

Austin Road, Hayes Phase 1

Noise Assessment in relation to Condition 14 of Decision Notice ref. 76550/APP/2021/4499

Report ref.

AP2060/22286/Rev 0

Issued to

Higgins Partnerships

Prepared by

Alex Priestley MSc MIOA
Principal Consultant

Version	Authorised by	Remarks	Date
Rev 0	AP	-	22.05.2025



SECTION	TITLE	PAGE
1.	INTRODUCTION	1
2.	SITE DESCRIPTION.....	1
3.	PLANNING CONDITION	1
4.	RELEVANT POLICY AND GUIDANCE.....	2
4.1	BS 4142:2014+A1:2019 METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND.....	2
4.2	SUPPLEMENTARY PLANNING DOCUMENT - DEVELOPMENT CONTROL FOR NOISE GENERATING AND NOISE SENSITIVE DEVELOPMENT (JULY 2014)	2
5.	AMBIENT NOISE SURVEY	3
5.1	METHODOLOGY	3
5.2	RESULTS	4
6.	PREDICTION OF NOISE PROPAGATION ACROSS THE SITE	4
7.	ASSESSMENT	8
8.	CONCLUSIONS.....	8

APPENDIX A: Proposed development drawings

APPENDIX B: Mechanical plant layout drawings and plant details

APPENDIX C: Noise monitoring locations and results

APPENDIX D: Noise model results



1. INTRODUCTION

Higgins Partnerships are planning a residential scheme to be located on land adjacent to Austin Road, Hayes. The scheme is to be built out in several phases.

A hybrid planning application has been submitted for the scheme, with full planning permission now granted for Phase 1, subject to conditions, and outline planning permission granted for Phases 2-5 with all matters reserved.

Spectrum has been instructed by Higgins Partnerships to carry out a noise assessment in line with the requirements set out in the noise related conditions.

The assessment detailed within this report focusses on Phase 1 and Condition 14. However, the assessment also considers the presence of the other proposed phases within the noise model, based on the latest available information.

2. SITE DESCRIPTION

The proposed development site is located on land to the northwest of Austin Road, Hayes and is bounded to the northwest by Crown Close, to the north east by Pump Lane, and to the southwest by the Grand Union Canal.

Phase 1 is to comprise 80 apartments over part five, six and eight storeys, across two blocks and is at the north-eastern end of the site, overlooking Pump Lane.

The latest proposals for Phases 2-3, in the middle of the site, will comprise various blocks ranging from three to nine storeys high. Phase 4, at the south-western end of the site, will comprise various blocks ranging from six to twelve storeys high. Phase 5 will comprise a row of two storey terraced houses along the south-eastern side of Auston Road.

Drawings of the proposed development are presented in Appendix A. Plant layout drawings and equipment details are presented in Appendix B.

3. PLANNING CONDITION

Condition 14 states:

'Each phase of the development shall not be occupied until full and final details are provided to, and approved by, the Local Planning Authority for that relevant development phase of any building services plant that would result in sound emitted externally, together with details of any required noise control to safeguard the amenity of the occupants of both the scheme and the neighbouring dwellings. The plant shall be selected and installed so as to minimise sound externally to a practicable minimum, and, where required (due to risk of noise impact), the plant and background sound levels should be determined and assessed in accordance with the Council's Noise SPD (2006) and the current version of BS 4142.'



'REASON

'To safeguard the amenity of the occupants of the development and its surrounding properties in accordance with Policy EM8 of the Hillingdon Local Plan: Part One - Strategic Policies (November 2012) and Policy DMHB 11 of the Hillingdon Local Plan Part 2 (2020).'

4. RELEVANT POLICY AND GUIDANCE

4.1 BS 4142:2014+A1:2019 METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

The principle of BS 4142¹ is to determine an initial estimate of impact of industrial/commercial sound on nearby residents by comparing the Rating Level (sound level from the industrial/commercial source, with a correction applied for any acoustic features that characterise the sound) with the Background Sound Level (L_{A90} as measured in absence of the industrial/commercial source).

Generally, the greater the difference by which the Rating Level exceeds the Background Sound Level, the greater the magnitude of impact. BS 4142 states that *'a difference of around +10 dB or more is likely to be an indication of a significant adverse impact [...]. A difference of around +5 dB is likely to be an indication of an adverse impact [...]. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.'*

However, BS 4142 also advises that *'when making assessments and arriving at decisions [...] it is essential to place the sound in context'* so in each case, the context in which the sound is placed must be considered and the initial estimate of impact should be modified accordingly. For example it advises *'Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.'* It also indicates that impacts estimated during *'the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night-time period for sleep purposes.'*

4.2 SUPPLEMENTARY PLANNING DOCUMENT - DEVELOPMENT CONTROL FOR NOISE GENERATING AND NOISE SENSITIVE DEVELOPMENT (JULY 2014)

The Council's Noise SPD (2006) referred to by the condition has been superseded by a subsequent SPD titled Development Control for Noise Generating and Noise Sensitive Development published in July 2014 by the London Boroughs of Hillingdon, Hounslow, and Richmond upon Thames.

The SPD does not provide guidance on noise from mechanical plant related to residential use. However, guidance is provided on acceptability criteria relating to noise from industrial and commercial sound based on the methodology set out in BS 4142. Although this Standard does not specifically include residential mechanical plant within its scope, it is the Standard typically used to assess the impact of such plant on residential receptors.

The SPD advises that a Rating Level that is at least 5dB below the Background Sound Level will normally be acceptable. A Rating Level that is no more than 5dB above the Background Sound Level will be

¹ BS 4142:2014 Methods for rating and assessing industrial and commercial sound



acceptable only if there are overriding economic or social reasons for development to proceed. A Rating Level that is more than 5dB above the Background Sound Level will normally be unacceptable.

5. AMBIENT NOISE SURVEY

5.1 METHODOLOGY

Unattended ambient noise measurements were carried out during a site survey between Monday 31 October and Friday 4 November 2022.

Noise loggers were installed at two locations as indicated on the Noise Monitoring Location (NML) plan in Appendix C. The NMLs are summarised as follows:

NML 1: Northeast end of site overlooking Pump Lane (6m above ground level)

NML 2: Overlooking Austin Road (6m above ground level)

Noise measurement parameters consisted of equivalent continuous (L_{Aeq}) noise levels and maximum (L_{Amax}) noise levels as well as statistical noise levels (termed L_n , where n is the percentage of time the level is exceeded during the measurement period). Both overall and 1/1 octave band measurements were stored for later analysis.

The following equipment was used:

NML 1

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3009933
- Bruel & Kjaer Type 4189 Microphone s/n 3043744
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2115516

NML 2

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3010857
- Bruel & Kjaer Type 4189 Microphone s/n 3060877
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2291483

Before and after the survey, the sound level meter was field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meter, microphone and field calibrator are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

Weather was monitored remotely based on information available online of weather stations around Heathrow Airport. During the survey there were periods of elevated wind and rain. These periods were therefore excluded from the dataset before further analysis was undertaken to determine the representative daytime and nighttime noise environment affecting the site.

5.2 RESULTS

Noise levels affecting the site are dominated by road traffic movements on local roads surrounding the site during both the day and night time periods.

The results of the ambient noise measurements are presented in Appendix C. The results have been processed to determine the typical background sound levels at the site. The resulting background sound levels are summarised in Table 3.

Noise Measurement Location (NML)	Background sound level L_{A90} (dB)	
	Day	Night
NML 1: Overlooking Pump Lane	57	47
NML 2: Overlooking Austin Road	48	44

Table 3: Summary of results of ambient noise survey results

The summarised background sound levels have been determined by taking the lowest of the mean, mode and median $L_{A90,5min}$ values for each of the relevant periods. The analysis of nighttime background sound levels focuses on the early nighttime period between 23:00 and 01:00 when residents would be going to sleep.

6. PREDICTION OF NOISE PROPAGATION ACROSS THE SITE

The prediction model that has been used for this analysis is DGMR's iNoise. This acoustic model implements the procedures set out in ISO 9613-2:2024 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors" and is Quality Assured to all parts of ISO 17534:2015 "Acoustics – Software for the calculation of sound outdoors". The model takes account of the following features in its calculation procedure:

- Source sound power level (for point, line and area sources)
- Reflection from nearby structures and source directivity
- Distance from noise source (geometric spreading)
- Atmospheric absorption
- Acoustic screening of intervening structures and topography
- Ground absorption
- Ground effects (which includes the height of ground relative to the noise source)

Detailed noise calculations are then computed of the contribution of each individual noise source to combined noise levels at the receptor location.

The equipment list and sound power levels are summarised in Table 4.



Item	Make / model / comment	L_{WA} (dB)	Octave band sound power level, L_w (dB)							
			63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
P/RF/01 (circulation pump)	Roof Plantroom (Grundfos MAGNA 3 D 40-80 F) (45dBA@1m) (estimated octaves)	56	44	45	47	54	51	50	44	40
P/RF/02 (circulation pump)	West and East Block Heating Plant Room (Grundfos Alpha 1 25-40 N) (39dBA@1m) (estimated octaves)	50	38	39	41	48	45	44	38	34
CAT5/00/01 (Cat 5 Booster Set)	GF Plant Room (KGN Pillinger BTC/EV-1- 8/1PH1HME08/PW225) (estimated octaves)	66	54	55	57	64	61	60	54	50
BS/00/01 (cold water booster set)	GF Plant Room (KGN Pillinger AV-1- 24HP/3PVX1006 KGN) (estimated octaves)	75	63	64	66	73	70	69	63	59
ASHP/RF/01	Roof (Vaillant Arotherm Plus 12kW VWL 125/6) (estimated octaves)	60	59	62	61	58	54	49	43	37
ASHP/RF/02	Roof (Vaillant Arotherm Plus 12kW VWL 125/6) (estimated octaves)	60	59	62	61	58	54	49	43	37
ASHP/RF/03	Roof (Vaillant Arotherm Plus 12kW VWL 125/6) (estimated octaves)	60	59	62	61	58	54	49	43	37
ASHP/RF/04	Roof (Vaillant Arotherm Plus 12kW VWL 125/6) (estimated octaves)	60	59	62	61	58	54	49	43	37
ASHP/RF/05	Roof (Vaillant Arotherm Plus 12kW VWL 125/6) (estimated octaves)	60	59	62	61	58	54	49	43	37
ASHP/RF/06	Roof (Vaillant Arotherm Plus 12kW VWL 125/6) (estimated octaves)	60	59	62	61	58	54	49	43	37
WSHP/RF/01	Roof Plantroom (Kensa Evo 17kW K170-S1H) (estimated octaves)	56	55	58	57	54	50	45	39	33
EF/00/01 Outlet	Bin Store A (Nuaire DE4- ES)	64	78	79	60	54	50	50	44	46
EF/00/01 Casing	Bin Store A (Nuaire DE4- ES)	41	54	53	43	37	28	24	19	16
EF/00/02 Outlet	Bin Store B (Nuaire DE5- ES)	69	86	84	67	61	51	46	41	35



Item	Make / model / comment	L_{WA} (dB)	Octave band sound power level, L_w (dB)							
			63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
EF/00/02 Casing	Bin Store B (Nuaire DE5-ES)	52	69	64	57	45	35	26	21	16
HRU/00/01 Intake	Bike Store B (Nuaire XBC-21HA-NNN)	67	80	68	67	68	59	51	42	36
HRU/00/01 Exhaust	Bike Store B (Nuaire XBC-21HA-NNN)	83	86	81	78	84	74	74	67	60
HRU/00/01 Casing	Bike Store B (Nuaire XBC-21HA-NNN)	55	67	60	57	56	42	40	36	27
HRU/00/02 Intake	GF Plant Room (Nuaire XBC-25HA-NNN)	64	70	64	62	64	59	55	47	46
HRU/00/02 Exhaust	GF Plant Room (Nuaire XBC-25HA-NNN)	74	76	77	71	74	65	65	63	64
HRU/00/02 Casing	GF Plant Room (Nuaire XBC-25HA-NNN)	51	62	61	48	51	38	37	37	29
HRU/00/03 Intake	Bike Store A (Nuaire XBC-10HA-NNN)	56	65	54	47	48	54	47	39	35
HRU/00/03 Exhaust	Bike Store A (Nuaire XBC-10HA-NNN)	64	70	67	57	59	60	57	52	50
HRU/00/03 Casing	Bike Store A (Nuaire XBC-10HA-NNN)	42	56	52	37	38	36	32	29	18
Impulse fan 1	eco-park® Dual Purpose IDV-HC-50-v2 (low speed) (estimated octaves)	72	67	67	67	67	67	67	60	53
Impulse fan 2	eco-park® Dual Purpose IDV-HC-50-v2 (low speed) (estimated octaves)	72	67	67	67	67	67	67	60	53

Table 4: Equipment list sound power levels

The equipment list sound power data has been taken from manufacturer data provided by the Mechanical Designer/Contractor. Noise data for some plant items has been supplied in broadband dB(A) terms only. The octave band sound power levels for these items have therefore been estimated based on similar equipment for which data is available and is noted in Table 4. The noise data for fan intakes and exhausts is presented as in-duct sound power levels.

External plant has been modelled as point sources in the noise model. The modelled sound power levels of the fan intake and exhaust terminations include the attenuation that would result from duct losses (e.g. duct bends and end reflection loss) and the insertion loss of installed silencers.

Noise breakout through louvres has been modelled as vertical areas sources. The sound power levels of the louvres have been calculated taking account of the total sound power level of plant inside the plant rooms/car park, the reverberation time within these spaces, the sound reduction index of the louvre (0dB has been assumed for this site), and the area of the louvre. As the ground floor plant room is ventilated mechanically, there is no requirement for passive ventilation openings in the façade. The elevation

drawings show vertical guard rails installed to façade openings in the ground floor plant room; however, we understand that these will be closed off with back plates.

The insertion losses for each of the installed silencers are summarised in Table 5 based on information supplied by the Mechanical Designer/Contractor.

Item	Make / model / comment	Octave band insertion losses (dB)							
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
EF/00/01 Outlet	D-SIL-250M Silencer	1	3	7	17	36	21	15	15
EF/00/02 Outlet	D-SIL-315M Silencer	1	2	6	15	30	16	13	12
HRU/00/01 Intake	XBC25-HE-MS10 Silencer	4	4	10	22	26	15	10	8
HRU/00/01 Exhaust	XBC25-HS-MS10 Silencer	5	8	15	30	41	31	21	16
HRU/00/02 Intake	XBC25-HE-MS10 Silencer	4	4	10	22	26	15	10	8
HRU/00/02 Exhaust	XBC25-HS-MS10 Silencer	5	8	15	30	41	31	21	16
HRU/00/03 Intake	XBC15-HE-MS10 Silencer	2	2	3	10	18	10	6	3
HRU/00/03 Exhaust	XBC15-HS-MS10 Silencer	5	11	12	19	27	28	24	19

Table 5: Silencer insertion losses

The nearest noise sensitive receptors to the proposed plant are the residential windows associated with the Phase 1 development.

A 3D view of the noise model is shown in Figure 1. Sources are shown in red. Receivers are shown in blue.

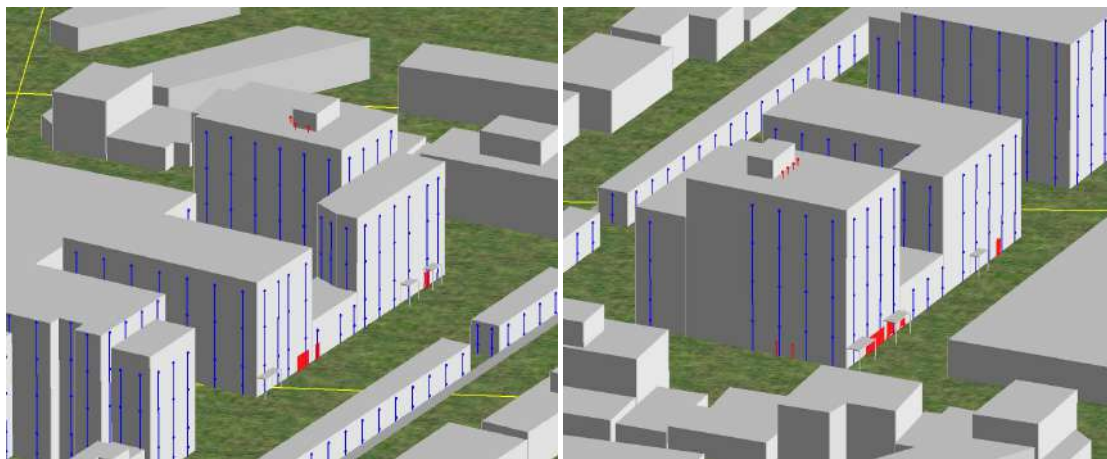


Figure 1: 3D view of noise model



The results of the model are presented in Appendix D.

7. ASSESSMENT

As the plant will operate on a 24-hour basis, the nighttime period will be critical to the assessment as background sound levels will be lower at night than they are during the day. The siting and orientation of the plant relative to the nearest receptor locations mean that the background sound levels measured at NML 2 are the most appropriate for this assessment. Accordingly, the nighttime background sound level to be used in the assessment is L_{A90} 44dB.

As detailed in Section 4.2, the Council's SPD advises that a '*Rating Level that is at least 5dB below the Background Sound Level will normally be acceptable. A Rating Level that is no more than 5dB above the Background Sound Level will be acceptable only if there are overriding economic or social reasons for development to proceed. A Rating Level that is more than 5dB above the Background Sound Level will normally be unacceptable*'. Therefore, there is a 10dB range for the rating level, from 5dB below to 5dB above background, between what is normally acceptable and what is occasionally acceptable in exceptional circumstances.

The results of the noise model indicate that plant noise levels will be up to $L_{A,T,r}$ 40dB at the most noise exposed receptor location. This is 4dB below the background sound level.

The noise from plant at nearby receptor locations will be broadband and continuous, without impulsive or tonal characteristics. Furthermore, with a specific sound level that is 4dB below the background sound level, it is unlikely there would be any other characteristics that would readily stand out against the residual acoustic environment. Accordingly, no character correction is applied to the specific sound level in determination of the rating level. Therefore, the rating level is equal to the specific sound level.

The rating level is therefore up to 4dB below the background sound level at the nearest receptor, which is considered acceptably low.

8. CONCLUSIONS

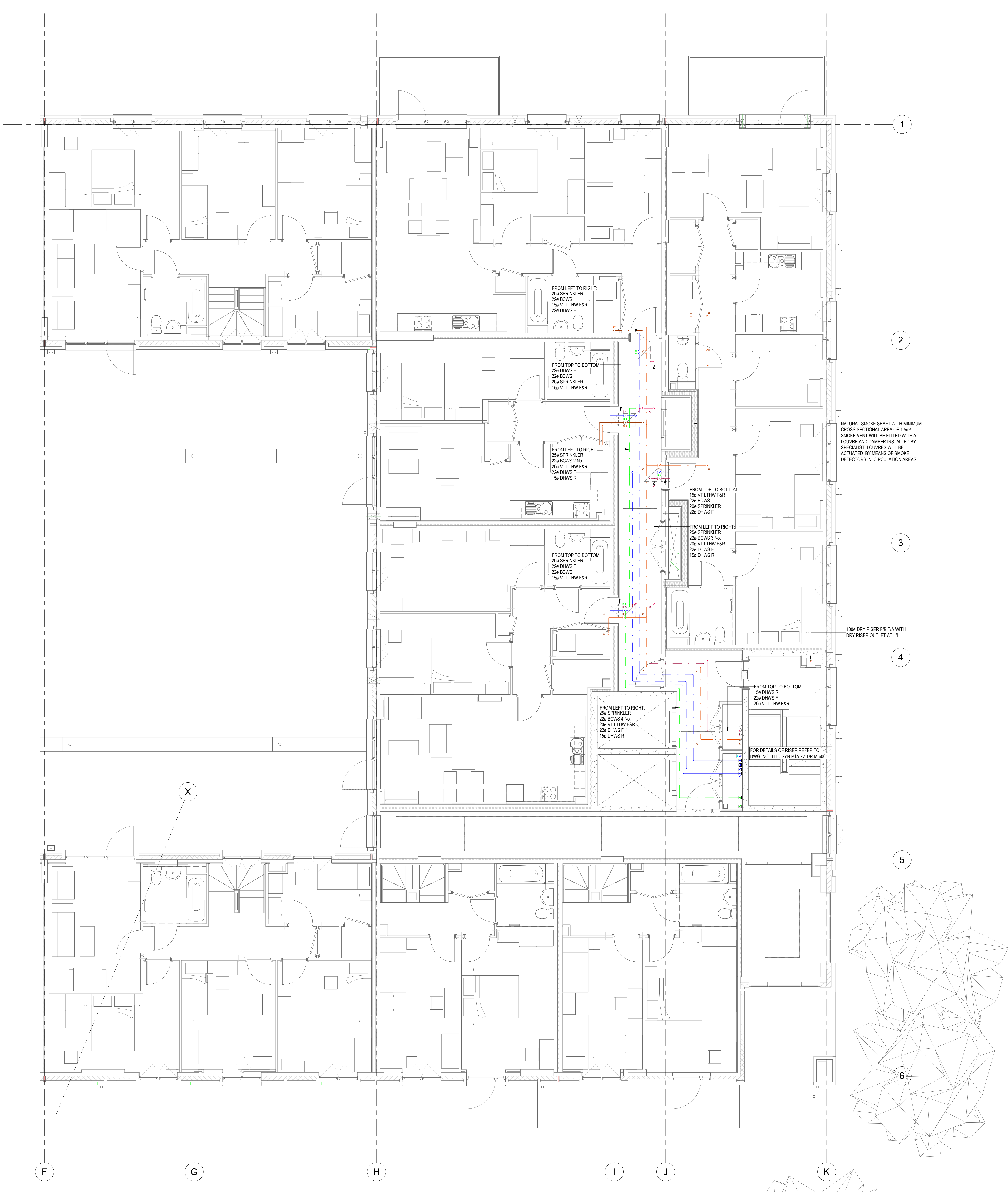
Higgins Partnerships are planning a residential development at Austin Road, Hayes for which full planning permission has been granted for Phase 1, subject to conditions, with outline permission granted for the rest of the site with all matters reserved.

The assessment for Phase 1 set out within this report relates to Condition 14, which requires external noise from mechanical plant to be reduced to acceptable levels at nearby receptors.

The assessment is based on information provided by the Mechanical Designer/Contractor. The assessment indicates that the current design will meet the noise criterion, as determined in accordance with the condition, and therefore demonstrates that acceptable noise levels will be achieved.

