ENHANCED FABRIC PART L2

CALCULATION

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Actual U values L2B Standard services DX

As designed

Date: Wed Aug 03 09:35:17 2016

Administrative information

Building Details

Address: 93-103 Drummond Street, LONDON, NW1 2HJ

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.2.g.3

Interface to calculation engine: iSBEM

Interface to calculation engine version: v5.2.g

BRUKL compliance check version: v5.2.g.3

Owner Details

Name: Information not provided by the user

Telephone number: Information not provided by the user

Address: Information not provided by the user, Information not provided by the user, Information not provided by the user

Certifier details

Name: Tony Wood

Telephone number:

Address:

Criterion 1: The calculated CO_2 emission rate for the building should not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	19.7
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	19.7
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	34.1
Are emissions from the building less than or equal to the target?	BER > TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and the building services should achieve reasonable overall standards of energy efficiency

Values not achieving standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.18	0.18	Basement Stairs/nwi
Floor	0.25	0.11	1	Ground Floor Stairs/fi.1
Roof	0.25	0.15	0.15	Basement offices/c
Windows***, roof windows, and rooflights	2.2	1.2	1.2	Basement offices/ne.1/g
Personnel doors	2.2	1.8	1.8	Basement Offices/nw/fd
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]

$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

* There might be more than one surface where the maximum U-value occurs.

** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

*** Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
$m^3/(h.m^2)$ at 50 Pa	10	10

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- Air Conditioning

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.6	2.6	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

2- Gas LPHW

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.84	-	-	-	-
Standard value	0.91*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.

1- DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
Basement Stairs	-	-	-	-	-	-	-	-	-	-	N/A
Basement offices	-	-	-	2.2	-	-	-	-	-	0.5	0.5
Basement WC	0.4	-	-	-	-	-	-	-	-	-	N/A
Ground Floor Open Plan Office	-	-	-	2.2	-	-	-	-	-	0.5	0.5
Ground Floor Small office	-	-	-	2.2	-	-	-	-	-	0.5	0.5
Ground Floor Stairs	-	-	-	-	-	-	-	-	-	-	N/A
Ground Floor WC	0.4	-	-	-	-	-	-	-	-	-	N/A
First Floor Stairs	-	-	-	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
Mezz deck Offices	-	-	-	2.2	-	-	-	-	-	0.5	0.5
First Floor Tower office	-	-	-	-	-	-	-	-	-	-	N/A
Second Floor Tower office	-	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Basement Stairs	-	60	-	74
Basement offices	60	-	-	7681
Basement WC	-	60	-	231
Ground Floor Open Plan Office	60	-	-	5023
Ground Floor Small office	60	-	-	1278
Ground Floor Stairs	-	60	-	102
Ground Floor WC	-	60	-	160
First Floor Stairs	-	60	-	68
Mezz deck Offices	60	-	-	4258
First Floor Tower office	60	-	-	410
Second Floor Tower office	60	-	-	466

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Basement Stairs	N/A	N/A
Basement offices	NO (-83.4%)	NO
Basement WC	N/A	N/A
Ground Floor Open Plan Office	NO (-2.6%)	NO
Ground Floor Small office	NO (-67%)	NO
Ground Floor Stairs	N/A	N/A
Ground Floor WC	N/A	N/A
First Floor Stairs	N/A	N/A
Mezz deck Offices	NO (-2.8%)	NO
First Floor Tower office	NO (-79%)	NO
Second Floor Tower office	NO (-83.5%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m²]	2066.6	2066.6
External area [m²]	3222.5	3222.5
Weather	LON	LON
Infiltration [m³/hm²@ 50Pa]	10	3
Average conductance [W/K]	721.65	1322.18
Average U-value [W/m²K]	0.22	0.41
Alpha value* [%]	15.24	13.26

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
100	**B1 Offices and Workshop businesses**
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Inst.: Hospitals and Care Homes
	C2 Residential Inst.: Residential schools
	C2 Residential Inst.: Universities and colleges
	C2A Secure Residential Inst.
	Residential spaces
	D1 Non-residential Inst.: Community/Day Centre
	D1 Non-residential Inst.: Libraries, Museums, and Galleries
	D1 Non-residential Inst.: Education
	D1 Non-residential Inst.: Primary Health Care Building
	D1 Non-residential Inst.: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others - Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	3.98	3.76
Cooling	22.09	9.11
Auxiliary	7.97	2.63
Lighting	29.04	21.38
Hot water	2.7	3.12
Equipment*	40.12	40.12
TOTAL**	**65.77**	**40.01**

* Energy used by equipment does not count towards the total for calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	181.47	150.97
Primary energy* [kWh/m²]	201.92	113.85
Total emissions [kg/m²]	34.1	19.7

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	34.7	146.8	4	22.1	8	2.42	1.85	2.6	2.6
	Notional	32.9	118.1	3.8	9.1	2.6	2.43	3.6	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The BCO can give particular attention to items with specifications that are better than typically expected.

Building fabric

Element	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.18	Basement Stairs/nwi
Floor	0.2	0.1	Basement offices/f
Roof	0.15	0.15	Basement offices/c
Windows, roof windows, and rooflights	1.5	1.2	Basement offices/ne.1/g
Personnel doors	1.5	1.8	Basement Offices/nw/fd
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = Minimum individual element U-values [W/(m²K)]

* There might be more than one surface where the minimum U-value occurs.

