUDER DOOR ALARM CONTACT
- INTRUDER ALARM IP65 EXTERNAL SOUNDER & BEACON
- INTRUDER ALARM INTERNAL SOUNDER
- BP BELL PUSH
- BPS BELL PUSH SOUNDER
- ISOLATOR SPN (RATED FOR EQUIPMENT SERVED)
- ISOLATOR TPN (RATED FOR EQUIPMENT SERVED)

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227 SBR Ltd

Project:
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London W6 7AS

Title:
Small Power & Ancillary Services
Ground Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-200.1	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

ABBREVIATIONS

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MA	DENOTES - MUSIC AMPLIFIER
MW	DENOTES - MOTORIZED WINDOW
TR	DENOTES - TOWEL RAIL
WM	DENOTES - WASHING MACHINE

POWER & ANCILLARY LEGEND

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- TEL/DATA POINT
- MAIN ENTRANCE PUSH TO EXIT BREAK GLASS
- MAIN ENTRANCE DOOR ENTRY PANEL - PAXTON NET 2
- VIDEO ENTRY UNIT
- FIRE ALARM PANEL
- FIRE ALARM INTERFACE UNIT
- SMOKE DETECTOR C/W BATTERY BACK UP
- HEAT DETECTOR C/W BATTERY BACK UP
- SMOKE DETECTOR INCLUDING SOUNDER AND BEACON
- BREAK GLASS
- ELECTRIC METER
- FOB AND CODE ENTRY
- ELECTRIC DOOR LOCK
- CCTV CAMERA POE DOME 1080P
- CCTV CAMERA POE BULLET 1080P
- NETWORK VIDEO RECORDER
- ZONE AMPLIFIER
- 16W MUSIC SPEAKER
- SECURITY INTRUDER ALARM KEYPAD
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- INTRUDER ALARM INTERNAL SOUNDER
- BELL PUSH
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- ISOLATOR SPN (RATED FOR EQUIPMENT SERVED)
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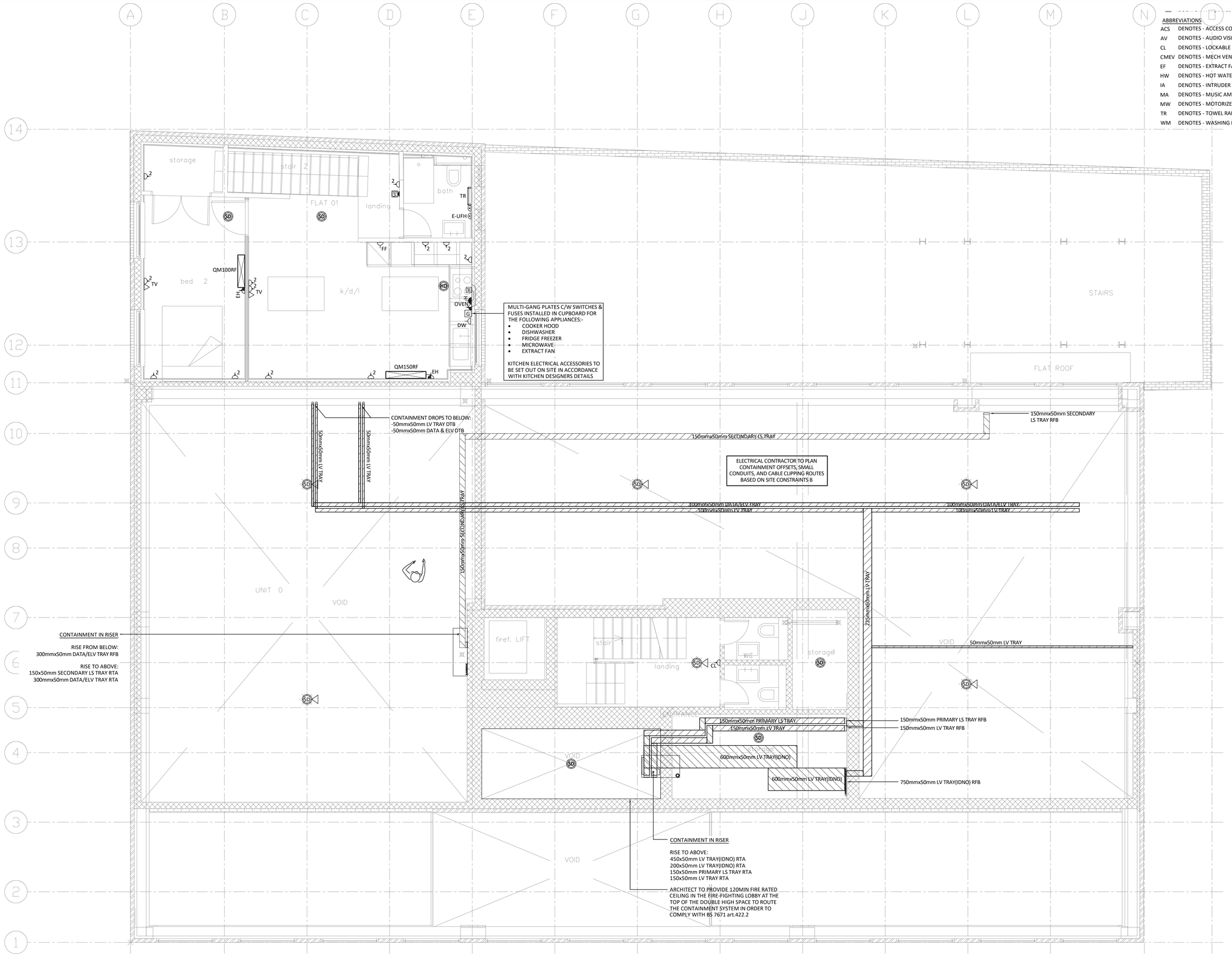

MEZZANINE

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Small Power & Ancillary Services
Ground Floor (Mezz)

Date:	Drawn:	Checked:	Scale @ A1:
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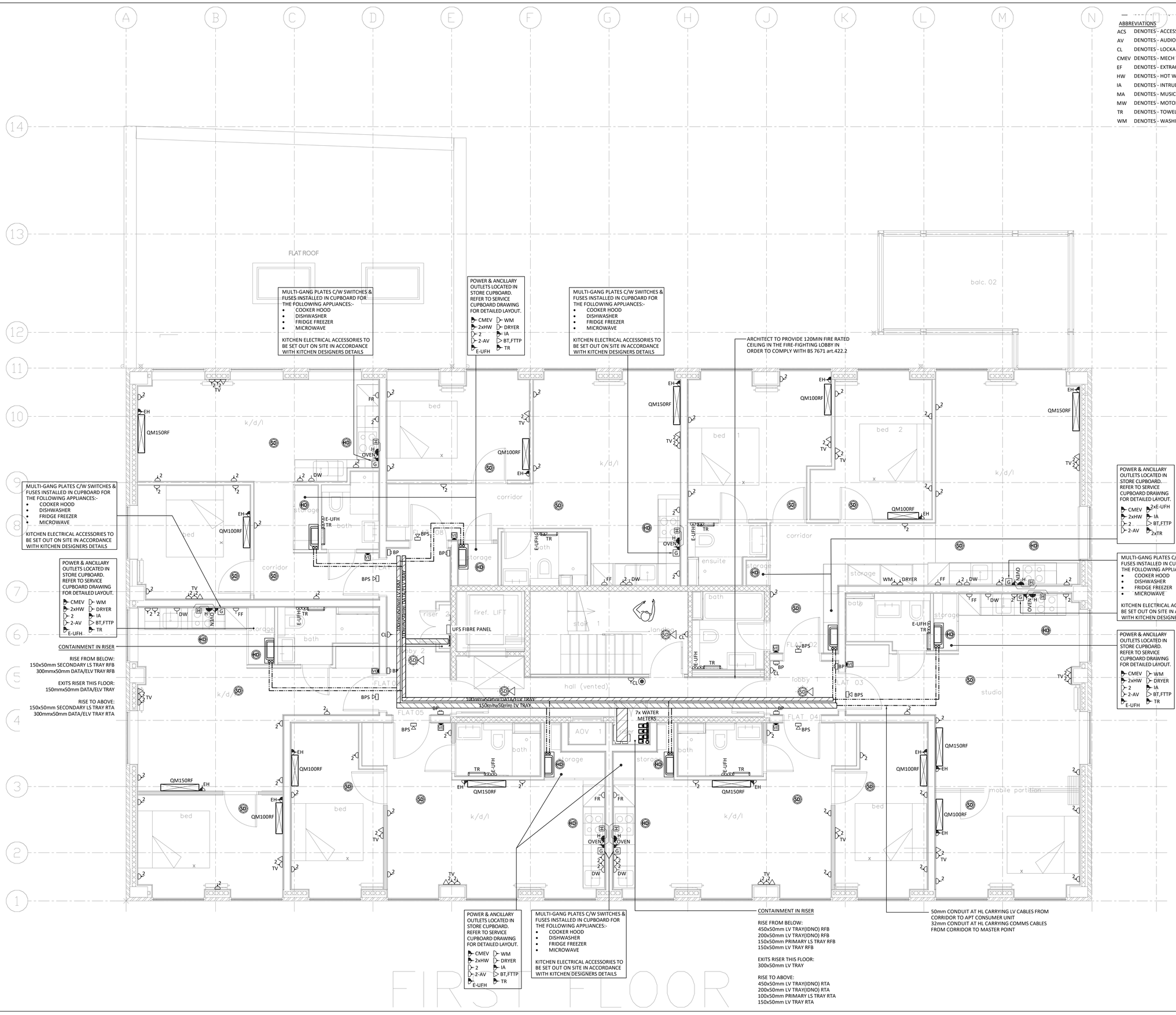
Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-200.2	T1



ABBREVIATIONS

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CMEV	DENOTES - MECH VENTILATION UNIT
EF	DENOTES - EXTRACT FAN
HW	DENOTES - HOT WATER IMMERSION HEATER
IA	DENOTES - INTRUDER ALARM
MA	DENOTES - MUSIC AMPLIFIER
MW	DENOTES - MOTORIZED WINDOW
TR	DENOTES - TOWEL RAIL
WM	DENOTES - WASHING MACHINE

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

POWER & ANCILLARY LEGEND

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- MULTI-GANG GRID PLATE C/W FUSES SUITABLY ENGRAVED FOR SUPPLY TO KITCHEN
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- ELECTRIC HOB CONNECTION UNIT (MOUNTED AT LOW LEVEL)
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- MAIN ENTRANCE PUSH TO EXIT BREAK GLASS
- MAIN ENTRANCE DOOR ENTRY PANEL - PAXTON NET 2
- VIDEO ENTRY UNIT
- FIRE ALARM PANEL
- FIRE ALARM INTERFACE UNIT
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- CCTV CAMERA POE DOME 1080P
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- 16W MUSIC SPEAKER
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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

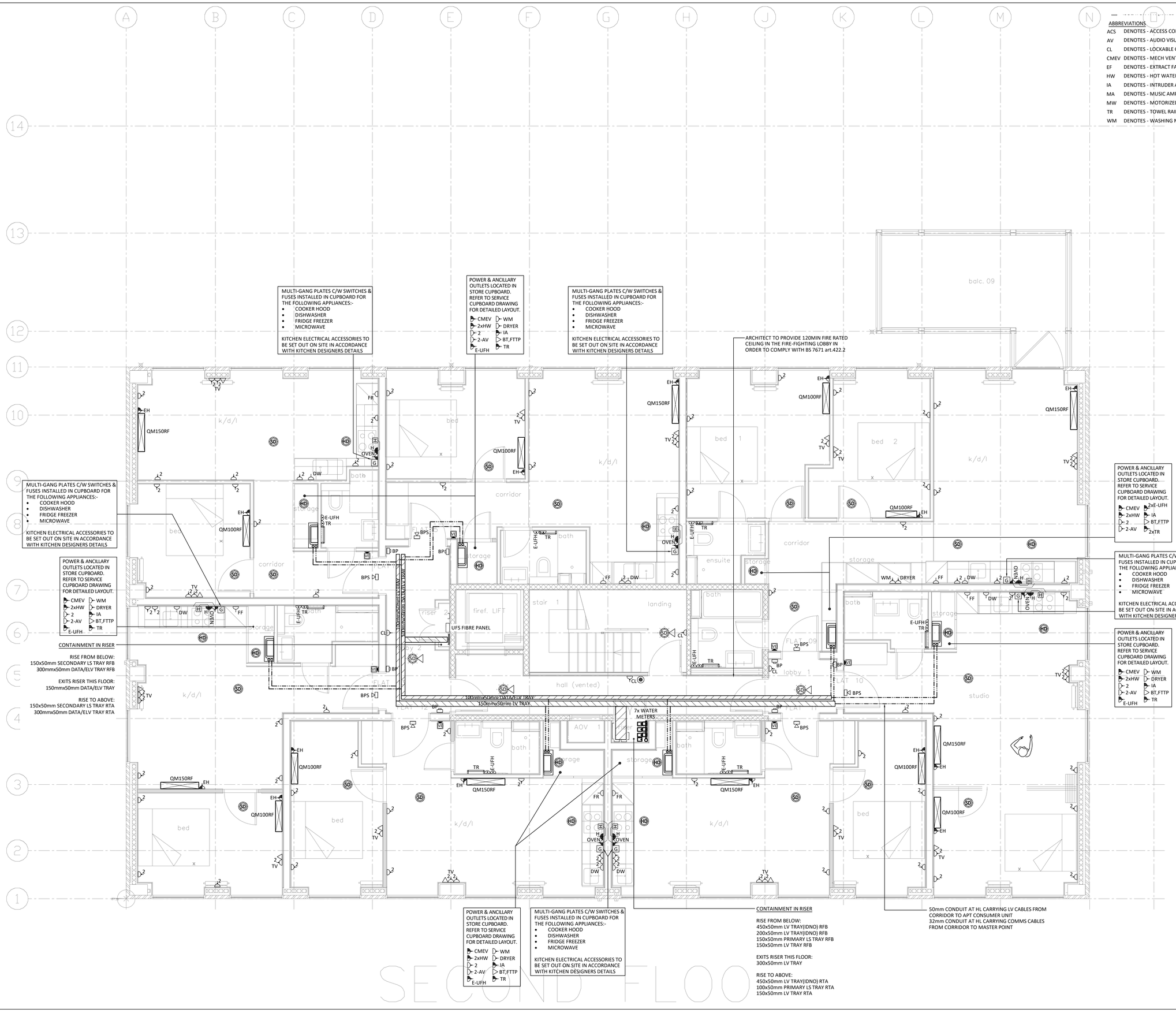
Title:
Small Power & Ancillary Services
First Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-201	T1



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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

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- TEL/DATA POINT
- PE — MAIN ENTRANCE PUSH TO EXIT BREAK GLASS
- DE / L — MAIN ENTRANCE DOOR ENTRY PANEL - PAXTON NET 2
- VE — VIDEO ENTRY UNIT
- FAP — FIRE ALARM PANEL
- IFU — FIRE ALARM INTERFACE UNIT
- SD — SMOKE DETECTOR C/W BATTERY BACK UP
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- BREAK GLASS
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- FC — FOB AND CODE ENTRY
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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Small Power & Ancillary Services
2nd Floor

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11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number: P1208-E-202

Rev: T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

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MULTI-GANG PLATES C/W SWITCHES & FUSES INSTALLED IN CUPBOARD FOR THE FOLLOWING APPLIANCES:-
- COOKER HOOD
- DISHWASHER
- FRIDGE FREEZER
- MICROWAVE

KITCHEN ELECTRICAL ACCESSORIES TO BE SET OUT ON SITE IN ACCORDANCE WITH KITCHEN DESIGNERS DETAILS

POWER & ANCILLARY OUTLETS LOCATED IN STORE CUPBOARD. REFER TO SERVICE CUPBOARD DRAWING FOR DETAILED LAYOUT.
CMEV, 2xHW, 2, 2-AV, E-UFH, WM, DRYER, IA, BT,FTTP, TR

ARCHITECT TO PROVIDE 120MIN FIRE RATED CEILING IN THE FIRE-FIGHTING LOBBY IN ORDER TO COMPLY WITH BS 7671 art.422.2

CONTAINMENT IN RISER

RISE FROM BELOW:
150x50mm SECONDARY LS TRAY RFB
300mmx50mm DATA/ELV TRAY RFB

EXITS RISER THIS FLOOR:
150mmx50mm DATA/ELV TRAY

RISE TO ABOVE:
150x50mm SECONDARY LS TRAY RTA
200mmx50mm DATA/ELV TRAY RTA

UFS FIBRE PANEL

100mmx50mm DATA/ELV TRAY
150mmx50mm LV TRAY

7x WATER METERS

CONTAINMENT IN RISER

RISE FROM BELOW:
450x50mm LV TRAY(IDNO) RFB
150x50mm PRIMARY LS TRAY RFB
150x50mm LV TRAY RFB

EXITS RISER THIS FLOOR:
300x50mm LV TRAY

RISE TO ABOVE:
450x50mm LV TRAY(IDNO) RTA
100x50mm PRIMARY LS TRAY RTA
150x50mm LV TRAY RTA

50mm CONDUIT AT HL CARRYING LV CABLES FROM CORRIDOR TO APT CONSUMER UNIT
32mm CONDUIT AT HL CARRYING COMMS CABLES FROM CORRIDOR TO MASTER POINT

THIRD FLOOR

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Call Us - 01403 785426

Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Small Power & Ancillary Services
3rd Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-203	T1

ABBREVIATIONS

ACS	DENOTES - ACCESS CONTROL SYSTEM
AV	DENOTES - AUDIO VISUAL
CL	DENOTES - LOCKABLE CLEANER SOCKET
CMEV	DENOTES - MECH VENTILATION UNIT
EF	DENOTES - EXTRACT FAN
HW	DENOTES - HOT WATER IMMERSION HEATER
IA	DENOTES - INTRUDER ALARM
MA	DENOTES - MUSIC AMPLIFIER
MW	DENOTES - MOTORIZED WINDOW
TR	DENOTES - TOWEL RAIL
WM	DENOTES - WASHING MACHINE

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

POWER & ANCILLARY LEGEND

- TWIN 13A SWITCHED SOCKET OUTLET USB DENOTES INTEGRATED USB OUTLETS
- SINGLE 13A UN-SWITCHED SOCKET OUTLET
- SINGLE 13A CLEANER SOCKET OUTLET (LOCKED)
- DOUBLE POLE SWITCHED FUSED SPUR (RATED AT 13A UNLESS OTHERWISE NOTED)
- DOUBLE POLE UNSWITCHED FUSED SPUR (RATED AT 13A UNLESS OTHERWISE NOTED)
- FLEX OUTLET
- SHAVER POINT
- HEATING THERMOSTAT (FCU)
- G — MULTI-GANG GRID PLATE C/W FUSES SUITABLY ENGRAVED FOR SUPPLY TO KITCHEN
- 45A DOUBLE POLE SWITCH FOR ELECTRIC HOB CONTROL UNIT
- H — ELECTRIC HOB CONNECTION UNIT (MOUNTED AT LOW LEVEL)
- CONSUMER UNIT
- TEL/DATA POINT
- PE — MAIN ENTRANCE PUSH TO EXIT
- BREAK GLASS
- DE — MAIN ENTRANCE DOOR ENTRY PANEL - PAXTON NET 2
- VE — VIDEO ENTRY UNIT
- FAP — FIRE ALARM PANEL
- IFU — FIRE ALARM INTERFACE UNIT
- SD — SMOKE DETECTOR C/W BATTERY BACK UP
- HD — HEAT DETECTOR C/W BATTERY BACK UP
- SD — SMOKE DETECTOR INCLUDING SOUNDER AND BEACON
- BREAK GLASS
- M — ELECTRIC METER
- FC — FOB AND CODE ENTRY
- DL — ELECTRIC DOOR LOCK
- CCTV CAMERA POE DOME 1080P
- CCTV CAMERA POE BULLET 1080P
- NVR — NETWORK VIDEO RECORDER
- ZA — ZONE AMPLIFIER
- 16W MUSIC SPEAKER
- KEY — SECURITY INTRUDER ALARM KEYPAD
- SEC — INTRUDER ALARM SECURITY PANEL
- DUAL TECHNOLOGY PASSIVE INFRA RED & MICROWAVE DETECTOR
- dc — INTRUDER DOOR ALARM CONTACT
- SEC — INTRUDER ALARM IP65 EXTERNAL SOUNDER & BEACON
- SEC — INTRUDER ALARM INTERNAL SOUNDER
- BP — BELL PUSH
- BPS — BELL PUSH SOUNDER
- ISOLATOR SPN (RATED FOR EQUIPMENT SERVED)
- ISOLATOR TPN (RATED FOR EQUIPMENT SERVED)

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POWER & ANCILLARY OUTLETS LOCATED IN STORE CUPBOARD. REFER TO SERVICE CUPBOARD DRAWING FOR DETAILED LAYOUT.

- CMEV
- 2xHW
- 2
- 2-AV
- 2xEF
- 2xE-UFH
- IA
- BT,FTTP
- 2xTR
- MA

CONTAINMENT IN RISER

RISE FROM BELOW:
150x50mm SECONDARY LS TRAY RFB
200mmx50mm DATA/ELV TRAY RFB

EXITS RISER THIS FLOOR:
100x50mm SECONDARY LS TRAY
100mmx50mm DATA/ELV TRAY

ELECTRICAL CUPBOARD, FINAL POSITION TO BE DETERMINED AT CONSTRUCTION STAGE

ATS-01 | ATS-02 | PV | 32A

100mmx50mm DATA/ELV TRAY
150mmx50mm LV TRAY
100mmx50mm SECONDARY LS TRAY
100mmx50mm PRIMARY LS TRAY

ARCHITECT TO PROVIDE 120MIN FIRE RATED CEILING IN THE FIRE-FIGHTING LOBBY IN ORDER TO COMPLY WITH BS 7671 art.422.2

CONTAINMENT IN RISER

RISE FROM BELOW:
300x50mm LV TRAY(IDNO) RFB
150x50mm PRIMARY LS TRAY RFB
150x50mm LV TRAY RFB

EXITS RISER THIS FLOOR:
225x50mm LV TRAY
100x50mm PRIMARY LS TRAY

POWER & ANCILLARY OUTLETS LOCATED IN STORE CUPBOARD. REFER TO SERVICE CUPBOARD DRAWING FOR DETAILED LAYOUT.

- CMEV
- 2xHW
- 2
- 2-AV
- 2xEF
- 2xE-UFH
- IA
- BT,FTTP
- 2xTR
- MA

50mm CONDUIT AT HL CARRYING LV CABLES FROM CORRIDOR TO APT CONSUMER UNIT
32mm CONDUIT AT HL CARRYING COMMS CABLES FROM CORRIDOR TO MASTER POINT

FOURTH FLOOR

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

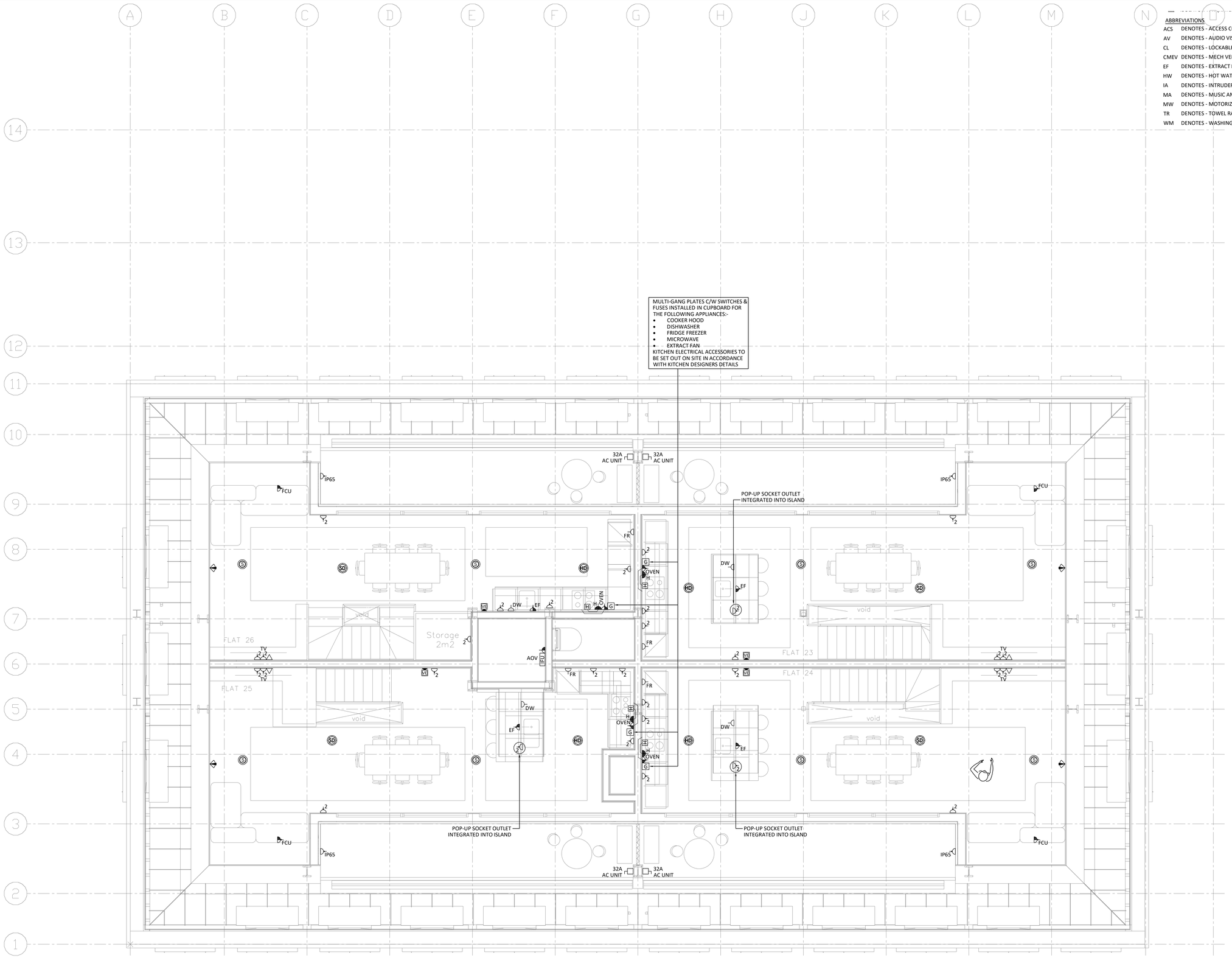
Title:
Small Power & Ancillary Services
4th Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-204	T1



FIFTH FLOOR

ABBREVIATIONS

ACS	DENOTES - ACCESS CONTROL SYSTEM
AV	DENOTES - AUDIO VISUAL
CL	DENOTES - LOCKABLE CLEANER SOCKET
CMEV	DENOTES - MECH VENTILATION UNIT
EF	DENOTES - EXTRACT FAN
HW	DENOTES - HOT WATER IMMERSION HEATER
IA	DENOTES - INTRUDER ALARM
MA	DENOTES - MUSIC AMPLIFIER
MW	DENOTES - MOTORIZED WINDOW
TR	DENOTES - TOWEL RAIL
WM	DENOTES - WASHING MACHINE

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

POWER & ANCILLARY LEGEND

- TWIN 13A SWITCHED SOCKET OUTLET (USB DENOTES INTEGRATED USB OUTLETS)
- SINGLE 13A UN-SWITCHED SOCKET OUTLET
- SINGLE 13A CLEANER SOCKET OUTLET (LOCKED)
- DOUBLE POLE SWITCHED FUSED SPUR (RATED AT 13A UNLESS OTHERWISE NOTED)
- DOUBLE POLE UNSWITCHED FUSED SPUR (RATED AT 13A UNLESS OTHERWISE NOTED)
- FLEX OUTLET
- SHAVER POINT
- HEATING THERMOSTAT (FCU)
- MULTI-GANG GRID PLATE C/W FUSES SUITABLY ENGRAVED FOR SUPPLY TO KITCHEN
- 45A DOUBLE POLE SWITCH FOR ELECTRIC HOB CONTROL UNIT
- ELECTRIC HOB CONNECTION UNIT (MOUNTED AT LOW LEVEL)
- CONSUMER UNIT
- TEL/DATA POINT
- MAIN ENTRANCE PUSH TO EXIT BREAK GLASS
- MAIN ENTRANCE DOOR ENTRY PANEL - PAXTON NET 2
- VIDEO ENTRY UNIT
- FIRE ALARM PANEL
- FIRE ALARM INTERFACE UNIT
- SMOKE DETECTOR C/W BATTERY BACK UP
- HEAT DETECTOR C/W BATTERY BACK UP
- SMOKE DETECTOR INCLUDING SOUNDER AND BEACON
- BREAK GLASS
- ELECTRIC METER
- FOB AND CODE ENTRY
- ELECTRIC DOOR LOCK
- CCTV CAMERA POE DOME 1080P
- CCTV CAMERA POE BULLET 1080P
- NETWORK VIDEO RECORDER
- ZONE AMPLIFIER
- 16W MUSIC SPEAKER
- SECURITY INTRUDER ALARM KEYPAD
- INTRUDER ALARM SECURITY PANEL
- DUAL TECHNOLOGY PASSIVE INFRA RED & MICROWAVE DETECTOR
- INTRUDER DOOR ALARM CONTACT
- INTRUDER ALARM IP65 EXTERNAL SOUNDER & BEACON
- INTRUDER ALARM INTERNAL SOUNDER
- BELL PUSH
- BELL PUSH SOUNDER
- ISOLATOR SPN (RATED FOR EQUIPMENT SERVED)
- ISOLATOR TPN (RATED FOR EQUIPMENT SERVED)