A P P E N D I X A

Proposed development drawings



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK!
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
FA	FROM ABOVE
FB	FROM BELOW
TB	TO BELOW
TA	TO ABOVE
F&R	FLOW & RETURN
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWS	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCHWS	MAINS COLD WATER SERVICE
SK	SINK
---	HIGH LEVEL PIPEWORK
---	LOW LEVEL PIPEWORK
---	BOOSTED COLD WATER SERVICE PIPEWORK
---	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
---	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
---	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
---	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
---	DRY RISER PIPEWORK
---	SPRINKLER PIPEWORK
---	SUPPLY DUCT
---	RETURN DUCT
---	EXTRACT DUCT
---	FRESH AIR DUCT
---	EXHAUST DUCT

ISOLATION VALVE
THERMAL BALANCING VALVE
CIRCULAR EXTRACT GRILLE
CIRCULAR SUPPLY GRILLE
FD
FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7529 8950 Fax: 020 7388 5512 Email: info@synergyspecialist.co.uk Web: www.synergyspecialist.co.uk

Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
First Floor Mechanical Landlord
Services Layout Block A

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-PIA-01-DR-M-1002	Rev.	T01
------	--------------------------	------	-----

TENDER

HL	HIGH LEVEL
L/L	LOW LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/B	TO BELOW
T/A	TO ABOVE
F&R	FLOW & RETURN
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHW/S	DOMESTIC HOT WATER SERVICE FLOW
DHW/R	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCWS	MAINS COLD WATER SERVICE
SK	SINK

— HIGH LEVEL PIPEWORK
 — LOW LEVEL PIPEWORK
 — BOOSTED COLD WATER SERVICE PIPEWORK
 — DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
 — DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
 — LOW TEMPERATURE HOT WATER PIPEWORK FLOW
 — LOW TEMPERATURE HOT WATER PIPEWORK RETURN
 — DRY RISER PIPEWORK
 — SPRINKLER PIPEWORK

	SUPPLY DUCT
	RETURN DUCT
	EXTRACT DUCT
	FRESH AIR DUCT
	EXHAUST DUCT

	ISOLATION VALVE
	THERMAL BALANCING VALVE
	CIRCULAR EXTRACT GRILLE
	CIRCULAR SUPPLY GRILLE
	FIRE DAMPER

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING



T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel : 020 7529 8950 Fax : 020 7388 9312 Email : mail@synconsult.co.uk Web : www.synconsult.co.uk

Client Higgins Partnerships

Project	Hayes Town Center Estate
---------	--------------------------

Drawing Title
Second Floor Mechanical Landlord
Services Layout Block A

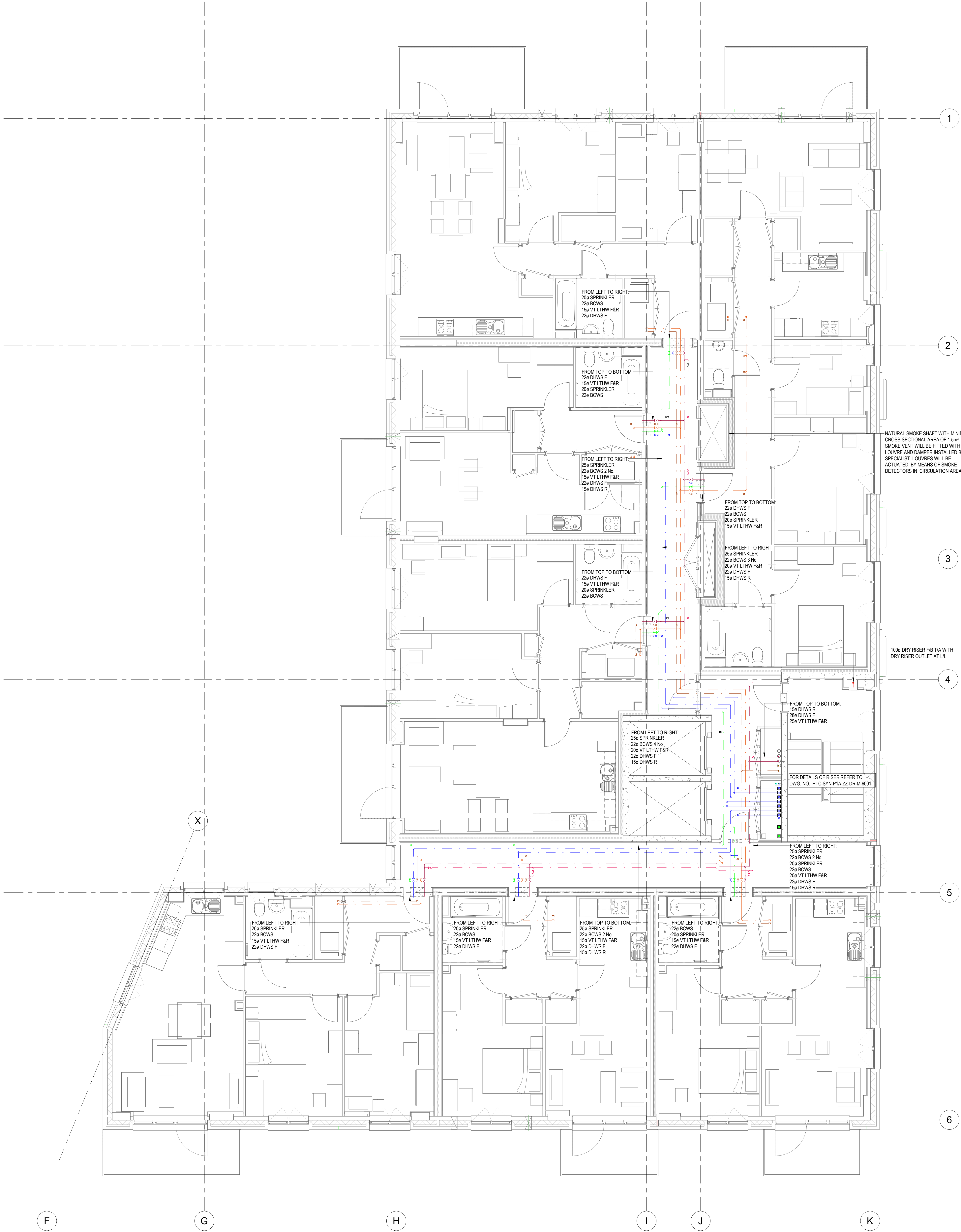
Scale(s)	1:50 @ A0
----------	-----------

Drawn Date	07/10/23	Initial	NO	Approved	AF
------------	----------	---------	----	----------	----

Job Number	07890	Status	TENDER
------------	-------	--------	--------

Purpose of Issue	S4-TENDER
------------------	-----------

Dwg.	HTC-SYN-P1A-02-DR-M-1004	Rev.	T01
------	--------------------------	------	-----



Notes

It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.

IF IN ANY DOUBT - ASK !

No scaling permitted from this drawing.

This drawing is copyright. ©

TENDER

LEGEND:

HL

LL

FA

FB

TA

F&R

BCWS

CAT 5

DH

DHWS

DHWSR

LTHW F&R

MCWS

SK

HIGH LEVEL

LOW LEVEL

FROM ABOVE

FROM BELOW

TO ABOVE

TO BELOW

FLOW & RETURN

BOOSTED COLD WATER SERVICE

CAT 5 BOOSTED COLD WATER SERVICE

DISTRICT HEATING

DOMESTIC HOT WATER SERVICE FLOW

DOMESTIC HOT WATER SERVICE RETURN

LOW TEMPERATURE HOT WATER PIPEWORK FLOW

LOW TEMPERATURE HOT WATER PIPEWORK RETURN

DRY RISER PIPEWORK

SPRINKLER PIPEWORK

SUPPLY DUCT

RETURN DUCT

EXTRACT DUCT

FRESH AIR DUCT

EXHAUST DUCT

ISOLATION VALVE

THERMAL BALANCING VALVE

CIRCULAR EXTRACT GRILLE

CIRCULAR SUPPLY GRILLE

FD

FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01 TENDER

NO 14.02.24

P01 PRELIMINARY

NO 17.10.23

Rev. Amendment

Initial

Date

Client

Higgins Partnerships

Project

Hayes Town Center Estate

Drawing Title

Third Floor Mechanical Landlord Services Layout Block A

Scale(s)

1 : 50 @ A0

Drawn Date

07/10/23

Initial

NO

Approved

AF

Job Number

07890

Status

TENDER

Purpose of Issue

S4-TENDER

Dwg.

HTC-SYN-PIA-03-DR-M-1006

Rev.

T01



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK !
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
FA	FROM ABOVE
FB	FROM BELOW
TB	TO BELOW
TA	TO ABOVE
F&R	FLOW & RETURN
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWSF	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
MCWS	MAINS COLD WATER SERVICE
SK	SINK

— HIGH LEVEL PIPEWORK
— LOW LEVEL PIPEWORK
— BOOSTED COLD WATER SERVICE PIPEWORK
— DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
— DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
— LOW TEMPERATURE HOT WATER PIPEWORK FLOW
— LOW TEMPERATURE HOT WATER PIPEWORK RETURN
— DRY RISER PIPEWORK
— SPRINKLER PIPEWORK

— SUPPLY DUCT
— RETURN DUCT
— EXTRACT DUCT
— FRESH AIR DUCT
— EXHAUST DUCT

— ISOLATION VALVE
— THERMAL BALANCING VALVE

— CIRCULAR EXTRACT GRILLE

— CIRCULAR SUPPLY GRILLE

FD
— FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7529 8950 Fax: 020 7386 5512 Email: info@synergystudio.co.uk Web: www.synergystudio.co.uk

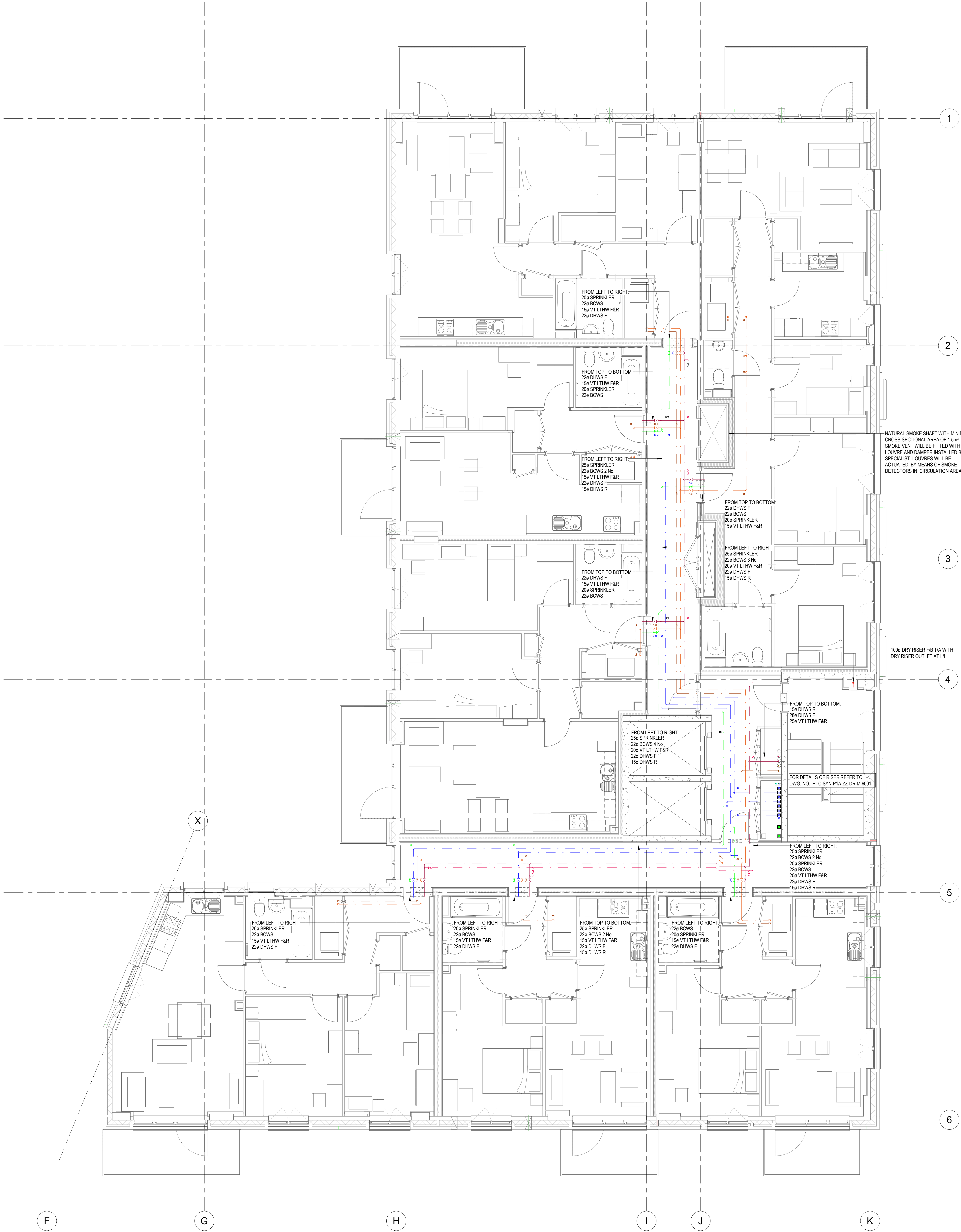
Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
Fourth Floor Mechanical Landlord Services Layout Block A

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-P1A-04-DR-M-1008	Rev.	T01
------	--------------------------	------	-----



Notes

It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project. IF IN ANY DOUBT - ASK !

No scaling permitted from this drawing. This drawing is copyright. ©

TENDER

LEGEND:

HL

LOW LEVEL

FA

FROM ABOVE

FB

FROM BELOW

TA

TO ABOVE

F&R

FLOW & RETURN

BCWS

BOOSTED COLD WATER SERVICE

CAT 5

CAT 5 BOOSTED COLD WATER SERVICE

DH

DISTRICT HEATING

DHWS

DOMESTIC HOT WATER SERVICE FLOW

DHWSR

DOMESTIC HOT WATER SERVICE RETURN

LTHW F&R

LOW TEMPERATURE HOT WATER PIPEWORK FLOW

MCWS

MAINS COLD WATER SERVICE

SK

SINK

HIGH LEVEL PIPEWORK

LOW LEVEL PIPEWORK

BOOSTED COLD WATER SERVICE PIPEWORK

DOMESTIC HOT WATER SERVICE PIPEWORK FLOW

DOMESTIC HOT WATER SERVICE PIPEWORK RETURN

LOW TEMPERATURE HOT WATER PIPEWORK FLOW

LOW TEMPERATURE HOT WATER PIPEWORK RETURN

DRY RISER PIPEWORK

SPRINKLER PIPEWORK

SUPPLY DUCT

RETURN DUCT

EXTRACT DUCT

FRESH AIR DUCT

EXHAUST DUCT

ISOLATION VALVE

THERMAL BALANCING VALVE

CIRCULAR EXTRACT GRILLE

CIRCULAR SUPPLY GRILLE

FD

FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy

CONSULTING ENGINEERS

Sustainable Mechanical, Electrical and Public Health Building Services

8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG

Tel: 020 7529 8950 Fax: 020 7386 5512 Email: info@synergysuit.co.uk Web: www.synergysuit.co.uk

Client

Higgins Partnerships

Project

Hayes Town Center Estate

Drawing Title

Fifth Floor Mechanical Landlord Services Layout Block A

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-P1A-05-DR-M-1010	Rev.	T01
------	--------------------------	------	-----



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK !
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
FA	FROM ABOVE
FB	FROM BELOW
TB	TO BELOW
TA	TO ABOVE
F&R	FLOW & RETURN

BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWSF	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCHWS	MAINS COLD WATER SERVICE
SK	SINK

---	HIGH LEVEL PIPEWORK
---	LOW LEVEL PIPEWORK
---	BOOSTED COLD WATER SERVICE PIPEWORK
---	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
---	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
---	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
---	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
---	DRY RISER PIPEWORK
---	SPRINKLER PIPEWORK

---	SUPPLY DUCT
---	RETURN DUCT
---	EXTRACT DUCT
---	FRESH AIR DUCT
---	EXHAUST DUCT

⊗	ISOLATION VALVE
⊗	THERMAL BALANCING VALVE
⊗	CIRCULAR EXTRACT GRILLE
⊗	CIRCULAR SUPPLY GRILLE
FD	FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 1QG
Tel: 020 7529 8950 Fax: 020 7386 5512 Email: info@synergystud.co.uk Web: www.synergystud.co.uk

Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
Sixth Floor Mechanical Landlord Services Layout Block A

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-PIA-06-DR-M-1012	Rev.	T01
------	--------------------------	------	-----



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK!
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
FA	FROM ABOVE
FB	FROM BELOW
TB	TO BELOW
TA	TO ABOVE
F&R	FLOW & RETURN
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWSF	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCHWS	MAINS COLD WATER SERVICE
SK	SINK

— HIGH LEVEL PIPEWORK
— LOW LEVEL PIPEWORK
— BOOSTED COLD WATER SERVICE PIPEWORK
— DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
— DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
— LOW TEMPERATURE HOT WATER PIPEWORK FLOW
— LOW TEMPERATURE HOT WATER PIPEWORK RETURN
— DRY RISER PIPEWORK
— SPRINKLER PIPEWORK

— SUPPLY DUCT
— RETURN DUCT
— EXTRACT DUCT
— FRESH AIR DUCT
— EXHAUST DUCT

— ISOLATION VALVE
— THERMAL BALANCING VALVE

— CIRCULAR EXTRACT GRILLE
— CIRCULAR SUPPLY GRILLE

FD
— FIRE DAMPER

NOTES:
- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7529 8950 Fax: 020 7386 5512 Email: info@synergystud.co.uk Web: www.synergystud.co.uk

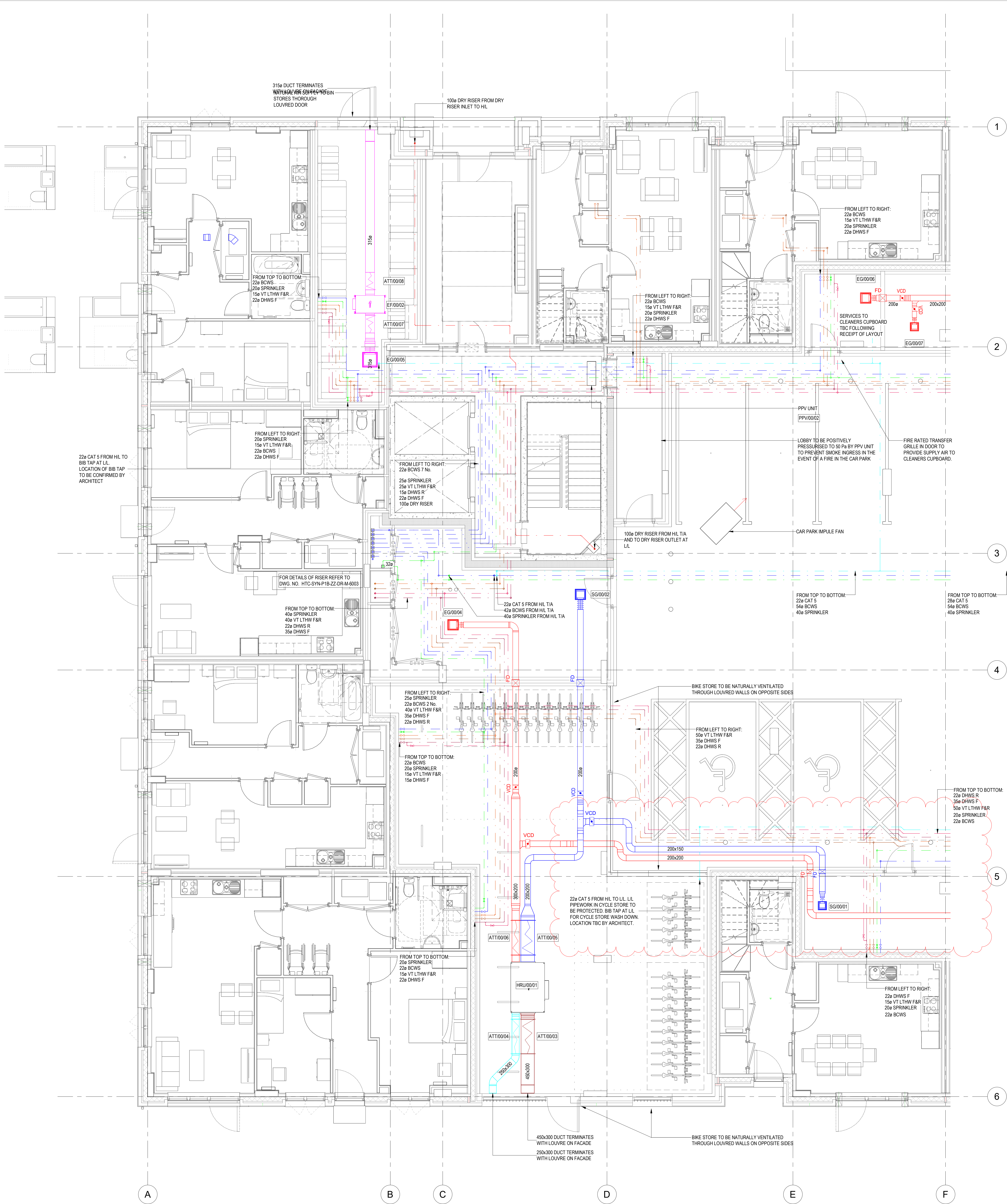
Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
Seventh Floor Mechanical Landlord Services Layout Block A

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-PIA-07-DR-M-1014	Rev.	T01
------	--------------------------	------	-----



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK!
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
FA	FROM ABOVE
FB	FROM BELOW
T/A	TO ABOVE
F&R	FLOW & RETURN

BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWS	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCHWS	MAINS COLD WATER SERVICE
SK	SINK

---	HIGH LEVEL PIPEWORK
---	LOW LEVEL PIPEWORK
---	BOOSTED COLD WATER SERVICE PIPEWORK
---	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
---	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
---	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
---	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
---	DRY RISER PIPEWORK
---	SPRINKLER PIPEWORK

---	SUPPLY DUCT
---	RETURN DUCT
---	EXTRACT DUCT
---	FRESH AIR DUCT
---	EXHAUST DUCT

○	ISOLATION VALVE
○	THERMAL BALANCING VALVE
○	CIRCULAR EXTRACT GRILLE
○	CIRCULAR SUPPLY GRILLE
FD	FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T03	TENDER - CLIENT COMMENTS	NO	13.06.24
	UPDATE		
T02	TENDER	NO	05.03.24
T01	TENDER	NO	14.02.24
P02	PRELIMINARY	NM	16.11.23
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7529 8950 Fax: 020 7386 5512 Email: info@synergystud.co.uk Web: www.synergystud.co.uk

Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
Ground Floor Mechanical Landlord Services Layout Block B

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg. HTC-SYN-P1B-00-DR-M-1001 Rev. T03



Notes

It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project. IF IN ANY DOUBT - ASK ! No scaling permitted from this drawing. This drawing is copyright. ©

TENDER

LEGEND:

HL

LL

F/A

F/B

T/A

F&R

HIGH LEVEL

LOW LEVEL

FROM ABOVE

FROM BELOW

TO ABOVE

FLOW & RETURN

BCWS

CAT 5

DH

DHWS

DHWSR

LTHW F&R

MCWS

SK

BOOSTED COLD WATER SERVICE

CAT 5 BOOSTED COLD WATER SERVICE

DISTRICT HEATING

DOMESTIC HOT WATER SERVICE FLOW

DOMESTIC HOT WATER SERVICE RETURN

LOW TEMPERATURE HOT WATER FLOW & RETURN

MAINS COLD WATER SERVICE

SINK

HIGH LEVEL PIPEWORK

LOW LEVEL PIPEWORK

BOOSTED COLD WATER SERVICE PIPEWORK

DOMESTIC HOT WATER SERVICE PIPEWORK FLOW

DOMESTIC HOT WATER SERVICE PIPEWORK RETURN

LOW TEMPERATURE HOT WATER PIPEWORK FLOW

LOW TEMPERATURE HOT WATER PIPEWORK RETURN

DRY RISER PIPEWORK

SPRINKLER PIPEWORK

SUPPLY DUCT

RETURN DUCT

EXTRACT DUCT

FRESH AIR DUCT

EXHAUST DUCT

ISOLATION VALVE

THERMAL BALANCING VALVE

CIRCULAR EXTRACT GRILLE

CIRCULAR SUPPLY GRILLE

FD

FIRE DAMPER

NOTES:

SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01 TENDER NO 14.02.24

P01 PRELIMINARY NO 17.10.23

Rev. Amendment Initial Date

Synergy

CONSULTING ENGINEERS

Sustainable Mechanical, Electrical and Public Health Building Services

8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG

Tel: 020 7329 8950 Fax: 020 7388 5312 Email: info@synergysed.co.uk Web: www.synergysed.co.uk

Client

Higgins Partnerships

Project

Hayes Town Center Estate

Drawing Title

First Floor Mechanical Landlord Services Layout Block B

Scale(s)

1 : 50 @ A0

Drawn Date

07/10/23

Initial

NO

Approved

AF

Job Number

07890

Status

TENDER

Purpose of Issue

S4-TENDER

Dwg.