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	10

PROPOSED SOLUTION

PART L2 CALCULATION

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Actual U values L2B Act Services LPHW

As designed

Date: Wed Aug 03 09:40:41 2016

Administrative information

Building Details

Address: 93-103 Drummond Street, LONDON, NW1 2HJ

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.2.g.3

Interface to calculation engine: iSBEM

Interface to calculation engine version: v5.2.g

BRUKL compliance check version: v5.2.g.3

Owner Details

Name: Information not provided by the user

Telephone number: Information not provided by the user

Address: Information not provided by the user, Information not provided by the user, Information not provided by the user

Certifier details

Name: Tony Wood

Telephone number:

Address:

Criterion 1: The calculated CO_2 emission rate for the building should not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	16.3
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	16.3
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	14.1
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and the building services should achieve reasonable overall standards of energy efficiency

Values not achieving standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.18	0.18	Basement Stairs/nwi
Floor	0.25	0.11	1	Ground Floor Stairs/fi.1
Roof	0.25	0.15	0.15	Basement offices/c
Windows***, roof windows, and rooflights	2.2	1.2	1.2	Basement offices/ne.1/g
Personnel doors	2.2	1.8	1.8	Basement Offices/nw/fd
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m²K)]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m²K)]
$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.
*** Display windows and similar glazing are excluded from the U-value check.
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
$m^3/(h.m^2)$ at 50 Pa	10	10

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	>0.95

1- Air Conditioning

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4	4	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

2- Gas LPHW

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	-	-	-
Standard value	0.91*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.

1- DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
Basement Stairs	-	-	-	-	-	-	-	-	-	-	N/A
Basement offices	-	-	-	1.8	-	-	-	-	-	0.65	0.5
Basement WC	0.3	-	-	-	-	-	-	-	-	-	N/A
Ground Floor Open Plan Office	-	-	-	1.8	-	-	-	-	-	0.65	0.5
Ground Floor Small office	-	-	-	1.8	-	-	-	-	-	0.65	0.5
Ground Floor Stairs	-	1.8	-	-	-	-	-	-	-	-	N/A
Ground Floor WC	0.3	1.8	-	-	-	-	-	-	-	-	N/A
First Floor Stairs	-	1.8	-	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
Mezz deck Offices	-	-	-	1.8	-	-	-	-	-	0.65	0.5
First Floor Tower office	-	-	-	-	-	-	-	-	-	-	N/A
Second Floor Tower office	-	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Basement Stairs	-	110	-	40
Basement offices	110	-	-	4190
Basement WC	-	110	-	126
Ground Floor Open Plan Office	110	-	-	2740
Ground Floor Small office	110	-	-	697
Ground Floor Stairs	-	110	-	56
Ground Floor WC	-	110	-	87
First Floor Stairs	-	110	-	37
Mezz deck Offices	110	-	-	2323
First Floor Tower office	110	-	-	224
Second Floor Tower office	110	-	-	254

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Basement offices	NO (-83.4%)	NO
Ground Floor Open Plan Office	NO (-2.6%)	NO
Ground Floor Small office	NO (-67%)	NO
Mezz deck Offices	NO (-2.8%)	NO
First Floor Tower office	NO (-79%)	NO
Second Floor Tower office	NO (-83.5%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m²]	2066.6	2066.6
External area [m²]	3222.5	3222.5
Weather	LON	LON
Infiltration [m³/hm²@ 50Pa]	10	3
Average conductance [W/K]	721.65	1322.18
Average U-value [W/m²K]	0.22	0.41
Alpha value* [%]	15.24	13.26

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
100	**B1 Offices and Workshop businesses**
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Inst.: Hospitals and Care Homes
	C2 Residential Inst.: Residential schools
	C2 Residential Inst.: Universities and colleges
	C2A Secure Residential Inst.
	Residential spaces
	D1 Non-residential Inst.: Community/Day Centre
	D1 Non-residential Inst.: Libraries, Museums, and Galleries
	D1 Non-residential Inst.: Education
	D1 Non-residential Inst.: Primary Health Care Building
	D1 Non-residential Inst.: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others - Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	12.74	11.83
Cooling	0	0
Auxiliary	8.94	3.76
Lighting	10.89	21.38
Hot water	2.7	3.12
Equipment*	40.12	40.12
TOTAL**	**35.27**	**40.09**

* Energy used by equipment does not count towards the total for calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	153.15	153
Primary energy* [kWh/m²]	82.96	93.13
Total emissions [kg/m²]	14.1	16.3

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	39.3	113.8	12.7	0	8.9	0.86	0	0.96	0
	Notional	34.9	118.1	11.8	0	3.8	0.82	0	---	---

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

Key Features

The BCO can give particular attention to items with specifications that are better than typically expected.