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Small Power & Ancillary Services
5th Floor

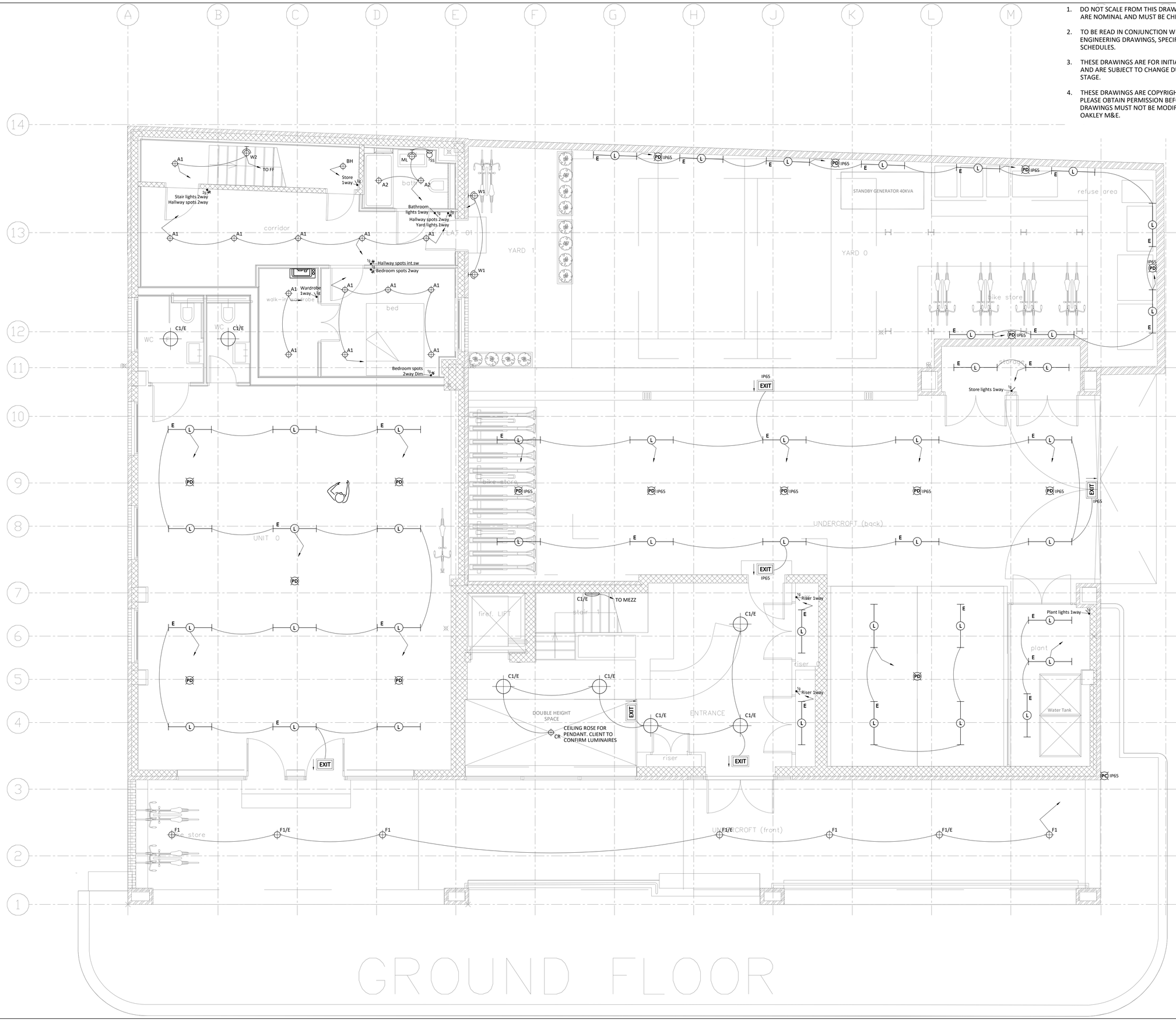
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number: P1208-E-205

Rev: T1



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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

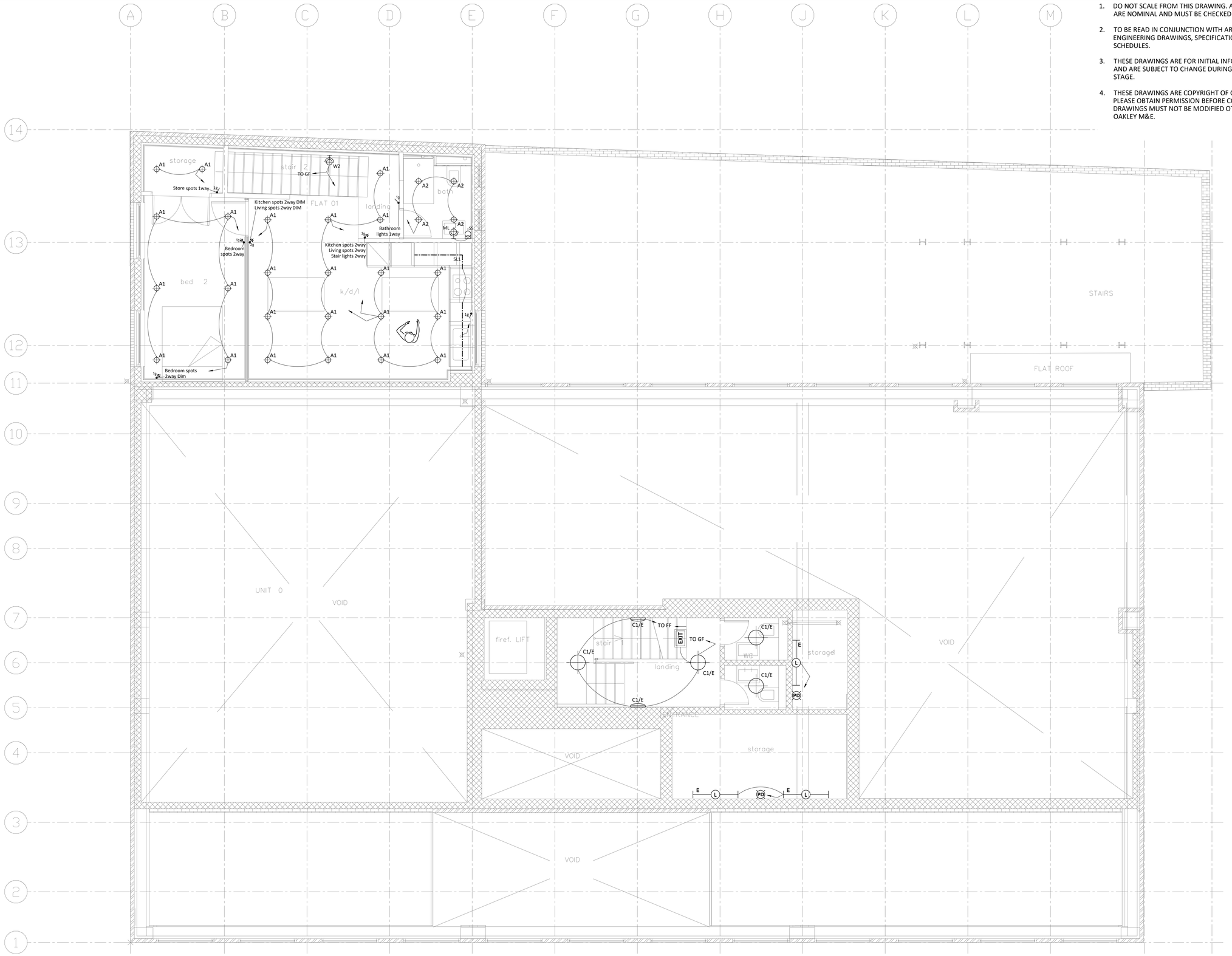
Title:
Lighting Layout
Ground Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-210.1	T1



MEZZANINE

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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
D	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

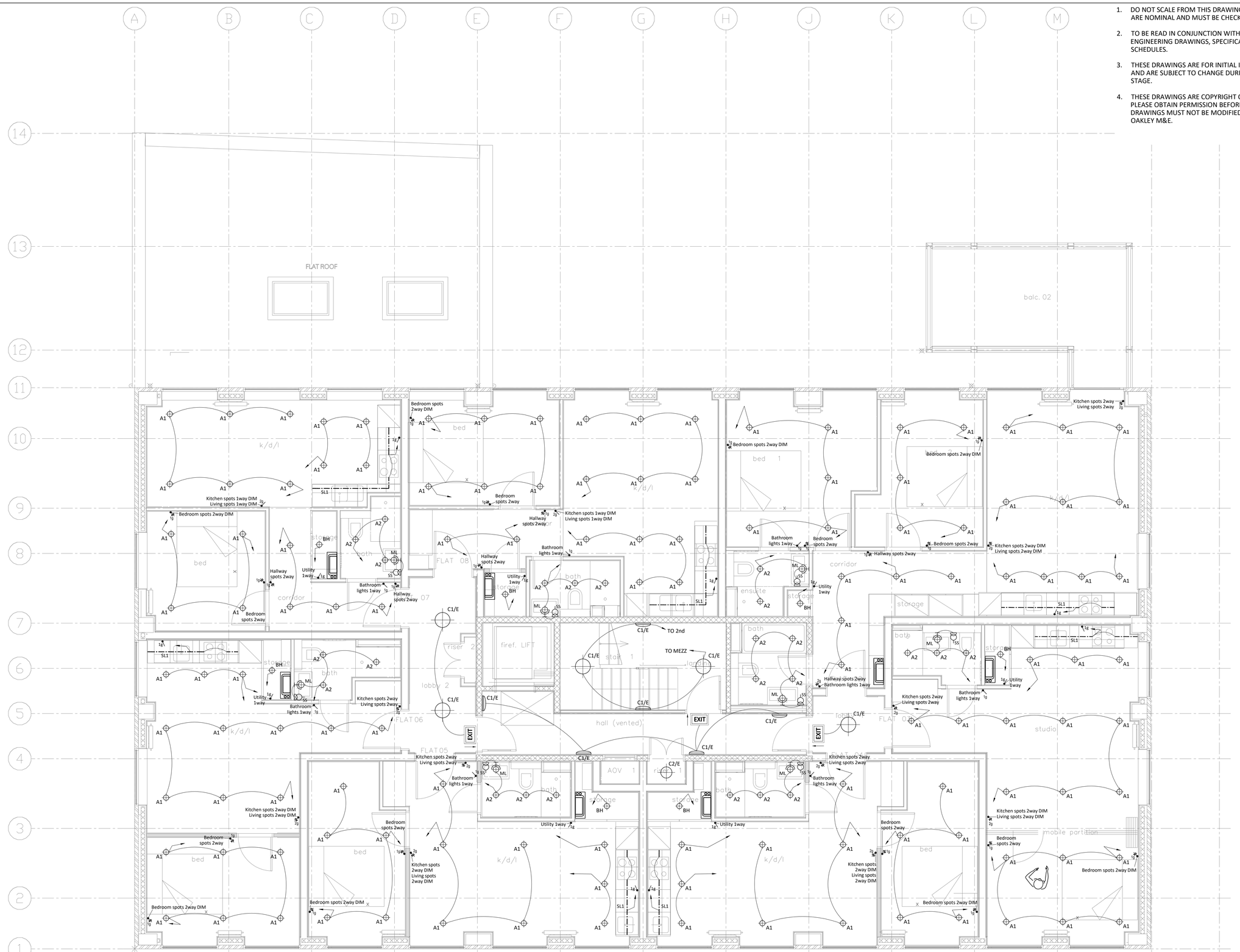
Title:
Lighting Layout
Ground Floor (Mezz)

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-210.2	T1



FIRST FLOOR

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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

g	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
D g	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
g	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
g	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Lighting Layout
First Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

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Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-211	T1

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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
D	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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Call Us - 01403 785426

Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Lighting Layout
2nd Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-212	T1

SECOND FLOOR

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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
D	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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Email Us - info@oakleymed.co.uk
Visit Us - www.oakleymed.co.uk
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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Lighting Layout
3rd Floor

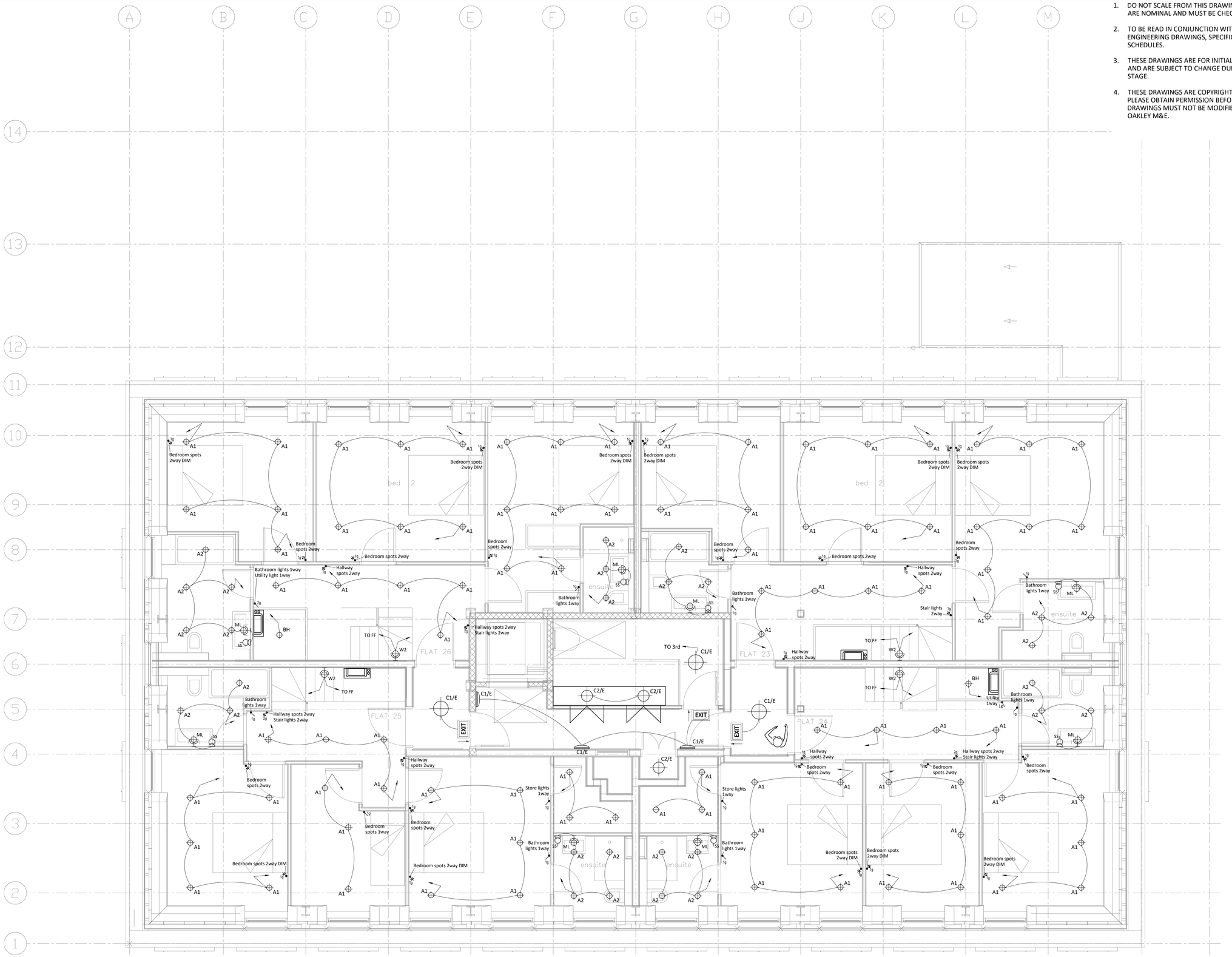
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-213	T1

THIRD FLOOR



FOURTH FLOOR

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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
D	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Lighting Layout
4th Floor

Date:	Drawn:	Checked:	Scale @ A1:
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Drawing Status:
Tender Issue

Drawing Number: P1208-E-214

Rev: T1

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Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

LEGEND

	ONE WAY SWITCH ('g' DENOTES No. OF GANGS)
D	DIMMER SWITCH (ALSO DENOTED AS 'DIM')
	TWO WAY SWITCH ('g' DENOTES No. OF GANGS)
	INTERMEDIATE SWITCH ('g' DENOTES No. OF GANGS)
PD	PRESENCE DETECTOR
PC	IP65 DUSK TO DAWN PHOTOCELL DETECTOR + TIME CLOCK
A1	IP20 LED DOWNLIGHTER
A2	IP65 LED DOWNLIGHTER
BH	BATTEN HOLDER FOR E27 BULB
C1/E	EMERGENCY LED BULKHEAD 400mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
C2/E	EMERGENCY LED BULKHEAD 300mm C/W MOUNTED INTEGRAL MICROWAVE SENSOR & 3HR BATTERY
EXIT	EXIT SIGN
F1	RECESSED LED DOWNLIGHT 173mm ('E' DENOTES 3HR EMERGENCY BATTERY)
ML	MIRROR LUMINAIRE
L	IP66 LINEAR LED LUMINAIRE ('E' DENOTES 3HR EMERGENCY BATTERY)
SL1	LED STRIP OVERCOUNTER
SL2	LED STRIP COFFER CEILING
W1	EXTERNAL WALL LIGHT
W2	FEATURE WALL LIGHT

COMMUNAL LUMINAIRE SCHEDULE

C1/E - EMERGENCY LED BULKHEAD 400mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 28W, 3549LM

C2/E - EMERGENCY LED BULKHEAD 300mm C/W WITH INTEGRAL MICROWAVE SENSOR & 3HR BATTERY - WHITECROFT KOLO SURFACE, IP44, 9W, 1100LM

F1/E - RECESSED LED DOWNLIGHT - WHITECROFT MIRAGE 3 IP65, 23.2W, 2739lm & 3HR BATTERY

L - IP66 LINEAR LED LUMINAIRE 1200mm - WHITECROFT ACL INDUSTRY SURFACE, IP66, 25.4W, 3970lm

APARTMENT LUMINAIRE SCHEDULE

A1 - DOWNLIGHTER IP20, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP20

A2 - DOWNLIGHTER IP65, GU10, 7W MAX, 90mm, FIRE-RATED AS AURORA EFD PRO FIXED GU10 IP65

BH - BATTEN HOLDER FOR E27 BULB

SL1 - LED STRIP OVERCOUNTER, 5W/m, 500lm/m, IP65

SL2 - LED STRIP WITH DIFFUSER FOR COFFER CEILING , 5W/m, 500lm/m, IP20

ML - MIRROR FEATURE LIGHTING, CLIENT/ARCHITECT TO CONFIRM FITTING SELECTION

W1 - EXTERNAL WALL LIGHT IP54, 8.1W LED, AS DARTMOUTH TWIN LED

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Lighting Layout
5th Floor

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	AS	JSO	1:50

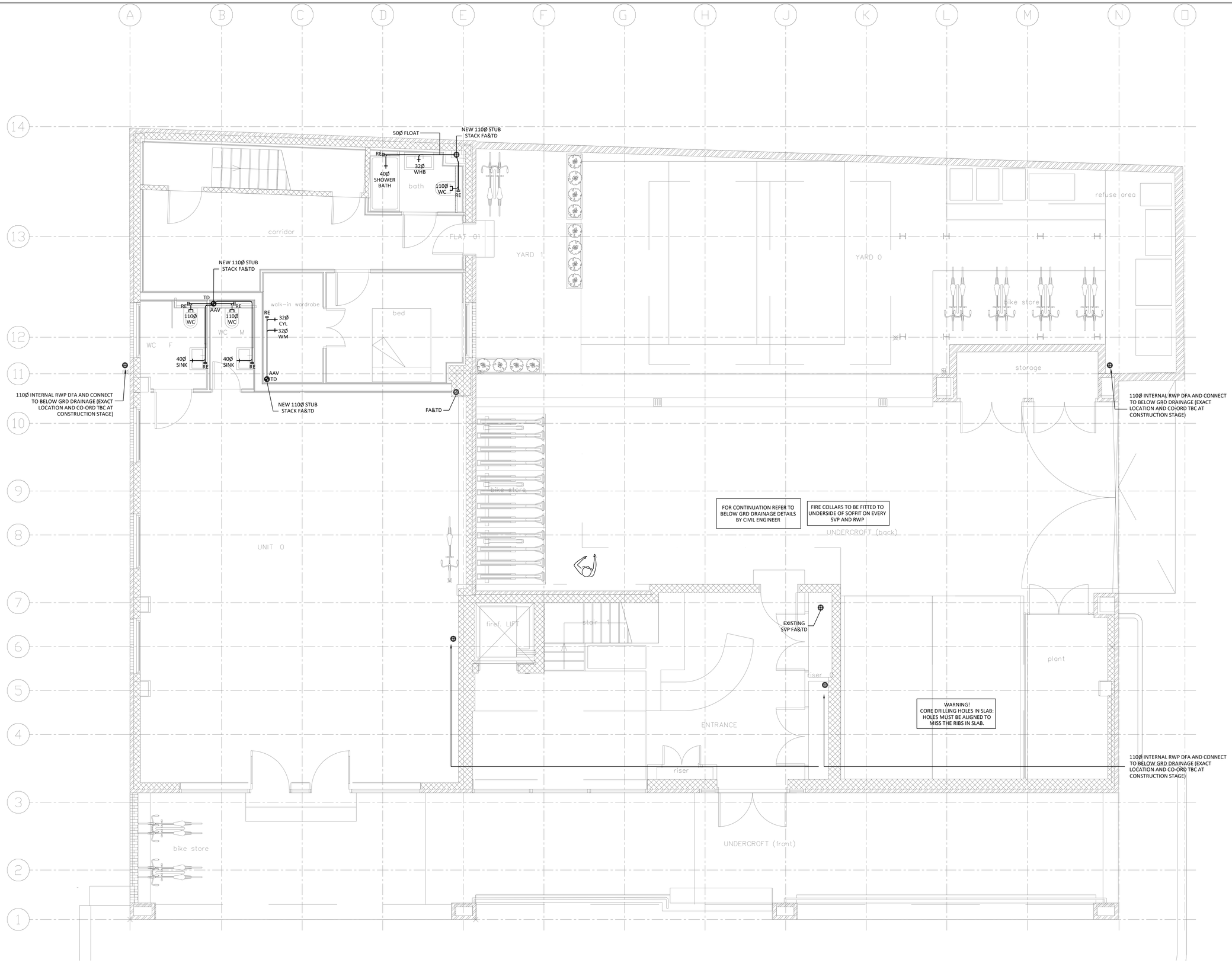
Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-E-215	T1

FIFTH FLOOR

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

REFER TO SANITARY WARE SCHEDULE FOR TYPES

MINIMUM TRAP SIZES AND DEPTHS SHALL BE AS FOLLOWS:-

A) WHB - 32Ømm TRAP -75mm SEAL.
B) SINKS - 40Ømm TRAP - 75mm SEAL.
C) WC PAN - 100Ømm TRAP 50mm SEAL.
D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Above Grd Drainage
Ground Floor

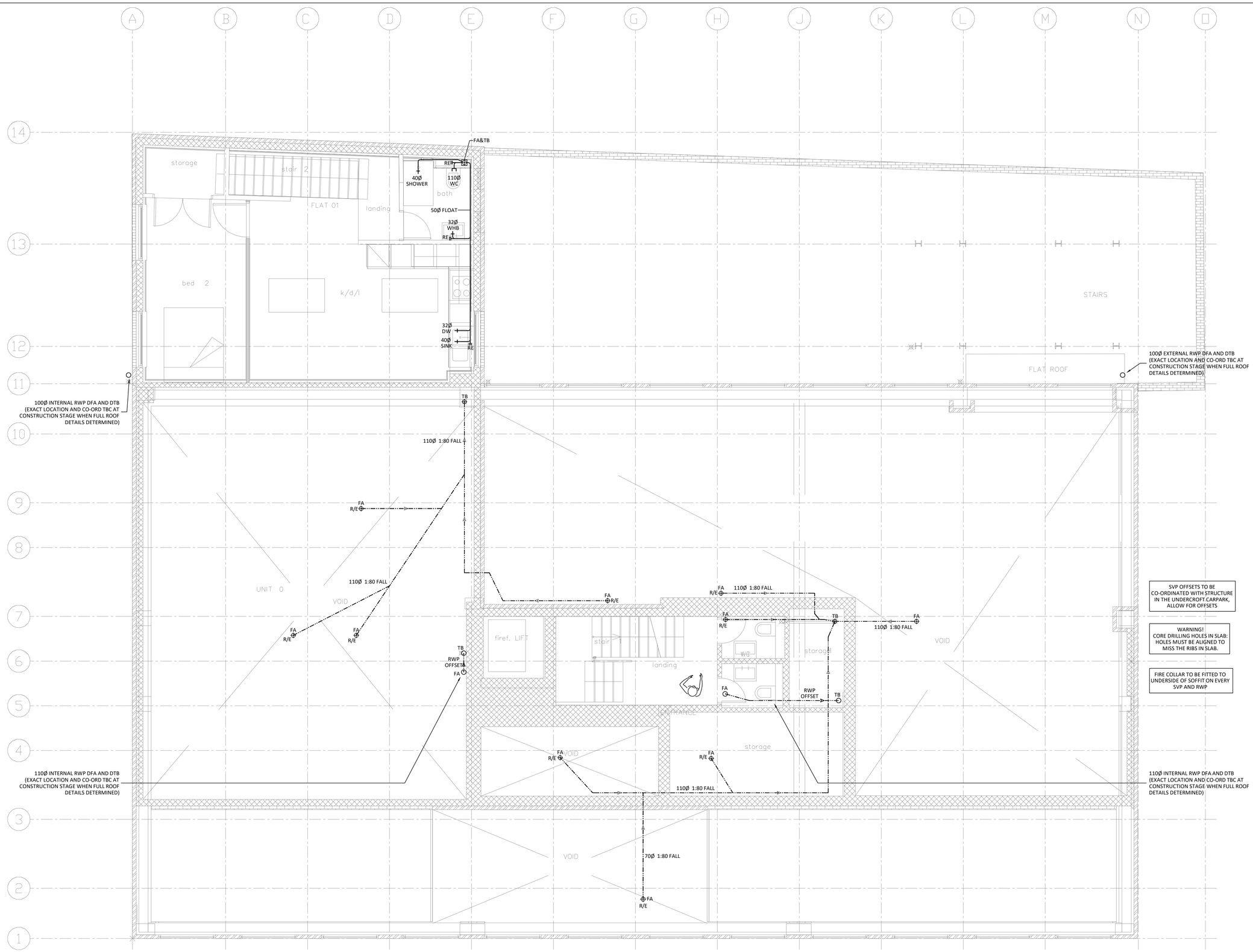
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-300.1	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

REFER TO SANITARY WARE SCHEDULE FOR TYPES

MINIMUM TRAP SIZES AND DEPTHS SHALL BE AS FOLLOWS:-

A) WHB - 32Ømm TRAP -75mm SEAL.
B) SINKS - 40Ømm TRAP - 75mm SEAL.
C) WC PAN - 100Ømm TRAP 50mm SEAL.
D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

SVP OFFSETS TO BE CO-ORDINATED WITH STRUCTURE IN THE UNDERCROFT CARPARK, ALLOW FOR OFFSETS

WARNING! CORE DRILLING HOLES IN SLAB: HOLES MUST BE ALIGNED TO MISS THE RIBS IN SLAB.