HTC-SYN-P1B-01-DR-M-1003

Rev.

T01



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK !
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
F&R	FROM ABOVE
F&R	FROM BELOW
T/A	TO ABOVE
F&R	TO BELOW
T/A	TO ABOVE
F&R	TO BELOW
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWS	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCHWS	MAINS COLD WATER SERVICE
SK	SINK

---	HIGH LEVEL PIPEWORK
---	LOW LEVEL PIPEWORK
---	BOOSTED COLD WATER SERVICE PIPEWORK
---	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
---	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
---	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
---	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
---	DRY RISER PIPEWORK
---	SPRINKLER PIPEWORK

---	SUPPLY DUCT
---	RETURN DUCT
---	EXTRACT DUCT
---	FRESH AIR DUCT
---	EXHAUST DUCT

---	ISOLATION VALVE
---	THERMAL BALANCING VALVE
---	CIRCULAR EXTRACT GRILLE
---	CIRCULAR SUPPLY GRILLE
FD	FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7329 8950 Fax: 020 7388 5312 Email: info@synergycs.co.uk Web: www.synergycs.co.uk

Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
Second Floor Mechanical Landlord Services Layout Block B

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-P1B-02-DR-M-1005	Rev.	T01
------	--------------------------	------	-----



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK !
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

LEGEND:

HL	HIGH LEVEL
LL	LOW LEVEL
FA	FROM ABOVE
FB	FROM BELOW
T/B	TO BELOW
T/A	TO ABOVE
F&R	FLOW & RETURN

BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWSF	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCHWS	MAINS COLD WATER SERVICE
SK	SINK

---	HIGH LEVEL PIPEWORK
---	LOW LEVEL PIPEWORK
---	BOOSTED COLD WATER SERVICE PIPEWORK
---	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
---	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
---	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
---	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
---	DRY RISER PIPEWORK
---	SPRINKLER PIPEWORK

---	SUPPLY DUCT
---	RETURN DUCT
---	EXTRACT DUCT
---	FRESH AIR DUCT
---	EXHAUST DUCT

+	ISOLATION VALVE
+	THERMAL BALANCING VALVE
+	CIRCULAR EXTRACT GRILLE
+	CIRCULAR SUPPLY GRILLE
FD	FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7329 8950 Fax: 020 7388 5312 Email: info@synergycs.co.uk Web: www.synergycs.co.uk

Client
Higgins Partnerships

Project
Hayes Town Center Estate

Drawing Title
Third Floor Mechanical Landlord Services Layout Block B

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg.	HTC-SYN-P1B-03-DR-M-1007	Rev.	T01
------	--------------------------	------	-----



Notes

It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project. IF IN ANY DOUBT - ASK !

No scaling permitted from this drawing. This drawing is copyright. ©

TENDER

LEGEND:

HL

LL

FA

F&R

T/A

F&R

BCWS

CAT 5

DH

DHWS

DHWSR

LTHW F&R

MCWS

SK

HIGH LEVEL PIPEWORK

LOW LEVEL PIPEWORK

BOOSTED COLD WATER SERVICE PIPEWORK

DOMESTIC HOT WATER SERVICE PIPEWORK FLOW

DOMESTIC HOT WATER SERVICE PIPEWORK RETURN

LOW TEMPERATURE HOT WATER PIPEWORK FLOW

LOW TEMPERATURE HOT WATER PIPEWORK RETURN

DRY RISER PIPEWORK

SPRINKLER PIPEWORK

SUPPLY DUCT

RETURN DUCT

EXTRACT DUCT

FRESH AIR DUCT

EXHAUST DUCT

ISOLATION VALVE

THERMAL BALANCING VALVE

CIRCULAR EXTRACT GRILLE

CIRCULAR SUPPLY GRILLE

FD

FIRE DAMPER

NOTES:

SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01 TENDER NO 14.02.24

P01 PRELIMINARY NO 17.10.23

Rev. Amendment Initial Date

Client

Higgins Partnerships

Project

Hayes Town Center Estate

Drawing Title

Fourth Floor Mechanical Landlord Services Layout Block B

Scale(s)

1 : 50 @ A0

Drawn Date

07/10/23

Initial

NO

Approved

AF

Job Number

07890

Status

TENDER

Purpose of Issue

S4-TENDER

Dwg.

HTC-SYN-P1B-04-DR-M-1009

Rev.

T01



Notes
It is the responsibility of the person reading this drawing to establish that they are using the most current version including all other documents produced either by Synergy Consulting Engineers or by any other parties to the project.
IF IN ANY DOUBT - ASK !
No scaling permitted from this drawing.
This drawing is copyright. ©

TENDER

- LEGEND:
- | | |
|----------|--|
| HL | HIGH LEVEL |
| LL | LOW LEVEL |
| F/A | FROM ABOVE |
| F/B | FROM BELOW |
| T/B | TO BELOW |
| T/A | TO ABOVE |
| F&R | FLOW & RETURN |
| BCWS | BOOSTED COLD WATER SERVICE |
| CAT 5 | CAT 5 BOOSTED COLD WATER SERVICE |
| DH | DISTRICT HEATING |
| DHWS | DOMESTIC HOT WATER SERVICE FLOW |
| DHWSR | DOMESTIC HOT WATER SERVICE RETURN |
| LTHW F&R | LOW TEMPERATURE HOT WATER FLOW & RETURN |
| MCHWS | MAINS COLD WATER SERVICE |
| SK | SINK |
| --- | HIGH LEVEL PIPEWORK |
| --- | LOW LEVEL PIPEWORK |
| --- | BOOSTED COLD WATER SERVICE PIPEWORK |
| --- | DOMESTIC HOT WATER SERVICE PIPEWORK FLOW |
| --- | DOMESTIC HOT WATER SERVICE PIPEWORK RETURN |
| --- | LOW TEMPERATURE HOT WATER PIPEWORK FLOW |
| --- | LOW TEMPERATURE HOT WATER PIPEWORK RETURN |
| --- | DRY RISER PIPEWORK |
| --- | SPRINKLER PIPEWORK |
| --- | SUPPLY DUCT |
| --- | RETURN DUCT |
| --- | EXTRACT DUCT |
| --- | FRESH AIR DUCT |
| --- | EXHAUST DUCT |
| --- | ISOLATION VALVE |
| --- | THERMAL BALANCING VALVE |
| --- | CIRCULAR EXTRACT GRILLE |
| --- | CIRCULAR SUPPLY GRILLE |
| FD | FIRE DAMPER |

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

T01	TENDER	NO	14.02.24
P01	PRELIMINARY	NO	17.10.23
Rev.	Amendment	Initial	Date

Synergy
CONSULTING ENGINEERS
Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel: 020 7329 8950 Fax: 020 7388 5312 Email: info@synergycs.co.uk Web: www.synergycs.co.uk

Client
Higgins Partnerships

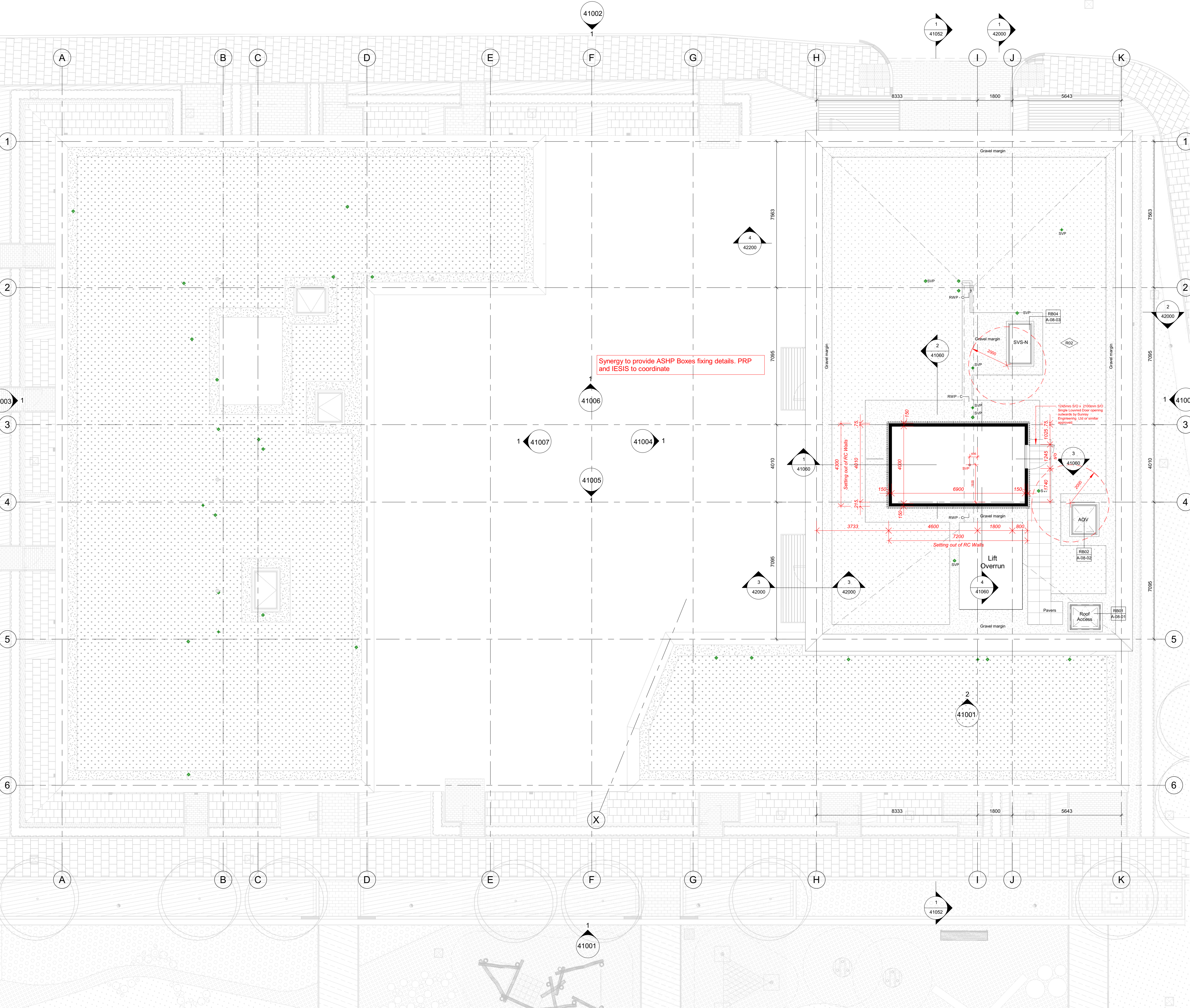
Project
Hayes Town Center Estate

Drawing Title
Fifth Floor Mechanical Landlord Services Layout Block B

Scale(s)	1 : 50 @ A0				
Drawn Date	07/10/23	Initial	NO	Approved	AF
Job Number	07890	Status	TENDER		
Purpose of Issue	S4-TENDER				

Dwg. HTC-SYN-P1B-05-DR-M-1011 Rev. T01

PV quantity and location is shown indicatively only. The number and the type subject to Specialist's design and calculations.



GRID REFERENCE
Block Ref: A8
Grid Ref: 1

SECTION REFERENCE
Section Ref: 8888

ELEVATION REFERENCE
Elev Ref: 8888

PLAN CALLOUT / DETAIL REFERENCE
Plan Ref: 00
8888

DIMENSIONS:
1430.3' Dimensions are to Structure (face of Light gauge steel Frame stud or concrete)
1430.3' Dimensions to finishes or face of brickwork.
Denotes non-standard brick dimension.

SPOT LEVELS:
Plan Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of finished floor

ADJACENT DRAWING REF:
XXXXX Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing.

KEY TO DOOR & WINDOW REFERENCES:

Acoustic / SBD	28 / P	TYPE / FIRE RATING / FUNCTION
WIN TYPE	W10	FD30S/ VP
WIN MARK	A01 01 05	
Block / Level / ID		

External Doors & Windows Note:
Acoustics: SBD
XX/IB (see) P: PAS 24
XX/IB (see) L: LPS
XX/IB (see) 1175-SP2

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e. vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABBREVIATIONS:

BS	Balconies Projecting	EW	Wall type prefixes:
BA	Bathrooms	01a	EW prefix indicates an external wall type
CE	Ceilings	F00	Floor type reference
CW	Curtain Walls	R00	Roof type reference
DE	Doors External	RSXX	Balcony Type
D	Doors Internal	RBXX	Roof Access/AOV
F	Floors	XX	
LV	Lozenges	WR	Water Riser
PC	Precast Elements	ER	Electric Riser
J	Juliet Railings		
R	Roofs		
EW	Walls (External)		
W	Walls (Internal)		
PW	Walls (Party)		
WN	Windows		
T	Terraces		
RB	Roof Access/AOV		

DWELLING NUMBERING:
Block (one letter) Level (two digits) Dwelling (two digits)
A-00-01
Dwelling TYPING: A1201-M
"M" denotes Maisonette
"W" denotes Wheelchair adaptable
Last two digits denote unique layout (type)

A denotes an apartment

LEGEND

+ SVP	Soil vent pipe	FFO	Future Floor Gully - Connection Above Slab
+ SS	Sub stack	FG	Floor Gully
+ VP	Vent pipe	PG	Podium Gully
+ IS	Incoming Service	MJ	Denotes location of movement joint.
+ AAV	Air admittance valve	V=	Vertical 10mm
OF	Roof overflow	H=	Horizontal 20mm
O/F	Rainwater overflow below balcony decking	NS=	Non sleeved
+ RWP - A	75 x 75mm RWP - Square	DRI	Dry Riser inlet
+ RWP - B	110mm RWP - Circular	DRo	Dry Riser outlet
+ RWP - C	160mm RWP - Circular	Service	Service opening over door.
+ RWO	Rainwater outlet below balcony decking	MVHR	MVHR Terminal
+ BRWO	Rainwater outlet below balcony decking	TD	Threshold Drain (Refer to details for spec)
+ RWOp	Parapet rainwater outlet into hopper	IG	Internal Guarding
+ RWOpH	Parapet rainwater outlet into hopper	OG	Obscured Glazing
.	Denotes Non Brick Dimension	AOV	Automatic opening vent to stair
Brick Special		FRS	Fall Restraint System
BR/SR	Wall Integrated Bat/Swift Refuge	T.O.C.	Top of Concrete
BSXX	Balcony Type	T.O.S.	Top of Steel
CB	Cavity Barrier	T.O.	Top of
FFG	Future Floor Gully	U.S.	Under side
IG OX	Internal Guarding	IG OX	Internal Guarding

BRICK DATUM

Note on Brick Rules:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES

GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and only elevation drawings will include detail references, height rod section lines and callouts to bay studies.

Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

Where products have been specified, PRP have reviewed applicable products available in the UK at the time of writing the specification. For the avoidance of doubt, product manufacturers and suppliers must confirm that each product is fit for its intended use and provide such evidence as may reasonably be requested to confirm performance, including, but not limited to, product test classification and interfaces with adjacent products.

Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record

All Intellectual property rights reserved.

KEY DRAWING REFERENCES	
Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
Structural Layout	40500
GA Elevations & Sections	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Bay Studies	47000
Materials Palettes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53060
Cleaning and Maintenance	53060
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalswork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES	
Brickwork - Supplier TBC	
Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.
FABRIC EFFICIENCY U-VALUES (Baseline Values)	
Ground / Exposed Upper Floor:	0.11 W/m²K
External Walls:	0.15 W/m²K
Party Walls:	0.00 W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity)
Dwelling / Com Wat:	0.15 W/m²K (U-Value of walls next to unheated areas)
Roof:	0.11 W/m²K
Solid Door:	1.2 W/m²K
Window:	1.2 W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	3.0 m³/h.m² at 50 Pa

C5	01/11/24	General Updates	JC	SG
C4	22/08/24	Roof Plant Room Update	JC	RB
C3	14/08/24	Plant Room layout updated for co-ordination.	RB	RB
C2	18/08/23	Roof Plan updated. Plantroom removed	RB	SG
C1	19/06/23	Construction Issue.	FS	RB
Rev	Date	Description	Drawn/Checked	

Hayes Town Centre
GA Plan-Blocks A&B-Roof

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-RF-GA-A-40108
S4 - CONSTRUCTION **Revision:C5**
Drawn GB Checked SG Date Sep 2022 Scale @ A1 1:100





GRID REFERENCE
A8
Grid Ref

SECTION REFERENCE
1
Section Ref

ELEVATION REFERENCE
8888
Elev Ref

PLAN CALLOUT / DETAIL REFERENCE
00
Plan Ref

DIMENSIONS:
1430.3
Dimensions are to Structure (face of Light gauge steel Frame stud or concrete)
1430.3
Dimensions to finishes or face of brickwork.
Denotes non-standard brick dimension.

SPOT LEVELS:
Plan
Elevation
Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of ground

ADJACENT DRAWING REF:
XXXX
Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing.

KEY TO DOOR & WINDOW REFERENCES:

Acoustic / SBD rating	28 / P	TYPE / FIRE RATING / FUNCTION
WIN TYPE	W10	FD30S/ VP
Block Level (ID)	A01 01 05	

External Doors & Windows Note:
Acoustics SBD
XX/IB (acoustic) P PAS 24
XX/IB (acoustic) L LPS
XX/IB (acoustic) 1175-SP2

Internal Doors Note:
Example above is for an internal door type ID10, Fire rated FD30S, VP denotes additional function i.e vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABBREVIATIONS:

BS	Balconies Projecting	EW	Wall type prefixes
BA	Bathrooms	01a	EW prefix indicates an external wall type
CE	Ceilings	F00	Floor type reference
CW	Curtain Walls	R00	Roof type reference
DE	Doors External	RSXX	Balcony Type
DI	Doors Internal	RBXX	Roof Access/AOV
F	Floors	XX	
LV	Louvers	WR	Water Riser
PC	Precast Elements	ER	Electric Riser
J	Juliet Railings		
R	Roofs		
EW	Walls (External)		
W	Walls (Internal)		
PW	Walls (Party)		
WN	Windows		
T	Terraces		
RB	Roof Access/AOV		

DWELLING NUMBERING:
Block (one letter) Level (two digits) Dwelling (two digits)
A-00-01
Dwelling TYPING: A1201-M
"A" denotes an apartment
Number of beds
Number of people
Last two digits denote unique layout (type)

LEGEND

+ SVP	Soil vent pipe	FFO	Future Floor Gully - Connection Above Slab
+ SS	Sub stack	FG	Floor Gully
+ VP	Vent pipe	PG	Podium Gully
+ IS	Incoming Service	MJ	Denotes location of movement joint.
+ AAV	Air admittance valve	Vv	Vertical 10mm
OF	Roof overflow	Hv	Horizontal 20mm
O/F	Rainwater overflow below balcony decking	NS	Non sleeved
+ RWP - A	75 x 75mm RWP - Square	DRI	Dry Riser inlet
+ RWP - B	110mm RWP - Circular	DRo	Dry Riser outlet
+ RWP - C	160mm RWP - Circular	Service	Service opening over door.
+ RWO	Rainwater outlet	MVHR	MVHR Terminal
+ BRWO	Rainwater outlet below balcony decking	TD	Threshold Drain (Refer to details for spec)
× RWOp	Parapet rainwater outlet into hopper	IG	Internal Glazing
× RWOp	Parapet rainwater outlet into hopper	OG	Obscured Glazing
•	Denotes Non Brick Dimension	AOV	Automatic opening vent to stair
•	Brick Special	FRS	Fall Restraint System
BR/SR	Wall integrated Bat/Swift Refuge	T.O.C	Top of Concrete
BSXX	Balcony Type	T.O.S	Top of Steel
CB	Cavity Barrier	T.O.	Top of
FFG	Future Floor Gully	U.S.	Under side
IG	Internal Glazing	IG OX	Internal Glazing

BRICK DATUM

Note on Brick Rules:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum
Note: Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and only elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

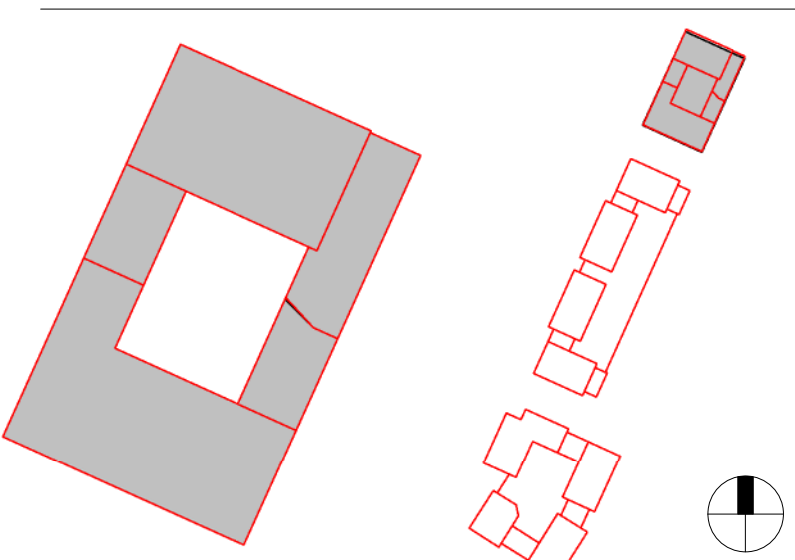
Do not scale drawing. Figured dimensions to be worked to in all cases.

Where products have been specified, PRP have reviewed applicable products available in the UK at the time of writing the specification. For the avoidance of doubt, product manufacturers and suppliers must confirm that each product is fit for its intended use and provide such evidence as may reasonably be requested to confirm performance, including, but not limited to, product test classification and interfaces with adjacent products.

Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record

All intellectual property rights reserved.



KEY DRAWING REFERENCES	
Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
Structural Layout	40500
GA Elevations & Sections	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Bay Studies	47000
Materials Palettes	48000
Refuge Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Cleaning and Maintenance	53060
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES	
Brickwork - Supplier TBC	
Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY U-VALUES (Baseline Values)	
Ground / Exposed Upper Floor:	0.11 W/m²K
External Walls:	0.15 W/m²K
Party Walls:	0.00 W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity)
Dwelling / Com Wall:	0.15 W/m²K (U-Value of walls next to unheated areas)
Roof:	0.11 W/m²K
Solid Door:	1.2 W/m²K
Window:	1.2 W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	3.0 m³/h.m² at 50 Pa

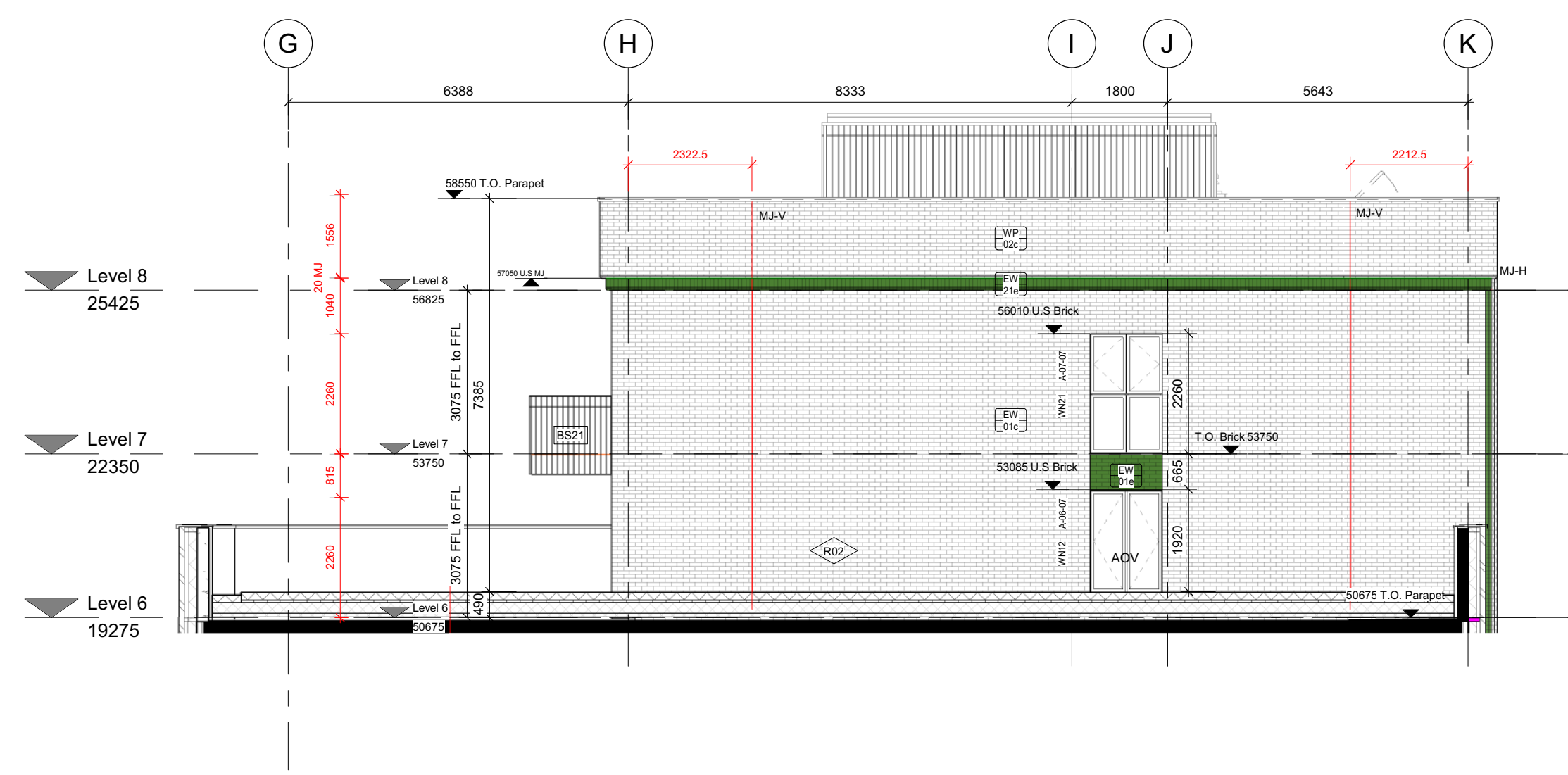
C5	11/10/24	General Updates	JC	SG
C4	01/10/24	Revised and Updated MJ positions as per IESIS revisions	JC	SG
C3	11/03/24	All Windows revised to open outwards as per Client's Instruction	JC	RB
Rev	Date	Description	Drawn/Checked	

Hayes Town Centre
GA Elevation-Block A-North

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41000
S4 - CONSTRUCTION **Revision:C5**
Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100



1 GA Elevation-Block A&B-East
1 : 100



2 GA Elevation-Block A&B-East - Stepback
1 : 100

GRID REFERENCE
Block Ref: A8
Section Ref: 1
Elevation Ref: 8888
Plan Ref: 00

ADJACENT DRAWING REF:
XXXXX Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing.

KEY TO DOOR & WINDOW REFERENCES:

Acoustic / SBD rating	28 / P	TYPE / FIRE RATING / FUNCTION
WN TYPE	W10	FD30S/ VP
Block Level (ID)	A01 01 05	

External Doors & Windows Note:

Acoustics: SBD
XX(B) acoustics P PAS 24
XX(B) acoustics L LPS
XX(B) acoustics 1175-SP2

TAGS: SYMBOLS & ABBREVIATIONS:

Acoustic / SBD rating	28 / P	TYPE / FIRE RATING / FUNCTION
WN TYPE	W10	FD30S/ VP
Block Level (ID)	A01 01 05	

LEGEND

Acoustic / SBD rating	28 / P	TYPE / FIRE RATING / FUNCTION
WN TYPE	W10	FD30S/ VP
Block Level (ID)	A01 01 05	

BRICK DATUM

Note on Brick Rules:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

GENERAL NOTES

GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and only elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

Where products have been specified, PRP have reviewed applicable products available in the UK at the time of writing the specification. For the avoidance of doubt, product manufacturers and suppliers must confirm that each product is fit for its intended use and provide such evidence as may reasonably be requested to confirm performance, including, but not limited to, product test classification and interfaces with adjacent products.

Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record

All intellectual property rights reserved.

KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
Structural Layout	40500
GA Elevations & Sections	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Bay Studies	47000
Materials Palettes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Cleaning and Maintenance	53060
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalswork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b' <td>Dark red multi-stock with light coloured mortar.</td>	Dark red multi-stock with light coloured mortar.
Brick Type 'c' <td>Light brick with light coloured mortar.</td>	Light brick with light coloured mortar.
Brick Type 'd' <td>Warm grey multi-stock with light coloured mortar.</td>	Warm grey multi-stock with light coloured mortar.
Brick Type 'e' <td>Glazed green brick with dark mortar.</td>	Glazed green brick with dark mortar.

FABRIC EFFICIENCY U-VALUES (Baseline Values)

Ground / Exposed Upper Floor:	0.11 W/m²K
External Walls: <th>0.15 W/m²K</th>	0.15 W/m²K
Party Walls: <th>0.00 W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity)</th>	0.00 W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity)
Dwelling / Com Wat: <th>0.15 W/m²K (U-Value of walls next to unheated areas)</th>	0.15 W/m²K (U-Value of walls next to unheated areas)
Roof: <th>0.11 W/m²K</th>	0.11 W/m²K
Solid Door: <th>1.2 W/m²K</th>	1.2 W/m²K
Window: <th>1.2 W/m²K (G-Value - 0.40 S&W / 0.55 N&E)</th>	1.2 W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability: <th>3.0 m³/h.m² at 50 Pa</th>	3.0 m³/h.m² at 50 Pa

Rev Date Description Drawn/Checked

Rev	Date	Description	Drawn/Checked
C5	11/10/24	General Updates	JC SG
C4	01/10/24	Revised and Updated MJ positions as per IESIS revisions	JC SG
C3	11/03/24	All Windows revised to open outwards as per Client's Instruction	JC RB

Hayes Town Centre
PRP project No.HTC

GA Elevation-Blocks A&B-East

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41001

S4 - CONSTRUCTION
Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

Revision:C5

Higgins
PARTNERSHIPS



GRID REFERENCE
Block Ref: A8
Grid Ref: 8888

SECTION REFERENCE
Section Ref: 1
Elev Ref: 8888

ELEVATION REFERENCE
Elev Ref: 8888

PLAN CALLOUT / DETAIL REFERENCE
Plan Ref: 00
Detail no. / last 4 digits of drawing no. as this drawing: 8888

DIMENSIONS:
1430.3" Dimensions are to Structure (face of Light gauge steel Frame stud or concrete)
1430.3" Dimensions to finishes or face of brickwork.
Denotes non-standard brick dimension.

SPOT LEVELS:
Plan Spot Level Prefixes: SFL indicates structural slab level
Elevation FFL indicates top of finished floor

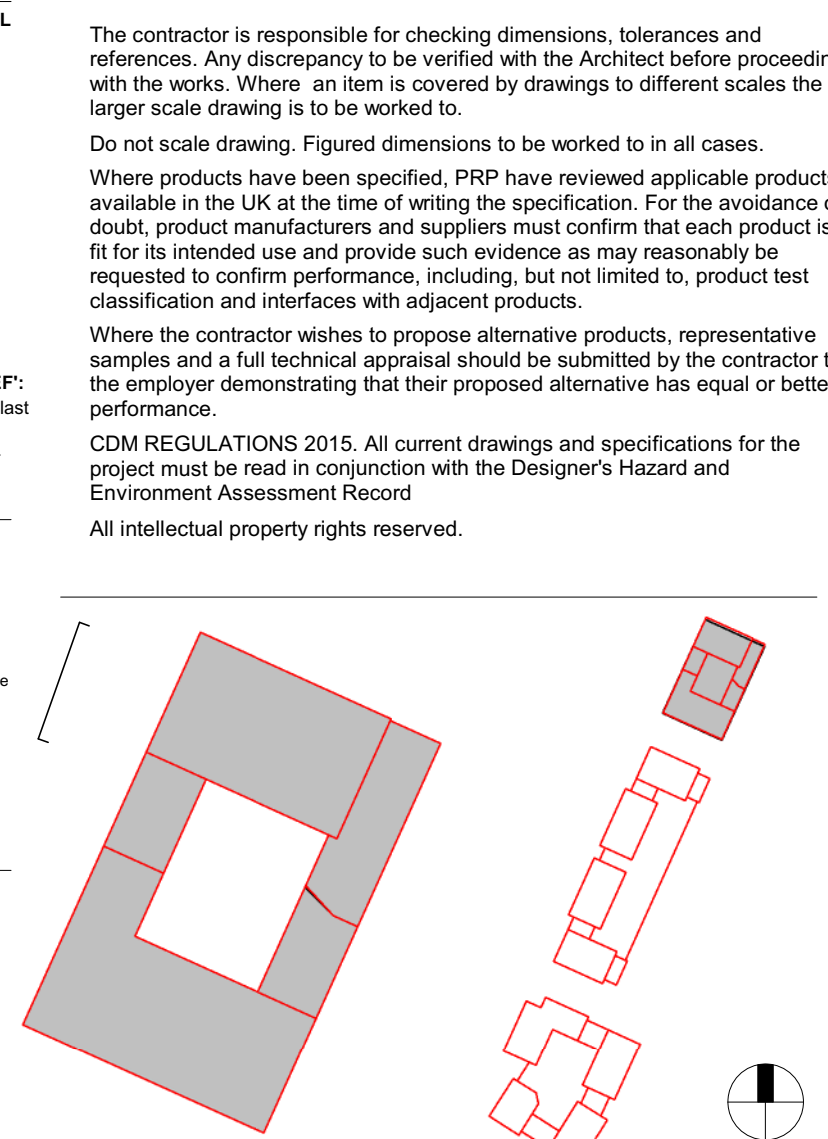
ADJACENT DRAWING REF:
Detail no. / last 4 digits of drawing no. as this drawing: XXXX

KEY TO DOOR & WINDOW REFERENCES:

Acoustic / SBD Rating	28 / P	WIN TYPE	W10	Block Level (ID)	A01 01 05
External Doors & Windows Note:					
Acoustics	SBD				
XX (dB) max	P PAS 24				
XX (dB) max	L LPS				
XX (dB) max	1175-SP2				

TAGS: SYMBOLS & ABBREVIATIONS:

Acoustic / SBD Rating	28 / P	WIN TYPE	W10	Block Level (ID)	A01 01 05
External Doors & Windows Note:					
Acoustics	SBD				
XX (dB) max	P PAS 24				
XX (dB) max	L LPS				
XX (dB) max	1175-SP2				



KEY DRAWING REFERENCES	
Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
Structural Layout	40600
GA Elevations & Sections	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Bay Studies	47000
Materials Palettes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53060
Cleaning and Maintenance	53060
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalswork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES	
Brickwork - Supplier TBC	
Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY U-VALUES (Baseline Values)	
Ground / Exposed Upper Floor:	0.11 W/m²K
External Walls:	0.15 W/m²K
Party Walls:	0.00 W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity)
Dwelling / Com Wall:	0.15 W/m²K (U-Value of walls next to unheated areas)
Roof:	0.11 W/m²K
Solid Door:	1.2 W/m²K
Window:	1.2 W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	3.0 m³/h.m² at 50 Pa

GENERAL NOTES				
GA Plans, Elevations, Height Rods: Elevations will be referenced from GA plans and only elevation drawings will include detail references, height rod section lines and callouts to bay studies.				
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.				
C5	11/10/24	General Updates	JC	SG
C4	01/10/24	Revised and Updated MJ positions as per IESIS revisions	JC	SG
C3	11/03/24	All Windows revised to open outwards as per Client's Instruction	JC	RB
Rev	Date	Description	Drawn/Checked	
PRP project No.HTC				

Hayes Town Centre
GA Elevation-Block A&B-West

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41002
S4 - CONSTRUCTION **Revision:C5**
Drawn GB Checked SG Date Sep 2022 Scale @ A1 1:100





GRID REFERENCE
Block Ref: A8
Grid Ref: 1

SECTION REFERENCE
Section Ref: 8888

ELEVATION REFERENCE
Elev Ref: 8888

PLAN CALLOUT / DETAIL REFERENCE
Plan Ref: 00
Detail no. / last 4 digits of drawing no. Project/author/level/zone data as this drawing: 8888

DIMENSIONS:
1430.3' Dimensions are to Structure (face of Light gauge steel Frame stud or concrete)
1430.3' Dimensions to finishes or face of brickwork.
Denotes non-standard brick dimension.

SPOT LEVELS:
Plan Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF:
XXXXX Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic / SBD	28 / P	TYPE / FIRE RATING / FUNCTION
WIN TYPE	W10	FD30S/ VP
Block Level (ID)	A01 01 05	

External Doors & Windows Note:

Acoustics	SBD	Internal Doors Note:
XX/DB (acc) P PAS 24		Example above is for an internal door type
XX/DB (acc) L LPS		ID10, Fire rated FD30S, VP denotes additional function i.e vp (Vision Panel)
XX/DB (acc) 1175-SR2		

FUNCTIONS:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABBREVIATIONS:

BS	Balconies Projecting	EW	Wall type prefixes
BA	Bathrooms	01a	EW prefix indicates an external wall type
CE	Ceilings	F00	Floor type reference
CW	Curtain Walls	R00	Roof type reference
DE	Doors External	RSXX	Balcony Type
ID	Doors Internal	RBXX	Roof Access/AOV
F	Floors	XX	
LV	Lozenges	WR	Water Riser
PC	Precast Elements	ER	Electric Riser
J	Juliet Railings		
R	Roofs		
EW	Walls (External)		
W	Walls (Internal)		
PW	Walls (Party)		
WN	Windows		
T	Terraces		
RB	Roof Access/AOV		

DWELLING NUMBERING:
Block (one letter) Level (two digits) Dwelling (two digits)
A1201-M

DWELLING TYPING:
"A" denotes an apartment
Number of beds
Number of people
Last two digits denote unique layout (type)

LEGEND

+ SVP	Soil vent pipe	FFO	Future Floor Gully - Connection Above Slab
+ SS	Sub stack	FG	Floor Gully
+ VP	Vent pipe	PG	Podium Gully
+ IS	Incoming Service	MJ	Denotes location of movement joint.
+ AAV	Air admittance valve	Vv	Vertical 10mm
OF	Roof overflow	H	Horizontal 20mm
O/F	Rainwater overflow below balcony decking	NS	Non sleeved
+ RWP - A	75 x 75mm RWP - Square	DRI	Dry Riser inlet
+ RWP - B	110mm RWP - Circular	DRo	Dry Riser outlet
+ RWP - C	160mm RWP - Circular	Service	Service opening over door.
+ RWO	Rainwater outlet below balcony decking	TD	Threshold Drain (Refer to details for spec)
+ RW/O	Rainwater outlet into hopper	IG	Internal Guarding
+ RW/Oph	Parapet rainwater outlet into hopper	OG	Obscured Glazing
Denotes Non Brick Dimension		AOV	Automatic opening vent to stair
Brick Special		FRS	Fall Restraint System
BR/SR	Wall integrated Bat/Swift Refuge	T.O.C.	Top of Concrete
BSXX	Balcony Type	T.O.S.	Top of Steel
CB	Cavity Barrier	T.O.	Top of
FFG	Future Floor Gully	U.S.	Under side
IG	Internal Guarding	IG OX	Internal Guarding

BRICK DATUM

Note on Brick Rules:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and only elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

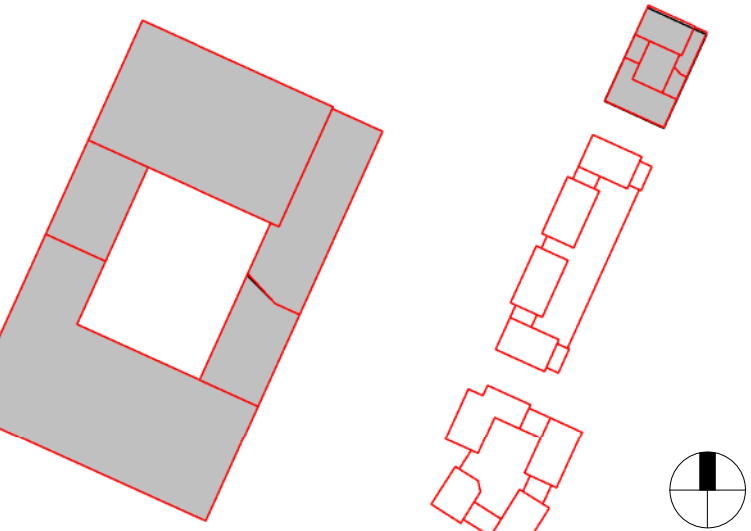
Do not scale drawing. Figured dimensions to be worked to in all cases.

Where products have been specified, PRP have reviewed applicable products available in the UK at the time of writing the specification. For the avoidance of doubt, product manufacturers and suppliers must confirm that each product is fit for its intended use and provide such evidence as may reasonably be requested to confirm performance, including, but not limited to, product test classification and interfaces with adjacent products.

Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record

All intellectual property rights reserved.



KEY DRAWING REFERENCES	
Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
Structural Layout	40600
GA Elevations & Sections	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Bay Studies	47000
Materials Palettes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53060
Cleaning and Maintenance	60000
Principal Construction	61000
Lead Details	62000
Sub-structure Details	63000
Fenestration Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalswork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES	
Brickwork - Supplier TBC	
Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.
FABRIC EFFICIENCY U-VALUES (Baseline Values)	
Ground / Exposed Upper Floor:	0.11 W/m²K
External Walls:	0.15 W/m²K
Party Walls:	0.00 W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity)
Dwelling / Com Wall:	0.15 W/m²K (U-Value of walls next to unheated areas)
Roof:	0.11 W/m²K
Solid Door:	1.2 W/m²K
Window:	1.2 W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	3.0 m³/h.m² at 50 Pa

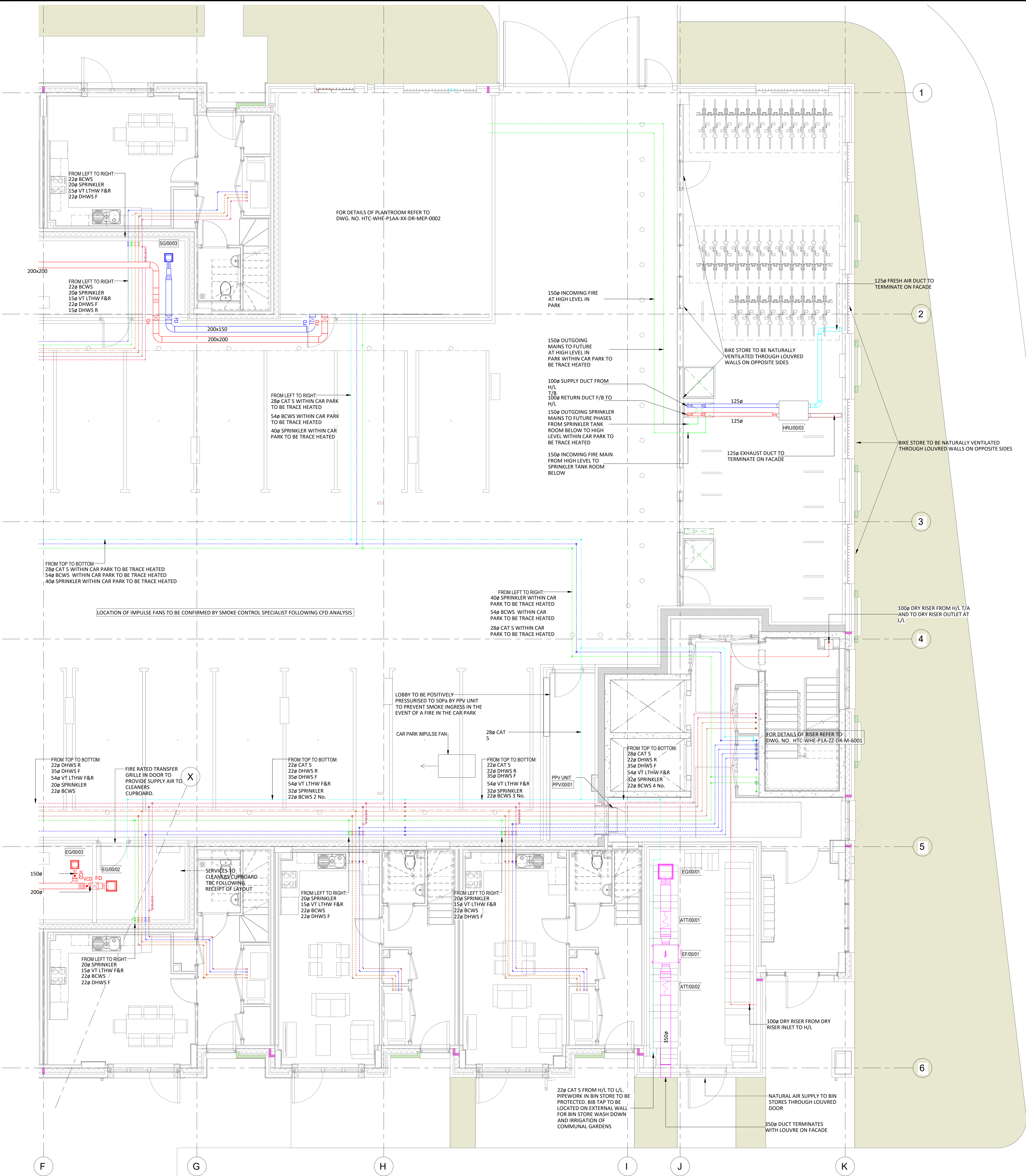
C4	01/10/24	Revised and Updated MJ positions as per IESIS revisions	JC	SG
C3	11/03/24	All Windows revised to open outwards as per Client's Instruction	JC	RB
C2	28/11/23	Balcony Types revised and updated	RB	SG
Rev	Date	Description	Drawn/Checked	

Hayes Town Centre
GA Elevation-Block B-South

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41003
S4 - CONSTRUCTION
Revision: C4
Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

A P P E N D I X B

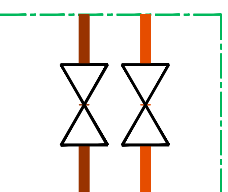
Mechanical plant layout drawings and plant details



- NOTES -
- All pipework to be installed in copper and be end feed.
 - Insulation to be foil faced mineral fibre with vapour seal throughout distribution network.
 - No compression fittings to be used on the distribution network
 - All roof top penetration weathering details to be confirmed by the architect.
 - All systems are to be hydraulically air tested to 1.5bar under site supervision prior to ceiling closure notices being issued.
 - All fire stopping to be carried out by others.
 - This drawing should be read in conjunction with all other Wheeler X35 drawings
 - Do not scale off this drawing.