Building fabric

Element	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.18	Basement Stairs/nwi
Floor	0.2	0.1	Basement offices/f
Roof	0.15	0.15	Basement offices/c
Windows, roof windows, and rooflights	1.5	1.2	Basement offices/ne.1/g
Personnel doors	1.5	1.8	Basement Offices/nw/fd
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = Minimum individual element U-values [W/(m²K)]

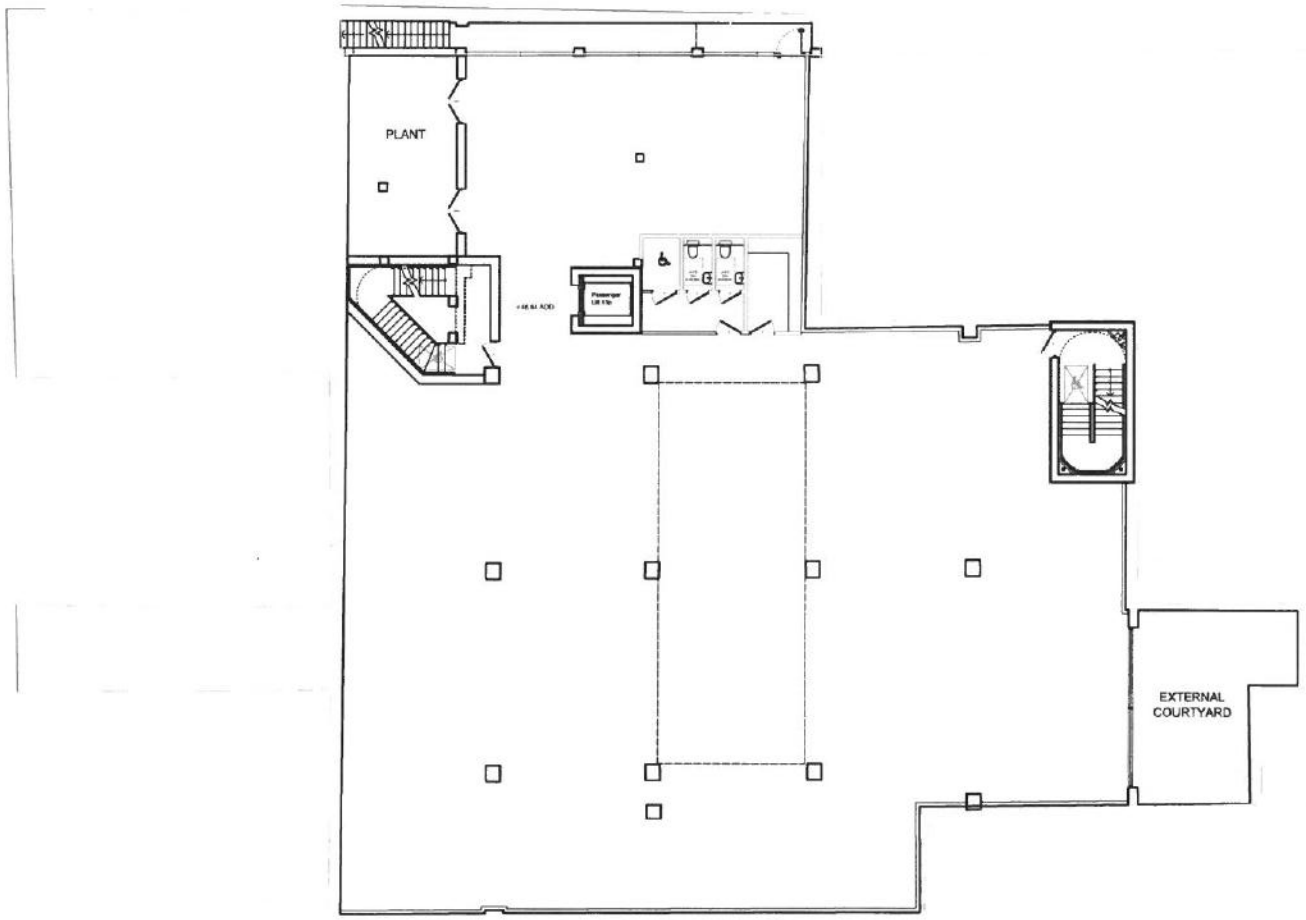
* There might be more than one surface where the minimum U-value occurs.

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	10

PROPOSED DRAWINGS

DRUMMOND STREET

COBOURG STREET



CZWG

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www.czwg.com

Rev: D04	**Date:** 14.09.2016	**Drn:** EF	**Chk:** LB
Internal void position revised.			
Rev: D03	**Date:** 13.09.2016	**Drn:** EF	**Chk:** LB
Entrance lobby, internal voids, and facade revised.			
Rev: D02	**Date:** 15.08.2016	**Drn:** EF	**Chk:** LB
Updated floor heights. Amended void position.			
Rev: D01	**Date:** 10.08.2016	**Drn:** EF	**Chk:** LB
Initial Issue.			