FIRE COLLAR TO BE FITTED TO UNDERSIDE OF SOFFIT ON EVERY SVP AND RWP

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Above Grd Drainage
Ground Floor (Mezz)

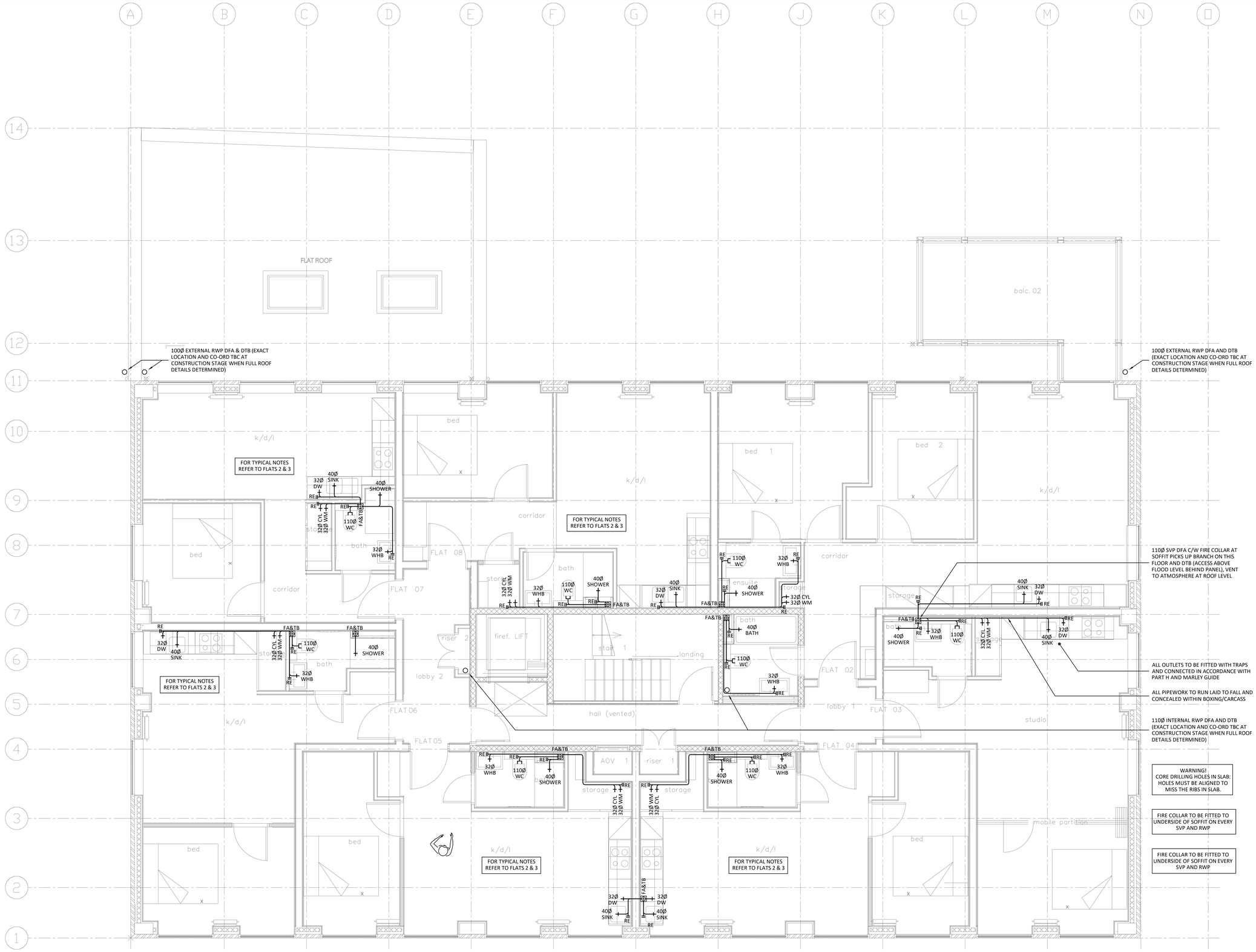
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-300.2	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

REFER TO SANITARY WARE SCHEDULE FOR TYPES

MINIMUM TRAP SIZES AND DEPTHS SHALL BE AS FOLLOWS:-

A) WHB - 32Ømm TRAP -75mm SEAL.
B) SINKS - 40Ømm TRAP - 75mm SEAL.
C) WC PAN - 100Ømm TRAP 50mm SEAL.
D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Above Grd Drainage
First Floor

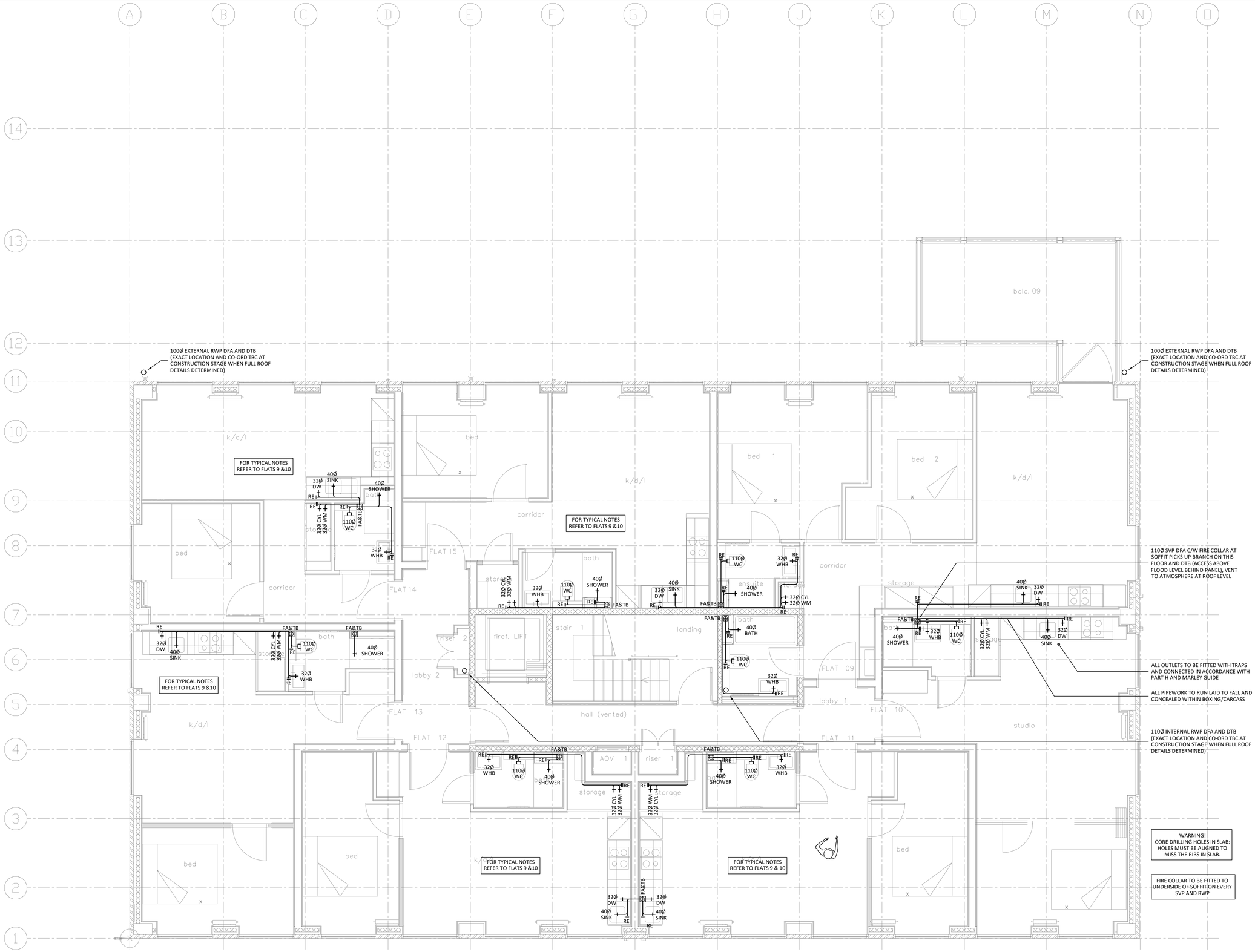
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-301	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

REFER TO SANITARY WARE SCHEDULE FOR TYPES

MINIMUM TRAP SIZES AND DEPTHS SHALL BE AS FOLLOWS:-

A) WHB - 32Ømm TRAP -75mm SEAL.
B) SINKS - 40Ømm TRAP - 75mm SEAL.
C) WC PAN - 100Ømm TRAP 50mm SEAL.
D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Above Grd Drainage
2nd Floor

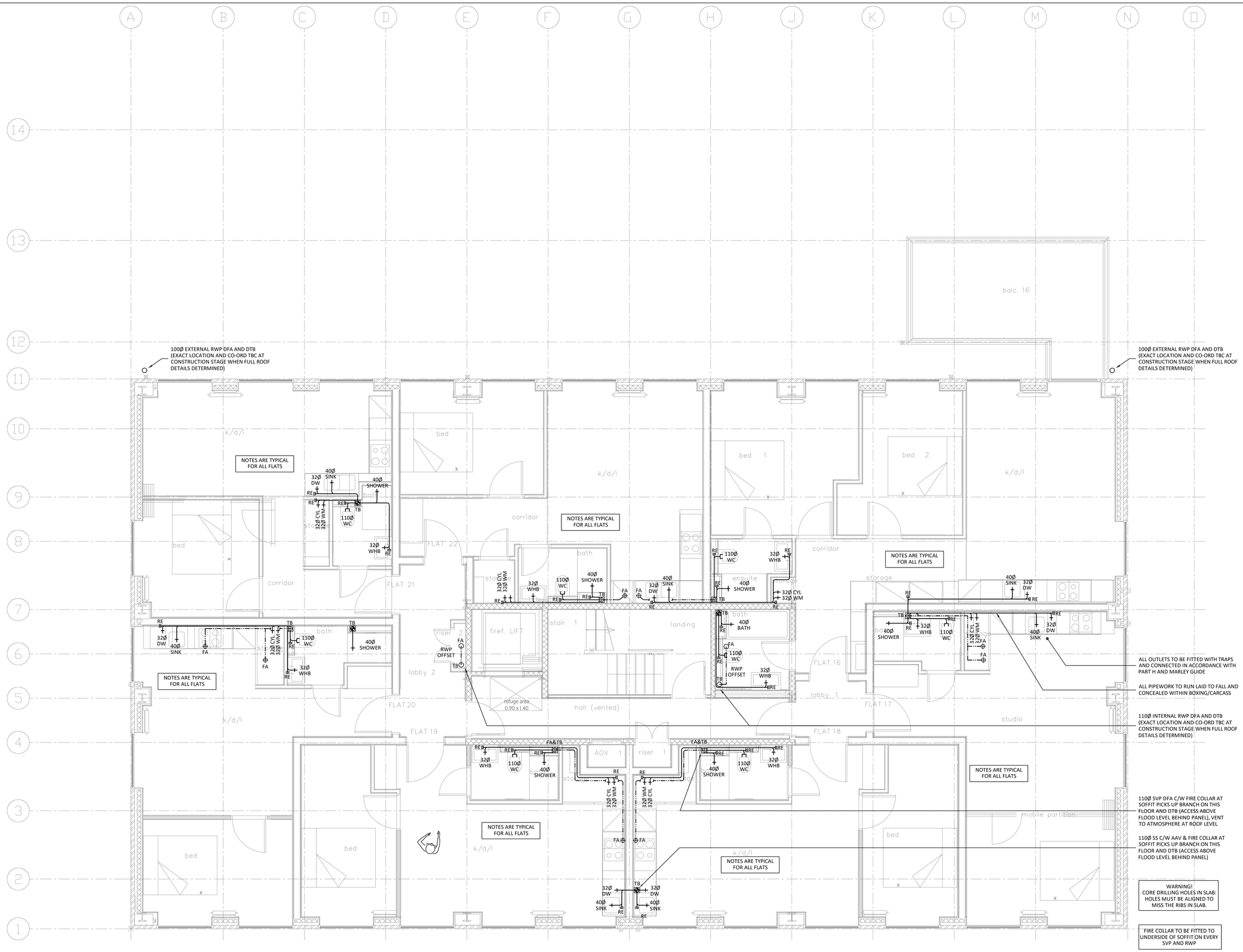
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-302	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

REFER TO SANITARY WARE SCHEDULE FOR TYPES

MINIMUM TRAP SIZES AND DEPTHS SHALL BE AS FOLLOWS:-

A) WHB - 32Ømm TRAP -75mm SEAL.
B) SINKS - 40Ømm TRAP - 75mm SEAL.
C) WC PAN - 100Ømm TRAP 50mm SEAL.
D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Above Grd Drainage
3rd Floor

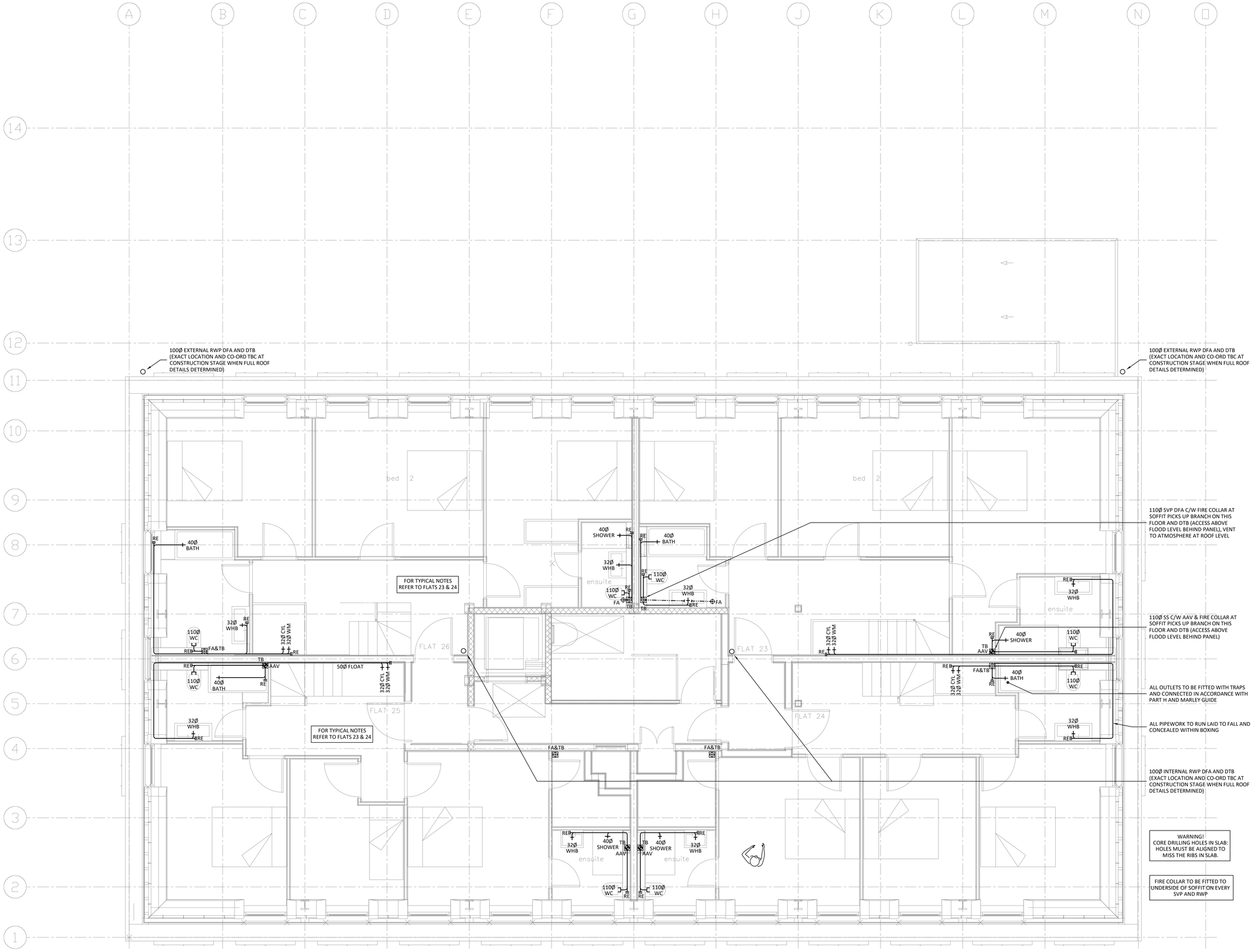
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-303	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

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C) WC PAN - 100Ømm TRAP 50mm SEAL.
D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
Above Grd Drainage
4th Floor

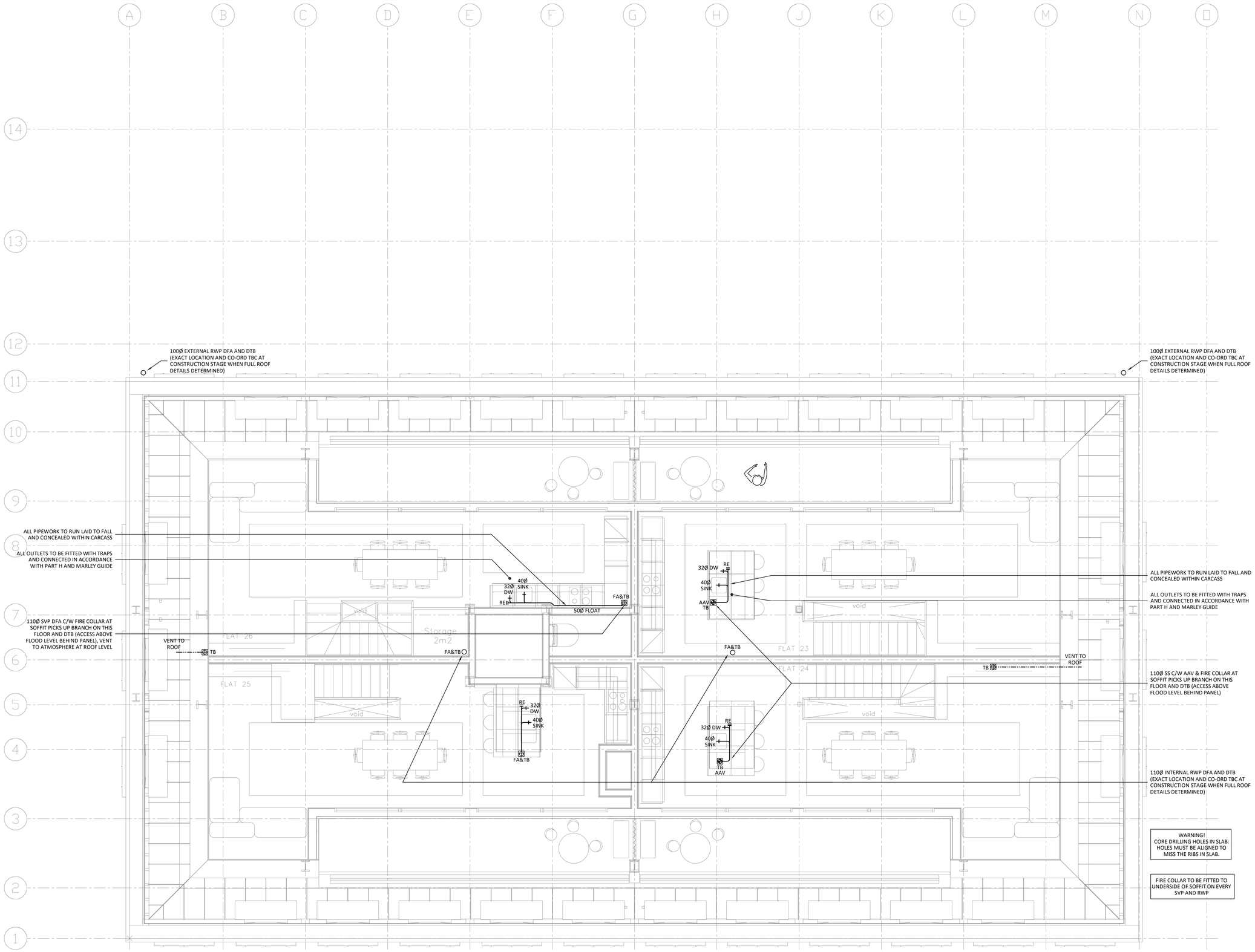
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-304	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



WARNING!
CORE DRILLING HOLES IN SLAB: HOLES MUST BE ALIGNED TO MISS THE RIBS IN SLAB.

FIRE COLLAR TO BE FITTED TO UNDERSIDE OF SOFFIT ON EVERY SVP AND RWP

LEGEND

FC ○	FIRE COLLAR VERTICAL
FC ▬	FIRE COLLAR HORIZONAL
⊕	SVP TO DRAIN
⊕	FOUL WATER STACK
AAV ⊕	C/W AIR ADMITTANCE VALVE
FA & TB	PIPEWORK FROM ABOVE & TO BELOW
FA	PIPEWORK FROM ABOVE
TB	PIPEWORK TO BELOW
TD	PIPEWORK TO DRAIN
R/E	RODDING EYE
ACC	ACCESS HATCH
IF	INTO FLOOR
⊕	SHOWER GULLEY C/W TRAP SEAL TYPE TBC ON SANITARY WARE SCHEDULE
▦	FLOOR GULLEY C/W TRAP SEAL

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID

BELOW GROUND OR IN FLOOR

IN SPACE (POSSIBLY BOXED IN)

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D) URINAL STALL - 40Ømm TRAP 50mm SEAL.
E) SHOWER - 40mmØ TRAP - 40mm SEAL

SURFACE WATER DRAINAGE BY OTHERS, TBC ON SITE

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227 SBR Ltd

Project:
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London W6 7AS

Title:
Above Grd Drainage
5th Floor

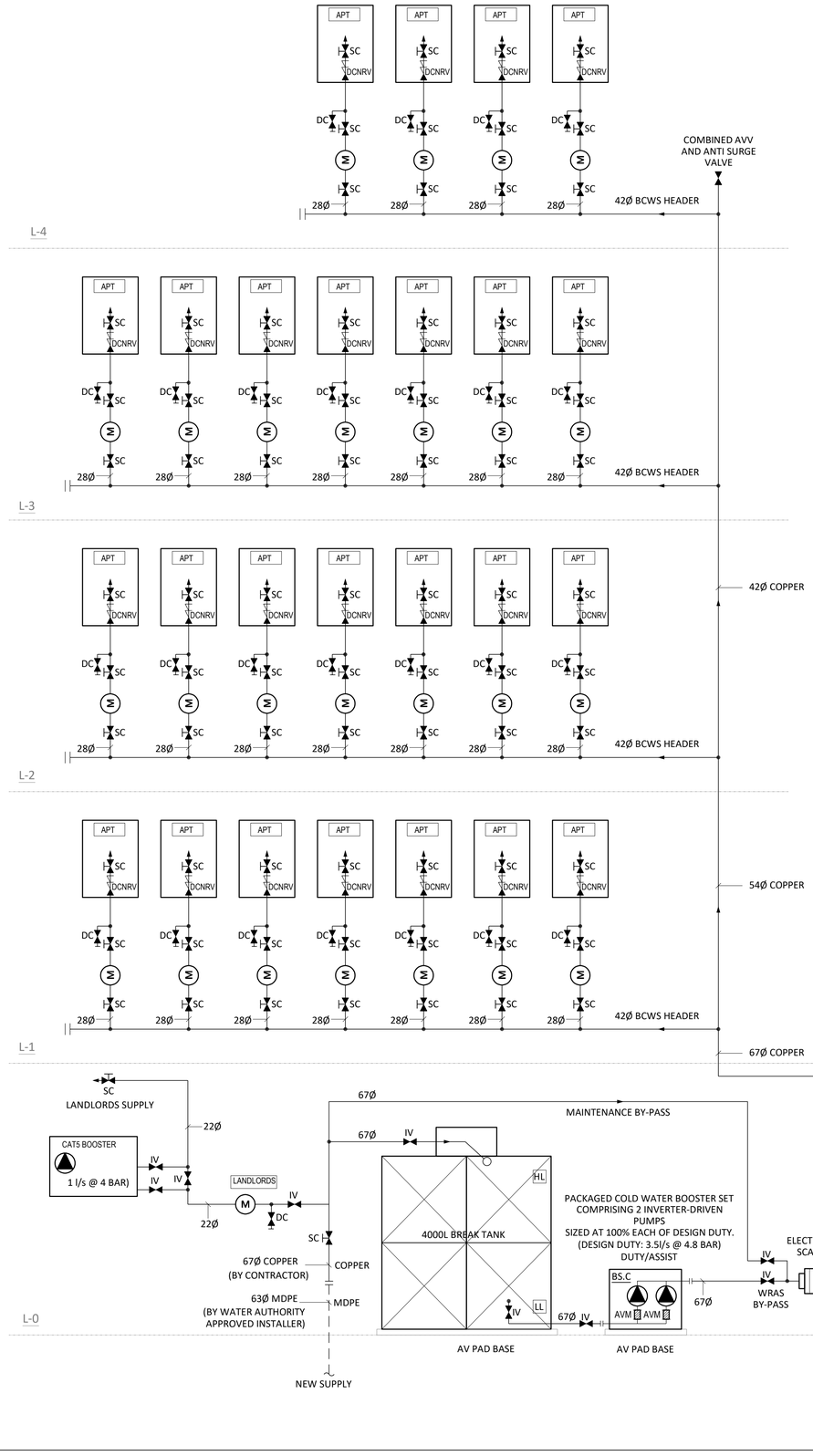
Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

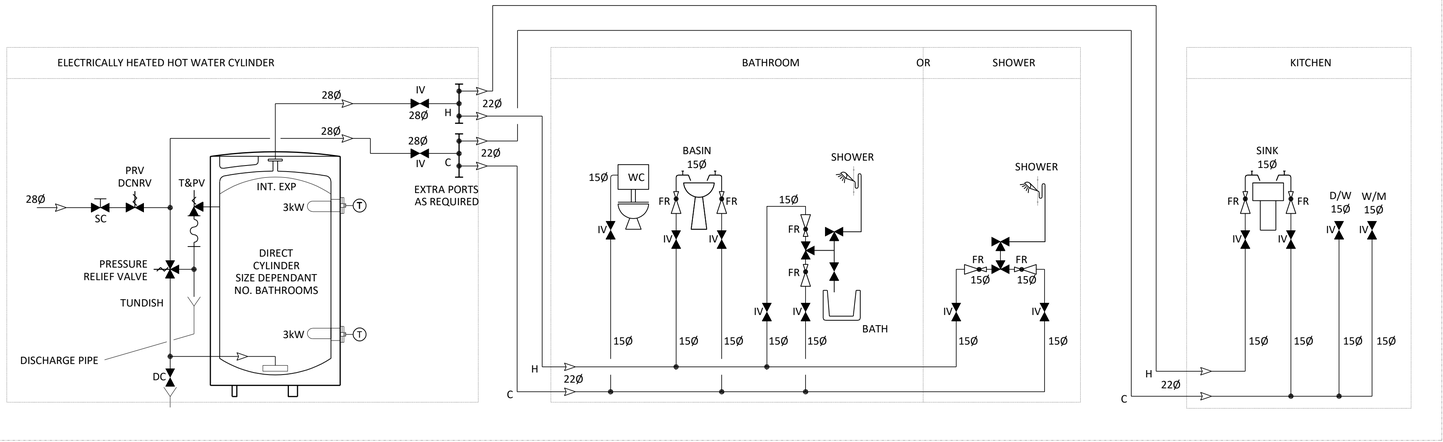
Xref:
xref SHE-DRAFT GA revF14 28.1.2026

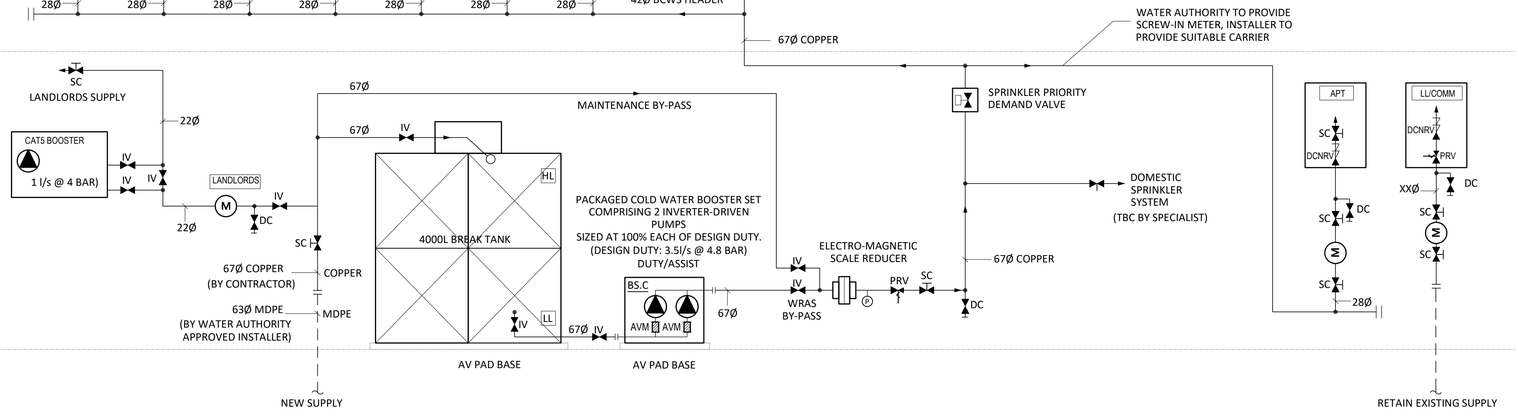
Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-PH-305	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue







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Project:
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London W6 7AS