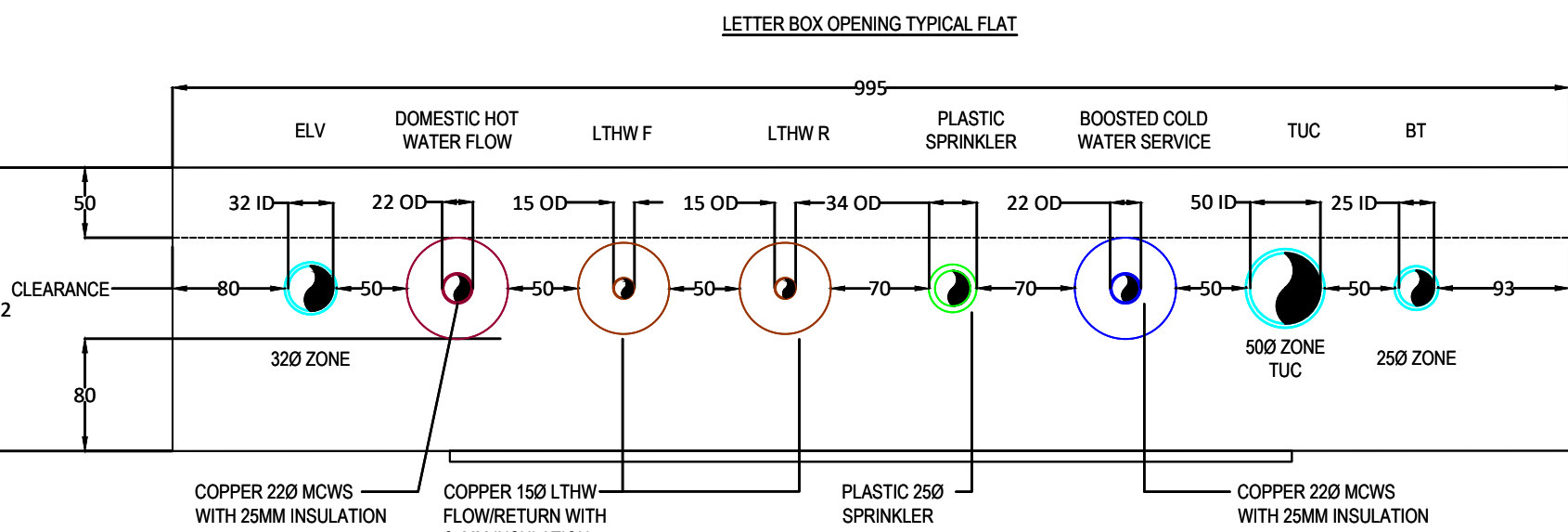
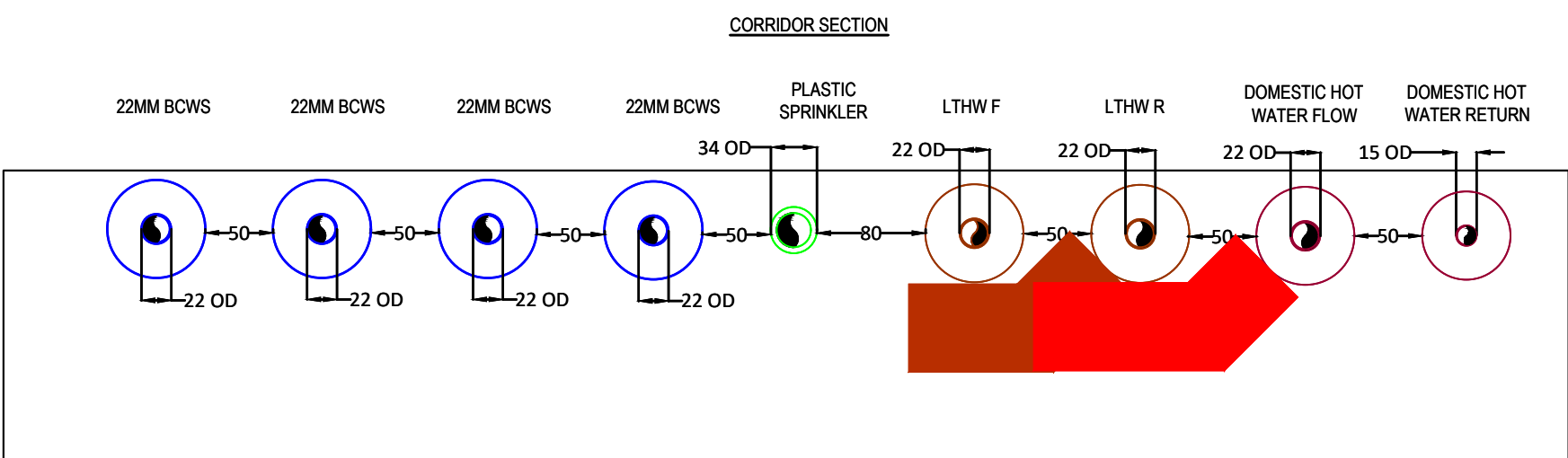
PIPE WORK INSULATION TABLE - FOIL FACE MINERAL WOOL		
COPPER PIPE SIZE MM	LTHW & DHW INSULATION THICKNESS MM	BCWS INSULATION THICKNESS MM
15	25	25
22	25	25
28	30	25
35	30	25
42	30	25
54	35	25
67	35	25
76	40	25

Insulation to the roof space will have a P.I.B weather protection layer applied.



ISOLATION VALVES WITHIN LANDLORD CORRIDOR ACCESS HATCHES

NOTE - CEILING MOUNTED ACCESS HATCHES TO BE SUPPLIED AND INSTALLED BY OTHERS



LEGEND:

H/L	HIGH LEVEL
L/L	LOW LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/B	TO BELOW
T/A	TO ABOVE
F&R	FLOW & RETURN

BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWS	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCWS	MAINS COLD WATER SERVICE
SK	SINK

—	HIGH LEVEL PIPEWORK
—	LOW LEVEL PIPEWORK
—	BOOSTED COLD WATER SERVICE PIPEWORK
—	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
—	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
—	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
—	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
—	DRY RISER PIPEWORK
—	SPRINKLER PIPEWORK

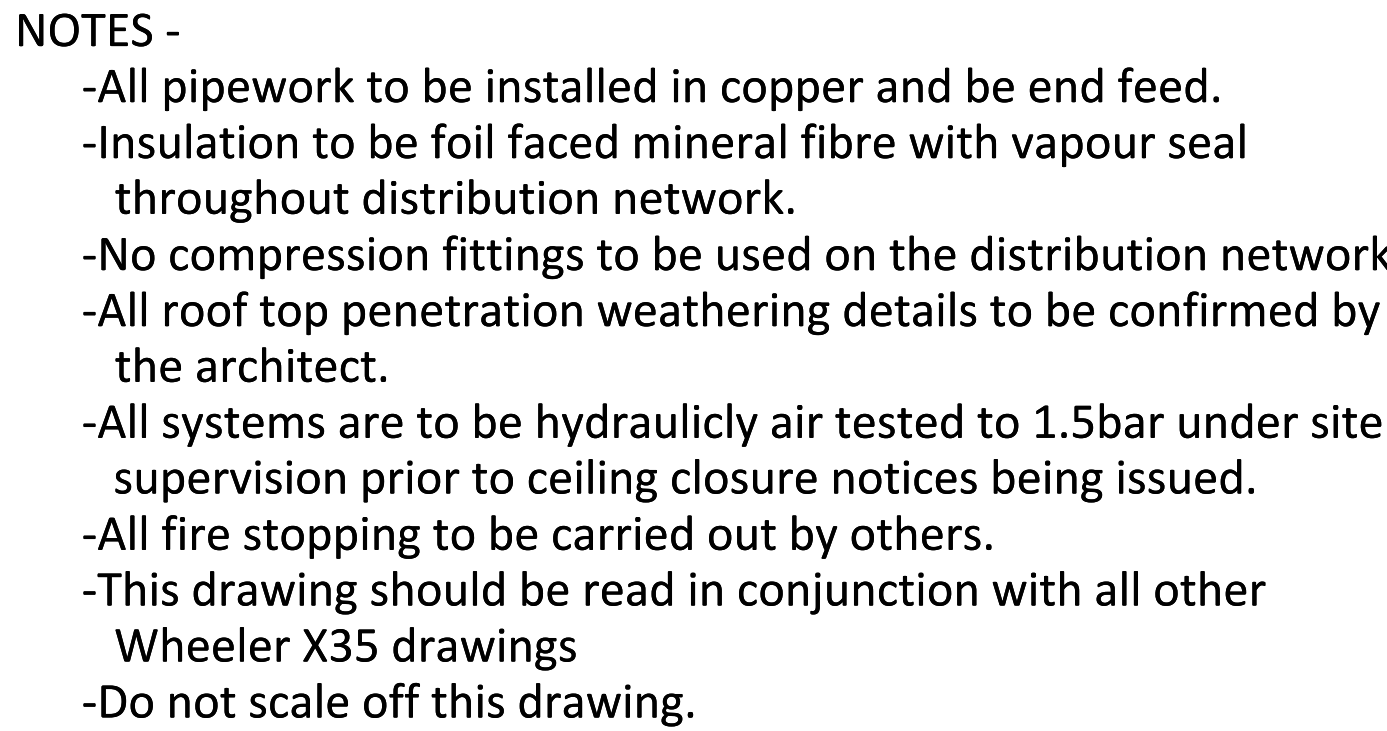
—	SUPPLY DUCT
—	RETURN DUCT
—	EXTRACT DUCT
—	FRESH AIR DUCT
—	EXHAUST DUCT

—	ISOLATION VALVE
—	THERMAL BALANCING VALVE
—	CIRCULAR EXTRACT GRILLE
—	CIRCULAR SUPPLY GRILLE
—	FIRE DAMPER

NOTES:

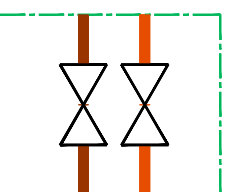
- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

C1	10/02/25	S4-For Construction	CH
REV.	DATE	DESCRIPTION	BY
ALL DIMENSIONS ARE APPROXIMATE, IN MILLIMETRES AND SUBJECT TO SITE CONDITIONS			
STATUS			
CLIENT			
PROJECT			
HAYES TOWN CENTER			
TITLE			
Ground Floor Mechanical Landlord Services Layout Block A			
DRG NO.	HTC-WHE-P1A-00-DR-X35-1000	REV.	C1
SCALE	N.T.S		



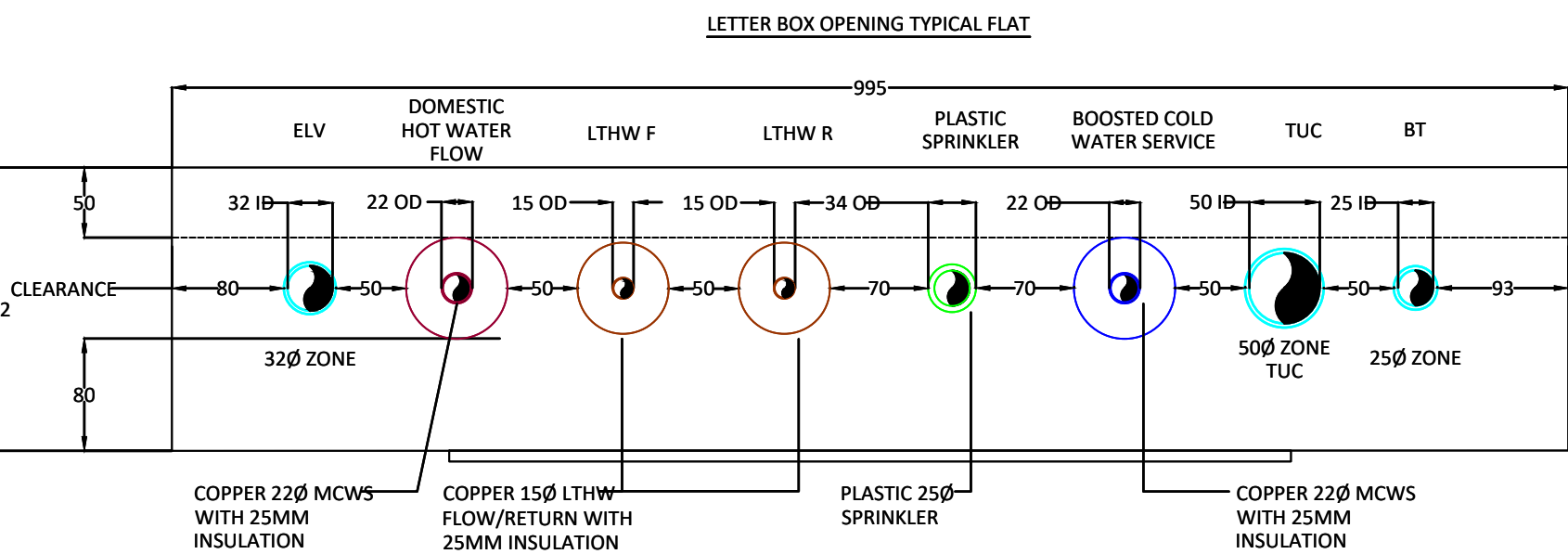
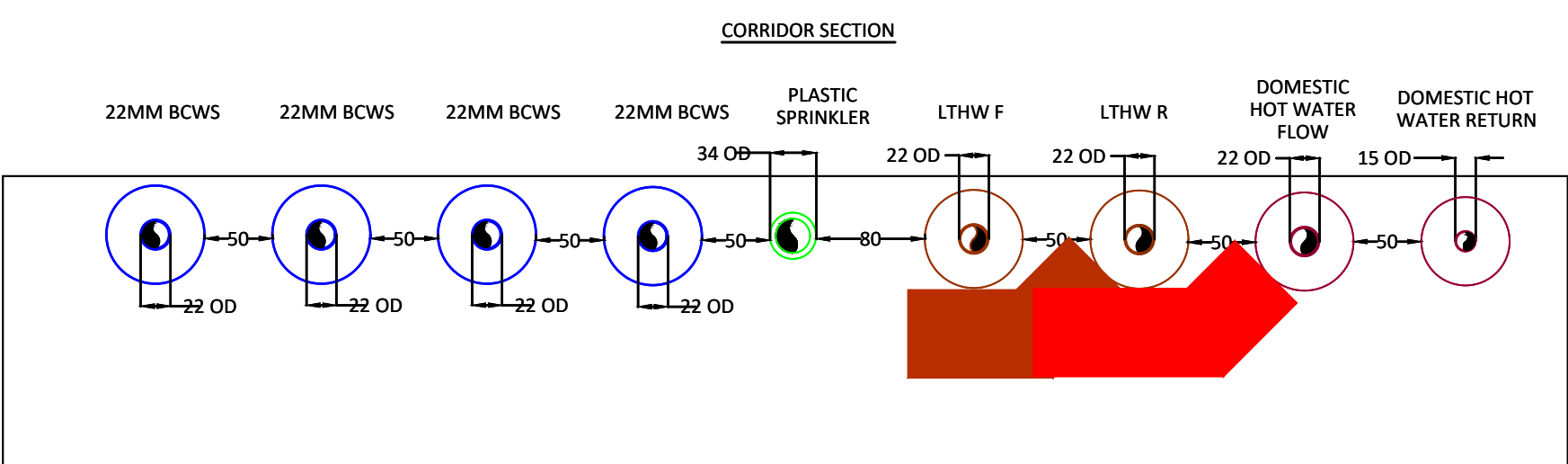
PIPE WORK INSULATION TABLE - FOIL FACE MINERAL WOOL		
COPPER PIPE SIZE MM	LTHW & DHW INSULATION THICKNESS MM	BCWS INSULATION THICKNESS MM
15	25	25
22	25	25
28	30	25
35	30	25
42	30	25
54	35	25
67	35	25
76	40	25

Insulation to the roof space will have a P.I.B weather protection layer applied.

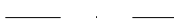
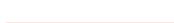
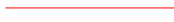
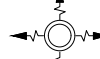


ISOLATION VALVES WITHIN LANDLORD CORRIDOR ACCESS HATCHES

NOTE - CEILING MOUNTED ACCESS HATCHES TO BE SUPPLIED AND INSTALLED BY OTHERS



LEGEND:

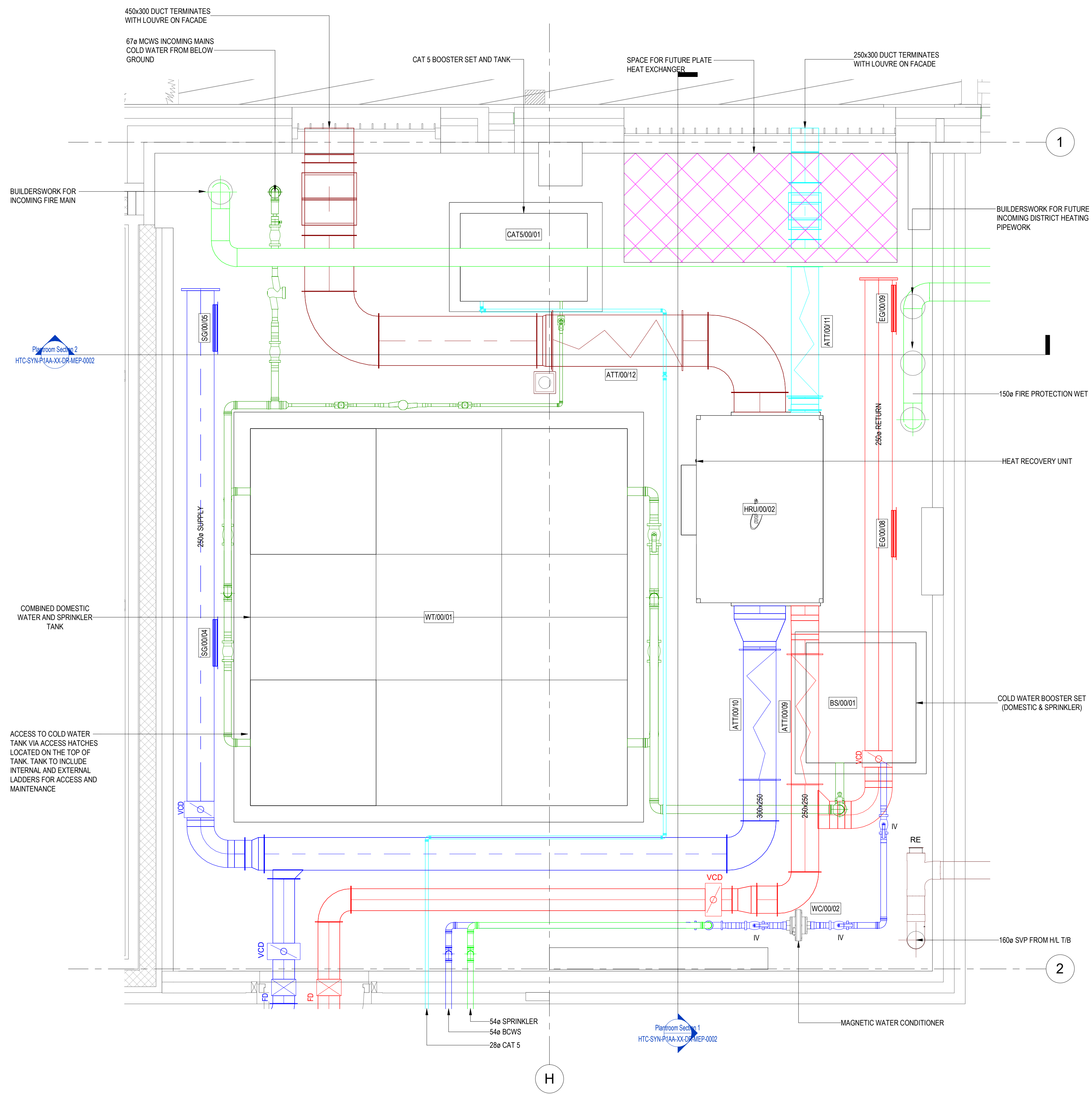
H/L	HIGH LEVEL
L/L	LOW LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/B	TO BELOW
T/A	TO ABOVE
F&R	FLOW & RETURN
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CAT 5 BOOSTED COLD WATER SERVICE
DH	DISTRICT HEATING
DHWSF	DOMESTIC HOT WATER SERVICE FLOW
DHWSR	DOMESTIC HOT WATER SERVICE RETURN
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
MCS	MAINS COLD WATER SERVICE
SK	SINK
	HIGH LEVEL PIPEWORK
	LOW LEVEL PIPEWORK
	BOOSTED COLD WATER SERVICE PIPEWORK
	DOMESTIC HOT WATER SERVICE PIPEWORK FLOW
	DOMESTIC HOT WATER SERVICE PIPEWORK RETURN
	LOW TEMPERATURE HOT WATER PIPEWORK FLOW
	LOW TEMPERATURE HOT WATER PIPEWORK RETURN
	DRY RISER PIPEWORK
	SPRINKLER PIPEWORK
	SUPPLY DUCT
	RETURN DUCT
	EXTRACT DUCT
	FRESH AIR DUCT
	EXHAUST DUCT
	ISOLATION VALVE
	THERMAL BALANCING VALVE
	CIRCULAR EXTRACT GRILLE
	CIRCULAR SUPPLY GRILLE
FD 	FIRE DAMPER