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:
Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:33:36

Client:

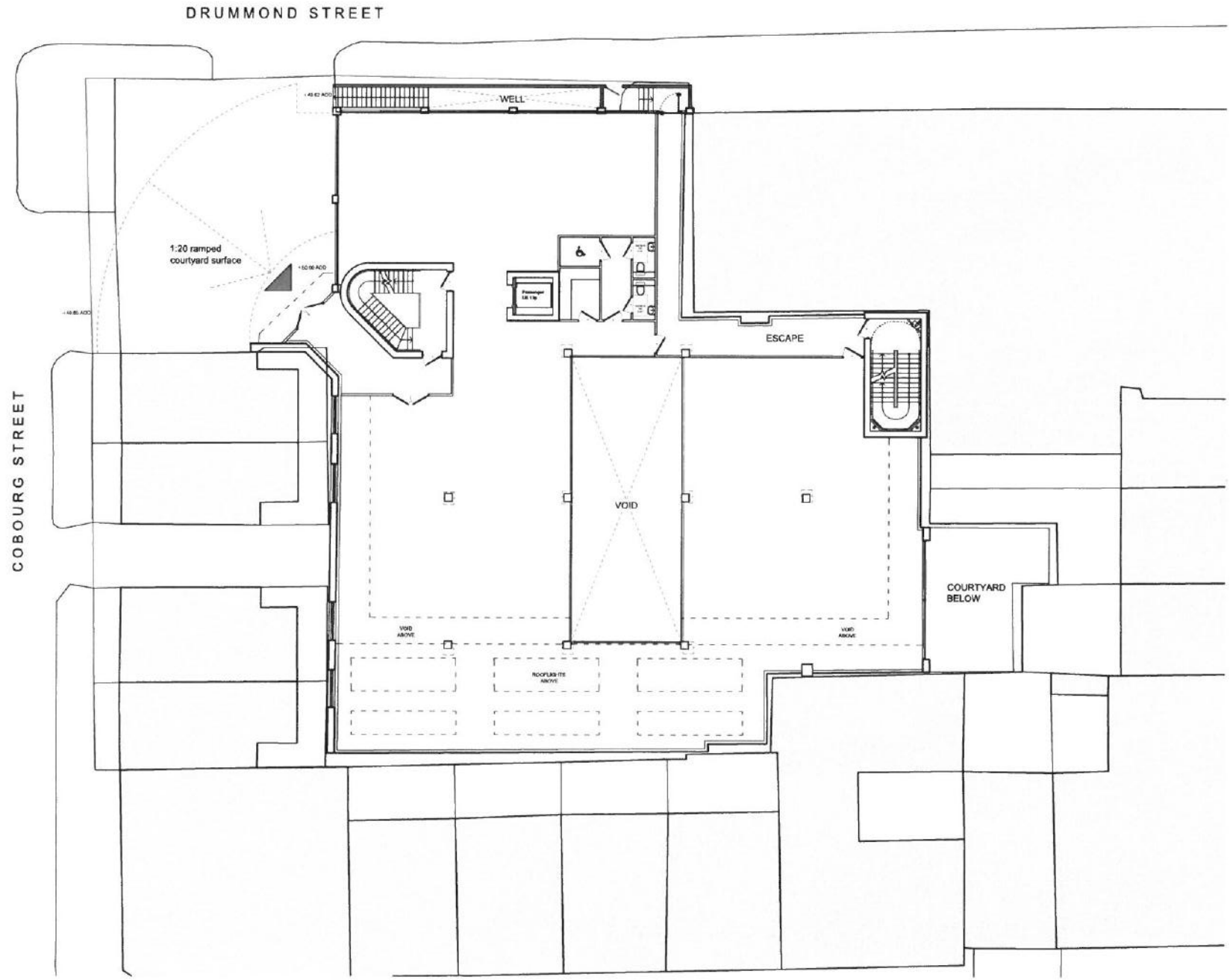
Project:
Drummond Street

Title:
Office Scheme
General Arrangement Plan
Level -01

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0109 D04



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Rev: D04 **Date:** 14.09.2016 **Drn:** EF **Chk:** LB
Internal columns, void and skylight positions revised.
Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Entrance lobby, internal voids, and facade revised.
Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Amended void position.
Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial issue.

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:
Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:33:08

Client:

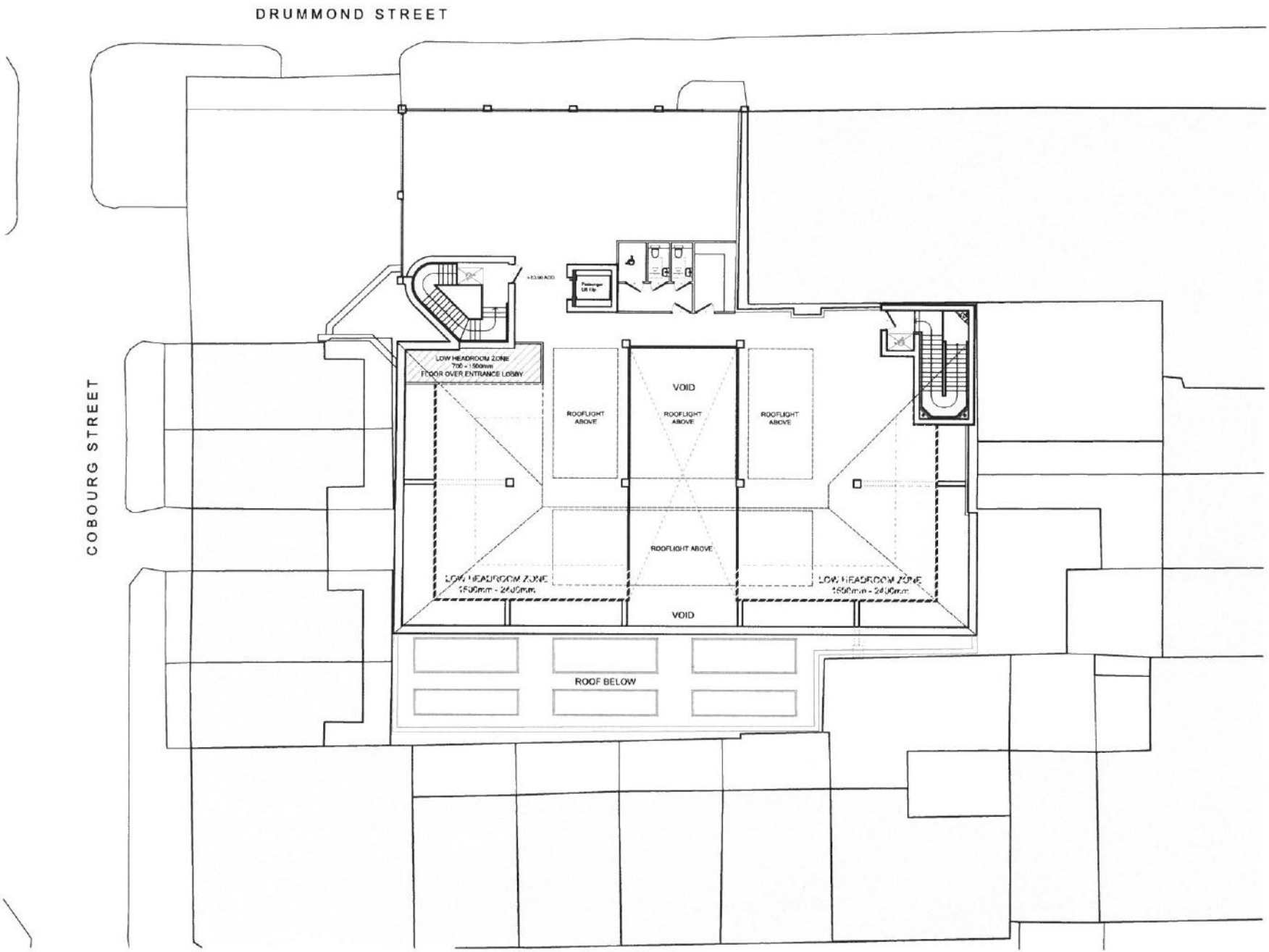
Project:
Drummond Street

Title:
Office Scheme
General Arrangement Plan
Level 00

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0110 D04



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Rev: D04 **Date:** 14.09.2016 **Drn:** EF **Chk:** LB
Internal columns, void and skylight positions revised.

Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Entrance lobby, internal voids, and facade revised.

Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Amended void position.

Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial Issue.

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:

Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:32:43

Client:

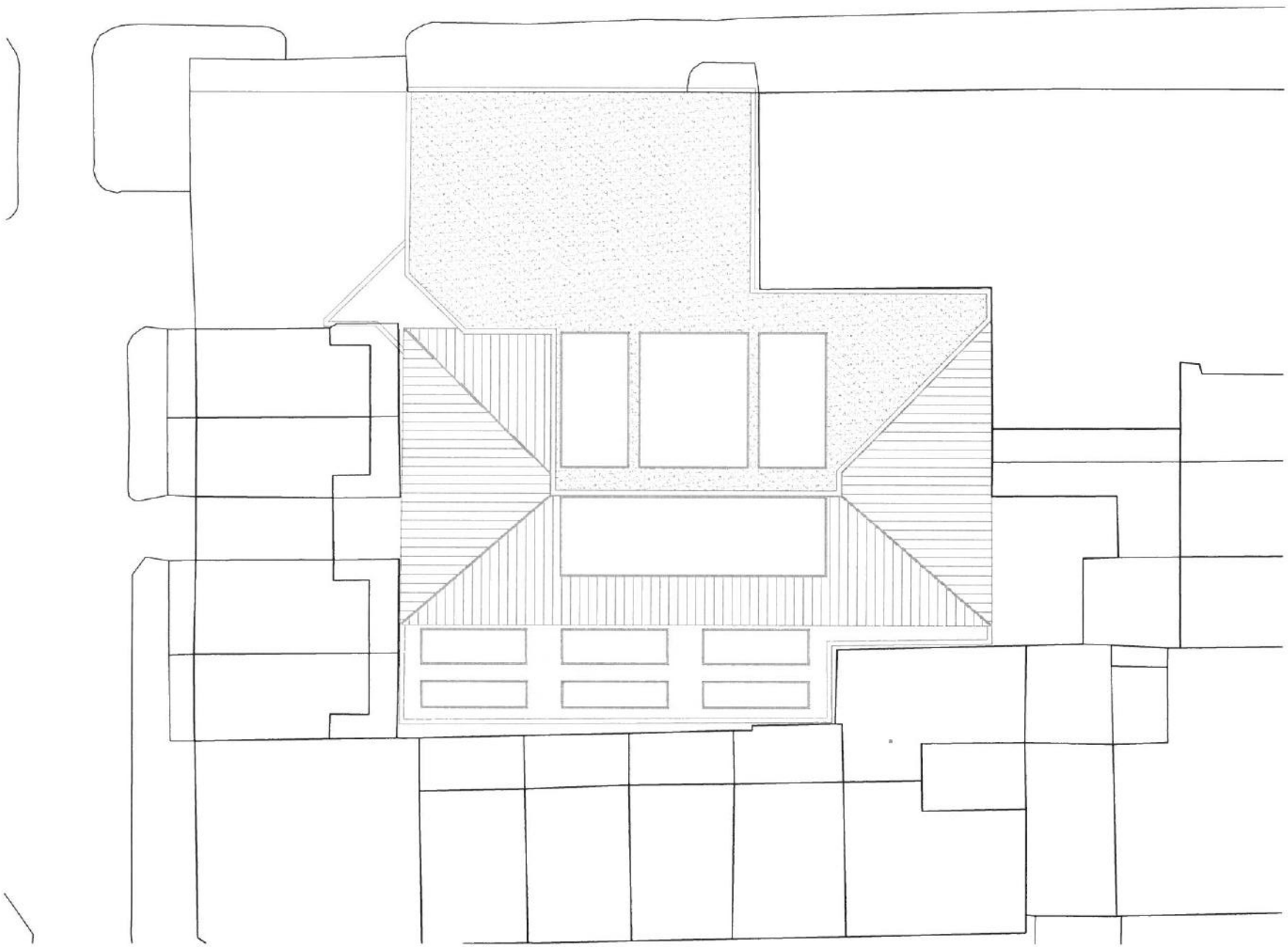
Project:
Drummond Street

Title:
Office Scheme
General Arrangement Plan
Level 01

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0111 D04



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Rev: D03	**Date:** 14.09.2016	**Drn:** EF	**Chk:** LB
Skylight positions revised.			
Rev: D02	**Date:** 13.09.2016	**Drn:** EF	**Chk:** LB
Roof pitch & skylight positions revised.			
Rev: D01	**Date:** 15.08.2016	**Drn:** EF	**Chk:** LB
Initial issue.			

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:

Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:32:04

Client:

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Project:
Drummond Street

Title:
Office Scheme
General Arrangement Plan
Roof Plan

.

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0120 D03

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Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Levels, entrance lobby & facade revised.

Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Second floor omitted.

Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial issue.

SHEET INFORMATION:

Plotted by : E.FIGUEIREDO
Plot date : 13 September 2016 17:18:58

Client:

Project:
Drummond Street

Title:
Office Scheme
South West Elevation

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0602 D03

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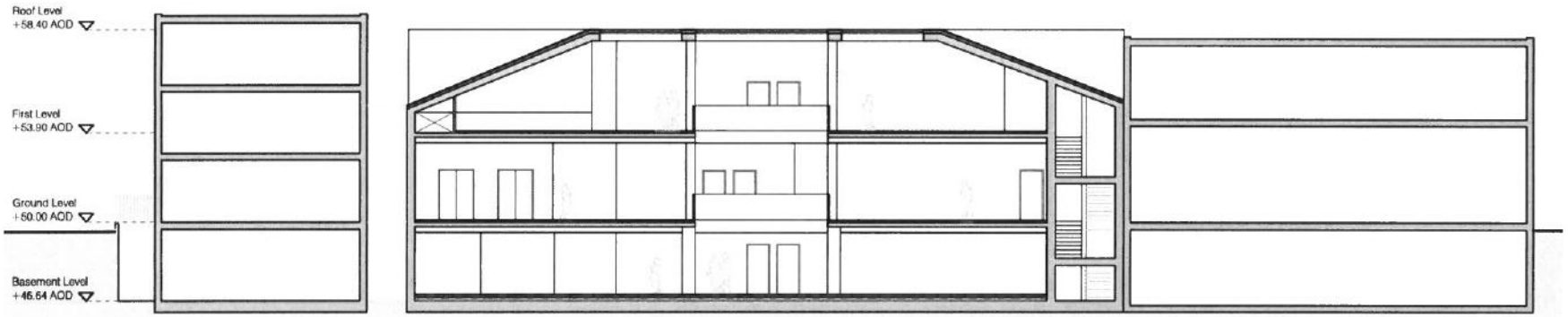

Rev: D04 **Date:** 14.09.2016 **Drn:** EF **Chk:** LB
Internal columns, void and skylight positions revised.

Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Internal layout and voids amended. Skylights and roof pitch revised.

Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Amended void position.

Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial issue.

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:
Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:31:36

Client:

Project:
Drummond Street

Title:
Office Scheme
Section AA

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0401 D04

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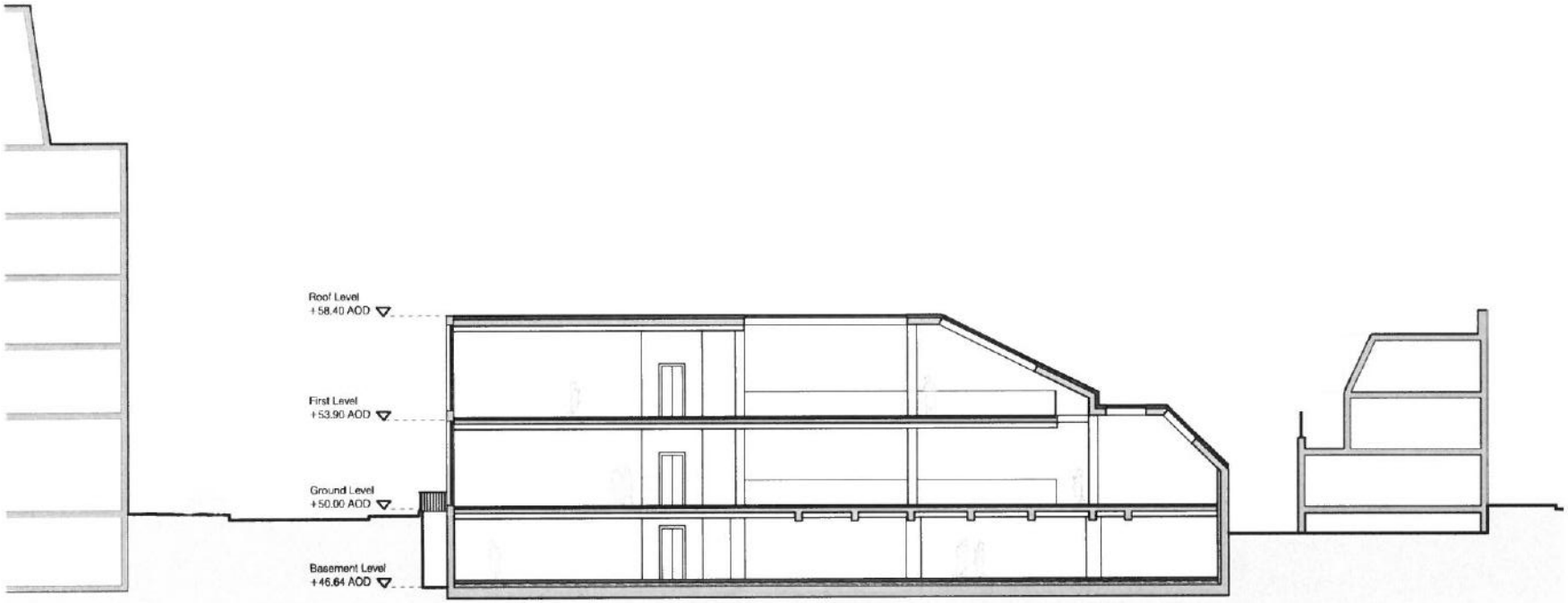

Rev: D04 **Date:** 14.09.2016 **Drn:** EF **Chk:** LB
Internal columns, void and skylight positions revised.

Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Internal layout and voids amended. Skylights and roof pitch revised. Facade updated.

Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Second floor omitted.

Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial Issue.

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Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:
Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:31:17

Client:

Project:
Drummond Street

Title:
Office Scheme
Section BB

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0402 D04

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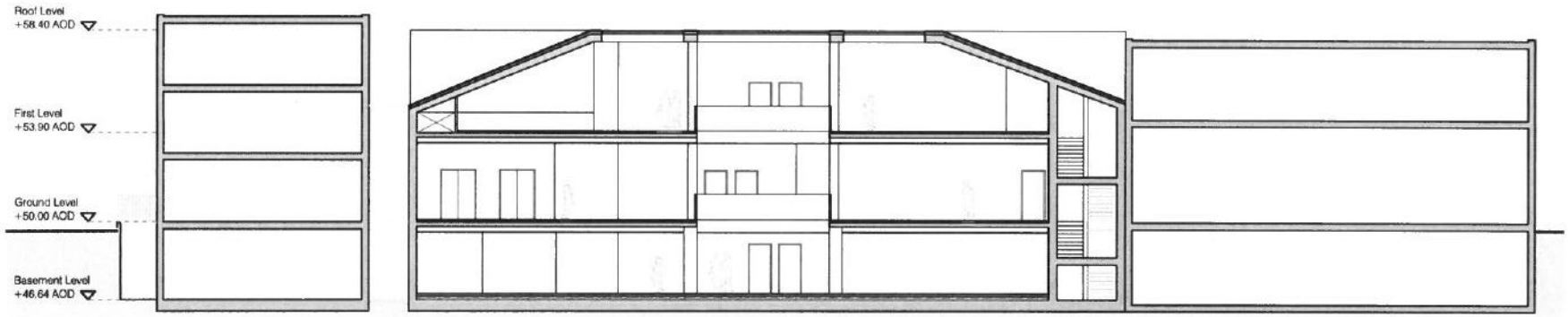

Rev: D04 Date: 14.09.2016 Drn: EF Chk: LB
Internal columns, void and skylight positions revised.

Rev: D03 Date: 13.09.2016 Drn: EF Chk: LB
Internal layout and voids amended. Skylights and roof pitch revised.

Rev: D02 Date: 15.08.2016 Drn: EF Chk: LB
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Rev: D01 Date: 10.08.2016 Drn: EF Chk: LB
Initial issue.