Title:
MEPH Services
BCWS Schematic

Date:	Drawn:	Checked:	Scale @ A1:
01.06.25	JSO	JSO	NTS

Xref:
N/A

Drawing Status:
Tender Issue

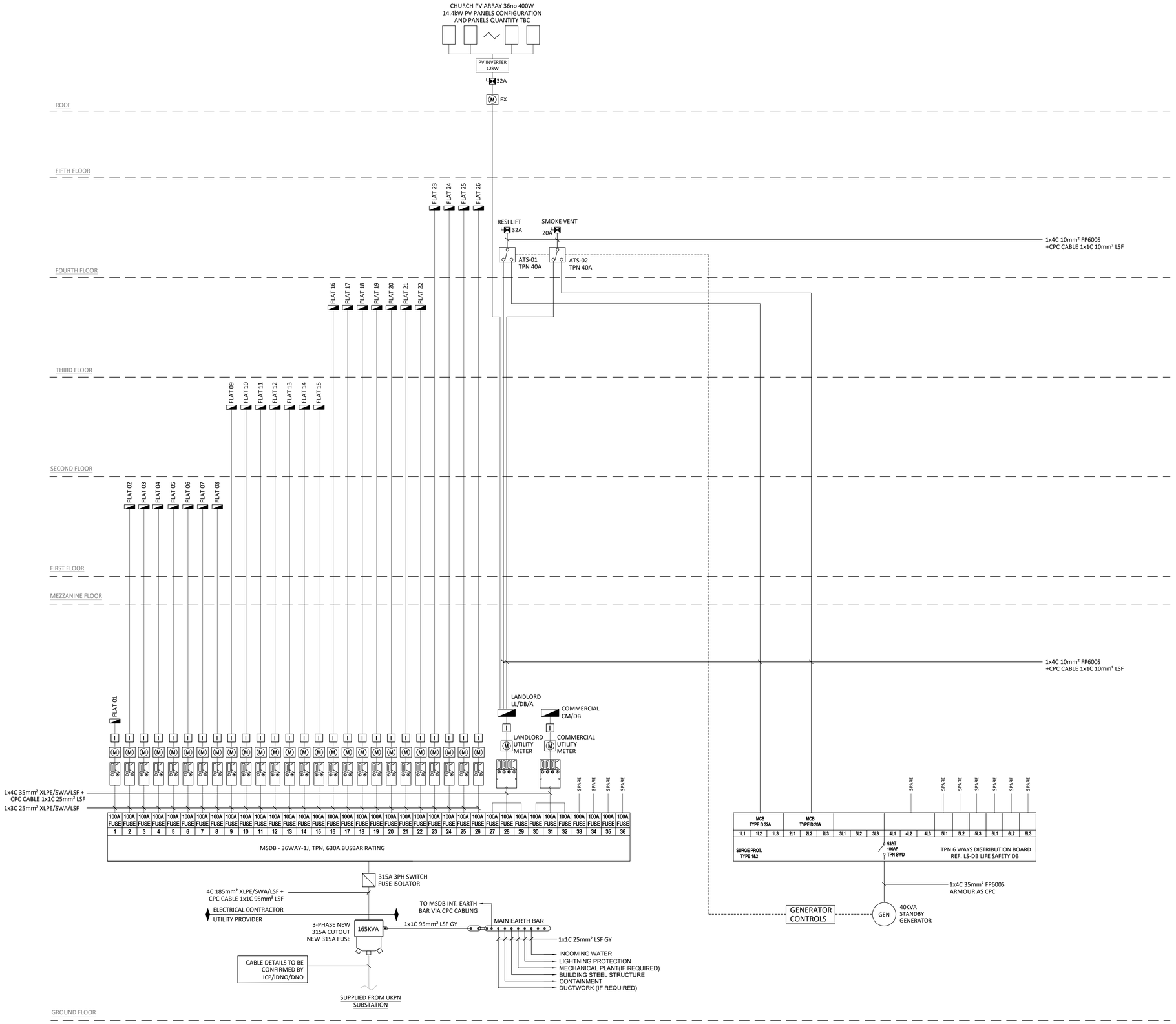
Drawing Number:	Rev:
P1208-IF-500	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

FINAL CABLE SIZES AND ROUTES TO BE CONFIRMED ON SITE BY ELECTRICAL CONTRACTOR

LEGEND

GEN	GENERATOR
	DISTRIBUTION BOARD
	SPLIT METERED DISTRIBUTION BOARD
	MAIN SWITCHBOARD / PANEL BOARD
	FUSE
	FUSE SWITCH
	LV BRANCH JOINT
	AUTOMATIC TRANSFER SWITCH
M	UTILITY METER
M	MID APPROVED CHECK METER
	SP&N ISOLATOR (RATED FOR EQUIPMENT SERVED)
	TP&N ISOLATOR (RATED FOR EQUIPMENT SERVED)
	SP&N 100A SERVICE HEAD CUTOUT
	TP&N 100A SERVICE HEAD CUTOUT
SPD	SURGE PROTECTION
	XLPE/SWA/LSF ARMOURED CABLE + CPC CABLE LSF
	FP600s FIRE RATED ARMOURED CABLE



MAIN ELECTRICAL DISTRIBUTION SCHEMATIC

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Services
Electrical LV Schematic 1 of 2

Date:	Drawn:	Checked:	Scale @ A1:
30.06.25	AS	JSO	nts

Xref:
NA

Drawing Status:
Tender Issue

Drawing Number: P1208-IF-502

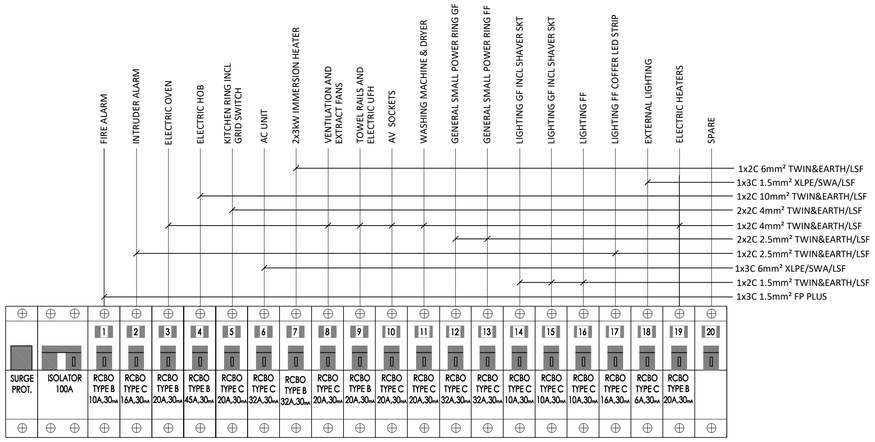
Rev: T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

FINAL CABLE SIZES AND ROUTES TO BE CONFIRMED ON SITE BY ELECTRICAL CONTRACTOR

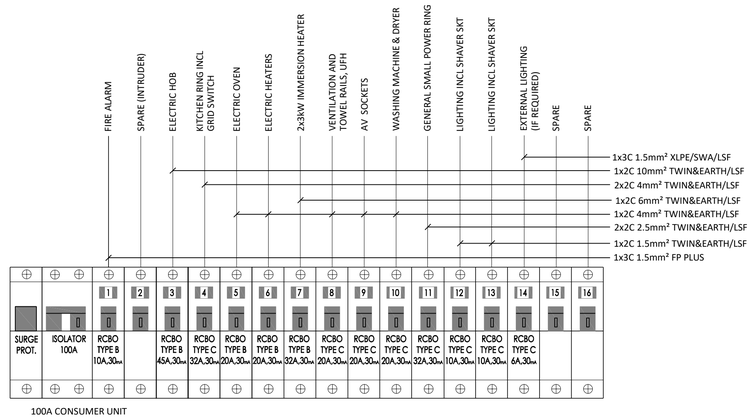
LEGEND

GEN	GENERATOR
	DISTRIBUTION BOARD
SPN MPN	SPLIT METERED DISTRIBUTION BOARD
	MAIN SWITCHBOARD / PANEL BOARD
	FUSE
	FUSE SWITCH
	LV BRANCH JOINT
	AUTOMATIC TRANSFER SWITCH
M	UTILITY METER
M	MID APPROVED CHECK METER
	SP&N ISOLATOR (RATED FOR EQUIPMENT SERVED)
	TP&N ISOLATOR (RATED FOR EQUIPMENT SERVED)
	SP&N 100A SERVICE HEAD CUTOUT
	TP&N 100A SERVICE HEAD CUTOUT
SPD	SURGE PROTECTION
	XLPE/SWA/LSF ARMOURED CABLE + CPC CABLE LSF
	FP600s FIRE RATED ARMOURED CABLE



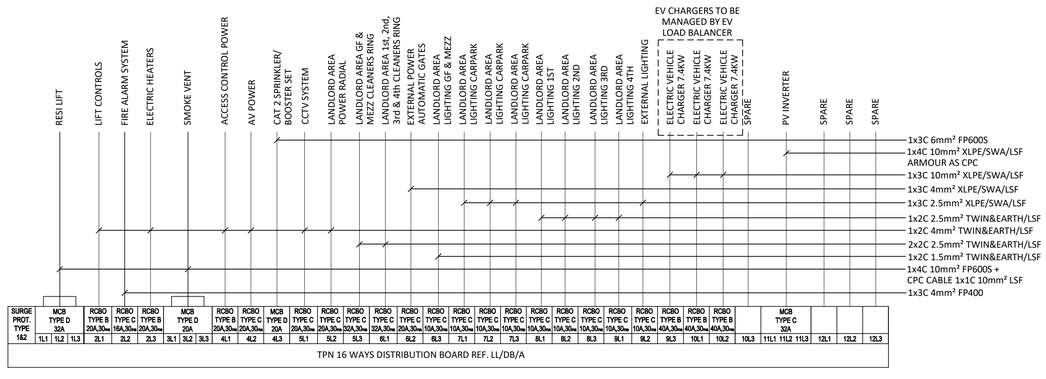
100A CONSUMER UNIT

CONSUMER UNIT 3 BED - PENTHOUSE APARTMENTS



100A CONSUMER UNIT

CONSUMER UNIT 1 & 2 BED APARTMENTS



LANDLORD DISTRIBUTION BOARD

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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Services
Electrical LV Schematic 2 of 2
DBs & CUs

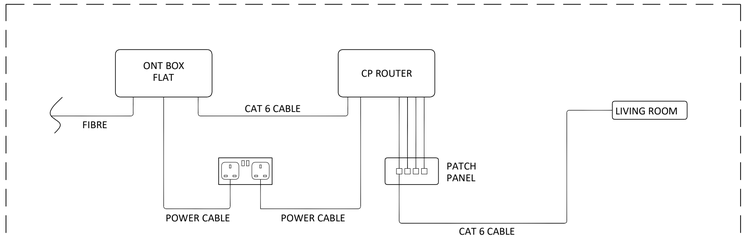
Date:	Drawn:	Checked:	Scale @ A1:
30.06.25	AS	JSO	nts

Xref:
NA

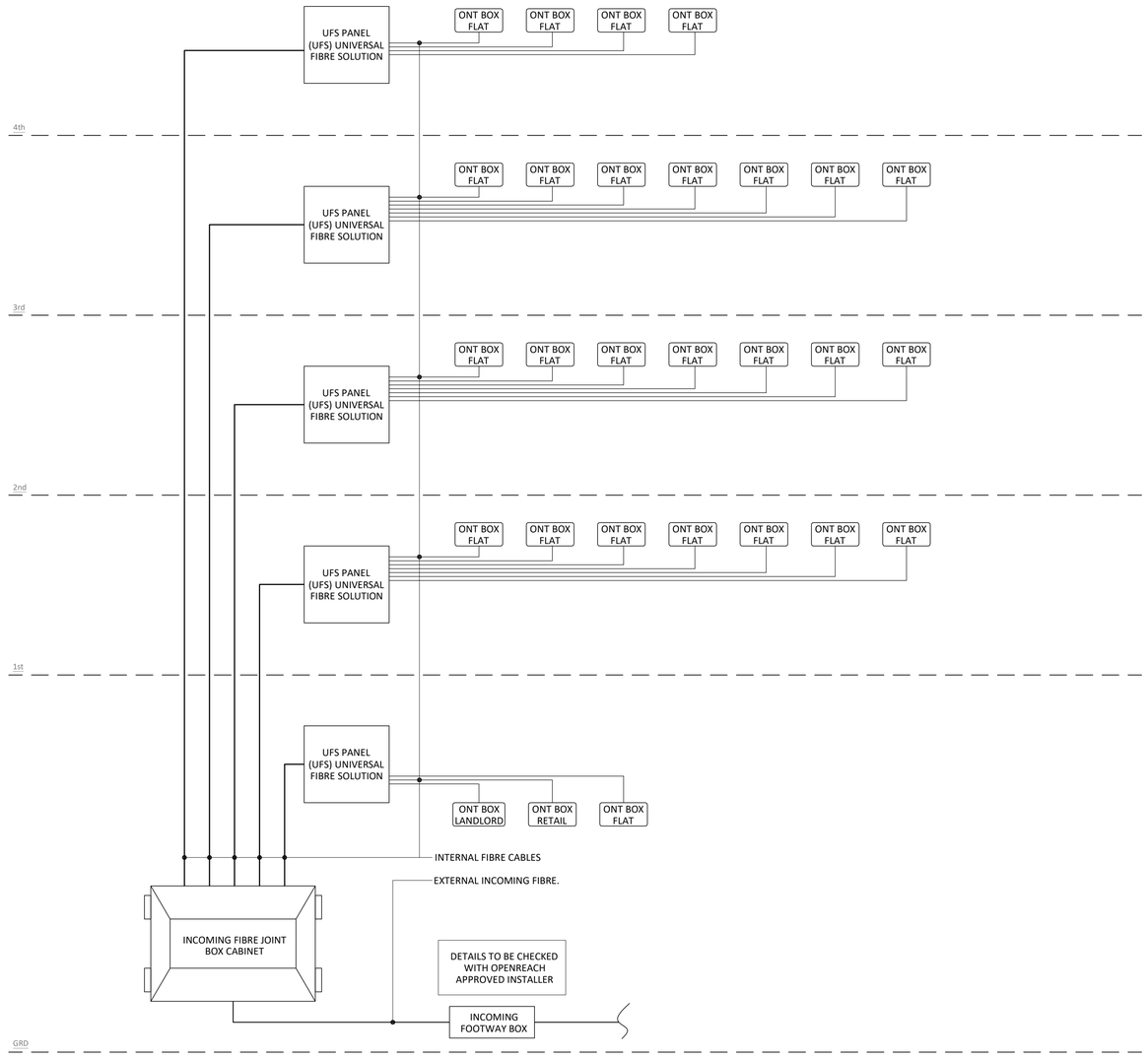
Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-IF-503	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



FLAT INTERNAL COMMS SCHEMATIC



DATA SCHEMATIC

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Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Services
Data Schematic

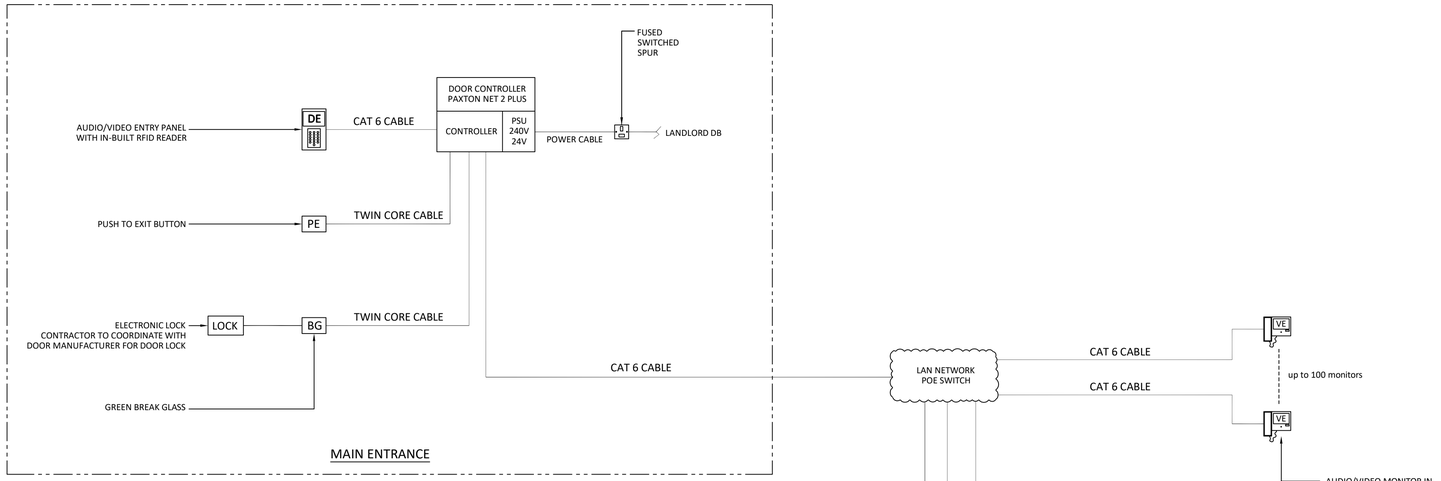
Date:	Drawn:	Checked:	Scale @ A1:
30.06.25	AS	JSO	NTS

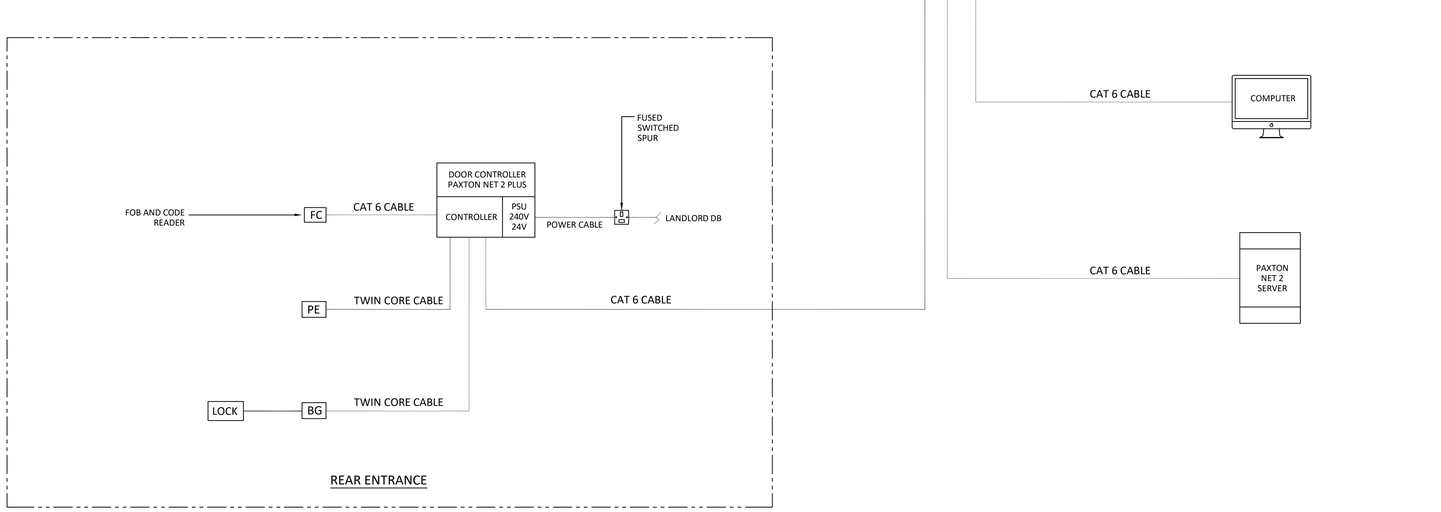
Xref:
na

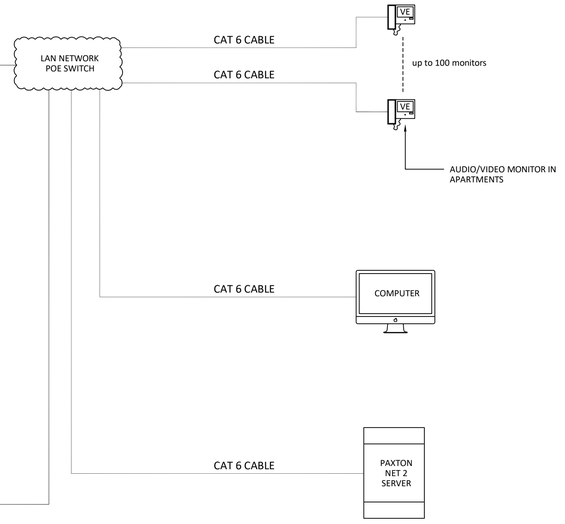
Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-IF-504	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue







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227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Services
Access Control Schematic

Date:	Drawn:	Checked:	Scale @ A1:
30.06.25	AS	JSO	NTS

Xref:
na

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-IF-505	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue

PUBLIC HEALTH NOTES:

1) THE DISCHARGE STACK SYSTEM IS TO COMPLY WITH THE BS COP 5572 SANITARY PIPEWORK RECOMMENDATIONS FOR DESIGN & WORKMANSHIP, TO MEET THE REQUIREMENTS OF APPROVED DOCUMENT H OF THE BUILDING REGULATIONS.

2) THE LENGTH OF THE BRANCH DRAINAGE DISCHARGE PIPES ARE TO BE KEPT WITHIN THE DEFINED LIMITS AS DICTATED WITHIN THE BUILDING REGULATIONS. WHERE EXCEEDING THESE BRANCH VENTILATION PIPES OR, WHERE APPROVED ANTI SIPHON TRAPS, ARE TO BE UTILISED.

3) WHERE PIPES PASS THROUGH FIRE COMPARTMENT WALLS OR FLOORS INTUMESCENT FIRE COLLARS OR WRAPPING SHALL BE PROVIDED IN ACCORDANCE WITH THE BUILDING CONTROL OFFICER'S REQUIREMENTS.

4) ACCESS DOORS WILL BE PROVIDED ABOVE FLOOD LEVEL (1500mm AFFL) TO ALL STACKS. RODDING EYES ARE TO BE PROVIDED TO ALLOW ADEQUATE MAINTENANCE OF THE ENTIRE SYSTEM & SHALL MEET BUT NOT BE LIMITED TO THE REQUIREMENTS OF THE APPROVED DOCUMENT.

5) SOIL STACKS WITHIN THE BUILDING SHALL BE UPVC TO BS4514. WASTE PIPES SHALL BE UPVC TO BS5572 WITH SOLVENT WELD FITTINGS TO BS 5255 SVP RUNNING EXTERNALLY SHALL BE CAST IRON.

6) SOIL STACKS LOCATED IN ALL ROOMS ARE TO BE INSULATED TO PREVENT EXCESSIVE NOISE BREAKOUT.

7) ALL SYSTEMS TO BE PROVIDED WITH ADEQUATE PROVISION FOR THERMAL EXPANSION BY USE OF SLIP COUPLING ANCHOR BRACKETS.

8) THE MECHANICAL FOREMAN SHALL BE RESPONSIBLE FOR CARRYING OUT BOTH AIR AND WATER TESTING TO THE REQUIREMENTS OF THE CONTRACTS MANAGER AND BUILDING CONTROL OFFICER.

9) CYLINDER DISCHARGE CONNECTIONS SHALL BE MADE WHEREVER POSSIBLE TO THE NEAREST SVP. WHERE THIS IS NOT POSSIBLE, THEY SHOULD CONNECT TO A CONDENSATE STACK, OR A PURPOSE-BUILT DISCHARGE STACK SHALL BE PROVIDED.

10) ALL CYLINDER DISCHARGE CONNECTIONS SHALL BE PROVIDED WITH HEPWORTH HEPvO VALVES TO PREVENT INGRESS OF ODOURS.

11) CONDENSATE DRAIN CONNECTIONS SHOULD BE MADE WHEREVER POSSIBLE TO THE NEAREST SVP, VIA A HEPvO VALVE. WHERE THIS IS NOT POSSIBLE, A PURPOSE-BUILT CONDENSATE DRAIN STACK SHALL BE PROVIDED AS SHOWN ON THE DRAWINGS.

12) ALL PIPEWORK PASSING THROUGH STRUCTURAL ELEMENTS SHALL BE PROVIDED WITH A SLEEVE OF THE SAME MATERIAL - FIRE STOPPED IN ACCORDANCE WITH BUILDING CONTROL REQUIREMENTS.

13) WHERE STUB STACKS ARE INDICATED, THE LOWEST LEVEL OF SANITARY FITTINGS ARE TO CONNECT TO THIS RATHER THAN THE MAIN DISCHARGE STACK.

14) ALL PIPEWORK OFFSETS ARE TO RUN WITH THE FOLLOWING MINIMUM FALLS:
FOUL DRAINAGE - 1:60
RAINWATER - 1:80

15) OFFSETS TO BE REVIEWED AGAINST STRUCTURE ON SITE.

16) THE INSTALLATION CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING INVERT LEVELS AND PIPE LENGTH, RAISING ANY DESCEPANCIES WITH THE ENGINEER.

THE CONTRACTOR SHALL NOTE THE FOLLOWING:-

- DISTRIBUTION BOARD - 1200mm AFFL
- SOCKETS & SWITCHES - 450-1200mm AFFL
- SOCKET OUTLETS TO BE AT LEAST 300mm AWAY FROM ANY INTERNAL CORNER, SINKS & HOBS
- KITCHEN SOCKET OUTLETS TO BE 150mm ABOVE WORKTOPS
- DOOR ENTRY PANEL 1400mm AFFL

DOMESTIC SERVICES NOTES:

1) DOMESTIC PIPEWORK SHALL BE INSTALLED IN TABLE 'X' COPPER TUBE TO BS2871 PART 1 UTILIZING CAPILLARY OR COMPRESSION FITTINGS TO BS EN 1254 1&2.

2) LEAD FREE SOLDER AND ACID FREE FLUXES MUST BE UTILIZED ON ALL SYSTEMS.
2) PIPEWORK TO BE INSULATED IN ACCORDANCE WITH BS5422, BS EN ISO 12241 AND CURRENT WATER BY-LAWS.

3) EACH ITEM OF SANITARYWARE IS TO BE PROVIDED WITH BALLOFIX TYPE ISOLATING VALVES FOR MAINTENANCE AND FLOW RESTRICTORS SET TO THE FLOWRATES IN ACCORDANCE WITH PART G REQUIREMENTS.

4) ALL SYSTEMS ARE TO BE PROVIDED SUFFICIENT ISOLATION, DRAIN AND AIR VENT VALVES TO FACILITATE EASE OF MAINTENANCE.

5) THE CONTRACTOR IS TO DETERMINE THE INCOMING WATER PRESSURE TO EACH INDIVIDUAL PROPERTY. IF LOW PRESSURES ARE FOUND; ie. 1.5 BAR AND LESS THE CLIENT SHOULD BE ADVISED IMMEDIATELY. AN ADJUSTABLE PRESSURE REDUCING VALVE (RANGE 0.5- 5 Bar) IS TO BE INSTALLED ON THE INCOMING MAINS SUPPLY.

6) ALL BATH'S SHOULD HAVE THERMOSTATICALLY CONTROLLED WATER SUPPLY LIMITED TO A SAFE TEMPERATURE OF 46°C.

7) PLASTIC PIPEWORK SHALL NOT BE CONNECTED DIRECT TO HOT WATER GENERATORS. A MINIMUM OF 1000mm COPPER PIPEWORK FOR THE PURPOSES OF HEAT DISSIPATION SHALL BE INSTALLED ON ANY CONNECTION.

8) THE INSTALLATION SHALL BE TESTED AT COMPLETION OF FIRST AND SECOND FIX. FIRST FIX TEST WILL BE AS 30 MINS AT 10 BAR FURTHER 30 MINS AT TWICE NORMAL OPERATING PRESSURE. SECOND FIX TEST SHALL BE CARRIED OUT FOR 1 HOUR AT THE MAXIMUM PRESSURE ON WEAKEST ITEM OF EQUIPMENT. ALL PRESSURE TESTS ARE TO WITNESSED AND SIGNED OFF BY SITE MANAGER, CERTIFICATES ARE TO BE PRODUCED AND INCLUDED WITHIN THE HOME OWNERS MANUAL.

9) ALL SYSTEMS ARE TO BE COMMISSIONED ON COMPLETION IN ACCORDANCE WITH THE REQUIREMENTS OF BUILDING REGULATIONS & THE MANUFACTURERS REQUIREMENTS. ALL ITEMS OF EQUIPMENT ARE TO BE PROVIDED WITH A CERTIFICATE PROVIDED BY THE MANUFACTURER OR COMMISSIONING ENGINEER. THE CLIENT RESERVES THE RIGHT TO WITNESS ANY COMMISSIONING PROCESS AND REQUEST RE-TESTS.

10) ON COMPLETION ALL SYSTEMS SHALL BE FLUSHED WITH CLEAN WATER, ENSURING ALL FILTERS, STRAINERS AND BRASSWARE IS FREE FROM DELETERIOUS MATERIALS.

11) THE PIPEWORK INSTALLATION SHALL BE FULLY PRESSURE TESTED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

VENTILATION NOTES:

1) ALL DUCTWORK SHALL BE RIGID INSULATED DUCT IN GALVANISED STEEL OR UPVC.

2) WHERE FLEXIBLE DUCTING IS USED TO CONNECT TO EQUIPMENT THE EXTENT SHALL BE KEPT TO A MINIMUM i.e. NOT EXCEEDING 300mm.

3) DUCTWORK INSULATION IN UNHEATED AREA'S TO BE 25mm THICK WITH THERMAL CONDUCTIVITY OF 0.04W/m²K OR EQUIVALENT.

4) DUCTWORK ROUTES ARE TO BE RUN WITH THE MINIMAL OF BEND'S WHICH SHALL HAVE A MINIMUM RADIUS EQUIVALENT OF THE DIAMETER OF THE DUCT.

5) ALL JOINT'S IN DUCTWORK ARE TO BE SEALED WITH APPROPRIATE TAPE OF SEALING COMPOUND/ADHESIVE.

6) ALL DUCTWORK WHICH PASSES THROUGH A FIRE WALL IS TO BE PROVIDED WITH AN APPROPRIATELY RATED FIRE DAMPER/COLLAR.

7) ON COMPLETION ALL SYSTEMS ARE TO BE COMMISSIONED BY AN APPROPRIATELY TRAINED OPERATOR. A FULL COMMISSIONING SHEET TO BE PROVIDED FOR EACH UNIT INDICATING MEASURED FLOW RATES TO EACH OUTLET FOR BOTH BOOST AND TRICKLE OPERATION.

8) UNLESS OTHERWISE STATED EXTRACT FANS SHALL BE CONTINUOUS TRICKLE WITH BOOST OPERATED BY LIGHT SWITCH C/W RUN ON TIMER. FLOW RATES SHOWN ION DRAWING TO BE USED.

9) EXTERNAL TERMINALS SHALL BE FINISHED TO ARCHITECTS DETAIL.

10) FAN INSTALLATIONS ARE TO COMPLY WITH APPROVED DOCUMENT F. FANS SHALL BE CONTROLLED BY LIGHT SWITCH OR BY PURPOSE-MADE CONTROLLERS.

11) ELECTRICAL LOADS SHALL BE CONFIRMED BY THE INSTALLER AND GIVEN TO THE ELECTRICAL CONTRACTOR.

12) ALL FANS TO BE PROVIDED WITH APPROPRIATE ANTI-VIBRATION MOUNTINGS AND FLEXIBLE DUCTWORK INLET/OUTLET CONNECTIONS.