NOTES:

- SPRINKLER LAYOUT INDICATIVE ONLY. SPRINKLER DESIGN IS TO BE COMPLETED BY SPECIALIST INCLUDING PIPE SIZING

C1	10/02/25	S4-For Construction		CH
REV.	DATE	DESCRIPTION		BY
ALL DIMENSIONS ARE APPROXIMATE, IN MILLIMETRES AND SUBJECT TO SITE CONDITIONS				
TITLE				
CLIENT				
				
				
PROJECT				
HAYES TOWN CENTRE				
TITLE				
Ground Floor Mechanical Landlord Services Layout Block B				
DRG NO.	REV.	SCALE		
HTC-WHE-P1B-00-DR-X35-1001	C1	N.T.S		

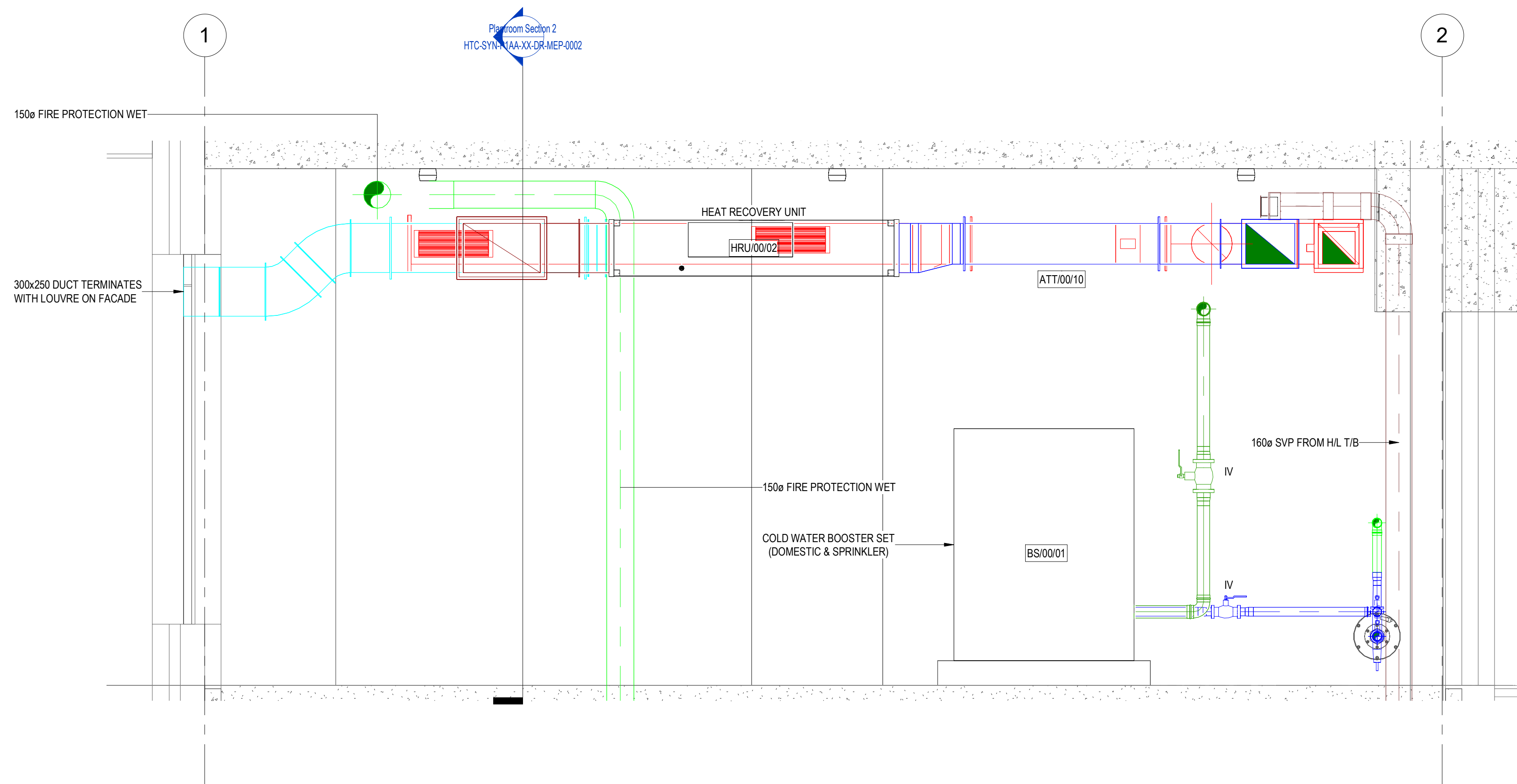
LEGEND:	
MCWS	MAINS COLD WATER SERVICE
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CATEGORY 5 WATER SERVICE
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN
XXXXXX	EQUIPMENT REFERENCE
2PV	2 PORT VALVE
3PV	3 PORT VALVE
AAV	AUTOMATIC AIR VENT
CS	COMMISSIONING STATION
DRV	DOUBLE REGULATING VALVE
DC	DRAIN COCK
GC	GAS COCK
IV	ISOLATING VALVE
LSV	LOCK SHIELD VALVE
NC	NORMALLY CLOSED VALVE
NRV	NON RETURN VALVE
PRV	PRESSURE REDUCING VALVE
STR	STRAINER
HL	HIGH LEVEL
LL	LOW LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/A	TO ABOVE
T/B	TO BELOW
⊙ P	PRESSURE GAUGE
⊙ T	TEMPERATURE GAUGE



1

Plantroom Layout

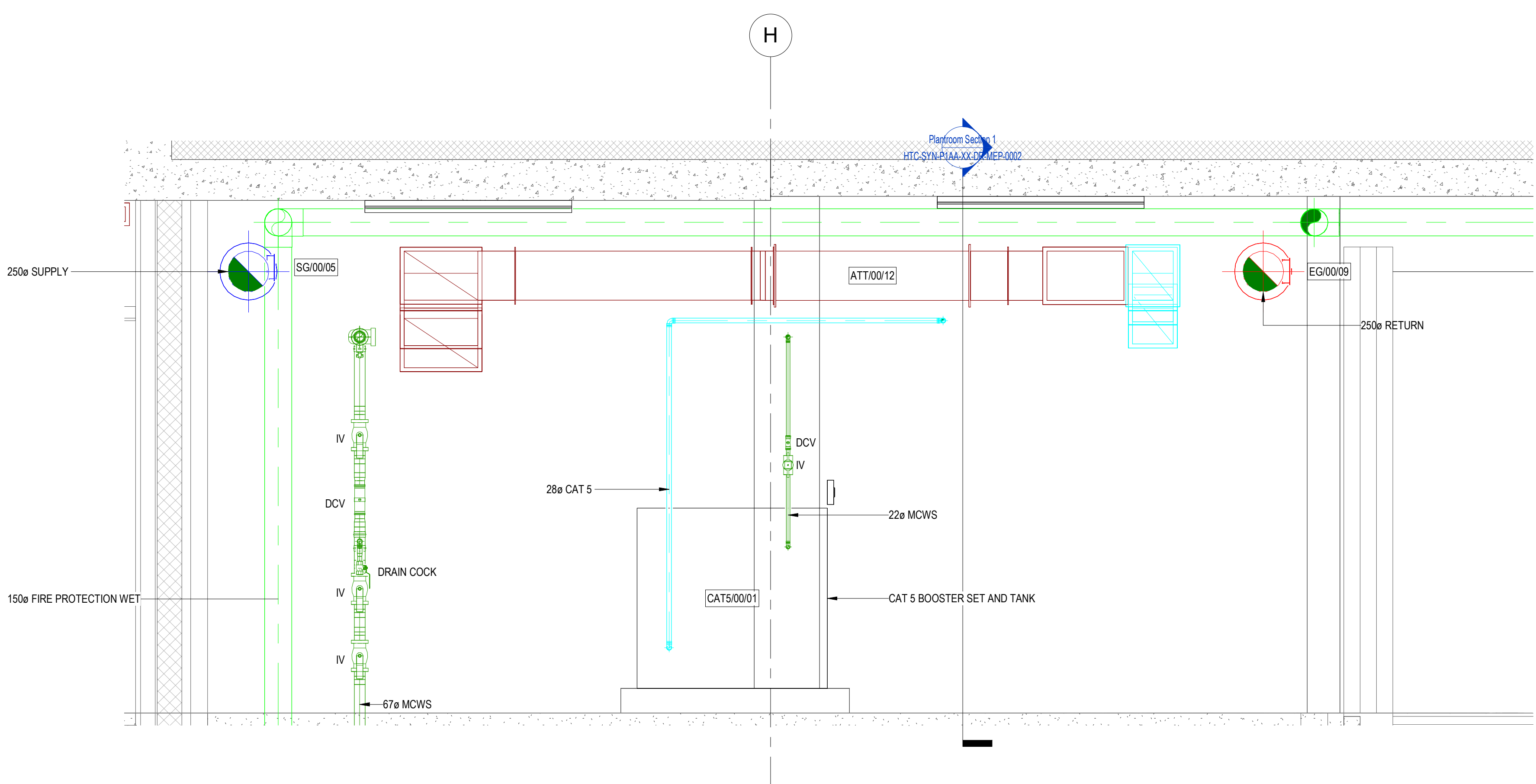
1 : 20



2

Plantroom Section 1

1 : 20



3

Plantroom Section 2

1 : 20

T01	TENDER	NO	28.03.24
P01	PRELIMINARY	NO	26.10.23
Rev.	Amendment	Initial	Date

Synergy

CONSULTING ENGINEERS

Sustainable Mechanical, Electrical and Public Health Building Services

8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG

Tel: 020 7529 8950 Fax: 020 7386 9312 Email: info@synergconsult.co.uk Web: www.synergconsult.co.uk

Client	Higgins Partnerships
--------	----------------------

Project	Hayes Town Center Estate
---------	--------------------------

Drawing Title	Plantroom Layout
---------------	------------------

Scale(s)	1 : 20 @ A0				
Drawn Date	10/19/23	Initial	NO	Approved	AF
Job Number	07890	Status	PRELIMINARY		
Purpose of Issue	S1-PRELIMINARY				

Dwg.	HTC-SYN-P1AA-XX-DR-MEP-0002	Rev.	T01
------	-----------------------------	------	-----

LEGEND:

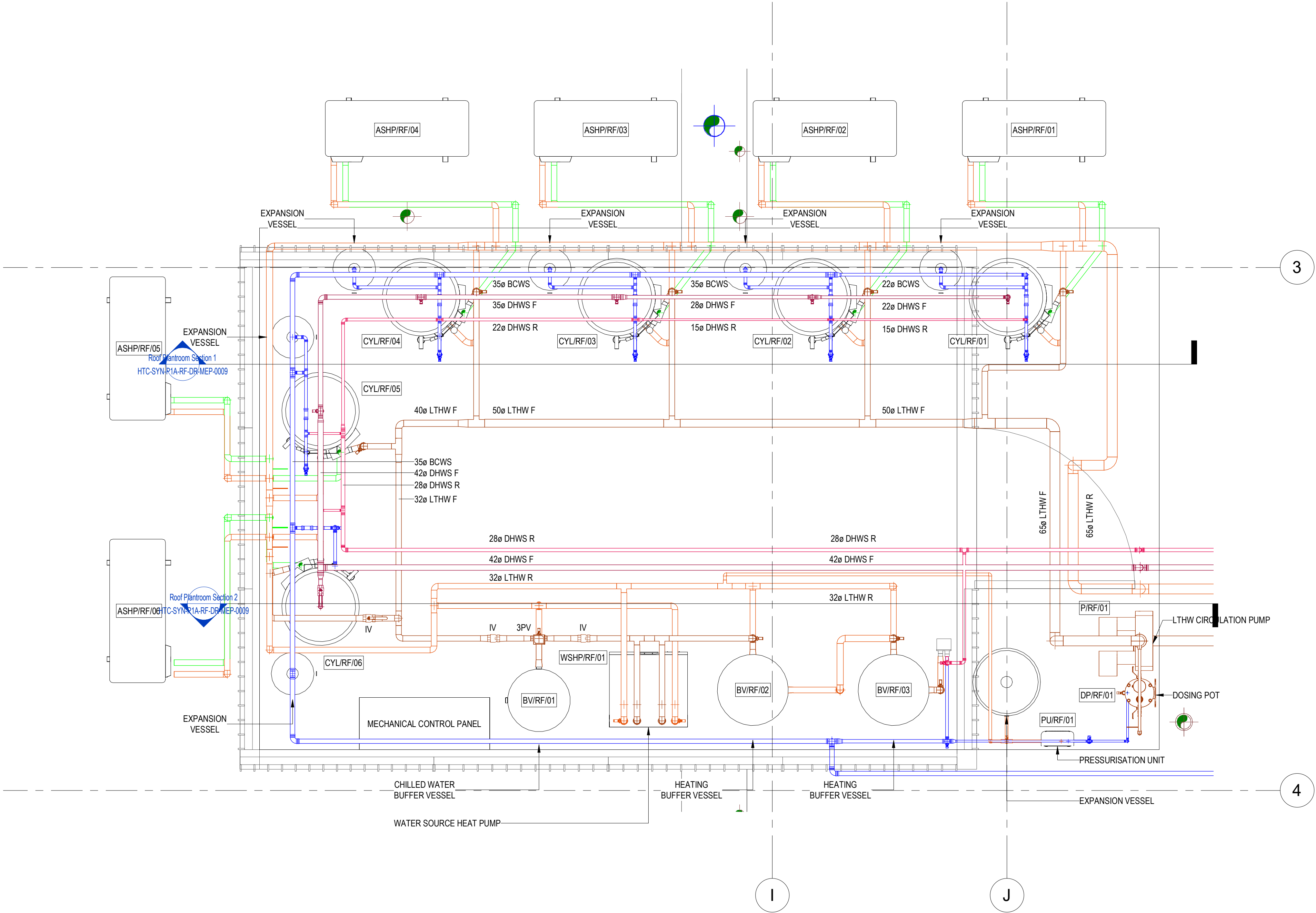
MCWS	MAINS COLD WATER SERVICE
BCWS	BOOSTED COLD WATER SERVICE
CAT 5	CATEGORY 5 WATER SERVICE
LTHW F&R	LOW TEMPERATURE HOT WATER FLOW & RETURN

EQUIPMENT REFERENCE

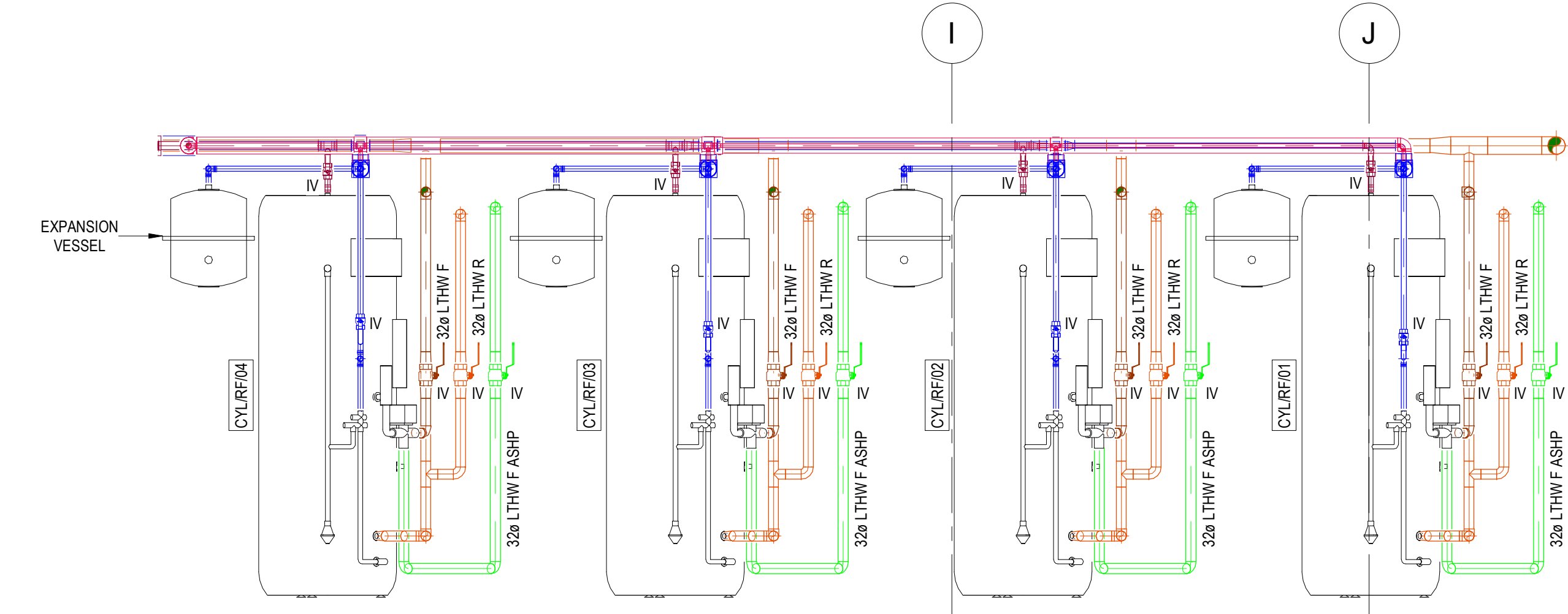
2PV	2 PORT VALVE
3PV	3 PORT VALVE
AAV	AUTOMATIC AIR VENT
CS	COMMISSIONING STATION
DRV	DOUBLE REGULATING VALVE
DC	DRAIN COCK
GC	GAS COCK
IV	ISOLATING VALVE
LSV	LOCK SHIELD VALVE
NC	NORMALLY CLOSED VALVE
NRV	NON RETURN VALVE
PRV	PRESSURE REDUCING VALVE
STR	STRAINER

H/L	HIGH LEVEL
L/L	LOW LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/A	TO ABOVE
T/B	TO BELOW

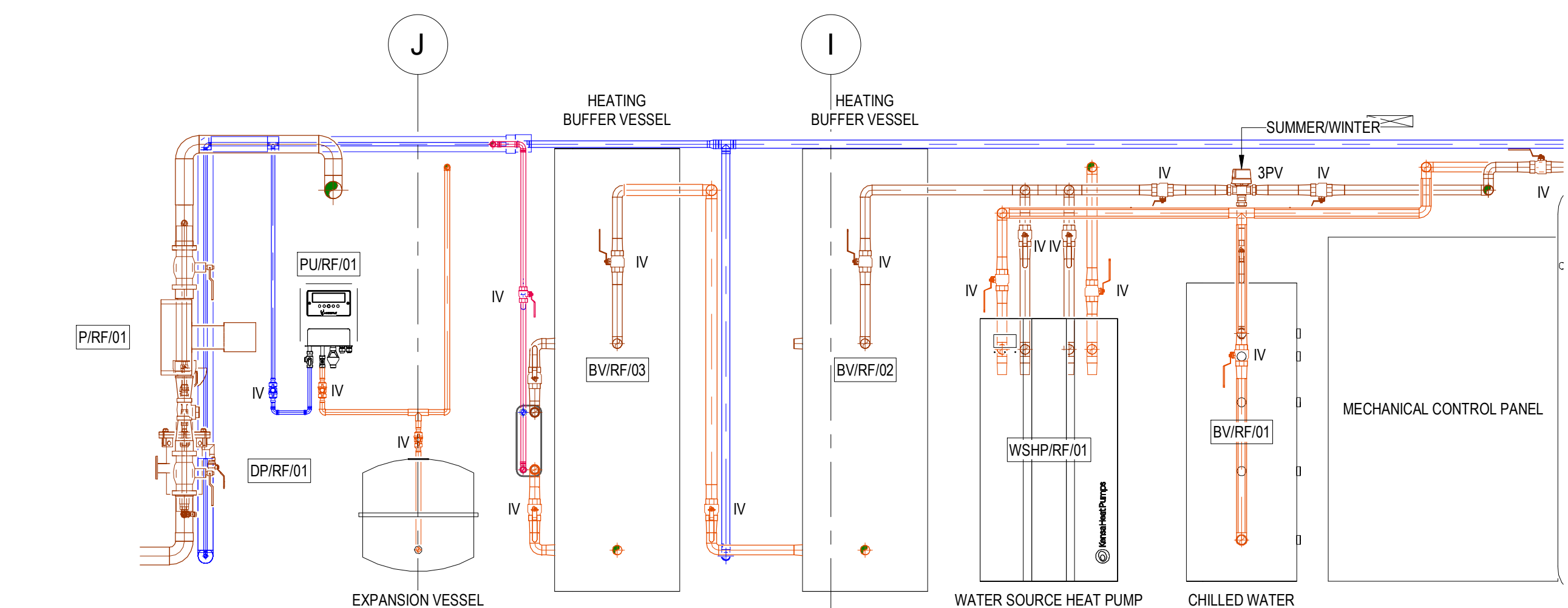
⊙ P	PRESSURE GAUGE
⊙ T	TEMPERATURE GAUGE



Roof Plantroom Layout
1 : 20



Roof Plantroom Section 1
1 : 20



Roof Plantroom Section 2
1 : 20

P01	PRELIMINARY	NO	28.03.24
Rev.	Amendment	Initial	Date

Sustainable Mechanical, Electrical and Public Health Building Services
8-14 St Pancras Way, 1 Canal Side Studios, London NW1 0QG
Tel : 020 7529 8950 Fax : 020 7388 9312 Email : mail@synergiconsult.co.uk Web : www.synergiconsult.co.uk

Client

Higgins Partnerships

Project

Hayes Town Center Estate

Drawing Title

Roof Plantroom Layout

Scale(s)	1 : 20 @ A1				
Drawn Date	03/28/24	Initial	NO	Approved	AF/JG
Job Number	07890	Status	PRELIMINARY		
Purpose of Issue	S1-PRELIMINARY				

Dwg.	HTC-SYN-P1A-RF-DR-MEP-0009	Rev.	P01
------	----------------------------	------	-----

Date: 28/03/2024
Status: S1-PRELIMINARY
Revision: P01
Project: HAYES TOWN CENTRE
Reference: HTC-SYN-P1ZZ-XX-SCH-0119

EQUIPMENT SCHEDULE

AIR SOURCE HEAT PUMP

REFERENCE	ASHP/RF/01	ASHP/RF/02	ASHP/RF/03	ASHP/RF/04	ASHP/RF/05	ASHP/RF/06
LOCATION	Roof	Roof	Roof	Roof	Roof	Roof
Heating Capacity	12kW	12kW	12kW	12kW	12kW	12kW
Sound Power Level A7/W55	60 dB(A)	60 dB(A)	60 dB(A)	60 dB(A)	60 dB(A)	60 dB(A)
Sound Pressure level @ 1m	52 dB(A)	52 dB(A)	52 dB(A)	52 dB(A)	52 dB(A)	52 dB(A)
Max. flow temperature	75°C	75°C	75°C	75°C	75°C	75°C
Design flow temperature	65°C	65°C	65°C	65°C	65°C	65°C
Compressor Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Weight (kg)	194kg	194kg	194kg	194kg	194kg	194kg
ELECTRICAL DETAILS						
Rated Voltage	230V/1ph	230V/1ph	230V/1ph	230V/1ph	230V/1ph	230V/1ph
Rated Power, Maximum (kW)	5.4 kW	5.4 kW	5.4 kW	5.4 kW	5.4 kW	5.4 kW
Rated Current, Maximum(A)	23.30 A	23.30 A	23.30 A	23.30 A	23.30 A	23.30 A
SUPPLIER DETAILS						
Size (mm)	1,100w x 1565h x 450d	1,100w x 1565h x 450d	1,100w x 1565h x 450d	1,100w x 1565h x 450d	1,100w x 1565h x 450d	1,100w x 1565h x 450d
Model Reference	Arotherm Plus 12kW VWL 125/6	Arotherm Plus 12kW VWL 125/6	Arotherm Plus 12kW VWL 125/6	Arotherm Plus 12kW VWL 125/6	Arotherm Plus 12kW VWL 125/6	Arotherm Plus 12kW VWL 125/6
Manufacturer	Vaillant	Vaillant	Vaillant	Vaillant	Vaillant	Vaillant
Notes						

Date:

28/03/2024

Status:

S1-PRELIMINARY

Revision:

P01

Project:

HAYES TOWN CENTRE

Reference:

HTC-SYN-P1ZZ-XX-SCH-0112

EQUIPMENT SCHEDULE

CALORIFIERS

REFERENCE	CYL/RF/01	CYL/RF/02	CYL/RF/03
Location	Rooftop Plantroom	Rooftop Plantroom	Rooftop Plantroom
Primary Heat Input (kW)	12	12	12
Emergency Back-up Electric Elements	3	3	3
Type	Unvented Hot Water Cylinder	Unvented Hot Water Cylinder	Unvented Hot Water Cylinder
Dimensions (mm)	1745 (H) x 595Ø	1745 (H) x 595Ø	1745 (H) x 595Ø
Weight (kg) - Empty/Full	81/369	81/369	81/369
TEMPERATURES AND PRESSURES			
Storage (ltr)	300	300	300
Storage Medium	DHW	DHW	DHW
CONNECTIONS			
Primary F&R Diameter	22mm	22mm	22mm
Primary F&R Flow Rate	0.39l/s	0.39l/s	0.39l/s
Primary WP	3bar	3bar	3bar
Cold feed / Secondary Flow Diameter	22mm/ 22mm	22mm/ 22mm	22mm/ 22mm
Cold Feed Pressure	3 bar	3 bar	3 bar
Secondary Max WP	10 bar	10 bar	10 bar
SUPPLIER DETAILS			
Manufacturer	Vaillant	Vaillant	Vaillant
Model	Pre-Plumbed UniSTOR 300	Pre-Plumbed UniSTOR 300	Pre-Plumbed UniSTOR 300
Model Code	0020237132	0020237132	0020237132
Notes	Expansion vessel is included with the cylinder. 3-way motorised valve, tundish, and unvented cylinder kit are pre-installed on the cylinder.	Expansion vessel is included with the cylinder. 3-way motorised valve, tundish, and unvented cylinder kit are pre-installed on the cylinder.	Expansion vessel is included with the cylinder. 3-way motorised valve, tundish, and unvented cylinder kit are pre-installed on the cylinder.