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:

Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:31:36

Client:

Project:
Drummond Street

Title:
Office Scheme
Section AA

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0401 D04

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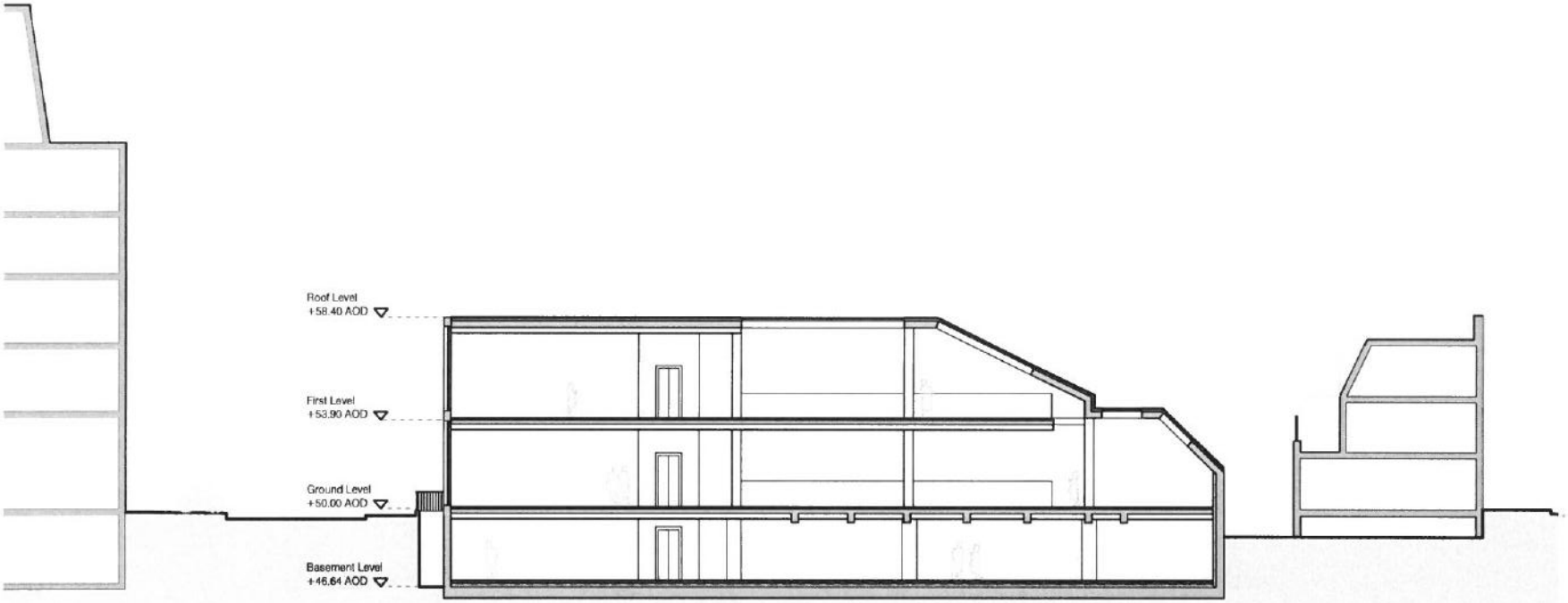

Rev: D04 **Date:** 14.09.2016 **Drn:** EF **Chk:** LB
Internal columns, void and skylight positions revised.

Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Internal layout and voids amended. Skylights and roof pitch revised. Facade updated.

Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Second floor omitted.

Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial issue.

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:

Plotted by : E.FIGUEIREDO
Plot date : 14 September 2016 14:31:17

Client:

Project:
Drummond Street

Title:
Office Scheme
Section BB

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0402 D04

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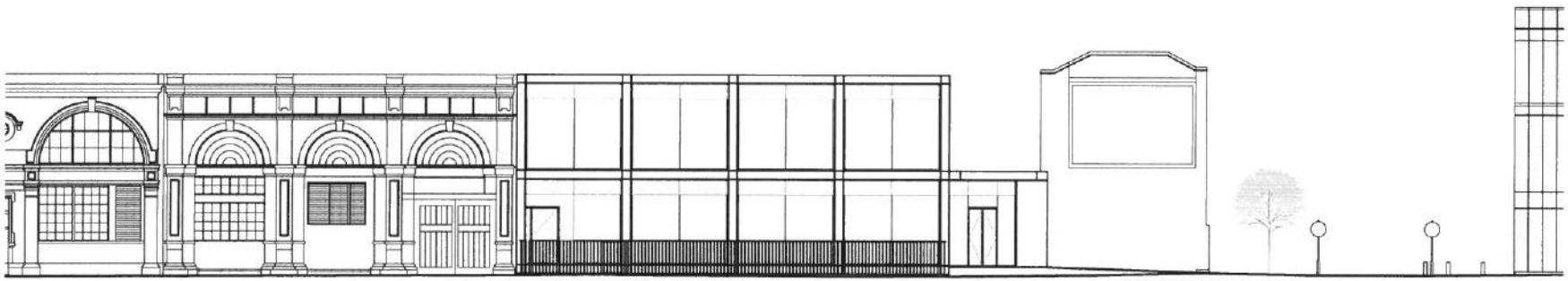

Rev: D03 **Date:** 13.09.2016 **Drn:** EF **Chk:** LB
Internal layout and voids amended. Skylights and roof pitch revised.

Rev: D02 **Date:** 15.08.2016 **Drn:** EF **Chk:** LB
Updated floor heights. Second floor omitted.

Rev: D01 **Date:** 10.08.2016 **Drn:** EF **Chk:** LB
Initial issue.

Do not scale off this drawing
Report all errors and omissions to the Architect
Dimensions to be checked on site

SHEET INFORMATION:

Plotted by : E.FIGUEIREDO
Plot date : 13 September 2016 17:19:27

Client:

Project:
Drummond Street

Title:
Office Scheme
North West Elevation

Drawing status:
For Information

Scale @ A3
1:200

Drawing No: Rev:
2049-00-DR-0601 D03