13) VENTILATION EQUIPMENT LOCATIONS SHALL BE COORDINATED WITH OTHER SERVICES ON SITE BY THE MECHANICAL CONTRACTOR.

MAINS COLD WATER/BCW NOTES:

1) MCW RISING MAINS SHALL BE INSTALLED IN TABLE 'X' COPPER TUBE TO BS2871 PART 1 UTILIZING CAPILLARY OR COMPRESSION FITTINGS TO BS EN 1254 1&2.

2) LEAD FREE SOLDER AND ACID FREE FLUXES MUST BE UTILIZED ON ALL SYSTEMS.

3) WHERE DIRECTED, SOCKET UNIONS SHOULD BE UTILIZED ON PIPES UP TO 63mm DIAMETER TO ENABLE DISCONNECTION AT A LATER DATE. ON PIPEWORK OF DIAMETER EXCEEDING 63mm, FLANGED JOINTS SHALL BE USED.

4) ALL PIPEWORK SYSTEMS SHALL BE FLUSHED WITH MAINS COLD WATER ON COMPLETION OF INSTALLATION.

5) CHLORINATION SHALL BE CARRIED OUT TO BS67001 AT A MAXIMUM DILUTION OF 50PPM.

6) THE CONTRACTOR SHOULD ENSURE THAT ALL TUBE, FITTINGS ETC. CARRY THE MANUFACTURER'S NAME AND ARE OF IDENTICAL SPECIFICATION.

7) THE PIPEWORK INSTALLATION SHALL BE FULLY PRESSURE TESTED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

8) ALL PRESSURE REDUCING VALVES ARE TO BE ADJUSTABLE WITH GAUGE AND MAXIMUM WORKING PRESSURE NOT LESS THAN 16 BAR.

9) ALL PIPEWORK IS TO BE RUN LINEAR TO THE BUILDING FABRIC IN ACCORDANCE WITH NHBC REQUIREMENTS C/W WITH EXPANSION LOOPS AS REQUIRED.

10) ALL PIPEWORK TO BE INSULATED IN ACCORDANCE WITH BS5422, BS EN ISO 12241, BS6700 AND CURRENT WATER BY-LAWS.

11) ALL PIPEWORK PASSING THROUGH WALLS IS TO BE PROVIDED WITH SLEEVES AND APPROPRIATELY RATED FIRE STOPPING.

12) ALL PIPEWORK INSULATION TO BE CFC FREE AND SHALL BE IN FULL ACCORDANCE WITH BS5422:2009.

13) METERS ARE TO BE INSTALLED IN ACCORDANCE WITH WATER BOARD'S REQUIREMENTS.

14) THE CONTRACTOR IS TO DETERMINE THE INCOMING WATER PRESSURE TO EACH INDIVIDUAL PROPERTY. IF LOW PRESSURES ARE FOUND; ie. 1.5 BAR AND LESS, THE CLIENT SHOULD BE ADVISED IMMEDIATELY. AN ADJUSTABLE PRESSURE REDUCING VALVE (RANGE 0.5-5 BAR) IS TO BE INSTALLED ON THE INCOMING MAINS SUPPLY.

UNDER FLOOR HEATING NOTES:

1) PRIOR TO THE INSTALLATION OF THE UNDER FLOOR HEATING THE BUILDING MUST BE WATERTIGHT AND AREAS ARE TO BE SWEPT AND CLEAR OF MATERIALS AND OTHER TRADES.

2) DISTRIBUTION MANIFOLDS SHALL BE MOUNTED WITH A MINIMUM OF 300MM FROM FINISHED FLOOR AND 100MM CLEAR TO ALLOW CONNECTIONS TO BE MADE.

3) SCHEMATIC INFORMATION SHOWN IS DIAGRAMMATIC ONLY AND THE CONTRACTOR IS TO ADAPT TO SUIT THE UNDERFLOOR HEATING SYSTEM FINAL DETAILS.

4) UNDERFLOOR HEATING SHALL NOT BE RUN UNDER TOILETS, FLOOR MOUNTED BASINS OR BUILT IN FURNITURE I.E. WARDROBES KITCHEN UNITS OR ISLANDS.

5) ANY PIPEWORK, CONDUITS OR TRUNKING INDICATED AS BEING RUN IN FLOOR MAKE UP IS TO RUN WITHIN THE INSULATION LAYER. LOCATION OF ANY FLOOR BOXES ARE TO BE COORDINATED WITH THE ELECTRICAL CONTRACTOR.

6) IT IS RECOMMENDED THAT THE CLIENT SEEKS WRITTEN CONFIRMATION FROM THE MANUFACTURER THAT FLOOR COVERS ARE SUITABLE FOR USE WITH UNDER FLOOR HEATING SYSTEMS AND THAT ANY SPECIFIC EXPANSION JOINTS ARE PROVIDED AS REQUIRED. IF ANY TEMPERATURE RESTRICTIONS ARE IMPOSED THESE SHOULD BE REPORTED TO THE CONSULTANT AT THE EARLIEST OPPORTUNITY.

7) ON COMPLETION THE UNDERFLOOR HEATING PIPEWORK IS TO BE FLUSHED AND PRESSURE TESTED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND LEFT FILLED TO ENABLE THE EASY IDENTIFICATION OF ANY DAMAGE OR LEAKAGE DURING THE INSTALLATION OF COVERING LAYERS.

8) THE UNDERFLOOR HEATING MANUFACTURER IS TO ATTEND SITE TO MEASURE ALL AREAS TO CHECK DIMENSIONS BEFORE PROVIDING DETAILS CIRCUIT DRAWINGS FOR USE BY THE CONTRACTOR FOR THE PURPOSES OF INSTALLATION.

9) THE SYSTEM IS TO BE CONTROLLED BY THE USE OF DISCREET DIGI STATS IN EACH ZONE LINKED TO A CENTRAL WIFI HUB FOR SMART DEVICE CONTROL. THE UNDERFLOOR HEATING CONTROL SYSTEM SHALL BE LINKED TO THE ASHP CONTROLLER WHICH IN TURN WILL ALLOW RUNNING OF THE LTHW CIRCULATION PUMP.

10) THE UNDERFLOOR HEATING SPECIALIST IS TO PROVIDE FULL SCHEDULE OF FLOW RATES AND PRESSURE DROPS TO ENABLE THE SUITABLE SELECTION OF THE MAIN HEATING PUMP. EACH MANIFOLD IS TO BE FITTED WITH A COMMISSIONING SET AND THIS DESIGN FLOW RATE MEASURED ACCORDINGLY.

11) THE UNDERFLOOR HEATING PIPEWORK IS TO BE POLYBUTYLENE BARRIER PIPE IN ACCORDANCE WITH BS EN ISO 21003 AND RUN IN CONTINUOUS LENGTHS ONLY.

12) ALL HEATING SERVICES LTHW PIPEWORK IS TO BE INSTALLED IN TABLE 'X' COPPER TUBE TO BS2871 PART 1 UTILIZING CAPILLARY OR COMPRESSION FITTINGS TO BS EN 1254 1&2.

13) ALL HTG PIPEWORK SHALL BE INSULATED IN ACCORDANCE WITH BS5422, BS EN ISO 12241, TIMSA AND CURRENT WATER BY-LAWS.

14) ALL SYSTEMS ARE TO BE PROVIDED SUFFICIENT ISOLATION, DRAIN AND AIR VENT VALVES TO FACILITATE EASE OF MAINTENANCE.

15) ALL SYSTEMS SHALL BE COMMISSIONED & TESTED BEFORE HANDOVER.

ELECTRICAL HEATING NOTES:

1) THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF ALL NECESSARY EQUIPMENT, CONTROLS AND ANCILLARIES TO ALLOW THE PANEL HEATERS AND TOWEL RAILS TO OPERATE IN ACCORDANCE WITH THE DOMESTIC COMPLIANCE GUIDE.

2) THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL ELECTRICAL CONNECTIONS, SET UP & TEST THE HEATING SYSTEM

3) CONTROLLERS ARE TO BE INSTALLED IN SUITABLE LOCATIONS AND INDICATED ON THE DESIGN DRAWINGS. FINAL OPERATING SETTING ARE TO CONFIGURE IN ACCORDANCE WITH THE CLIENTS REQUIREMENTS PRIOR TO OCCUPANCY.

4) THE CONTRACTOR TO BE RESPONSIBLE FOR ON SITE COORDINATION WITH OTHER INSTALLATION TRADES, LIAISING WITH ELECTRICIAN REFERENCE POWER SUPPLY & CONTROLS WIRING AND NOTIFYING DEVELOPER OF ACCESS REQUIREMENTS.

5) THE ELECTRICAL CONTRACTOR SHALL SEEK WRITTEN APPROVAL FOR THE PROPOSED PANEL HEATER INSTALLATION LOCATIONS BEFORE COMMENCING ANY INSTALLATION WORKS.

DRY RISER NOTES:

1) DRY RISER INSTALLATION IS TO BE IN ACCORDANCE WITH BS 9990

2) ABOVE GROUND PIPEWORK SHALL BE INSTALLED IN GALVANISED HEAVY DUTY GRADE STEEL, TO BS EN 1387 AND BS EN 10241. PIPEWORK SHOULD BE JOINTED BY SCREWS AND SOCKETS OR BY SUITABLY PRESSURE RATED FLANGES TO BS EN 1092 & BS EN 1515.

3) SUITABLE PRESSURE RATED FLANGE JOINTS TO BS EN 1092 AND BS EN 1515 ARE TO BE INSTALLED AT REGULAR INTERVALS ALONG THE RISER. THEY MUST ALSO BE FITTED ON EITHER SIDE OF ANY ITEM OF EQUIPMENT REQUIRING MAINTENANCE OR POSSIBLE REMOVAL. ALL CHANGES IN DIRECTION ARE TO UTILISE SWEPT TEES AND BENDS. THE USE OF ELBOWS WILL NOT BE ALLOWED.

4) INLET BREECHING PIECES SHALL BE IN ACCORDANCE WITH BS 5041-3 WITHIN AN INLET BOX CONFORMING TO BS 5041-5. THE BOX IS TO HAVE LOWER EDGE MOUNTED BETWEEN 400 & 600mm ABOVE GROUND LEVEL.

5) LANDING VALVES FROM DRY RISER MAIN SHOULD CONFORM TO BS 5041-2. ALL LANDING VALVES SHALL BE INSTALLED WITH THEIR LOWEST POINT 750mm ABOVE FFL. A TEST VALVE SHALL BE LOCATED ON THE ROOF OF THE BUILDING AND SHALL BE ENCLOSED WITHIN A WEATHERPROOF, INSULATED HOUSING.

6) DRY RISER INLET CABINETS SHOULD BE OF STAINLESS STEEL CONSTRUCTION AND FINISH. LANDING CABINETS SHALL BE RED POLYESTER COAT FINISH.

7) THE CONTRACTOR IS TO ENSURE THAT ADEQUATE SUPPORTS/ FIXING AND ANCHOR POINTS ARE INSTALLED IN THE SYSTEM.

8) THE INSTALLATION IS TO BE EARTHED IN ACCORDANCE WITH BS 7430.

9) COMMISSIONING AND TESTING OF THE INSTALLATION SHOULD BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENT AS DETAILED IN BS 9990.

10) ALL OFFSETS SHALL BE SET TO FALL BACK TOWARDS THE DRY RISER INLET AND THERE SHALL BE NO OFFSETS IN HEIGHT WHICH MIGHT PREVENT THE DRY RISER BEING FULLY DRAINED.

DX SYSTEM NOTES:

1) ALL REFRIGERANT PIPEWORK SHALL BE CARRIED OUT IN REFRIGERANT QUALITY SOFT/MEDIUM DRAWN COPPER TUBING TO BS EN 1057 : 1996, SUITABLE FOR THE REFRIGERANT AND OIL USED, BS EN 378 : 2000 AND THE WHOLE INSTALLATION SHALL BE IN ACCORDANCE WITH BS EN 378 P 2000, INSTITUTION OF REFRIGERATION CODES OF PRACTICE, SECTION 'O' OF THE HVAC GUIDE TO GOOD PRACTICE.

2) COPPER TO COPPER JOINTS SHALL BE BRAZED AND COPPER TO BRASS JOINTS SHALL BE SILVER SOLDERED, SOFT SOLDER SHALL NOT BE USED UNDER ANY CIRCUMSTANCES.

3) DX PIPEWORK SHALL BE SUPPORTED THROUGHOUT ITS ENTIRE LENGTH USING PROPRIETARY BRACKETS AND HANGERS, OR A SUITABLE TRAY SYSTEM.

4) INSTALLATION SHALL UTILISE R32 REFRIGERANT.

5) THE MECHANICAL SERVICES CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF ALL NECESSARY THERMAL INSULATION, IN ACCORDANCE WITH BS 5422 AND BS 5970, UTILISING THE SERVICES OF A SPECIALIST SUB-CONTRACTOR TO CARRY OUT THE WORKS AS INDICATED IN THE SPECIFICATION.

6) NO INSULATION MATERIAL CONTAINING CFC OR HCFC COMPONENTS SHALL BE ACCEPTABLE.

7) CONTROLLERS ARE TO BE INSTALLED IN EACH ROOM SERVED VIA AN FCU. FINAL OPERATING SETTING ARE TO CONFIGURE IN ACCORDANCE WITH THE CLIENTS REQUIREMENTS PRIOR TO OCCUPANCY.

8) AIR CONDITIONING INSTALLER TO PROVIDE AND INSTALL ALL NECESSARY CONDENSATE DRAINAGE PIPEWORK AND EQUIPMENT (INC PUMPS IF REQUIRED). DETAILS SHALL BE SUBMITTED FOR APPROVAL BEFORE INSTALLATION.

9) THE INSTALLER SHALL SUPPLY AND INSTALL ALL DX PIPEWORK AND ENSURE THAT LENGTHS ARE TO BE KEPT WITHIN LIMITS DEFINED BY THE AIR CONDITIONING UNIT MANUFACTURER.

10) THE SYSTEM SHALL BE SET UP TO PREVENT FIGHTING BETWEEN HEATING AND COOLING AND TO PROVIDE HEAT RECOVERY VIA VRV BS BOXES

11) FCU's TO BE DUCTED USING ACOUSTICALLY LINED FLEXIBLE DUCTWORK EUROFLEX OR EQUIVALENT, IN SIZES TO ALLOW ADEQUATE AIR FLOW (250Ø MIN INTERNAL DIA).

12) FCU & DIFFUSER PLENUM BOXES TO BE ACOUSTICALLY LINED AND PROVIDED C/W SUITABLE SPIGOTS. PLENUM BOXES TO BE SIZED BY CONTRACTOR BASED ON SITE CONSTRAINTS.

ABBREVIATIONS:

H/L - HIGH LEVEL
L/L - LOW LEVEL
DTB - DROP TO BELOW
DFA - DROP FROM ABOVE
RFB - RISE FROM BELOW
RTA - RISE TO ABOVE
BG - BELOW GROUND
FCU - FAN COIL UNIT
HR - HEAT RECOVERY UNIT
TR - TOWEL RAIL
EV - EXTRACT VALVE
SG - SUPPLY GRILLE
WL - WEATHER LOUVRE
ASHP - AIR SOURCE HEAT PUMP
MSV - MECHANICAL SMOKE VENT
SVP - SOIL & VENT PIPE
SS - STUB STACK
RE - RODDING EYE
TR - TOWEL RAIL
CYL - CYLINDER
WHB - WASH HAND BASIN
BCWS - BOOSTED COLD WATER SUPPLY

LAYOUT LINE TYPES:

H/L OR IN CEILING VOID
BELOW GROUND OR IN FLOOR
IN SPACE (POSSIBLY BOXED IN)

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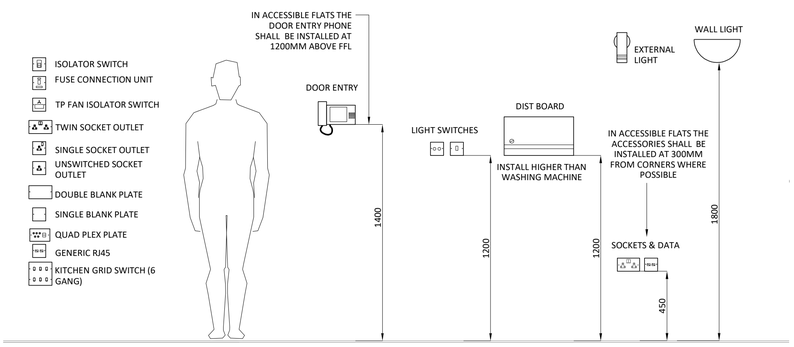
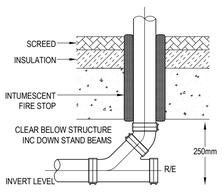
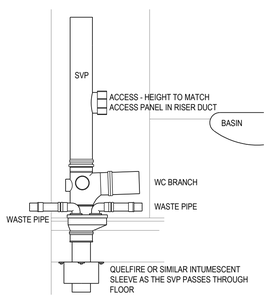


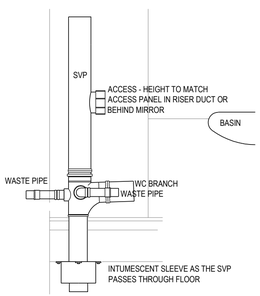
TYPICAL APARTMENT ELECTRICAL ACCESSORIES SETTING OUT



TYPICAL SVP THROUGH FLOOR SLAB

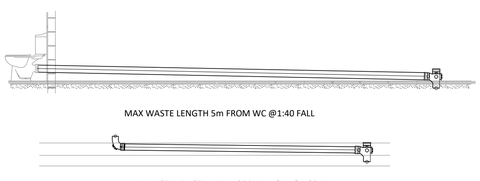


TYPICAL MANIFOLD ARRANGEMENT



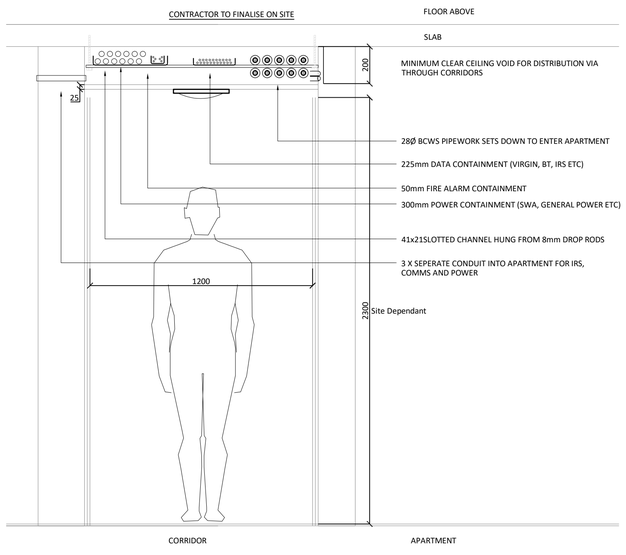
TYPICAL BOSS ARRANGEMENT

TYPICAL SVP MANIFOLD ARRANGEMENT

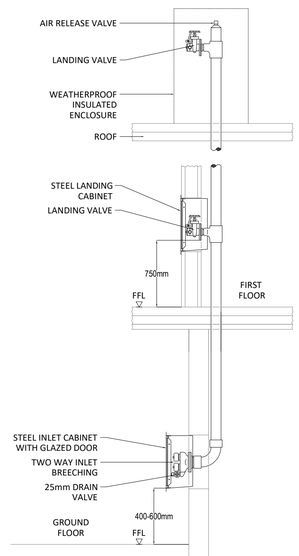


MAX SVP OFFSET LENGTHS

TYPICAL CORRIDOR DISTRIBUTION SECTION



TYPICAL DRY RISER SECTION



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99 Wey Hill, Haslemere, Surrey, GU27 1HT
Email Us - info@oakleymed.co.uk
Visit Us - www.oakleymed.co.uk
Call Us - 01403 785426

Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Services
Misc Details

Date:	Drawn:	Checked:	Scale @ A1:
01.06.25	JSO	JSO	Various

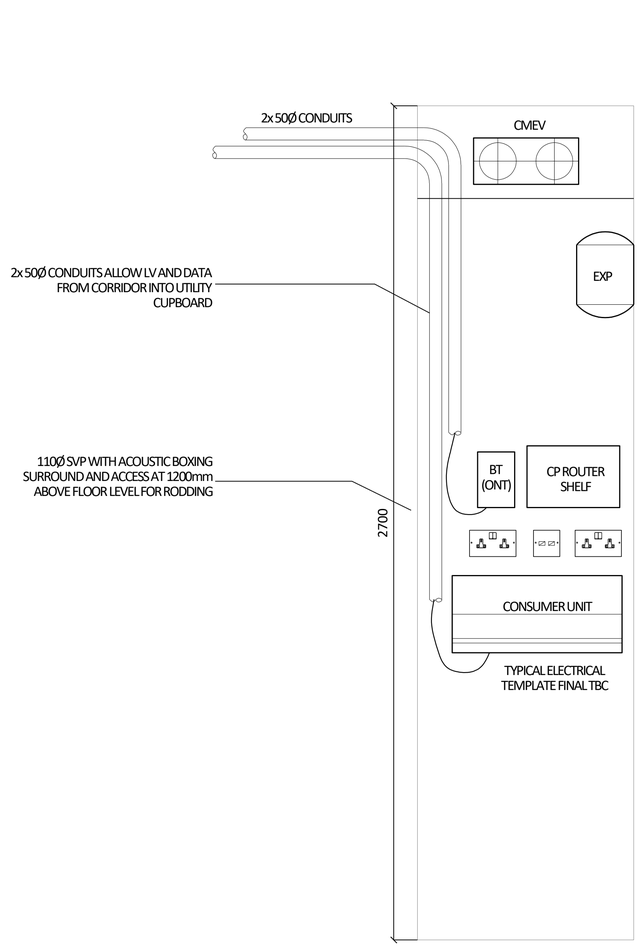
Xref:
NA

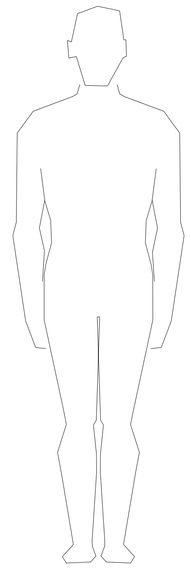
Drawing Status:
Tender Issue

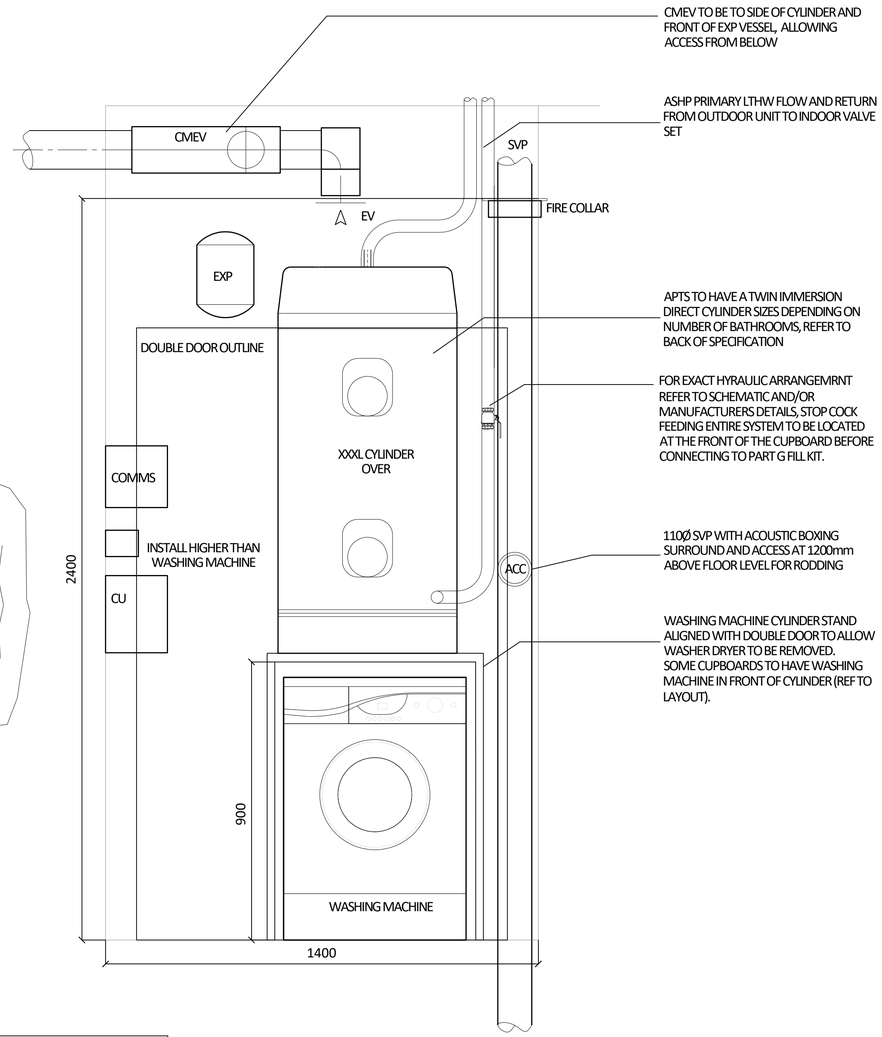
Drawing Number: P1208-ME-600

Rev: T1

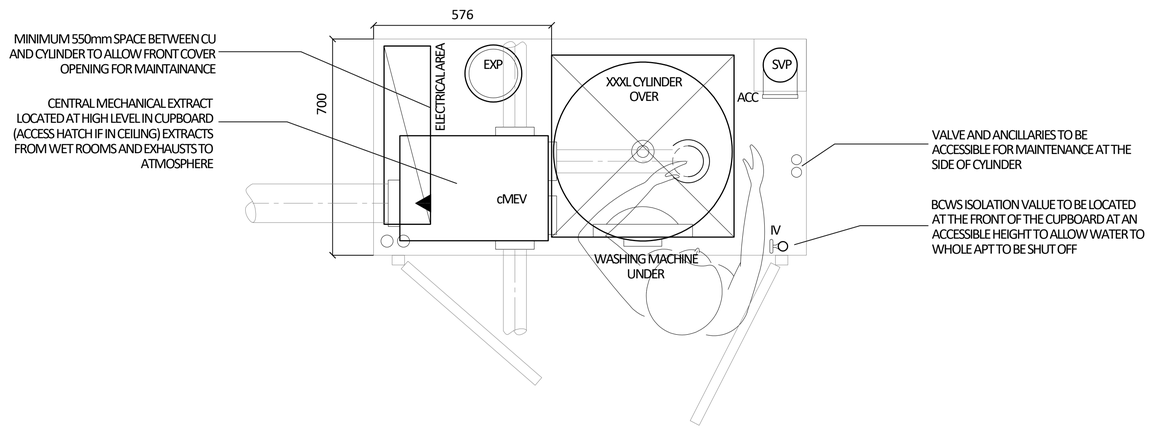
Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue







EACH INDIVIDUAL PART SHOWN ON THIS DRAWING CAN BE ARRANGED IN DIFFERENT ORDER DEPENDING ON THE CUPBOARD LAYOUT, REFER TO CO-ORDINATED FLOOR PLANS FOR RECOMMENDED LAYOUT, ALL EQUIPMENT TO BE PROVIDED WITH SUITABLE ACCESS



SERVICE CUPBOARD NOTES

- ELECTRICAL EQUIPMENT GENERALLY TO BE INSTALLED AS SAME SIDE AS STACK, AS CLOSE TO FRONT AS POSSIBLE TO IMPROVE ACCESS.