Date:

28/03/2024

Status:

S1-PRELIMINARY

Revision:

P01

Project:

HAYES TOWN CENTRE

Reference:

HTC-SYN-P1AA-XX-SCH-0112

EQUIPMENT SCHEDULE

CALORIFIERS

REFERENCE	CYL/RF/01	CYL/RF/02	CYL/RF/03
Location	Rooftop Plantroom	Rooftop Plantroom	Rooftop Plantroom
Primary Heat Input (kW)	12	12	12
Emergency Back-up Electric Elements	3	3	3
Type	Unvented Hot Water Cylinder	Unvented Hot Water Cylinder	Unvented Hot Water Cylinder
Dimensions (mm)	1745 (H) x 595Ø	1745 (H) x 595Ø	1745 (H) x 595Ø
Weight (kg) - Empty/Full	81/369	81/369	81/369
TEMPERATURES AND PRESSURES			
Storage (ltr)	300	300	300
Storage Medium	DHW	DHW	DHW
CONNECTIONS			
Primary F&R Diameter	22mm	22mm	22mm
Primary F&R Flow Rate	0.39l/s	0.39l/s	0.39l/s
Primary WP	3bar	3bar	3bar
Cold feed / Secondary Flow Diameter	22mm/ 22mm	22mm/ 22mm	22mm/ 22mm
Cold Feed Pressure	3 bar	3 bar	3 bar
Secondary Max WP	10 bar	10 bar	10 bar
SUPPLIER DETAILS			
Manufacturer	Vaillant	Vaillant	Vaillant
Model	Pre-Plumbed UniSTOR 300	Pre-Plumbed UniSTOR 300	Pre-Plumbed UniSTOR 300
Model Code	0020237132	0020237132	0020237132
Notes	Expansion vessel is included with the cylinder. 3-way motorised valve, tundish, and unvented cylinder kit are pre-installed on the cylinder.	Expansion vessel is included with the cylinder. 3-way motorised valve, tundish, and unvented cylinder kit are pre-installed on the cylinder.	Expansion vessel is included with the cylinder. 3-way motorised valve, tundish, and unvented cylinder kit are pre-installed on the cylinder.

Date: 10/03/2025
Status: S1-PRELIMINARY
Revision: P02
Project: HAYES TOWN CENTRE
Reference: HTC-SYN-P1ZZ-XX-SCH-0108

EQUIPMENT SCHEDULE																														FAN SCHEDULE										
REFERENCE	EF//00/01								EF//00/02								HRU//00/01								HRU//00/02								HRU//00/03							
Location	Block A Binstore								Block B Binstore								Block B Bike Store								Ground Floor Plant Room								Bike Store							
Serving	Block A Binstore								Block B Binstore								BOH Areas								BOH Areas								Underground Sprinkler Tank Room							
System	Extract								Extract								Supply and Extract with Heat Recovery								Supply and Extract with Heat Recovery								Supply and Extract with Heat Recovery							
Air Volume (m3/s)	0.191								0.202								0.237 (Extract) 0.181 (Supply)								0.237 (Extract) 0.181 (Supply)								0.054 (Extract) 0.054 (Supply)							
Pressure Drop (Pa)	70								70								100 Pa								100 Pa								100 Pa							
Specific Fan Power (kW/(m³/s))	0.3								0.3								1								0.9								0.9							
Fan Type	Single Extract Fan (axial)								Single Extract Fan (axial)								Backward Curved Centrifugal Fan								Backward Curved Centrifugal Fan								Backward Curved Centrifugal Fan							
Fan Speed Control	N/A								N/A								Variable Speed Controller								Variable Speed Controller								Variable Speed Controller							
Dimensions L x W x H (mm)	605 x 848 x 380								605 x 992 x 420								1773 x 1160 x 349								1773 x 1160 x 349								1660 x 1000 x 260							
Duct Connection Size (mm)	250Ø								315Ø								471x302 & 252x302								471x302 & 252x302								347x220 & 238x220							
Weight (kg)	35								59								242								242								143							
Breakout dBA @ 3m	23								34								30								30								24							
Fan Sound Power Levels (Hz)	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
Induct Intake/Inlet	70	69	57	57	47	45	46	45	84	83	65	60	45	44	43	38	76	64	62	63	54	47	38	32	70	64	62	64	59	55	47	46	68	57	50	51	57	50	42	38
Induct Supply	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	78	75	81	70	70	62	57	75	76	71	75	65	65	61	63	73	69	60	61	63	59	54	52
Induct Discharge/Outlet	78	79	60	54	50	50	44	46	86	64	57	45	35	26	21	16	81	76	73	79	69	69	62	56	76	77	71	74	65	65	63	64	73	70	60	62	63	60	55	53
Induct Extract	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	63	61	63	55	48	41	33	69	63	61	64	58	55	47	47	67	56	50	50	56	50	54	36
ELECTRICAL DETAILS																																								
Electrical Supply	1 Phase / 230 V / 50 Hz								1 Phase / 230 V / 50 Hz								1 Phase / 230 V / 50 Hz								1 Phase / 230 V / 50 Hz								1 Phase / 230 V / 50 Hz							
Motor Power (kW)	0.17								0.50								0.90								1.0								0.160							
Startng Current (A)	1.35								2.20								4.00								5.10								1.50							
Full Load Current (A)	1.35								2.20								4.00								5.10								1.50							
SUPPLIER DETAILS																																								
Manufacturer	Nuaire								Nuaire								Nuaire								Nuaire								Nuaire							
Model Reference	DE4-ES								DE5-ES								XBC-21HA-NNN								XBC-25HA-NNN								XBC-10HA-NNN							
Controls	Integral Controller								Integral Controller								Integral Controller								Integral Controller								Integral Controller							
Accessories																																								

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Project: 24/14747/COM

AVONDALE DRIVE ESTATE PHASE 1A

Location: EF/00/01 - Block A Binstore -

Technical Data

DE - DAVE Extract Fans

Fan Code: **DE4-ES**

Installation Manual Links: 611280

Required duty: 0.191 m³/s at 70 Pa

Actual duty: 0.283 m³/s at 154 Pa

Actual at required flow: 0.191 m³/s at 298 Pa

When speed controlled to required duty (67.38%):

Motor Input Power: **0.056 kW**

Specific Fan Power: **0.3 W/(l/s)**

Velocity at required duty: 3.891 m/s

At full speed:

Motor Input Power: 0.182 kW

Specific Fan Power: 0.6 W/(l/s)

Maximum Fan Speed: 2,550 RPM

Electrical Supply: 230V, 1 Phase, 50 Hz

Nominal Motor Rating: 0.17 kW

Motor current (flc): 1.35 A

Motor starting current (sc): 1.35 A

Max. operating temp: 60°C

Weight: 35 kg

All Ecosmart fans feature soft-starting and stepless variable speed control. A switch disconnector is required to isolate the fan from the electrical supply.

Sound Data

Acoustic performance to ISO 13347 and AMCA 300.

Noise calculated speed controlled to required duty (67.38%)

Sound Power Levels re 1 pWatts (Hz):

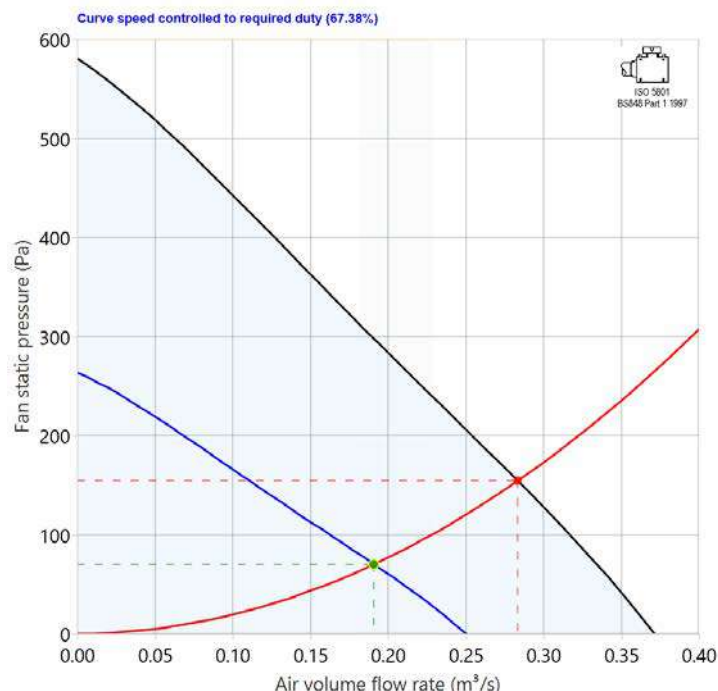
Hz	63	125	250	500	1k	2k	4k	8k	dBA
Induct Inlet	70	69	57	57	47	45	46	45	
Induct Outlet	78	79	60	54	50	50	44	46	
Breakout	54	53	43	37	28	24	19	<16	23
For 100% speed:	+3	+3	+5	+6	+9	+9	+9	+9	

dBA is hemi-spherical at 3 metres. For spherical deduct 3 dBA.

Values shown are for inlet Lw, outlet Lw sound power & breakout levels for: Installation Type D: ducted inlet, ducted outlet. Ratings include the effects of duct end correction.

Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

Performance Chart



Additional Notes

Selected Ancillaries

2 x CFCH25 Hi-temp flexible connector

CFCH25 - Hi-temp flexible connector

Weight: 0.5 kg

Specification

Dave high performance extract fan, standard case with patented 'Floating fan' construction. Single skin, with infill panels and manufactured from heavy gauge, corrosion resistant Magnelis steel. The unit is suitable for internal or external mounting, in any orientation and incorporates a full length top or bottom access panel. The fan impeller and EC motors are selected to provide optimum performance and energy efficiency conforming to Part L regulations. Units are suitable for operation in ambient temperatures of up to 60°C (sizes 1-5), 40°C (sizes 6-7) and are Class L2 leakage. The unit shall be controlled by an integrated Ecosmart control mounted externally to the case. The fans shall have the following energy saving and operational functions integrally installed with in it, all components will be pre-wired and fitted by the manufacturer:

- Integral Frequency inverter/speed controller.
- Integral adjustable run-on timer.
- Maximum and minimum speed adjustment/setting (trickle and boost).
- Volt free run & failure/status indication.
- 0-10V BMS interface for remote operation.
- Multiple low voltage sockets for interconnection of sensors or fans.
- Background ventilation/trickle enable switch.

The unit is supplied with circular spigots and set of four mounting brackets. The Fan unit shall have a 5 year warranty. The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuaire International Sales office for further details.

CFCH25

Circular flexible connector without flanges. Flexible duct material is flameproof and resistance to heat up to 400°C, chemicals, ozone, oil and grease. The material is airtight, waterproof and tested to BS476 Part 7. Supplied complete with fixing straps.



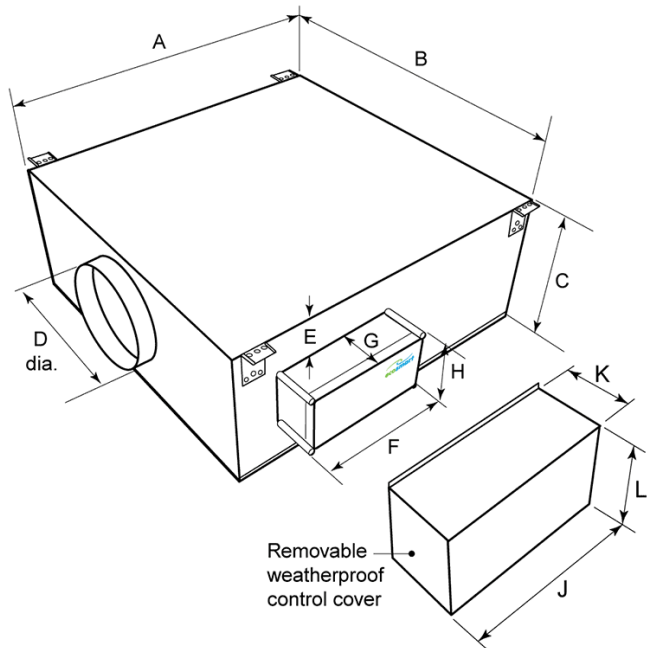
SUMMARY FAN DATA SHEET

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.
This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Fan Dimensions



A	B	C	D	E	F	G	H	J
605	848	380	250	131	370	96	150	470
K	L	kg						
120	170	35.0						
Length:	Width:	Height:						
605	848	380						

Drawing is for dimensional purposes only. Dimensions in mm.

Please see selected ancillaries section for additional dimensions for any requested additional ancillaries.

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Project: 24/14747/COM

AVONDALE DRIVE ESTATE PHASE 1A

Location: EF/00/02 - Block B Binstore

Technical Data

DE - DAVE Extract Fans

Fan Code: **DE5-ES**

Installation Manual Links: 611280

Required duty: 0.202 m³/s at 70 Pa

Actual duty: 0.451 m³/s at 349 Pa

Actual at required flow: 0.202 m³/s at 600 Pa

When speed controlled to required duty (44.77%):

Motor Input Power: **0.048 kW**

Specific Fan Power: **0.2 W/(l/s)**

Velocity at required duty: 2.592 m/s

At full speed:

Motor Input Power: 0.535 kW

Specific Fan Power: 1.2 W/(l/s)

Maximum Fan Speed: 2,250 RPM

Electrical Supply: 230V, 1 Phase, 50 Hz

Nominal Motor Rating: 0.5 kW

Motor current (flc): 2.2 A

Motor starting current (sc): 2.2 A

Max. operating temp: 60°C

Weight: 59 kg

All Ecosmart fans feature soft-starting and stepless variable speed control. A switch disconnecter is required to isolate the fan from the electrical supply.

Sound Data

Acoustic performance to ISO 13347 and AMCA 300.

Noise calculated speed controlled to required duty (44.77%)

Sound Power Levels re 1 pWatts (Hz):

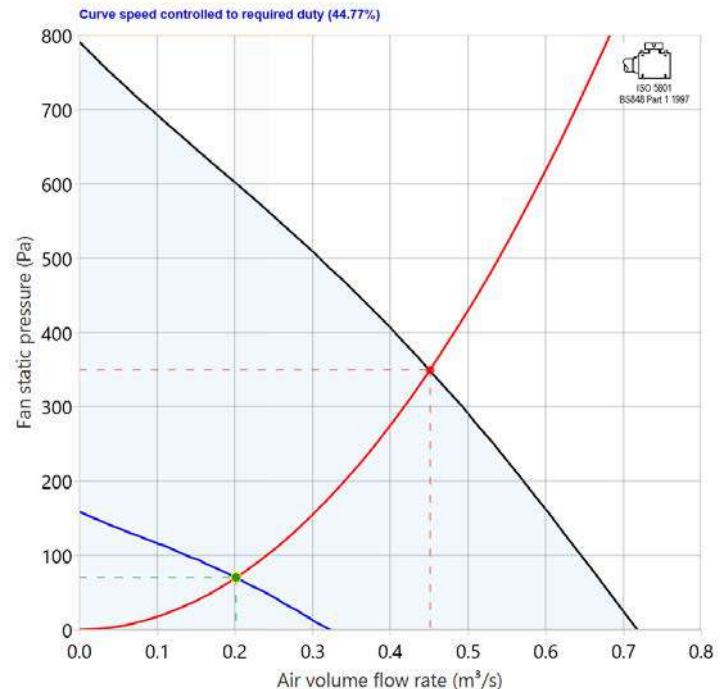
Hz	63	125	250	500	1k	2k	4k	8k	dBA
Induct Inlet	84	83	65	60	45	44	43	38	
Induct Outlet	86	84	67	61	51	46	41	35	
Breakout	69	64	57	45	35	26	21	16	34
For 100% speed:	+5	+6	+9	+12	+18	+18	+18	+18	

dBA is hemi-spherical at 3 metres. For spherical deduct 3 dBA.

Values shown are for inlet Lw, outlet Lw sound power & breakout levels for: Installation Type D: ducted inlet, ducted outlet. Ratings include the effects of duct end correction.

Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

Performance Chart



Additional Notes

Selected Ancillaries

2 x CFCH31 Hi-temp flexible connector

CFCH31 - Hi-temp flexible connector

Weight: 0.5 kg

Specification

Dave high performance extract fan, standard case with patented 'Floating fan' construction. Single skin, with infill panels and manufactured from heavy gauge, corrosion resistant Magnelis steel. The unit is suitable for internal or external mounting, in any orientation and incorporates a full length top or bottom access panel. The fan impeller and EC motors are selected to provide optimum performance and energy efficiency conforming to Part L regulations. Units are suitable for operation in ambient temperatures of up to 60°C (sizes 1-5), 40°C (sizes 6-7) and are Class L2 leakage. The unit shall be controlled by an integrated Ecosmart control mounted externally to the case. The fans shall have the following energy saving and operational functions integrally installed with in it, all components will be pre-wired and fitted by the manufacturer:

- Integral Frequency inverter/speed controller.
- Integral adjustable run-on timer.
- Maximum and minimum speed adjustment/setting (trickle and boost).
- Volt free run & failure/status indication.
- 0-10V BMS interface for remote operation.
- Multiple low voltage sockets for interconnection of sensors or fans.
- Background ventilation/trickle enable switch.

The unit is supplied with circular spigots and set of four mounting brackets. The Fan unit shall have a 5 year warranty. The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuaire International Sales office for further details.

CFCH31

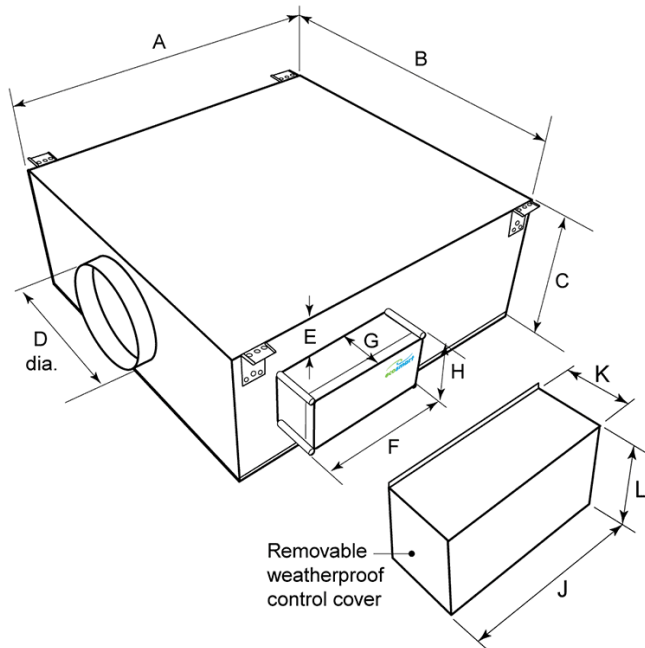
Circular flexible connector without flanges. Flexible duct material is flameproof and resistance to heat up to 400°C, chemicals, ozone, oil and grease. The material is airtight, waterproof and tested to BS476 Part 7. Supplied complete with fixing straps.

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.
This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Fan Dimensions



A	B	C	D	E	F	G	H	J
605	992	420	315	140	370	96	150	470
K	L	kg						
120	170	59.0						
Length:	Width:	Height:						
605	992	420						

Drawing is for dimensional purposes only. Dimensions in mm.

Please see selected ancillaries section for additional dimensions for any requested additional ancillaries.