-ALL EQUIPMENT TO BE OPENABLE AND MAINTAINABLE

- PIPEWORK TO BE INSULATED AND SEPERATED FROM MAIN ELECTRICAL ITEMS

- TRAILING LEADS MUST BE FIXED INTO SURFACE CONDUIT WHERE THEY CAN NOT BE RECESSED

- STOP COCK TO BE ACCESSABLE AND LABELLED, ALL SWITCHES AND VALVE S TO BE ACCESSABLE

- POSITION OF VENT ABOVE TO BE ACCESSABLE FOR REMOVAL OF FILTER AND GENERAL MAINTAINANCE

- WASHING MACHINE TO BE ALIGNED WITH DOOR

- ACCESS ON SVP TO BE ORIENTED TO FACE CLEAR PATH TO DOOR

- INSTALLATION SEQUENCE TO BE CAREFULLY CONSIDERED

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99 Wey Hill, Haslemere, Surrey, GU27 1HT
Email Us - info@oakleymed.co.uk
Visit Us - www.oakleymed.co.uk
Call Us - 01403 785426

Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Services
Typical Apt Utility Cupboards
Equipment Details

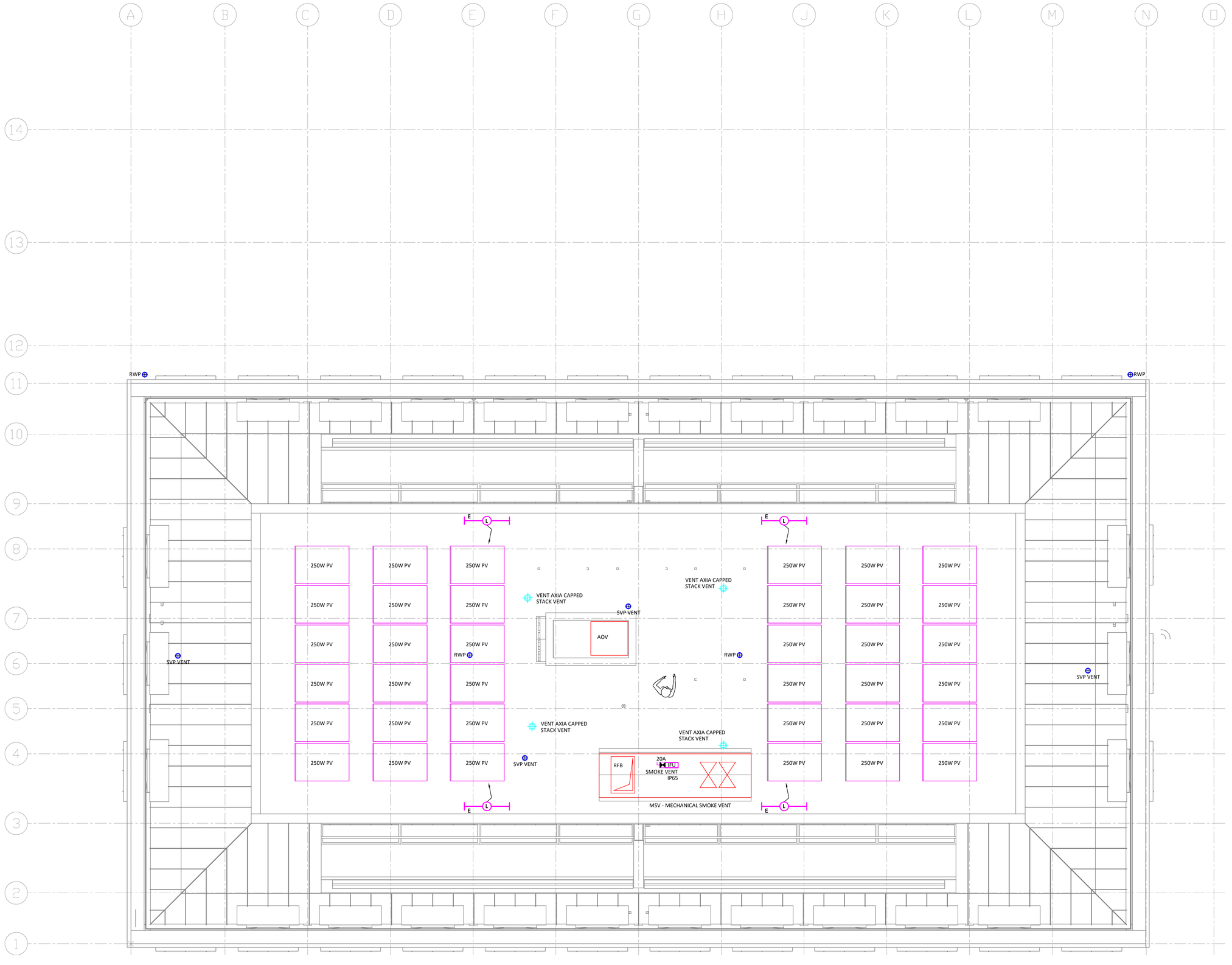
Date:	Drawn:	Checked:	Scale @ A1:
01.06.25	JSO	JSO	1:10

Xref:
NA

Drawing Status:
Tender Issue

Drawing Number:	Rev:
P1208-ME-601	T1

Rev	Date	By	Description
T1	19.02.26	JSO	Tender Issue



SMOKE VENT
ELECTRICAL
FOUL DRAINAGE
VENTILATION

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Client:
227 SBR Ltd

Project:
227 Shepherds Bush Road
London W6 7AS

Title:
MEPH Co-ordination
Roof Level

Date:	Drawn:	Checked:	Scale @ A1:
11.11.25	JSO	JSO	1:50

Xref:
xref SHE-DRAFT GA revF14 28.1.2026

Drawing Status:
Tender Issue

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P1208-M-115	T1

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Particulars Specification

for the

MEPH Services Installation

at

227 Shepherds Bush Road

Oakley M&E Design Ltd
99 Wey Hill
Haslemere
Surrey
GU27 1HT
E: info@oakleymed.co.uk

T1 - Feb 2026

Rev	Description	Date	Issued By
T1	Tender Issue	Feb 2026	JSO

CONTENTS

1 DESCRIPTION OF WORKS

Contents

1.1 Scope of Works

1.1.1. PROJECT DESCRIPTION

This project is for the supply, installation and setting to work of the new MEPH systems for the conversion and roof extension of an existing commercial building into 26no Apartments including landlords carpark and communal areas, plus infrastructure refurbishment of a retained commercial space on the ground floor.

The primary focus for the MEPH services installations should be to provide a new, modern, robust, energy efficient building services installation, that is accessible to maintain and provides the required functionality, whilst meeting the energy and regulatory requirements.

The entire works shall comply with the requirements of this specification, all applicable standards and industry good practice.

1.1.2. CONTRACT DUTIES

The MEPH Services contract is for the supply, installation and setting to work of a complete and fully functioning installation which is integrated and interfaced with the building and the other systems present.

The contract includes but is not limited to: -

- Supply of all management, administration, engineering skills, supervision and labour.
- Investigation of existing systems where required.
- Final design of the CDP MEP services installations, including issue of design drawings (where required).
- Development of working drawings if/where required.
- Issuing samples of all equipment for approval.
- Co-ordination and integration with the building and other systems.
- Functional interfaces between the electrical installation and building systems.
- Supply, installation and support of all plant, equipment, materials, fixtures and fittings.
- Procurement of specified elements with inherent design to performance criteria laid down in this specification.
- Testing and commissioning.
- Provision of risk assessments, method statements and all health & safety documentation required.
- Demonstration of the systems and the provision of user training.
- Provision of detailed ‘as installed’ information, operation and maintenance manuals for property owners
- Repair of defects and faults in the systems or equipment during the 12 month defects period.

The entire works shall comply with the requirements of this specification, all applicable standards and accepted industry good practice.

1.1.3. OUTLINE OF KEY SYSTEMS

The MEPH scope of works should comprise, but not be limited to the following systems:-

External Services

- Incoming utility supplies
- Dry riser inlet
- Lightning protection system
- External bib taps
- External lighting and controls
- Electric vehicle charging and controls
- Data systems
- Access control systems
- New HVAC external equipment
- Roof mounted PV array (if required)
- AOV and associated smoke ventilation

Mechanical Services Systems

- Mains water, boosted cold water supply, Cat 5 boosters, water treatment
- Hot water generation and supply system (inc all controls and ancill)
- Penthouse AC heating and cooling systems (inc all controls and ancill)
- Ventilation Systems (inc all ductwork and ancill)
- Dry riser installation
- Fire suppression / sprinkler system

Electrical Services Systems

- Incoming electrical supply and metering
- Low voltage distribution system
- Earthing and Bonding (inc lightning and surge protection)
- Wiring Systems
- Small power (inc power to mechanical systems)
- Lighting (internal and external)
- Voice/Data
- Access control and intruder Alarm System
- Electrical panel and/or storage heaters
- Fire / smoke alarm / AOV system
- Electric Vehicle Charging System

Plumbing Services Systems

- Installation of sanitary ware
- Above ground drainage
- Rain water disposal (inc rain water harvesting)
- Drainage of mechanical systems (condensate)

1.1.4. EXISTING SERVICES

Before tendering the contractor is required to fully familiarise themselves with the existing services, including the route and condition of all existing services, those to be stripped out and those services to be retained.

1.1.5. PHASING STRATEGY

To be developed with the main contractor and employers agent.

1.1.6. RESPONSIBILITY MATRIX

This schedule identifies the main areas relating to the Engineering Services works but is not an exhaustible list and does not relieve the contractor of any responsibilities stated or implied within the tender documents.

Item	Activity	OME	Contractor
1.1	Provide a drawing schedule	Yes	Yes
1.2	Provide sketch drawings.	Yes	Yes
1.3	Provide schematic drawings.	Yes	Yes
1.4	Provide layout drawings.	Yes	Yes
1.5	Provide co-ordinated ceiling layout drawings.	Yes	Yes
1.6	Provide tender documentation.	Yes	
1.7	Provide contract documentation.	Yes	
1.8	Provide builders work documentation	Yes	Yes
1.9	Provide setting-out information.		Yes
1.10	Provide co-ordination drawings.	Yes	Yes
1.11	Provide installation/working drawings.		Yes
1.12	Provide installation wiring diagrams.		Yes
1.13	Provide progress drawings (mark-up on site)		Yes
1.14	Ensure preparation of specialist drawings.		Yes
1.15	Ensure preparation of shop / fabrication drawings.		Yes
1.16	Ensure preparation of manufacturer’s drawings.		Yes
1.17	Provide record documentation.		Yes
1.18	Ensure preparation of commissioning specification.	Yes	Yes
1.19	Ensure preparation of the O&M manuals.		Yes

1.2 Tender Information

All work must be in compliance with the specification and drawings.

In preparing the tender the sub-contractor shall include the requirements of the MEPH Specification, survey findings and the Employers Requirements.

No extra costs will be accepted for any works or materials required by either this specification or tender drawings.

Unless stated to the contrary in Section One of the MEPH Specification, all of the requirements of the MEPH Specification must be adhered to.

1.2.1 TENDER DOCUMENTS

Oakley M&E Design Ltd have produced the following documentation for the Mechanical & Electrical building services:

- MEPH Services Particulars Specification
- MEPH Design Drawings
- Design Risk Assessment

The final equipment selection and coordinated shall be the responsibility of the contractor. The contractor shall prepare a contractor's proposals document as a part of their tender submission to make their intentions clear.

1.2.2 BASIS OF TENDER

The Contractor is required to prepare his tender in accordance with the ERs.

1.2.3 PREFERRED SPECIALIST AND SUB-CONTRACTORS

Where the MEPH engineering installation tender documentation specifies preferred specialist sub-contractors, these works must be undertaken by or supplied by 'preferred' sub-contractors.

1.2.4 QUALITY ASSURANCE

The use of Quality Assured Contractors and Suppliers is preferred. Products and materials should have Product Conformity Certification (e.g. BSI Kitemark, BFI Safety Mark or CARES Scheme) or Product Approval (e.g. British Board of Agreement Certificate).

1.3 Particulars Specification

1.3.1 GENERAL

This performance specification outlines the general performance parameters and standards that the MEPH services installation for this project shall be set up to.

The Contractor must satisfy themselves that the design intent applied will fully meet the performance criteria and the Employers Requirements.

Deviation from the design shall be to the full satisfaction of the Client and Employer's Agent.

The contractor shall submit technical submissions, if necessary shop drawings and where necessary calculations to the Client and Employer's Agent for comment/approval a minimum of six weeks prior to the commencement of the installations. The contractor shall allow a minimum two week drawing comment/approval period. The contractor shall proceed at risk if written consent in not received from the employers agent.

1.3.2 SCOPE OF WORKS

The MEPH services installation includes the coordination, supply of all labour, supervision, transportation, materials, supply of plant and equipment necessary to install and test a complete and functioning MEPH installation as outlined below.

It is the responsibility of the Contractor to ensure that the final design meets the requirements of building regulations and other relevant standards. Subject to approval, the contractor is at liberty to use alternative technologies and systems to provide the required services.

The MEPH scope of works should comprise, but not be limited to, the scope of works described in Section 1.1.3 of this specification and the outline.

The Contractor shall ensure the works comply with the associated standards of installation document.

The Contractor shall include in their tender for marking out and advising the main Contractor of all of the builders' work in connection with the MEPH services installation.

The Contractor shall, in addition, include for his own operatives to form any hole up to and including 50mm dia. through walls and floor slabs.

The Contractor shall also include in their tender for 'fire stopping' where services pass through fire rated elements.

1.3.3 OUTLINE DESCRIPTION OF MECHANICAL SERVICES

1.3.3.1 INCOMING MAINS COLD WATER SUPPLY

A new bulk mains water supply will be extended onto the site boundary by the Water Authority and terminated c/w stop cock. From this point the contractor shall connect and extend the incoming supply below ground in MDPE to the building and to the water intake room. The new water main shall enter the water intake room complete with a stop cock and DCNRV.

Using the same incoming main a separate Cat5 booster shall be utilised for the landlord supply.

The existing supply shall be used for a temporary building supply and then removed.

The mains water supply shall co-ordinate with other services and structure both below and above ground. It should enter the building from below ground with the appropriate long radius bend, convert to copper pipe work and be complete with a stop cock, pressure gauge and drain valve.

The above will be shown on the infrastructure and schematic drawings.

All cold water services in risers, voids, in boxing and below ground shall be insulated in accordance with the workmanship section of this specification, with anti-Legionella requirements and TIMSA.

1.3.3.2 BOOSTED COLD WATER SUPPLY

The contractor shall install a fully packaged booster set and sectional break tank in accordance with the drawing and attached schedule. This shall be complete with an electromagnetic scale reducer and mains by-pass facility.

Where required, a mini Cat5 packaged booster set shall be provided for none potable water to various outlets such as the irrigation system, external taps and the bin store wash down.

A boosted cold water supply shall be extended from the plant room to the Apartment via risers to each floor and corridor ceiling void to apartments. This service will run in appropriately sized copper & MDPE pipework, insulated and be thermally separated from any heat omitting services.

The boosted water supply shall be complete with a stop cock, double check non-return valve, pressure gauge & drain valve. Refer to the incoming services drawing, BCWS schematic and plant room drawing for more details.

A water meter will be provided for landlords use and for each apartment in the meter cupboard located with the riser on each floor. These meters shall be installed in accordance with the water authority's installation guidelines, complete with stop cocks either side of meter position, drain valve and double check non return valve. The meter arrangement shall be installed in positions as indicated on the M&E riser

drawings. The contractor shall allow for boxing the wet services in where sharing space with electrical services.

From the relevant meter position a dedicated boosted cold water supply shall run to service each Apartment. This service shall exit the meter cupboard via the corridor ceiling void in copper pipework and enter the appropriate Apartment as indicated on the drawings. Once in the Apartment the boosted cold water supply will run in a concealed manner to the hot water cylinder where a pressure reducing valve will balance both the hot and cold water supply to the apartment.

From the cylinder cupboard boosted cold water will run to fed to a manifold and split to distribute around the apartment in continuous lengths of polypipe push fit PB (or similar) pipe work in a concealed manner to service the outlets.

The contractor shall supply and install boosted cold water services to all outlets as shown on the drawings and shall be responsible for capturing on site changes in bathroom and kitchen layouts should they not be indicated on the drawings.

General Notes

All connections to outlets will be provided with ballofix valves for isolation, maintenance and flow restrictors in accordance with the Part G calculations. The water system shall be installed in accordance with the water byelaws, BS 6700: and HSE HS (G) 70.

The entire system shall be chlorinated on completion; and shall include all distribution pipework within risers, ceiling voids and the tank room. Due to the nature of the building the Contractor is to allow for chlorination to be carried out in stages to meet the construction programme if necessary.

All mains cold water and boosted water distribution pipe work shall be insulated in accordance with the requirements of TIMSA.

Any mains pipe work running externally will be insulated to prevent freezing. External taps are to be sited and piped such that the minimum amount of pipe work is exposed. Where pipe work is exposed it is to be insulated or trace heated.

The Contractor is to make himself aware of the sanitary ware and fitments to be installed and determine any specific requirements for additional backflow contamination prevention as dictated by the water byelaw regulations.

The contractor shall supply and install boosted cold water services to all outlets as shown on the drawings and shall be responsible for capturing on site changes in bathroom and kitchen layouts should they not be indicated on the drawings.

Refer to the standards section of the specification for further guidance on installation and testing criteria.

1.3.3.3 HOT WATER SUPPLY

The contractor shall supply and install hot water services to all outlets as shown on the drawings and shall be responsible for capturing on site changes in bathroom and kitchen layouts should they not be indicated on the drawings.

Per Conversion Apartment the hot water system shall consist of an unvented, direct hot water vessel, heated via twin 3kW immersion elements in accordance with the drawings and attached schedules.

General Notes

The contractor shall supply and install hot water services to all outlets as shown on the drawings and shall be responsible for capturing on site changes in bathroom and kitchen layouts should they not be indicated on the drawings.

Distribution pipe work will generally be carried out in Table 'X' Copper tube to BS2871 part 1 utilizing capillary or compression fittings to BS EN 1254 1&2. Below ground pipework will be in a preparatory pre-insulated PE-X pipework, final legs will be carried out in continuous lengths of polypipe PB (or similar) pipework and fittings, from a central manifold, via routes as indicated on the drawings.

Pipe work will be insulated in thicknesses in accordance with TIMSA with consideration given to available installation space. All items of equipment in the DHW system shall be capable of operating at the boosted pressure.

The system where indicated will be provided with a secondary circulation circuit and pump to ensure adequate temperature is provided at the outlets. The secondary circulation will be provided with a thermal balancing valve at the end of each leg, in order that the return circuit will be self-regulating.

Water heaters shall be fitted with expansion vessel, temperature and pressure relief valves, discharge pipework and interlock to prevent the flow of primary LTHW in the event of an over-temperature situation, all in accordance with approved document G3.

Within wet rooms, all outlets are to be capable of being individually isolated from the system. All baths, showers and where necessary WHBs shall be fitted with thermostatic mixing valves to TMV to prevent scalding.

The complete hot water service installation materials, workmanship and testing shall comply with the requirements of BS:8558.

The Contractor is to determine the chloride content of water on site prior to ordering equipment and shall inform both the Client and Consultant immediately, should this exceed 150mg/l.

1.3.3.4 MECHANICAL VENTILATION

Ventilation shall be provided to each apartment via Part F compliant central mechanical extract ventilation (cMEV) units (low SPF type) or decentralised mechanical extract to each wet room (dMEV). The decision on which method to use will be based on available ceiling void depth, a suitable position to fit the fan and the ability for the exhaust ducts to connect to a suitable external terminal based on external finish. These units shall be located at high level, recessed into the ceiling as detailed on the drawings. Consideration should be given to the ease of access for maintenance.

The units will extract stale air from wet rooms in locations as indicated on the drawings and exhaust via air brick external terminals.

The units shall be fitted with continuous running fans in trickle mode and an over run timed boost facility will be provided, activated by light switch in each of the wet rooms & kitchen.

Exhaust shall be ducted to vent to atmosphere through a rigid duct system comprising of proprietary fittings up to the external air terminals. The terminals will generally be finished and located to Architects requirements.

Doors internally to Apartments shall be installed with an undercut of 10mm clear to allow air movement.

Make up air will be via trickle vents located in the window frame providing opening areas as detailed in Part F.

<u>General Notes</u>

All ductwork will be fitted with insulation in accordance with TIMSA.

All ventilation system shall be acoustically treated in terms of fixings, mounts, silencers, insulation and velocities, in accordance with the Acoustic report.

All systems shall be commissioned in accordance with flow rates as set out on the drawings, schedules and to manufacturers requirements.

Ductwork must be installed in accordance with DW144.

Access will be provided via ceiling access panels to equipment, ancillaries and fire dampers located where the ductwork passes a fire barrier both vertically and horizontally.

All rooms shall be provided with openable windows for purge ventilation in accordance with Part F.

1.3.3.5 DRY RISER

Where highlighted by the fire consultant, the building shall be fitted with dry risers within the building from ground level, up the stair lobby on each floor to the roof (as

indicated on the drawings). The dry riser installations shall comply with BS9990 and fire consultant's recommendations.

Dry riser inlet breechings fitted within a glass-fronted cabinet with two-way inlet shall be installed recessed into side walls at ground floor level and runs at high level across ceiling void to serve outlet positions as indicated on the drawings. The dry riser then serves an outlet cabinet in the fire lobby on each floor (painted to Architects requirements). The cabinets will be constructed from 16swg Zintec with a powder coated polyester paint finish for corrosion protection. It will be complete a spring cylinder lock and key. The Contractor is to ensure that the lock provided meets with the local fire authority's requirements.

Each inlet breeching shall comply with BS5041: Part 3. From the inlet a 100mm galvanised steel riser will rise up the building complete with landing valves complying to BS5041: Part 2 at each level.

All inlet boxes shall comply with BS5041: Part 5. All outlet boxes shall be purpose made to comply with BS 5041.

All boxes shall be finished to Architects requirements and in keeping with the building. Inlet and outlets shall be finished to match decor.

The dry riser shall terminate at roof level with a test valve and AAV. The extent of the dry riser above roof level shall be completely enclosed within an insulated, weatherproof enclosure.

1.3.3.6 AC HEATING AND COOLING SYSTEM

Heating and cooling to the new Apartments (4no roof extension) shall be provided by dedicated, electrical powered DX air to air, air source heat pumps (ASHP), 1no. per Apt, sized in accordance with BS EN 14511. The system will be complete with a central controller (c/w WIFI capability) for full heating and cooling control.

External condensing units will be sited locally to the property on the terrace as indicated on the design drawings and in accordance with the manufacturers recommendations (inc acoustics and condensate). Liaise with employers agent reference approval of final positions.

From the external unit, insulated DX F&R pipework will run into the building and serve the split DX fan coil unit (FCU) positioned in the lower section of the coffer ceiling or other localised joinery. The FCU will extract return air from the plenumceiling void via strategically placed shadow gaps in the coffer ceoling, treat the air for heating or cooling and the supply it back to the space via ducted active supply grilles in the vertical face of the coffer ceiling.

All DXpipework shall be insulated to thicknesses in accordance with TIMSA.

1.3.3.7 FIRE SUPPRESSION / SPRINKLER SYSTEM

The contractor shall appoint a residential sprinkler specialist to design, install and commission a compliant BS9251 system to each Apartment and (if necessary) the grd floor commercial space in accordance with the Fire Consultants report and the Architects drawings. The sprinkler shall utilise the boosted cold water centrally and flow/pressure requirements must be checked against the specified booster set.

Where there is minimal ceiling void for sprinkler pipework distribution and heads, a horizontal side wall c/w bulkhead could be applied.

A connection shall be provided in the plantroom from which a control valve at the bottom of each riser (linked to the communal fire alarm panel) will operate the sprinkler system.

A priority demand valve can be used in order to keep the booster break tank to a sensible size in accordance with the available space.

This is a CDP item and details shall be submitted for approval before installation. Consideration shall be given to co-ordination with other services and concealment of pipework and heads. The main contractor shall allow for all management and builders work as well as allow due time within the programme.

1.3.4 OUTLINE DESCRIPTION OF ELECTRICAL SERVICES

1.3.4.1 INCOMING ELECTRICAL SUPPLY & METERING

The electrical earthing system utilised for the installation shall be TN-C-S or shall in accordance with earthing supply arrangement provided by the DNO.

The electrical installation is designed in accordance with BS7671 (18th Edition of the IET Regulations).

UKPN shall be appointed to provide the DNO supply works and an approved electrical contractor shall provide the building network operator BNO works as follows:

- Incoming LV supply and LV cut-out
- MSBD and armoured cables to each residential and landlord meter positions
- installation of authority meters and general electrical installation

Basis of design electrical load:

Load Type	Lighting Density Allowance (W/m^2)	Power Density Allowance (W/m^2)
Apartments		6000 (total per AP)
Corridors	8	5
Plantrooms	8	25
Stores	8	5
Stairs	8	5
Lobbies	8	5
EV charger		7400 (per EV charger)

The existing building is already supplied by a 200A cut-out, which will be upgraded to 315A.

The contractor should make sure that the existing electrical plantroom will have the appropriate level of fire partition as per the fire report and in accordance with BS 9999 regulation.

The incoming supply will be fully fitted including the main fuses, cut-out housing and main authority meters as per the electrical schematic. The contractor shall be responsible for the liaison with the energy supplier and provide energy metering as per the LV schematic.

The total estimated maximum demand for the building is currently calculated at 165KVA and split as follows:

26no. Apartments – 117KVA

1no. Landlord inc balanced EVC charging – 30KVA

1no. Commercial space grd floor – 18KVA

1.3.4.2 LOW VOLTAGE DISTRIBUTION SYSTEM

The existing 200A TPN supply is located in the electrical cupboard at Ground Floor in reception, a new 315A LV supply will be brought into the other cupboard. The incoming supply will feed an MSDBs panel from which individual armoured cables will run to each cut-out and meter position for the landlord supplies and to each apartment.

Cabling to distribution boards and consumer units will be supplied directly from the main MSDB fuse boards as included in the LV schematic. Submain cables in general will be XLPE/SWA/LSF type and clipped to perforated galvanised steel trays via metallic ties.

The landlord power, lighting, mechanical and PH equipment will be supplied via a new dedicated landlord distribution board located in the cupboard at ground floor.

The electrical contractor shall supply and install all containment necessary and assist the main contractor in managing the specialist/DNO works.

The electrical contractor shall liaison with utility provider and the meter provider to install all meters and associated equipment, including assisting the main contractor and specialist/DNO in energising the building. Refer to demarcation where demonstrated on drawings and discuss with main contractor before appointment.

The electrical contractor shall be responsible for assisting with the temporary builder's supply and on-site power supplies as required.

1.3.4.3 EARTHING AND BONDING

Earthing and Bonding shall be provided throughout the building in compliance with BS7671:2018 IET Wiring Regulations: 18th Edition.

The Contractor shall provide a separate fixed main earth terminal bar mounted next to the main MSDB fuse boards.

Additional bonding shall be provided to all metal or conducting pipes connecting to sinks, basins and baths etc. This shall include any metal worktops, stainless steel sinks/drainers and metal stands.

Dedicated earth bars will be provided within all electrical rooms and will be bonded together. Earthing connections will be required in accordance with BS 7671 for the following:

- Water installation pipes
- Gas installation pipes (if required)
- Other metallic installation pipework and ducting
- Central heating and air conditioning systems
- Exposed metallic structural part of the building
- Lighting Protection System

This list is not exhaustive and will be in accordance with the LV schematic and British regulations.

Supplementary equipotential bonding will be provided to all metalwork to protect against indirect contact of any exposed and extraneous conductive parts.

The minimum size for cross bonding cables shall be 4.0mm.

All final sub-circuits will be provided with dedicated separate circuit protective conductors as included in the LV schematic.

1.3.4.4 WIRING SYSTEMS

Electrical wiring in the apartments shall be carried out using 300/500 volt rated flat twin and earth insulated sheathed LSF cables type 6242B (with integral earth conductor CPC) concealed within the fabric of the building.

Electrical wiring in the landlord area shall be carried out using 300/500 volt rated flat twin and earth insulated sheathed LSF cables type 6242B (with integral earth conductor CPC) and for the external equipment shall be carried out using XLPE/SWA/LSF cables.

- 32 Amp Ring Main circuits shall be – Min. size 2.5mm + CPC
- 32 Amp Ring Main circuits for kitchen socket outlets and fused connectors – Min. Size 4mm + CPC
- Lighting circuits shall be – Min. size 1.5mm + CPC
- 20 Amp Radial Power circuits shall be – Min. size 2.5mm + CPC
- 16 Amp Radial Power circuits shall be – Min. size 2.5mm + CPC
- Kitchen cookers and hob circuits shall be – Min. size 10mm + CPC

Cables shall be installed in the following manner –

i. Stud Partitions – Vertical cables shall be installed centrally between plaster face. On no account shall cables be installed horizontally within partitions accept in allowable safe zone with appropriate protection.

ii. Block/Brick Walls – Cables shall be chased into the wall and drawn through and protected by metal conduit or capping. Where plaster dabs are to be used cables may be surface fixed but shall have galvanised steel capping fixed over them for protection.

iii. Ceiling – Twin and earth cables shall be grouped and banded with metallic fire-resistant bands being mechanically fixed to the soffit.

iv. Intermediate Floors – Where cables pass through timber joists the joists shall be drilled centrally and holes shall be no larger than 25mm diameter. On no account shall joists be notched. The Contractor shall submit details of any holes through joists to the Structural Engineer and shall obtain his written approval before any joists are drilled.

v. Thermal Insulation – The Contractor shall note that where cables are enclosed by thermal insulation the rating of the cable is reduced therefore should this occur the

cable sizes shall be increased, and a cable calculation shall be carried by the electrical contractor.

vi. External Wiring – Where external wiring is to be provided it shall be XLPE/SWA/LSF with an internal insulated earth cable i.e. 3 cores. The cable shall be buried to a depth of minimum 450mm (below surface level) and protected with cable tiles. Yellow and black coloured PVC warning tape shall be placed over the cable tiles along the entire length of cable. All terminations shall be protected with PVC sleeves.

1.3.4.5 SMALL POWER

The electrical contractor shall supply and install a complete new small power installation for each apartment, generally as indicated on the layout drawings and in accordance with the interior designer's schedule.

The electrical contractor shall supply and install a complete new small power installation for the landlords' areas, generally as indicated on the Electrical layout drawings and in accordance with the interior designer's schedule.

The small power installation shall comprise flush-mounted small power accessories fixed into wall finishes or joinery. Accessories shall be installed to maintain the acoustic and fire integrity of the walls they are installed into; the main contractor shall issue a proposal to the client for approval.

13A fused connection units shall be provided for local isolation of fixed equipment with a load under 2.8kW or appropriately rated isolator switches shall be provided for fixed equipment with loads over 2.8kW.

Final connection to the equipment shall be made via appropriately rated flex outlet plates and 3-core heat resisting flexible cable or 13A socket outlet for equipment with pre-wired flexible leads.

It should be noted that within certain locations (bathrooms, ensuites etc.) the fused connections units shall be located remotely within adjacent utility rooms or joinery units with cable outlets local to equipment.

Ring or radial circuits shall be provided from the appropriate distribution board to serve socket outlet and fixed equipment, generally as indicated within the electrical schematics. Spurring off from a ring main position will not be permitted for socket outlets.

Final outlets make, type and finish shall be in accordance with the interior designers finishing schedule and client specification.

External socket outlets shall be surface mounted, weatherproof type (min. IP65) units complete with integral 30mA RCD.

Allowance shall be made for power supplies to specialist installations including but not limiting to: -

- TV Distribution Equipment
- Fire Alarm System
- Mechanical plant
- Booster and Cat 5 pumps

- AOV Panel
- Lifts
- PV System
- Access Control System
- Electric Vehicle Chargers

Kitchen Equipment

Within the kitchens, a multi-gang appliance grid plate shall be provided complete with fuses suitably engraved which radially feed unswitched socket outlets for kitchen equipment. A 45A (minimum) cooker control unit and separate single switched socket outlet (provided for electric ignition if applicable) shall be provided.

Communal Areas

Lockable sockets shall be provided to communal areas for cleaning purposes.

External Power

The electrical contractor shall allow to provide any external power as indicated by drawings and schematics.

Power Supplies to Mechanical Equipment

The Contractor shall supply, install, test and commission all power supplies associated with the new mechanical plant as indicated on the design drawings. The electrical contractor must also liaise with the mechanical contractor to ensure all requirements are captured.

General

All local means of isolation (fused connection units, isolator switches etc.) shall be provided with permanent ID labels to indicate what they serve and shall be capable of being locked in off position when maintenance on equipment is carried out.

Final positions to all mechanical equipment and final requirements for mechanical services containment for controls cabling shall be agreed with the mechanical contractor prior to installation.

1.3.4.6 LIGHTING

The electrical contractor shall supply and install a complete new low energy lighting installation for each apartment, as generally indicated on the Electrical lighting layouts as follows:

- Recessed LED IP20 downlights throughout the apartment
- Recessed LED IP65 downlights in the wet areas like bathrooms
- Led strip in coffer ceiling for the top penthouse apartments
- Wall lights in the staircase for the top penthouse apartments
- LED strip above kitchen countertop
- Feature mirror lighting in the bathroom

The electrical contractor shall supply and install a complete new low energy lighting installation for the landlord areas, as generally indicated on the Electrical lighting layouts.

Throughout each property, the luminaire types shall be as included in the Electrical lighting layouts and specification. Contractor shall confirm with the client the final specification and finish of each luminaire type.

In each property generally lighting shall be controlled either by ON/OFF switches or local dimmer switches as indicated by lighting drawings.

Throughout the communal area a number of luminaire types shall be implemented including but not limited to: -

- Ceiling or wall mounted LED bulkhead fittings (including self-contained battery and presence detection)
- Surface mounted linear LED IP65 fittings (including self-contained battery)
- Non-maintained Exit Signs (including self-contained battery)

Within communal areas, lighting will be controlled via PIRs or integral microwave sensors.

External Lighting

The electrical contractor shall supply and install for the building an external lighting system including all containment system, ducting, cabling, controls and fittings.

1.3.4.7 TELEVISION, DATA, TELEPHONE INSTALLATION

OpenReach FTTP high speed internet shall be installed to the site and will include an incoming Fibre cabinet located in the plant area and will connect via fibre to Optical Network Terminal (ONT) box located in each apartment. Extension joint boxes will be provided up the riser accordingly.

In the apartment the main Wi-Fi router will be located in the store/utility room and will connect via ethernet cables to the general data points and TV data points to provide IPTV.

The landlords area will be served by a main Comms panel which will connect via ethernet cables to the fire alarm panel, electric vehicle charging system, access control system, etc.

The electrical contractor shall allow for supply, installation and setting to work of all necessary equipment (including and not limited to free issue items by OpenReach).

The Electrical Contractor shall appoint a specialist contractor to provide all TV and satellite equipment as necessary and shall make allowance for any item not supplied by the specialist in order that a fully function system is handed over.

The installation shall be carried out by a contractor that is an approved Openreach FTTP installer and SKY Homes installer and shall comply with the organisations codes of practice.

Prior to handover, the entire system shall be tested to confirm adequacy of signal and picture quality and that it provides resilient and reliable digital reception.

1.3.4.8 ACCESS CONTROL SYSTEM / CCTV SYSTEM

As show on the drawings, all main and rear entrance doors shall have a fobbed access and video entry panel. Each apartment shall be provided with a Video entry handset linked to the main entrance video entry panel and block controls allowing secure access to the site. The Electrical Contractor shall appoint a Specialist Contractor to install an access control system.

All main entrance doors shall have a fobbed access control and video entry phone / access control system installed (Paxton Net 2 Video Entry System). Remaining doors shall be provided with key card / fob/ code entry system as indicated on the electrical drawings.

Each property shall be provided with a Paxton Video entry panel linked to the block controls allowing secure access to the site. From each of the controlled entrance doors, the following cables shall be provided to the network switch / control units, located within the electrical risers - exact locations to be confirmed on site.

- Belden 9540
- CAT 6
- Twin Core Cable

In addition to the above 1No. cat 6 cable shall be provided between each of the apartment entry phones and riser mounted control units. For detailed cabling topology please refer to the access control schematic.

At each fire escape location fire alarm override controls shall be fitted along with secure push to exit and green break glass overrides to ensure safe means of escape in the event of a fire alarm / incident.

The ground floor main and side entrances including the carpark and bike racks will be monitored via CCTV cameras installed at high level as shown on the electrical drawings. The CCTV cameras shall be 1080p video quality and shall powered over ethernet(POE) from the comms landlord switch required in the ground floor plantroom.

The CCTV cameras will be connected to a network video recorder that will be able to store the footage for a minimum period of 31 days.

A doorbell will be located at the Apt entrance with sounder internally.

The detailed design and installation of the access control system will be carried out by a specialist.

1.3.4.9 FIRE ALARM / FIRE DETECTION / SMOKE VENTILATION & AOV CONTROLS

The Electrical Contractor shall include for the design, supply, installation, wiring, testing, and commissioning, complete with all submissions and testing, of an alarm system in accordance with the site fire strategy, building regulations and British standards including: -

- BS5588: Fire Precautions in the design, construction and use of building.
- BS5839-6 Fire detection and fire alarm systems for buildings - Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises.
- BS9999 - Code of practice for fire safety in the design, management and use of buildings.

The fire alarm shall be provided complete with all the technical back-up of any specialist manufacturer. All properties shall be fitted with a mains-operated photo-electronic smoke detectors and heat detectors with rechargeable battery back-up alarm in a suitable location to meet Grade D1 Category LD1 in accordance with fire report, Building Regulations and BS 5839-6.

A landlord addressable fire alarm system designed and installed to L5 standard as recommended in fire report and BS5839 part 1 shall be provided to the communal areas. This shall provide manual call points and automatic detection with integrated sounder in all common areas. The Fire Alarm panel shall be installed at the entrance lobby of the block (final location to be agreed with building control).

The fire alarm system shall interface with the AOV actuators located in the stairwell and smoke vent fans. Manual control / overrides shall be fitted as required. The contractor shall provide appropriate actuators and controls to the AOV. The stairwell AOV shall open as required by the building fire strategy.

Wiring shall be carried out in Prysmian FP200 PLUS cables – minimum size 2.5mm. A dial out/Redcare type facility shall be provided should the client wish to utilise this.
It is recommended that a single fire engineering systems company is appointed to provide all of the fire systems as an integrated, linked, open protocol system.

1.3.4.10 LIGHTNING PROTECTION

The lightning protection system is a Contractor Design Portion (CPD) item and as such the contractor shall be responsible for the design, supply, and installation of a lightning protection system to the entire building in accordance with BS EN 62305.

The lighting protection for the building will be designed for the required level of protection as determined by the Lightning Protection Risk assessment. The contractor shall engage with a lightning protection specialist for a risk assessment and CDP design.

1.3.4.11 CONTAINMENT

The electrical contractor shall review the size of containment specified/required and provide all necessary equipment for distribution of all small power, data, telephone, access control and tv services. Containment will generally in locations as detailed on the mechanical and electrical drawings and final positions shall be coordinated on site.

Where cabling shall pass through the fire-fighting lobby on each floor that will not be serving that fire-fighting lobby it will be separated via 120min fire-rated ceilings in accordance with BS 7671. Architect to provide fire-rated ceilings of no less than 120min in the fire-fighting lobbies as included on the electrical drawings.

The electrical contractor shall liaise with any specialist sub-contractors before commencing on site to ensure all containment and installation space requirements are captured.

For all external and roof areas all containment will be perforated stainless steel and include a metallic lid for UV protection.

Underground flexible Twin wall ducts to the EV chargers will be provided throughout the carpark areas as included on the services layouts.

Unless mentioned otherwise below ground ducting and conduits not shown on the drawings shall be covered by a provisional sum co-ordinated on site in accordance with the system requirements and the final design.

1.3.4.12 ELECTRICAL PANEL HEATERS

Apartments and communal areas shall be fitted with electric panel heaters as detailed on the drawings as specified at the end of this document. The heaters shall be complete with on board controls and in accordance with the Part L equipment compliance requirements.

1.3.4.13 ELECTRIC VEHICLE CHARGING SYSTEM

The electrical contractor shall supply and install a complete electrical vehicle charging system, as generally indicated on the incoming and external services drawings.

A dedicated single phase 7.4 kw EV charger will be provided to each of 3no parking spaces from the carpark at ground floor level.

The EV charger shall come with either WIFI, Ethernet or 4g internet connection and can be controlled and visualised via a mobile application.

For the purpose of this specification all EV chargers will come in the Tethered version with a 7.5m cable to plug to each car and will be either installed on dedicated poles in single or double arrangement or wall mounted.

All EV chargers will be supplied via armoured cables SWA/XLPE/LSF installed in underground ducts routed via draw pit chambers and EV precast blocks throughout the carpark areas.

For this building there will be a total/max of 3no 7.4kW EV chargers with a total/max connected load balanced 22.2kW and the EV chargers shall be supplied via the 100A 3-phase landlord distribution board located in the electrical riser.

From the landlord distribution board underground ducts containing armoured and data cables shall be routed via draw pit chambers to each wall mounted EV charger for providing power and network connection.

All EV chargers shall be linked via data connection to a load management system which shall monitor the 100A 3-phase landlord supply and ensure that the demand load does not exceed the agreed maximum landlord capacity by ramping up and down the total EV charging availability and providing equal power across the chargers.

The load management system shall monitor up to 3no EV chargers per each load management panel and shall be installed in the electrical cupboard adjacent to the landlord distribution board.

The residents will be able to connect to the electric charging points though the phone and visualize the cost after the refill. Each resident will be required to top-up their account with funds prior charging the EV car.

1.3.4.14 BACK-UP SUPPLY

The electrical contractor shall provide a suitable sized secondary power supply by means of a 40kVA stand-by diesel generator to back-up the Roof Smoke Fans and Fire-Fighting/Evacuation Lift in the case of power failure or fire.

The stand-by generator shall be rated to provide secondary for a total load of 40KVA and shall have enough fuel for minimum 8 hours of operation.

The generator shall be located in the carpark at ground floor level in an external acoustic enclosure to achieve a noise level of 65 dB(A) at 1 meter or shall be in accordance with planning conditions. Generator flue shall be considered if the fumes from the generator will affect the apartments nearby. Architect to confirm if required.

The generator shall be connected to a Life-safety DB LS-DB located in a dedicated 120min fire rated storage at ground level in the carpark and shall distribute the secondary supplies to the smoke fans and Fire-Fighting/Evacuation Lift.

Primary and secondary cabling for smoke fans and Fire-Fighting/Evacuation Lift shall be FP600S fire-rated type and shall be routed via diverse routes in accordance with BS 8519:2020.

Automatic transfer switches(ATS) with integral bypass will be provided to switch from primary to secondary supplies for smoke fans and Fire-Fighting/Evacuation Lift.

The automatic transfer switches shall be located adjacent to the equipment it serves as required by 8519:2020.

1.3.4.15 SECURITY / AUDIO SYSTEM (PENTHOUSE APARTMENTS)

For each penthouse apartment an intruder alarm system shall be provided, including door contacts, dual infra-red & microwave detector, security keypad and indoor/external sounders as indicated on the drawings. The contractor shall coordinate with the client and select the final equipment manufacturer and details.

For each penthouse apartment a sound system will be provided including ceiling mounted speakers and a zone amplifier located in utility cupboard as indicated on the drawings. The location shall be finalised on site to the client requirements.

1.3.5 OUTLINE DESCRIPTION OF PUBLIC HEALTH SERVICES

1.3.5.1 INSTALLATION OF SANITARY WARE

The Contractor is responsible for the supply and installation of the sanitary ware, brassware and fixtures and fitments including all necessary brackets. Sanitary ware requirements will be detailed in the finishes schedule. All sanitary ware shall be provided with all necessary wastes, chains, stays, plugs, sealing strips and brackets as required to provide a complete installation. Refer to clients finishing schedule for details

1.3.5.2 ABOVE GROUND DRAINAGE & RAIN WATER DISPOSAL

A modified single stack system of above ground drainage shall be designed, supplied and installed in accordance with BS EN 12056-2:, utilising UPVC pipe work to BS 5414 and BS EN 1329-1:. The above ground drainage will connect to the underground drainage as shown on the Structural Engineer's drawings. The bend at the foot of each stack shall be of a minimum radius of 200mm. The underground drainage system shall be designed by others.

All stacks shall be ventilated in accordance with building regulations Part H, preferably via external terminals to atmosphere and where this is not possible, appropriate air admittance valves shall be installed with suitable air movement and access.

Soil and waste connections shall be made to all WCs, bidets, basins, sinks, baths, showers, kitchen appliances and equipment condense drains. All connections shall be provide with appropriate traps including where necessary anti-syphon devices.

Acoustic insulation and/or pipework shall be used accordingly to prevent noise transfer in sensitive areas.

All WCs will be provided with overflow prevention devices as recommended or supplied by the cistern manufacturer.

All waste branches will be installed in MUPVC to BS5255, which has been partially replaced by BS EN 1329-1:2000, BS EN 1519-1:2000, BS EN 1565-1:2000 and BS EN1566-1:2000.

The contractor shall allow for the supply, co-ordination and setting out of all condensate pipework to all mechanical plant even if it is not shown on the drawings.

Floor gulley's will be provided to the utility areas (such as bin and bike stores) in accordance with the Architects details.

Appropriate fire stopping of all penetrations through fire compartment walls or floors will be provided. This will comprise either intumescent collars or intumescent wrapping.

The installation shall be provided with sufficient movement joints and anchor brackets to allow for thermal expansion all in accordance with the Manufacturer's requirements.

Rain water disposal will supplied and installed in accordance with the requirements of roof finish incorporating internal down pipes as detailed on these drawing. The first 3m from external shall be insulated to prevent condensation.

The installer shall ensure that rodding eyes are installed sufficiently that the entire system can be maintained. The main contractor shall provide access hatches in locations requested by the installer pending agreement with the design team.

The installation contractor shall allow to co-ordinate the final SVP positions on site with the main contractor to capture final bathroom, kitchen, furniture and raised floor layouts. These final positions shall be shown on working drawings (including boxing by main contractor where necessary) and agreed by the design team before installation.

1.3.6 MEPH SERVICES DESIGN CRITERIA

1.3.6.1 GENERAL DESIGN CRITERIA

The design of the MEPH services will comply with the Standard Specification issued with this contract and in accordance with the current versions of the following:

- Building Regulations
- Home Office Regulations
- Relevant British Standards
- NHBC or similar requirements
- CDM Regulations
- Workplace (Health, Safety and Welfare) Regulation
- Health & Safety at Work Act
- Electricity at Work Act
- Regulations under the Factories Act
- The Disability Discriminations Act
- Current CIBSE recommendations
- The Clean Air Act
- "Gas Safe" Regulations.
- The Water Supply (Water Fittings) Regulations

- HVCA
- Institute of Plumbing
- Local Authority Bylaws
- BSRIA
- The requirements of the Local Environmental Protection Agency and Environment Agency
- BS EN 806-1: & 806-2: Specification for installations
- CFSH & BREEAM
- BS6644 & BS6700
- HM Government Domestic & Non-Domestic Building Services Compliance Guide

Contractors installing electrical services must be:

- NICEIC Registered

Fire Alarm Engineers must be:

- BAFE Registered

The installation of the electrical works, all materials and workmanship shall comply with the following current standards.

- Latest Edition – IEE Wiring Regulations
- Disabled Discrimination Act (DDA).
- HSE Regulations
- British Standards and EEC Codes of Practice and Directives.
- Building Control and Planning Consents
- Electrical equipment CE marked to EEC Directives

Notwithstanding that where British Standards have been quoted in this document, full compliance with the latest BS & EN Standards, where such exist, including those issued in respect of metric or harmonised standards, is required for all specified materials. All equipment shall be manufactured in the EC unless otherwise authorised. Equipment that uses electricity shall be CE marked

1.3.6.2 EXTERNAL DESIGN CONDITIONS

Winter Air Temperature -3°C db / 100% rh

Summer Air Temperature 30°C db / 20°C wb

Plant (Condensing units) to be designed on 30°C db external ambient temperature.

1.3.6.3 HEAT GAINS LOADS

As CIBSE Guide A

1.3.6.4 GENERAL OCCUPANCY RATE

Refer to the record information

1.3.6.5 VENTILATION RATES (FRESH AIR)

Occupied areas – In accordance with Part F & CIBSE guidance

1.3.6.6 GENERAL INTERNAL SPACE TEMPERATURES & RELATIVE HUMIDITY

ROOM	WINTER	SUMMER	R.H. (+/- 10%)
Bedrooms	21°c	Uncontrolled	50%
Living Rooms	20°c	Uncontrolled	50%
Bath rooms / WCs	20°c	Uncontrolled	50%
Circulation spaces	18°c	Uncontrolled	50%
Stairs	18°c	Uncontrolled	50%

1.3.6.7 AIR CHANGE RATES

Purge 4 AC/H (via windows and mechanically)

1.3.6.8 NOISE LEVELS

In accordance with the Acoustic Consultants Report

1.3.6.9 WATER STORAGE

Cold water storage - In accordance with CIBSE recommendations
Hot Water Storage - In accordance with CIBSE recommendations

1.3.6.10 VELOCITIES

Pipework Velocity

15-50mm dia	1.25 m/s max
50 mm and above	2.00 m/s max
Small bore pipework	1.0m/s

Ventilation Ductwork

Low velocity	5 m/s
High velocity	15 m/s
Louvre face	2.5 m/s

Velocities indicated are for guidance only, care should be taken with the over sizing of pumps and fans with regards to running cost and noise.

1.3.6.11 PRESSURE DROPS

Heating systems
400 Pa/m run max
Ventilation systems

Low velocity system	1 Pa/m run max
High velocity system	8 Pa/m run max

Pressure drops indicated are for guidance only, care should be taken with the over sizing of pumps and fans with regards to running cost and noise.

1.3.6.12 DESIGN PHILOSOPHY/BUILDING LIFE

The building must fully satisfy the requirements of the Design Criteria while being capable in all respects of providing an environment which is pleasant, environmentally friendly, energy conserving and maintenance minimised. Emphasis should be placed, wherever possible, on adopting durable low maintenance materials and avoiding over complicated design resource systems which are expensive to operate and maintain and costly to replace.

The building should operate effectively and efficiently throughout its design life and materials and components carefully selected with due consideration to their individual life cycles relative to the overall design life of thirty years required for the building. In particular, items should not be incorporated which require premature replacement by virtue of their dependence, or relationship to, other elements having a shorter design life. Access for maintenance should be designed in accordingly.

1.3.6.13 PLANT & EQUIPMENT LIFE FACTORS

The plant and equipment selected shall exceed the following plant life factors assuming a good standard of plant maintenance.

Type	Typical Economic Life Years
Hot water cylinders	15
Installations control equipment	15
Pipework	25
Pumps	15
Storage heaters	15
Valves	25
HVAC plant	15
Boiler plant	15
Containment	25
Terminal units	15
Electrical wiring	25
Fans	15
Ventilation Ductwork	25

1.3.6.14 ENVIRONMENTAL AIMS

The general policy is to provide a building which is environmentally friendly from the global, local external and internal aspects, and which minimises the impact on the local community. The design to address the following:

- Minimise the risk of Legionnaires disease and the spread of Legionnela
- Minimise the effects of ionising and electromagnetic radiation
- Avoid the use of potential irritants and/or toxic substances
- Avoid design features associated with Sick Building Syndrome

- Maximise the opportunity for recycling

- Enable a planned preventative maintenance regime to be used to maintain optimum performance

1.3.6.15 LUX LEVELS

The average design levels of illumination are as follows:

- CIBSE recommended Lux levels

1.3.6.16 ACCESS TO PLANT

Plant arrangement shall be designed and located in such a manner that components may be installed, accessed, maintained, removed and replaced without difficulty and without compromising the safety of personnel. The installation shall, as a minimum, satisfy the following requirements:-

- 18th Edition of the IEE Wiring Regulations.
- Manufacturer's recommendations.
- BS8313 (Accommodation of Building Services in Ducts).
- BSRIA Application Guides - Design for Maintainability.
- BSRIA Technical Notes - Space Requirements for Building Services Distribution
- CDM Regulations

All maintainable items of plant shall be accessible from floor level or via permanent access walkways, as necessary. All items of plant which are likely to be replaced within the life of the building shall be arranged such that they can be removed without dismantling any elements of permanent structure and without comprising normal access and escape routes. For the purposes of this requirement, permanent structure shall be defined as any building components which cannot be removed or reassembled within a time limit of two hours.

1.3.6.17 SUBMISSION OF DESIGN INFORMATION

A schedule and programme of submittal information production shall be issued and agreed at the earliest opportunity. The Employer's Agent will consider the information submitted and comment where necessary within ten working days. No drawings shall be issued for construction unless they have reached 'no comments' status. The submittal programme shall allow enough time for all working drawings to be issued for construction at least four weeks prior to being required for work on site. No work shall be carried out on site without an approved working drawing in place.

It may be necessary during the course of the contract for the contractor to produce additional drawings and information to enhance that already included as part of the drawings. The contractor shall be deemed to have made full allowance for these in their contract. All drawings shall be produced in Revit and calculations, using computational software where possible. All drawings will be issued in DWG.

2 MANAGEMENT AND INSTALLATION

Contents

2.1 Project Establishment

2.1.1 DUTIES OF THE CONTRACTOR

The contractor shall test, commission and set to work all installations, materials, components and plant.

The contractor shall demonstrate the systems and provide user training.

The contractor shall provide as installed information and maintenance manuals.

The contractor shall guarantee the complete works for a period of twelve months from the date of practical completion and repair defects and faults in the systems or equipment during this period and until the defects list is signed off by the Engineer.

2.1.2 INFORMATION TO BE PROVIDED AT THE TIME OF TENDER

In addition to any other information requested within the general contract conditions applicable to this tender, the following information must be provided by the contractor at the time of tender.

- List of intended deliverables
- Detailed tender analysis and breakdown
- List of proposed Manufacturers including name and catalogue reference or type, and the expected delivery date for all items of plant and equipment on which their tender offer is based from the preferred lists in Section 5
- List of proposed sub-contractors
- List of all attendance's required by the main contractor
- Schedule of any design alternatives and savings proposed with complete documentary information (note alternatives and savings must be outside tender sum)

2.1.3 DESIGN, WORKING DRAWINGS AND CALCULATIONS

The Contractor shall prepare and submit design calculations and drawings for the CDP elements covered by this contract.

The contractor shall provide working drawings for the whole installations covered by this contract. The drawings shall be prepared using the current release of Revit and the contractor shall provide where necessary paper and digital copies of each drawing and any subsequent revision.

Working drawings shall include:-

a) General dimensioned layout drawings of the complete works.
b) Detailed layouts showing the location of all plant and equipment including

service routes, switch rooms and plant rooms.

c) Key area sectional layouts in risers, floor and ceiling voids.
d) Assembly drawings of all factory built equipment and site built assemblies.
e) System diagrams and circuit wiring diagrams for all installations and equipment.

The contractor shall also prepare detailed dimensioned layout drawings showing final connections to equipment.

The contractor shall ensure that adequate space is provided for servicing and maintenance of all equipment and indicate this on the drawings.

If during the progress of the contract, modifications are required to be made to the works, the contractor shall submit revised drawings showing the modifications.

The contractor shall be responsible for any discrepancies, errors or omissions in the above mentioned drawings, whether these drawings have been commented on by the engineer or not.

Comments given by the engineer to any drawing shall in no way relieve the contractor from his liability to complete the works in accordance with the tender specification and drawings or exonerate him from any of his guarantee.

2.1.4 MANUFACTURER'S DRAWINGS

The contractor shall provide to the engineer for comment a copy of manufacturing construction drawings giving all information, including dimensioned details of all plant equipment and manufactured components prior to commencing manufacture.

Manufacture of relevant items of plant and equipment shall not commence until the engineer's comments have been actioned on the relevant manufacturing drawing.

2.1.5 BUILDERSWORK DRAWINGS

The contractor shall provide to the engineer and contract administrator for comment a copy of fully dimensioned drawings to an approved scale, of builderswork requirements in connection with this contract. Drawings shall show detail of plinths, holes, bases, tray and trunking supports, all external ducts and duct routes etc including all infrastructure ductwork and builderswork details.

The contractor shall provide to the engineer full particulars of static and dynamic loading including moments, and dimensions, positions of foundations and plinths, and/or fixings necessary for the support and accommodation of all equipment to be supplied under this contract, so that adequate provision may be made. Builderswork drawings shall be fully dimensioned showing location of holding down bolts details of anti-vibration mountings and secondary support steelwork.

2.1.6 CONSTRUCTION DRAWINGS

Once the design calculations, working, manufacturers and builderswork drawings have been commented upon and finalised, they shall be issued marked as construction drawing and circulated to all relevant parties.

2.1.7 ACOUSTICS

The contractor shall ensure that all plant, equipment and components provided meet the appropriate recommended internal and external acoustic design criteria as laid down in the CIBSE Guides to current practice and the Acoustic Report.

2.1.8 ACCESS TO PLANT

Plant shall be installed in such a manner that components may be installed, accessed, maintained, removed and replaced without difficulty and without compromising the safety of personnel. The installation shall, as a minimum, satisfy the following requirements: -

- BS 7671 Amendment 2: Requirements for Electrical Equipment of Buildings
- Manufacturers recommendations
- BS 8313 (Accommodation of Building Services in Ducts)
- BSRIA Application Guides - Design for Maintainability
- BSRIA Technical Notes - Space Requirements for Building Services
- Distribution Systems
- CDM Regulations

All maintainable items of plant shall be accessible from floor level or via permanent access walkways.

All items of plant which are likely to be replaced within the life of the building shall be arranged such that they can be removed without dismantling any elements of permanent structure and without comprising normal access and escape routes. For the purposes of this requirement, permanent structure shall be defined as any building components which cannot be removed or reassembled within a time limit of two hours.

The above requirements are intended to indicate the expected standards. Should it prove necessary to compromise any access provision the contractor shall record the proposals and justification and shall submit to the engineer and the planning supervisor. If accepted as the most appropriate arrangement details of the non-compliance shall be recorded in the Operating and Maintenance manuals and the Health and Safety file.

2.1.9 SCHEDULE OF RATES

The contractor shall provide within 2 weeks of being appointed to carry out the works, a schedule of rates adding up to the total tender sum.

No work will be valued unless a schedule of rates has been issued.

All variations during the contract shall be based on the prices indicated within the schedule of rates submitted.

The schedule does not remove the contractors responsibility for the accuracy of the tender and the contractor will be deemed to have included for all materials and labour, etc, for the complete installation as detailed in the tender specification, drawings, and site conditions.

2.2 Procurement, Plant and Materials

2.2.1 SUB CONTRACTORS

Any proposed subcontractors must be approved by the engineer prior to letting of subcontracts.

As soon as practical after entering into the contract and after of the engineers approval, the contractor shall enter into such sub-contracts required as they consider necessary for the satisfactory and timely completion of the contract works.

The contractor shall provide copies of all sub-contract orders placed in connection with this contract on request.

2.2.2 SUPPLIERS

The contractor shall be held responsible for ensuring that the performance of all fittings or equipment meet the requirements of the design, whether or not the manufacturers and suppliers details are mentioned in the specification.

2.2.3 SAMPLES

The contractor shall provide a sample, properly labelled, of any materials and products proposed for use in the works, on request of the engineer.

Such samples shall be submitted to the engineer for their comment at their offices or elsewhere as directed, with all parts left loose, so that they may be taken apart for internal inspection by hand without the necessity of using spanners, screwdrivers or wrenches.

The engineer may require such samples to be subjected to tests designed to ensure compliance with British Standard and other relevant Specifications and requirements of this contract.

The contractor shall provide the facilities and apparatus for such tests and carry them out in the presence of the engineer. The contractor shall also replace the samples where necessary.

Samples shall be liable to be retained for the purpose of comparison with future deliveries, but any or all of the samples shall be returned to the contractor should they so request, after their purpose has been served.

2.2.4 NAME PLATES AND LABELS

All plant and equipment supplied for the works shall give the manufacturer's name, date of manufacture, shop number, type and working conditions, etc., together with all other particulars which will aid identification for the ordering of spare parts.

2.2.5 SITE DELIVERY

The contractor shall be responsible for the off-loading, storing and manoeuvring of their plant and equipment in connection with this contract.

2.2.6 HANDLING AND STORING MATERIALS AND PRODUCTS

The Contractor shall be responsible for the following:

- Deliver, off-load, store and transport about the works all materials and products in the manner recommended by their manufacturers.
- Provide adequate safe, covered storage and protection for all materials and products.
- Protect all open ends (on equipment, pipework, ductwork, cables, etc) from ingress of dirt, dust and moisture by means of purpose made caps or covers.
- Where materials and products cannot be stored in dry buildings, they shall be raised clear of the ground and supported. They shall be protected from damage by frost, water and building work with covers or other appropriate means. Materials and products must not be stored by placing directly on earth or any other damp or corrosive surface.
- Materials and products shall be adequately coated to prevent damage by oxidation, etc., and this coating shall be maintained until ready for final finishing.

2.3 Installation

2.3.1 CO-ORDINATION AND INTEGRATION

The contractor shall ensure that the programme of installation of the services in relation to each other is co-ordinated and carefully planned before any installation work commences including liaison with other sub-contractors.

The contractor shall submit to the engineer dimensioned plan and section co-ordinated services drawings for known congested areas. These drawings shall adequately demonstrate that proper co-ordination of the works will be achieved within the allocated service zones and with the building structure and finishes.

2.3.2 PROGRESS DRAWINGS

The contractor shall keep on site one full set of prints of the working drawings marked with the progress of all work in connection with this contract. These drawings, which

shall be maintained in clean condition, shall be kept up to date on a weekly basis, and all pipe lines, tray and trunking, positions of equipment and apparatus, including all modifications and/or variations, shall be clearly recorded by the contractor on the drawings as they are installed.

The contractor shall retain and make the above drawings available at any time for inspection by the engineer.

2.3.3 ATTENDANCE

The contractor shall be responsible for the execution of the following works:-

1) Supplying all relevant information pertaining to chases in floor, walls and ceilings where necessary.

2) Setting out all holes, ducts, etc., required through walls and any other structures.

3) Providing the information regarding the disposition, number and dimensions of all Services in partition walls.

This information may be conveyed by marking out and or drawn information as required and agreed under the particular contract. The contractor shall include any necessary attendance on site to allow co-ordination of these activities with the main contactor or sub contractor carrying out the work.

2.3.4 PAINTING AND ANTI-CORROSION TREATMENT

All components requiring anti-corrosive treatment shall be painted or shall be treated by other "metal coating" methods.

All welding, drilling, punching, cutting and bending of the metal component shall preferably be done before the protective treatment coating is applied. All coatings applied shall be entirely suitable for the material to which it is applied and to the conditions to which it will be subjected to in service.

All components requiring painting shall be thoroughly cleaned removing all mill scale, weld scale and corrosion and finally degreasing.

All paints shall be lead free type, with primers having good adhesion, good rust covering power, rust inhibiting and grain flowing properties. Gloss paint shall be machine finished paint having high adhesion and high resistance to solvents, mineral oils, cutting oils, detergents, chipping and impact damage.

All paints shall be manufactured by one of the scheduled firms and supplied by one manufacturer, even if the painting is done off site. The paint shall be delivered to site in sealed containers labelled with the following information.

1) Type of Paint
2) Brand Name
3) Manufacturers batch reference

Work described as painted shall be given one coat of primer and two coats of glass machine finished paint. Work described as primed shall be given one coat of primer.

Damage to metal coated/painted work shall be repaired to the satisfaction of the Engineer or the component replaced.

2.3.5 FIXING TO BUILDING FABRIC

The contractor shall be responsible for the structural integrity of all supports and fixings for plant, equipment and components.

Components and equipment shall be fixed firmly to the building fabric using screws or bolts, as specified, of the maximum size permitted by the fixing holes.

Screw-fixings to solid brickwork or concrete shall be made using substantial proprietary metal or plastic plugs, ensuring that both plug and screw are well embedded into the masonry behind and applied finish. Screw fixing to sheet metal shall be made using sheet metal screws.

Through-the-wall bolt-fixings shall consist of a bolt sufficiently long to pass through the wall, spreader plate under the head and a nut and washer.

Bolt-fixings to solid brickwork, blockwork or concrete shall be made using self-drilling anchors. Bolt-fixings to hollow backgrounds shall be made using toggle-bolts or expanding plastic rawlnuts.

Bolt-fixings to structural steelwork shall be by means of clamps and adapters of the Lindaptor, installed in the manner recommended by their manufacturer.

The proposed methods of fixing to the structure should be approved by the structural engineer and engineer.

The following operations must not be carried out without the permission of the structural engineer. Failure to observe this requirement may result in the contractor having to make good the damage to structural steel, reinforced concrete, facing brick and other materials at his own expense.

1) Drilling or cutting of holes in structural steelwork
2) Welding on structural steelwork
3) Drilling of holes in reinforced concrete
4) The use of cartridge operated tools
5) Drilling or fixing to roof purlins

2.3.6 POSITION OF POINTS

The positions of all points and equipment shown on the drawings shall be assumed approximate for Tender purposes.

The contractor shall ensure by referring to the architect's or other detailed drawings that all accessories are located to suit fitments etc., and the equipment served by the outlet or accessory.

2.3.7 CONNECTING TO EXISTING SERVICES

The contractor shall notify the engineer and the contract administrator in writing, giving a minimum of seven days notice, of his intention to connect into or isolate any existing services and await his approval for so doing. The notice shall be accompanied by a method statement for the works, which includes detailed timings with regard to preparation duration and service interruption.

2.3.8 NOTICES AND LABELS

The contractor shall supply and erect warning and advisory notices in plant rooms and switchrooms. The notices shall wall mounted in a protective frame.

All plant, equipment, components, isolators and switches shall be fitted with labels detailing their function. The labels shall be black characters engraved on white traffolyte securely fixed to the equipment.

2.3.9 FINAL CONNECTIONS

The contractor shall allow for making all final connections to equipment and for coordination with the equipment supplier or manufacturers.

2.3.10 WARRANTIES

All warranties and guarantees for materials, equipment and components shall be provided for 12 months from practical completion. Extended warranties shall be provided where any plant is utilised for any reason other than commissioning prior to handover.

3 TESTING, HANDOVER AND WARRANTY

Contents

3 TESTING, HANDOVER AND WARRANTY

3.1 General Requirements

3.1.1 MANAGEMENT AND ADMINISTRATION

All testing and commissioning shall be properly and safely executed in accordance with sound practice, Health and Safety considerations and the Electricity at Work Regulations.

The contractor shall include for the complete testing and commissioning of the installations which must be to the complete satisfaction of the client's representative, fully demonstrating the performance of the installed systems.

All testing and commissioning shall be carried out in accordance with British Standards and with the relevant section of this document in the presence of the client's representative, on site, and where requested at the place of manufacture. Throughout testing and commissioning the contractor shall use certified calibrated and instruments and apparatus supplied by the contractor.

Where test parameters are not given results obtained equal to or better than the minimum standards set out in the British Standard shall be deemed satisfactory.

The client's representative shall have access at all reasonable times to such parts of the contractor's or his sub-contractor's works as may be necessary for the purpose of inspection, examining and testing of materials, workmanship and performance of plant.

Except where stated in the specification or in the contract documents, the Contractor shall provide all labour, materials, power, fuel test and access equipment for carrying out the tests specified.

Within six weeks of the contract works being let to the contractor they shall provide, for the agreement and approval of the client's representative, a comprehensive commissioning dossier giving full details of all tests to be carried out. The proposed method of recording of test information in respect of the plant and installations to be installed in the contract.

Prior to the anticipated commencement of commissioning works, the contractor shall resubmit the commissioning dossier, augmented and revised to suit any alterations or additions/deletions to the Scope of Works, which have been implemented during the contract period, for final approval of the client's representative.

The contractor shall give the client's representative a minimum of seven days notice of their intention to carry out tests.

Additional tests may be carried out as requested by the client's representative during the Defects Liability Period. Tests shall only be requested in this period if equipment is not performing as specified. Should it be found, after re-testing, that

the acceptance test criteria has not been maintained, then any additional costs incurred shall be borne by the contractor.

3.1.2 INSPECTION AND TESTS AT MANUFACTURER'S WORKS

Works tests shall be carried out such that due consideration is given to the conditions under which the equipment is required to function. The test certificates shall give all details of such tests.

All plant shall be subject to inspection and/or test at the manufacturer's works, as may be required by the engineer, insurance office or other body duly appointed by the client.

3.1.3 INSPECTION OF EQUIPMENT

The contractor shall inspect all plant and equipment immediately on delivery and shall not accept any of it which is damaged.

Any plant, equipment and accessories found to be unduly marked by tools or damaged, corroded or distorted by any cause, shall be rejected by the client's representative and must be replaced by the contractor at his own expense.

Any damage considered repairable must be notified to the engineer for inspection before any remedial work commences. Remedial work shall only be carried out on the authority of the client's representative.

The contractor shall be responsible for protection of his work during the execution of the contract.

3.1.4 TEST CERTIFICATES

Manufacturers and other Test Certificates are to be provided in duplicate for all systems, plant and equipment shall be submitted to the engineer during the testing and commissioning process. Additional copies shall be incorporated in the maintenance manuals as detailed elsewhere.

3.2 System Specific Testing and Commissioning

3.2.1 GENERAL

The contractor shall refer to the standards of workmanship document for system specific details.

3.2.2 PLANT & EQUIPMENT

The installations shall be maintained and run for as long as required to ensure that all plant, equipment, control etc., are working correctly. This period shall commence after the completion of all the adjustments. The correct operation of all plant, services, controls and instruments and each item of equipment shall be proved by demonstration to the Services Engineer, prior to the works being handed over to the Client.

Should the completion of the witnessed demonstrations be prevented during the agreed period for witness's attendance and have to be postponed to a later date, by reason of the Contractor/Sub-Contractor failing to ensure that all of the installation has been prepared for functioning in a correct, safe and proper manner, and in accordance with the specified requirements, then the Contract/Sub-Contract sum may be reduced by an amount equal to the expenses incurred by the witnesses having to return to site at a later date for resumption of the testing.

Further attendance shall be provided for supervising and instructing the Client's Engineer on the correct operation and maintenance procedure of all plant, equipment, controls etc.

3.2.3 CONFORMATION OF SET POINTS

Before commissioning is commenced, the contractor shall confirm all setpoints.

3.3 Handover

3.3.1 OPERATION AND MAINTENANCE INSTRUCTIONS

Before the Date of Practical Completion the Contractor shall provide 2 sets of Operating and Maintenance Instructions or the domestic equivalent for all the installations included in the Contract.

These sets shall be adequately bound with board covers to withstand continual usage using a binder system which permits information to be removed for upgrading and allows new information to be added. The manuals shall contain an index and be divided into appropriately titled logical sections to the Client Representative's approval.

Each set shall incorporate a detailed description of the operating procedures for each installation and item of equipment, together with details of the regular maintenance routines recommended by the Manufacturer. Each item of equipment, together with typical fault finding routes and a description of emergency action which should be taken in the event of breakdown of equipment.

In addition, for each item of equipment, a list of spare parts shall be given which the manufacturers recommended should be kept in store.

The manuals and instructions shall contain, though not be limited by the following information:-

- Index
- Set of reduced A3 size prints from the "As Fitted" record drawings
- General description of the systems, equipment used and method of control systems
- Schematic diagrams and control diagrams
- Schedule of routine maintenance
- Schedule of period maintenance for specialised equipment

- Schedules of method of adjustments, typical fault finding routine
- Wiring diagrams of plant etc
- Service manual for all specialised plant giving details as listed above
- Separate from the service manual shall be duplicate sets of manufacturer's catalogues relating to specialised plant
- Schedule of equipment giving name, address and telephone number of manufacturer, serial number of plant, horsepower electrical supply
- Description of emergency action which should be undertaken in the event of breakdown of equipment and telephone numbers of essential contacts
- Test and Performance Data
- Test Certificates
- Equipment and component characteristics such as C.T. curves, etc
- Recommended spares part list giving item description, part number and replacement time scale
- Health and Safety notes, advice and declaration

3.3.2 RECORD DRAWINGS

The Contractor shall provide, before the Date of Practical Completion, two paper prints. In addition the contractor shall provide disks containing the drawings fully compatible with the latest version of AutoCAD to BS 1192.

The "As Installed" drawings shall show the following:

- 1:100 or 1:50 scale drawings and a system diagram of the complete installation showing all pipework and duct work distribution with the appropriate code letters and identification marks

- The system diagrams shall record the values within the installation where appropriate

- The location of the Supply Authorities connections provided within the Sub-Contract whether carried out by the Contractor or by the appropriate Authority, together with the points of origin and termination, size and type of cables

- The detailed layout of the plant rooms, meter rooms, tank rooms etc. Showing where appropriate all existing as well as those items installed under this Sub-Contract. The "As Installed" schematic diagrams of all circuits, pipework and duct routes etc including all sizes and references

- Complete schedules

- Manufacturer drawings showing the arrangement and assembly of component parts of all machines and any piece of equipment which may need servicing.

- Diagrams illustrating the principles of operation of automatic controls and of instrumentation, present in combination with any foregoing item

- Manufacturers internal wiring diagrams for each piece of electrical equipment supplied under the Sub-Contract, together with physical arrangement drawings where necessary to locate and identify the component parts

- Interface details with existing equipment or equipment installed separately from these works

Two prints of each "As Installed" drawing shall be issued to the client's representative for approval prior to final issue.

The contractor shall also supply and fix in the main switchroom:

- Notices regarding the MEP installation

- Health and Safety Poster

- Schematic Wiring Diagram of the controls installation

The contractor shall provide reproduced "A3" size copies of all Record Drawings, perforated and incorporated in rigid loose leaf type bindings with protective coverings, for inclusion in the Operating and Maintenance Manuals.

3.3.3 EMPLOYER'S TRAINING

The contractor shall include for training the client's designated personnel in the function, use and maintenance requirements of the systems. The training for each system must be carried out by persons having an in depth knowledge of their function, operation and maintenance.

The training shall be provided in two parts as follows:

- Outline demonstration of the key functions and operation of each system prior to handover

- Detailed training and instruction on each system within three months of handover. The contractor should allow for a minimum of one half day's training for each system as defined in the headings of Section 4 of this specification. Additional time should be allowed for complex or large systems

The training should demonstrate all aspects of the installations to the satisfaction of the client's designated personnel.

The contractor shall be responsible for scheduling and programming the pre and post handover training to suit the client's designated personnel.

3.3.4 SPARE PARTS

Spare parts shall comply with the Specification and must be suitably marked and numbered for identification and prepared for storage by greasing or painting, as appropriate, to prevent deterioration.

A list of Spares recommended for one year's operation must be submitted by the contractor for inclusion in the Operation and Maintenance Manual.

3.4 Warranty and Maintenance

3.4.1 WARRANTY

It shall be deemed that warranty on the plant equipment and installation shall commence at the date of Practical Completion of the Contract Works (Building Works and Services Installations) unless specifically otherwise agreed by the client's representative in writing.

The contractor shall warrant all materials, plant, equipment and systems installed against fault, failure and incorrect or inadequate performance for a period of twelve calendar months from the date of practical completion.

The warranty shall include all replacement parts, equipment and labour. The contractor shall allow for carrying out warranty work outside normal working hours as necessary to suit the clients operation of the building. The contractor shall provide a single point of contact for reporting faults and problems which occur on all systems.

3.4.2 MAINTENANCE

If indicated within the Tender documents, the contractor shall include for full maintenance of the systems during the first twelve months after the completion or phased completion of the project.

If maintenance is not included in the contract an option cost shall be provided.

4 UTILITIES

Contents

4.1 SCOPE OF WORKS

The main contractor will ascertain the position and capacity of all existing mains, sewage, drainage, gas and water services on and immediately adjacent to the site and these shall be identified on the site layout drawing.

The main contractor shall be responsible for taking ownership of quotations from the utility services supply companies for the provision of supplies inclusive of meters to serve the building.

It shall be the responsibility of the M&E contractor to provide all relevant information to the main contractor to enable the orders for the statutory services to be placed.

The contractor shall be responsible for ascertaining and managing the requirement for any utilities diversion works associated with the development. As well as, utility applications an enquiry must be made as soon as the main contractor is appointed to a 'dial before you dig' type company to ascertain an understanding of below ground services and if necessary a radar scan shall be used to identify below ground services in the location of new excavations.

The design intent for incoming services can be found on the IF/500 drawings.

4.2 DESCRIPTION OF WORKS

4.2.1 INCOMING MAINS WATER SUPPLY

The main contractor shall adopt the existing application and manage the installation of a new incoming mains water supply, including, if necessary the strip out and reconfiguring of existing equipment associated with the sites previous use. Water must be maintained to the ground floor office during the works.

4.2.2 INCOMING ELECTRICITY SUPPLY

The main contractor shall adopt the existing application and manage the installation of new incoming power supplies to the building and associated metering.

4.2.3 CONNECTION TO EXISTING BELOW GROUND DRAINAGE

Refer to civil engineers recommendations.

4.2.4 INCOMING GAS SUPPLY

The main contractor shall adopt the existing application and manage the removal of the existing gas supplies to the building and associated metering.

4.2.5 INCOMING DATA SERVICES

The client shall apply for new Openreach Fibre FTTP and the Main Contractor shall make suitable provision for the incoming services as required and as detailed on the drawings.

4.3 STATUTORY CHARGES

The main contractor will be responsible for:

- Acquiring quotations (or taking ownership of existing applications)
- Quotation fees (billed back to client)
- Payment of connection charges (billed back to client)
- Infrastructure contributions (billed back to client)

Associated with the provision of all new supplies to serve the building.

5 TENDER SUMMARY

Contents

5.1 MECHANICAL SERVICES TENDER SUMMARY

1.0	Strip Out / Removal of Existing (if required)	£……
2.0	Incoming Mains Water Supply	£……
3.0	Boosted Cold Water Plant & Distribution	£……
4.0	Apartment Hot and Cold Water Services	£……
5.0	Ventilation System	£……
6.0	Above Ground Drainage (inc RWP)	£……
7.0	Sanitary ware Installation	£……
8.0	Penthouse Apts AC System	£……
9.0	Fire Suppression System	£……
10.0	Landlords Services	£……
11.0	Dry riser installation	£……
12.0	Testing & Commissioning	£……
13.0	Record Documents	£……
14.0	Other (Please Specify)	£……

TOTAL £……

Signed

On behalf of:

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Company Stamp

5.2 ELECTRICAL SERVICES TENDER SUMMARY

1.0	Strip Out (if required)	£……
2.0	Mains Incoming, Distribution	£……
3.0	Sub Main Cabling & Distribution Boards	£……
4.0	Containment Trays, Trunking & Basket	£……
5.0	Apartment Small Power	£ ……
6.0	Landlords Power Supplies (inc lifts & AOVs etc)	£……
7.0	Apartment Lighting	£……
8.0	Landlords Lighting	£……
9.0	Data/Comms Systems	£……
10.0	Electric Vehicle Charging System	£……
11.0	Access Control / Video Entry / CCTV	£……
12.0	Apartment Fire Alarm	£……
13.0	Landlords Fire Alarm and AOV's	£……
14.0	Electric Panel Heaters	£……
15.0	Equipotential & General Earth Bonding	£……
16.0	Lightning Protection	£……
17.0	Roof PV System	£……
18.0	Record Documents	£……
19.0	Other (Please Specify)	£……
	TOTAL	**£**……

Signed

On behalf of:

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Company Stamp

5.3 PROVISIONAL SUMS

1.0	Additional External Lighting	£……
2.0	Rewiring External Elec Services (inc gate)	£……
3.0	Services Fire Stopping (collars & sleeves)	£……
4.0	Re-using existing water supply for office	£……

Discuss with QS reference allocated figures for these provisional sums

5.4 CONTRACTOR DESIGN PORTIONS / SPECIALIST DESIGN ITEM

1.0 Lightening Protection System

2.0 Fire and Smoke Alarm System

3.0 Smoke Ventilation System

4.0 Fire Suppression System

5.0 Finalised PV System

6 RECOMMENDED EQUIPMENT

Contents

6.0 INTRODUCTION

This section sets out the example equipment to be selected for the installation of the Mechanical, Electrical & Public Health Services Installation, and is to be read in conjunction with the MEP and Architectural drawings, employers requirements, standards of installation and material schedule.

The equipment is equal or approved and technical submittals are required for all final selections. If the installation contractor suspects an issue with the suitability of the below in terms of both operation or availability they shall notify the employers agent. Where initial tender stage quotations have been referenced this is for information only and does not alleviate the contractors responsibility to provide a complete and operational system in accordance with the drawings and specification. Further ancillaries and requirements must be included by way of acquiring construction stage quotations based on site constraints and further developed details.

6.1 MECHANICAL

Booster Set 1 – 3.5l/s 4.8bar Dutypoint VT2 plus ancill

Cat 5 booster – Dutypoint unibreak (if requested by BCO or water authority)

Break tank – 4,000l GRP sectional Dutypoint plus ancill

Scale Reducer - Dutypoint EC unit size as main supply pipe

cMEV Units – Vent Axia Lo-Carbon Multivent MVDC

Supply/Extract Valves – Domus 125Ø

Ductwork – Domus

External Terminals – 125Ø stainless steel bull nose type

External Roof Terminals – Universal 125Ø roof terminals and colour matched

Pipework Insulation – Climflex Naturefoam (or similar approved) thickness as TIMSA

Pipework Risers and plant room – Copper or appropriate approved alternative

Pipework corridors and Apartments – Copper or appropriate approved alternative

Apt DHW Cylinder – Dual 3KW immersion direct low kwhr/day loss (size per no. bathrooms)

Apt DHW – E7+ smart immersion controls (or similar)

4no duplex Apt heating and cooling – Each c/w Daikin FDXM50F9 / RXM50A (inc Madoka)

Fire Suppression – Contractor to appoint specialist and submit proposal

6.3 ELECTRICAL

DNO works – UKPN quote

Communal Lighting luminaires – Whitecroft luminaires as per lighting drawings

Apartments Lighting luminaires – Aurora lighting as per lighting layouts

Accessories - MK Logic metal flush by Architect/Client see finishes schedule

MSDB boards – Lucy Multi-Service or Ryefield Fuse Boards 3 phase 400 V 500 A rated

Landlord 3ph DB 16-way TP&N way (25% spare space) - Schneider Electric Acti9 Type B

Retail 3ph DB 12-way TP&N way (25% spare space) - Schneider Electric Acti9 Type B

Consumer Unit 1ph 20 ways TPN including 20% spare – Hager VML120 20 Way

Fire alarm by specialist (submit proposal)

Access Control System – Paxton Net 2 (or similar) to be confirmed with client's specialist

AOV by specialist (submit proposal)

EVC chargers 7.4kw single phase in double or single arrangement – BG Sync EV

EVC load balancing system – BG sync EV

600x600x900mm Draw pit chambers – Easy PIT by ABC UK

Heaters (Apts) – Dimplex Quantum High retention storage heaters (sizes as drawings)

Heaters (Entrance & none HRSH Apts) – Dimplex PLXE

Security system – as per client's specialist specification

Audio System - as per client's specialist specification

CCTV System - as per client's specialist specification

Generator – 40KVA stand-by rated P40-4S FG WILSON

ATS – Form 4 type 2 Automatic transfer switch with a rating of AC33, IP65 rating and single line maintenance bypass by Craig & Derricott

6.5 PUBLIC HEALTH

Internal UPVC - Marley / Osma / Hunter / Terrain

External – To Architects requirements (cast iron)

Pumps - Tech sub required from contractor before commencing, refer to SUDs design

Traps (Tech sub required)

Showers – 40mm flat trap (floor recessed where possible)

Sinks – Tubular P trap (plus dishwasher connection)

W/M &or D/W – 600mm stand pipe

WHB – Anti-syphon bottle trap

Bath – Bath trap

MEPH Design Risk Assessment

OME

Project No:	P-1208	**By:**	JSO	**Rev:**	v1
Title:	227 SBR	**Date:**	10/02/2026	**Date:**	19/02/2026

No.	Description	At Risk	Responsibility for Action	Design Measures Taken	Actioned By	Date	Residual Hazard?
1	Location of the Equipment on the Roof	Contractors / Maintenance Staff	Contractor	Location of services on the roof is unavoidable; high level equipment will be given sufficient space for reasonable access. Contractor to make provision for suitable access equipment and provide method statements for mounting of equipment at height. Safe Access to be provided.	Contractor	TBC	Y
2	Manual Handling - moving water cylinders, boilers, booster pump sets, sanitaryware, LV Switch panels, distribution boards, comms cabinets, lighting columns and fittings	Contractors / Maintenance Staff	Contractor	Weight of items of equipment to be highlighted in the design where excessive. Contractor to ensure that safe manual handling procedures are observed when moving equipment, and to provide method statements for movement of heavy items of equipment. Particular attention must be given to lifting to roof and plant room.	Contractor	TBC	Y
3	Electrocution/Electrical Burns	Contractor/ End User	Contractor	Selection of equipment with appropriate approvals and ratings (i.e. IP rated light fittings externally and so on). Contractors to be suitably qualified and trained for work on electrical equipment. Particular attention to be given to sub-station and switch gear works.	Contractor	TBC	Y
4	Gas Services Installation	Contractor/ End User	Contractor	Relative Method Statements and Risk Assessments to be produced by Mechanical Contractor. All operatives to be suitably certified for the installation and testing of gas installations.	Contractor	TBC	Y
5	Pulling of Cables through Underground Ducts and Above Ground Containment	Contractor	Contractor	Relative Method Statements and Risk Assessments to be produced by Contractors. Cable pulls must be smooth and close supervision is required to ensure cables are tense, but not overstretched. Following installation fixings must be inspected for damage.	Contractor	TBC	Y
6	Builders Works Openings, Within Walls/Floors	Contractor	Contractor	Relative Method Statements and Risk Assessments to be produced by Contractors. Consideration must be made to ensure that levels above and below the works area are safely maintained. Consideration must be given to existing structure and integrity should not be effected by cutting new penetrations. Openings between floors shall be clearly signed and protected.	Contractor	TBC	Y
7	Hot Working	Contractor	Contractor	Risk Assessments to be produced. Alternative materials should be considered. Hot Work Permit System is required to be put into place.	Contractor	TBC	Y
8	Water Tank Storage	Contractor	Contractor	Manufacturer to carry out installation. A suitable base for the storage tank shall be provided by the contractor. Risk Assessments and Method Statements are to be produced. Where tanks are installed at height, suitable lifting equipment must be used.	Contractor	TBC	Y

MEPH Design Risk Assessment

OME

Project No:	P-1208	**By:**	JSO	**Rev:**	v1
Title:	227 SBR	**Date:**	10/02/2026	**Date:**	19/02/2026

No.	Description	At Risk	Responsibility for Action	Design Measures Taken	Actioned By	Date	Residual Hazard?
9	Air Conditioning Installation	Contractor	Contractor	Where applicable, the air conditioning installation needs to be carried out by a suitably qualified refrigerant engineer. Method Statements and Risk Assessments to be produced.	Contractor	TBC	Y
10	Installation of Services Within a Trench	Contractor	Contractor	Service trenches may be unavoidable. Risk Assessments and Method Statements are to be provided to ensure safe working practices. All trenches are to be suitability covered at the earliest convenience. Contractor to refer to ground contamination report before any digging.	Contractor	TBC	Y
11	Handling of Hazardous Materials	Contractor	Contractor	Relative Method Statements and Risk Assessments to be produced by Contractors. Consideration must be made to ensure that appropriate storage and transit of chemicals is in place. Particular attention must be given to asbestos.	Contractor	TBC	Y
12	Enclosed Spaces	Contractors / Maintenance Staff	Contractor	Proper working access is required both throughout and after the project. Relative Method Statements and Risk Assessments to be produced by Contractors. Areas of difficult maintenance to be highlighted in the O&M Manuals.	Contractor	TBC	Y
13	Windows and Other High Level Openings	Contractor/ End User	Contractor	Windows will be openable for purge ventilation. When purge is not required, due to the height of the building, window hold open devices will be required in accordance with building controls	Contractor	TBC	Y
14	Existing Below Ground Services	Contractor	Contractor	The Contractor shall observe good practice with respect to unearthing existing below ground services. A dial before you dig company shall be consulted to assist in identifying below ground services as well as referring	Contractor	TBC	Y
15	Strip Out Works	Contractor	Demo Contractor	Due to nature of the development a significant amount of strip out works is required. The Demo Contractor shall leave the building in a safe manner and shall identify to the Principal Contractor any residual risks in writing. The building shall be signed over once demo works are complete.	Contractor	TBC	Y
16	Maintaining Weather Proofing for Safety	Contractor	Demo & Main Contractor	During strip out works to roof and other areas the weather proofing shall be maintained, particularly protection against water ingress. If this cannot be maintained, appropriate measures should be taken to safe guard site operatives and the building.	Contractor	TBC	Y
17	Forming of new penetrations	Contractor	Main Contractor	Where new holes are to be formed for services (especially where running through perimeter ring beam) the main contractor shall seek clarification from the structural engineer and ascertain the required safe zone at grd floor level.	Contractor	TBC	Y
18	Fixing of openings at high level	Contractor	Main Contractor	The windows of apartments on upper levels shall be fitted with protection devices to limit the amount they can be opened without manual overide. This shall be reviewed and agreed by building control before being implemented.	Contractor	TBC	Y
19	Fixing of Roof Mounted Equipment	Contractor	Main Contractor	All equipment installed at roof level (and other heights) shall be securely fixed to the structure or fitted with suitable ballast to protect from potential movement	Contractor	TBC	Y
20	Specialist Fire Engineering System	Contractor	Main Contractor	Specialist Fire Supression and Alarm company to be appointed as early as possible in the programme to test main, ensure compliance with Fire Strategy and design system.	Contractor	TBC	Y