SUMMARY FAN DATA SHEET

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Project: 24/14747/COM

AVONDALE DRIVE ESTATE PHASE 1A

Location: HRU//00/01 - Block B Bike Store - BOH Areas -

Technical Data

XBC+

Fan Code: **XBC21HA-NNN-E-LS1S**

Installation Manual Links: **671948**

Supply

Required duty: 0.181 m³/s at 100 Pa

Actual duty: 0.277 m³/s at 234 Pa

Actual at required flow: 0.181 m³/s at 508 Pa

Extract

Required duty: 0.237 m³/s at 100 Pa

Actual duty: 0.295 m³/s at 155 Pa

Actual at required flow: 0.237 m³/s at 374 Pa

When speed controlled to required duty:

Motor input power: 0.344 kW

Specific Fan Power: 1.5 W/(l/s)

At full speed:

Motor input power: 0.865 kW

Specific Fan Power: 2.9 W/(l/s)

Maximum Fan Speed: 3,300 RPM

Electrical Supply: 230V 1 Phase 50 Hz

Nominal Motor Rating 0.9 kW

Motor Current (flc): 4 A

Motor Current (sc): 4 A

Max. operating temp: 60°C

Weight: 242 kg

Sound Data

Noise calculated speed controlled to required duty (80.24%)

Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k	dBA
Breakout	67	60	57	56	42	40	36	27	34
Induct Intake	80	68	67	68	59	51	42	36	46
Induct Supply	84	82	79	85	75	74	67	61	63
Induct Discharge	86	81	78	84	74	74	67	60	62
Induct Extract	78	67	67	68	60	52	43	36	46
For 100% speed:	+5	+5	+5	+5	+5	+5	+5	+5	

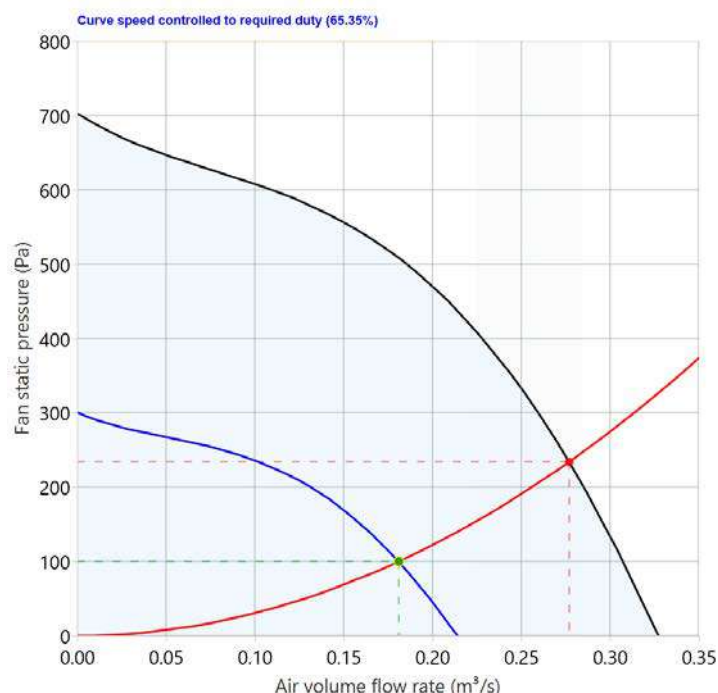
dBA is spherical at 3 metres. For hemi-spherical add 3 dBA.

Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

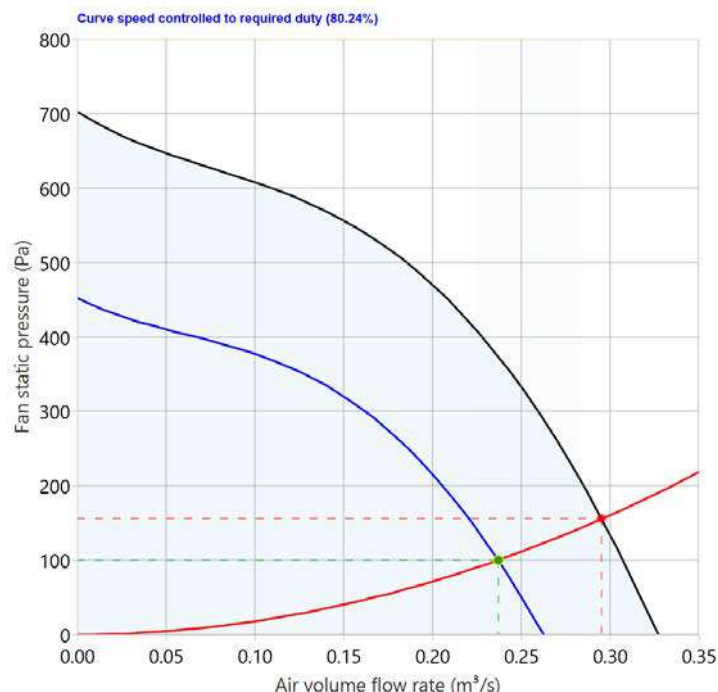
Specification

Nuaire XBOXER Supply & Extract HX unit. Incorporating high efficiency Counterflow plate heat exchanger 100% bypass facility (patent app. for) automatic control and actuator. Backward curved impellers, IP54 EC motors and speed control. Double skinned construction (patented). G4 Supply G4 Extract panel filters (spares included). EcoSmart Classic control of ventilation/heating. For ceiling/underfloor/slab mounted applications. Supply/Discharge connections on unit centreline; Intake/Extract connections are configurable on site to either side of unit. Rotational side mounted control. Unit will be supplied LEFT HANDED. 5 year warranty (UK and Ireland only)

Performance Chart (supply)



Performance Chart (extract)



Additional Notes

Please note this unit has been offered for internal mounting only and without any heating & cooling coils.
Please Advise if any amendments are required prior order placement.
Please see the unit data sheets for the full technical, dimensional and sound information on the unit offered for suitability.

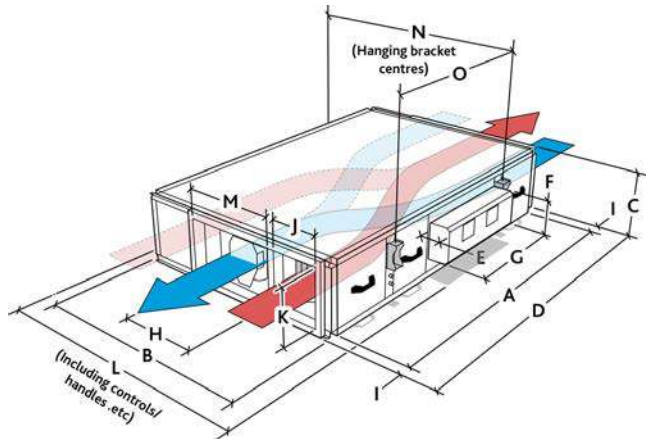
Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Fan Dimensions



A	B	C	D	E	F	G	H	I
1713	1160	349	1773	130	210	640	404	30
J	K	L	M	kg				
252	270	1369	471	242.0				

Length: Width: Height:
1773 1160 349

Drawing is for dimensional purposes only. Dimensions in mm.

Please see selected ancillaries section for additional dimensions for any requested additional ancillaries.

Key:



CONTROL BOX

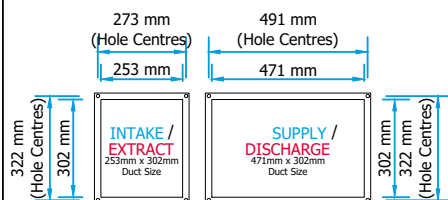


LOCATION OF REQUIRED ACCESS CLEARANCE

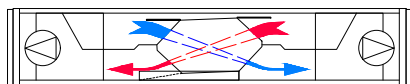
SIDE ACCESS CLEARANCE.
250mm MINIMUM
(FOR FILTER REMOVAL & UNIT INSPECTION ONLY)
600mm RECOMMENDED
(COMPONENT REMOVAL & OTHER MAJOR MAINTENANCE)

UNIT PROVIDED WITH TWO INTAKE/EXTRACT OPTIONS. THE UNUSED INTAKE/EXTRACT APERTURES ARE TO BE BLANKED OFF USING BLANKING PLATES PROVIDED.

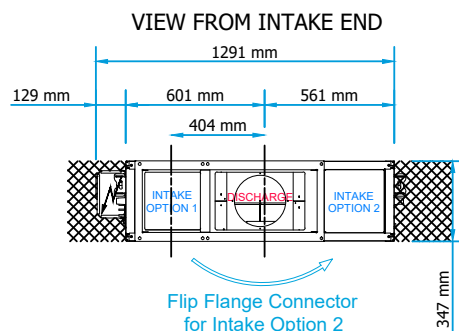
REQUIRED DUCT SIZES



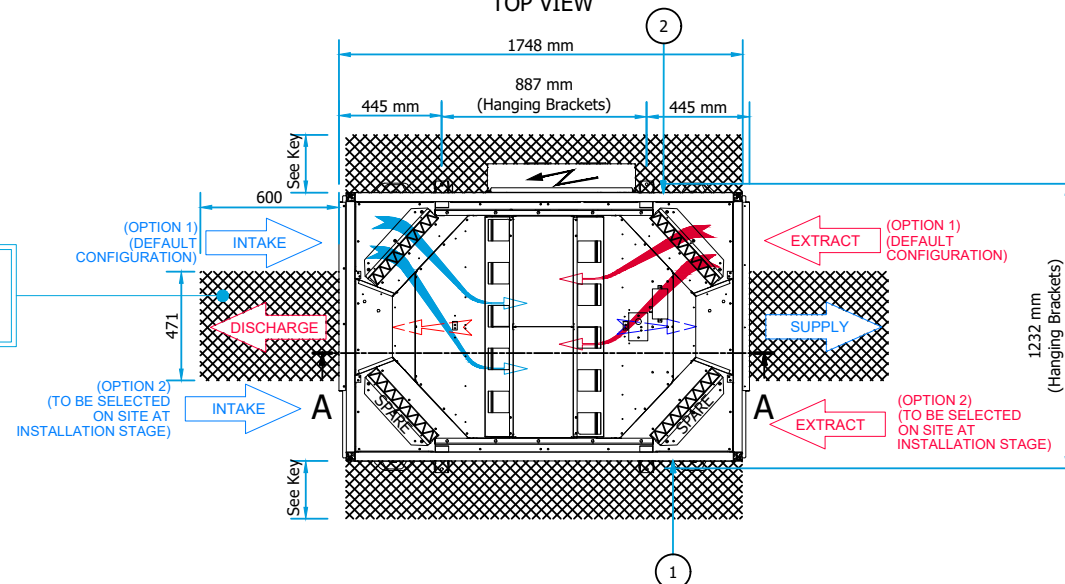
SECTION A



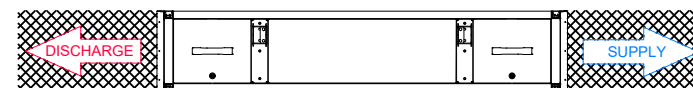
Please Note:
Should the supply or extract blowers need to be removed, this must be performed through the end duct connection. For this reason, any equipment attached to the flange connector must first be removed.



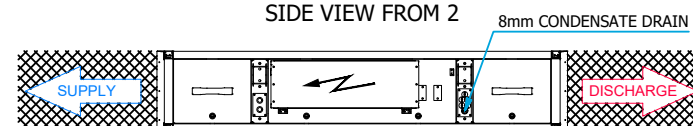
TOP VIEW



SIDE VIEW FROM 1



SIDE VIEW FROM 2



You can download this CAD drawing from <http://nua-www01.domain.nuaire.co.uk/CAD/xbcplus21-hn-l.dwg>

Please Note: This drawing details the factory-standard unit ONLY (unless silencers are shown too). The total length or footprint may differ from that shown depending on the additional ancillaries offered on the quote or if the unit code ends in -QA*****

Please **DO NOT** sign this drawing to confirm handings.
Please request the official handing drawings from Nuaire.

Drawing generated automatically by Nuaire Selector

Do **NOT** scale from this drawing.



Nuaire, Western Ind Est, Caerphilly, Wales, CF83 1NA
Tel: 02920 858 8200 <https://www.nuaire.co.uk>

Key:



CONTROL BOX

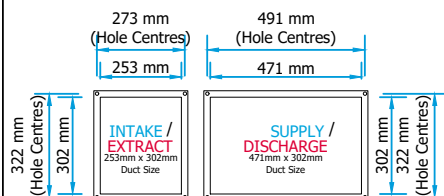


LOCATION OF REQUIRED ACCESS CLEARANCE

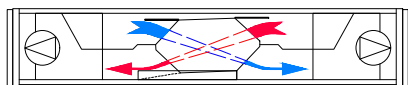
SIDE ACCESS CLEARANCE.
250mm MINIMUM
(FOR FILTER REMOVAL & UNIT INSPECTION ONLY)
600mm RECOMMENDED
(COMPONENT REMOVAL & OTHER MAJOR MAINTENANCE)

UNIT PROVIDED WITH TWO INTAKE/EXTRACT OPTIONS. THE UNUSED INTAKE/EXTRACT APERTURES ARE TO BE BLANKED OFF USING BLANKING PLATES PROVIDED.

REQUIRED DUCT SIZES

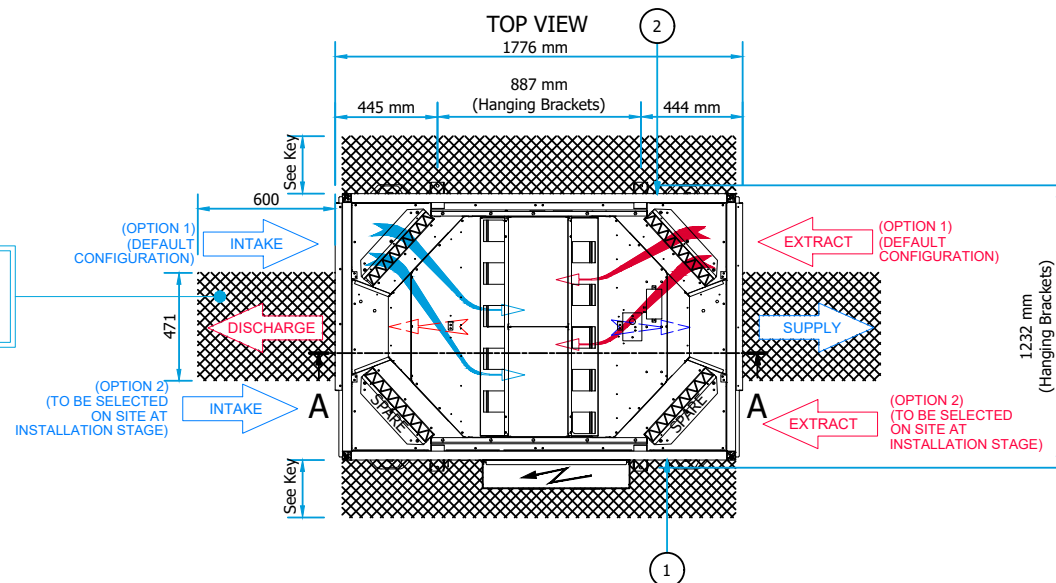
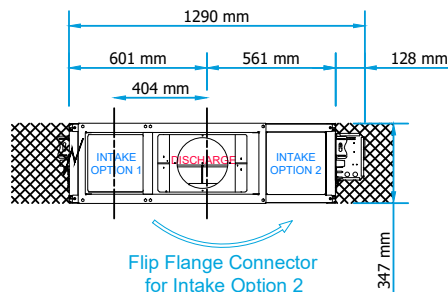


SECTION A

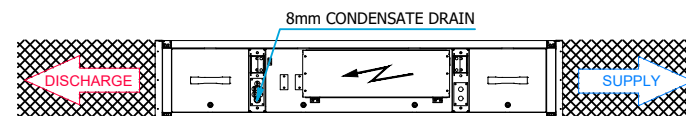


Please Note:
Should the supply or extract blowers need to be removed, this must be performed through the end duct connection. For this reason, any equipment attached to the flange connector must first be removed.

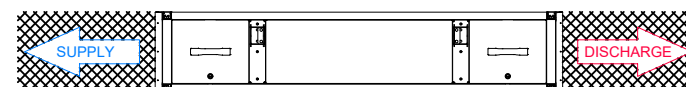
VIEW FROM INTAKE END



SIDE VIEW FROM 1



SIDE VIEW FROM 2



You can download this CAD drawing from <http://nua-www01.domain.nuaire.co.uk/CAD/xbcplus21-hn-r.dwg>

Please Note: This drawing details the factory-standard unit ONLY (unless silencers are shown too). The total length or footprint may differ from that shown depending on the additional ancillaries offered on the quote or if the unit code ends in -QA*****

Please DO NOT sign this drawing to confirm handings.
Please request the official handing drawings from Nuaire.

Drawing generated automatically by Nuaire Selector

Do NOT scale from this drawing.



Nuaire, Western Ind Est, Caerphilly, Wales, CF83 1NA
Tel: 02920 858 8200 <https://www.nuaire.co.uk>



SUMMARY FAN DATA SHEET

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Project: 24/14747/COM

AVONDALE DRIVE ESTATE PHASE 1A

Location: HRU/00/02 - Ground Floor Plant Room - BOH Areas

Technical Data

XBC+

Fan Code: **XBC25HA-NNN-E-LS1S**

Installation Manual Links: **671948**

Supply

Required duty: 0.181 m³/s at 100 Pa

Actual duty: 0.339 m³/s at 350 Pa

Actual at required flow: 0.181 m³/s at 749 Pa

Extract

Required duty: 0.237 m³/s at 100 Pa

Actual duty: 0.362 m³/s at 233 Pa

Actual at required flow: 0.237 m³/s at 660 Pa

When speed controlled to required duty:

Motor input power: **0.215 kW**

Specific Fan Power: **0.9 W/(l/s)**

At full speed:

Motor input power: 0.992 kW

Specific Fan Power: 2.7 W/(l/s)

Maximum Fan Speed: 3,740 RPM

Electrical Supply: 230V 1 Phase 50 Hz

Nominal Motor Rating

Motor Current (flc): 5.1 A

Motor Current (sc): 5.1 A

Max. operating temp: 60°C

Weight: 242 kg

Sound Data

Noise calculated speed controlled to required duty (65.41%)

Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k	dBA
Breakout	62	61	48	51	38	37	37	29	30
Induct Intake	70	64	62	64	59	55	47	46	44
Induct Supply	75	76	71	75	65	65	61	63	54
Induct Discharge	76	77	71	74	65	65	63	64	54
Induct Extract	69	63	61	64	58	55	47	47	43
For 100% speed:	+10	+10	+10	+10	+10	+10	+10	+10	

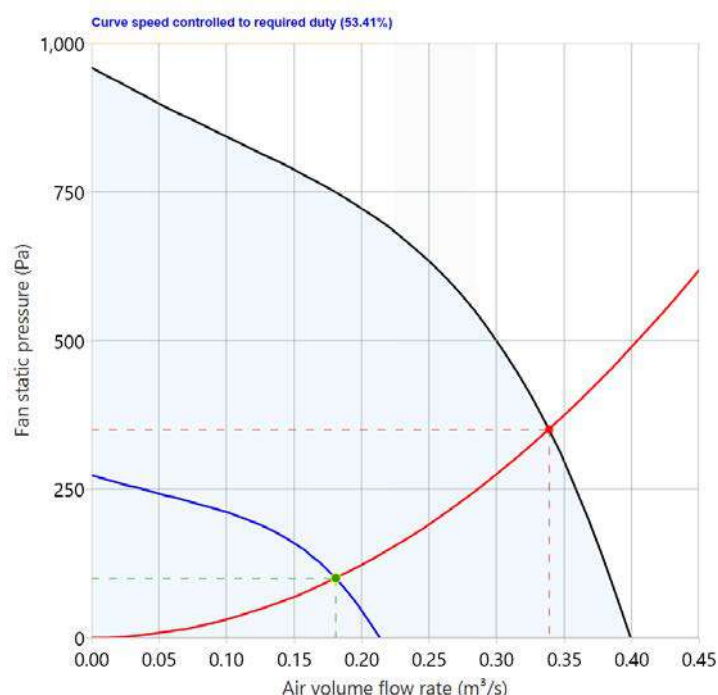
dBA is spherical at 3 metres. For hemi-spherical add 3 dBA.

Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

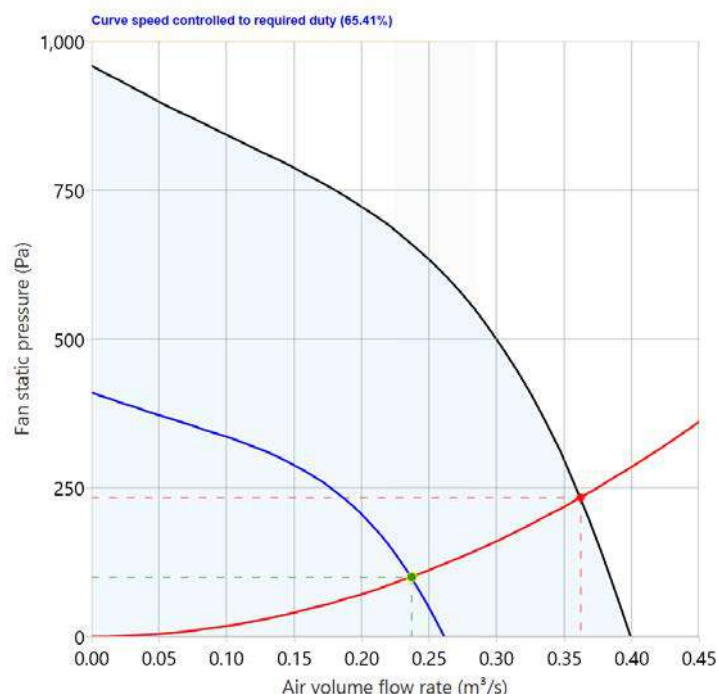
Specification

Nuaire XBOXER Supply & Extract HX unit. Incorporating high efficiency Counterflow plate heat exchanger 100% bypass facility (patent app. for automatic control and actuator. Backward curved impellers, IP54 EC motors and speed control. Double skinned construction (patented). G4 Supply G4 Extract panel filters (spares included). EcoSmart Classic control of ventilation/heating. For ceiling/underfloor/slab mounted applications. Supply/Discharge connections on unit centreline; Intake/Extract connections are configurable on site to either side of unit. Rotational side mounted control. Unit will be supplied LEFT HANDED. 5 year warranty (UK and Ireland only)

Performance Chart (supply)



Performance Chart (extract)



Additional Notes

Please note this unit has been offered for internal mounting only and without any heating & cooling coils.
Please Advise if any amendments are required prior order placement.
Please see the unit data sheets for the full technical, dimensional and sound information on the unit offered for suitability.

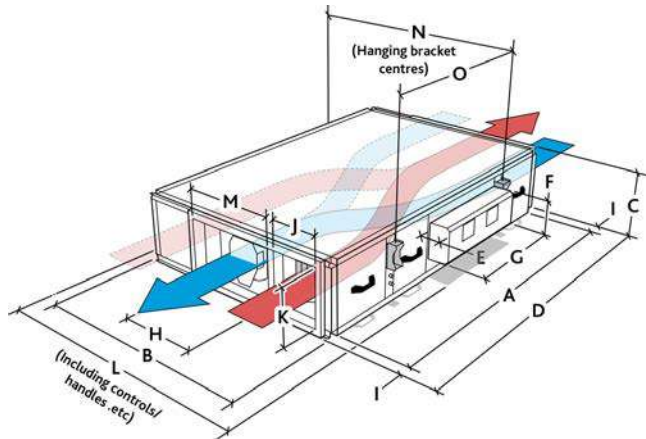
Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Fan Dimensions

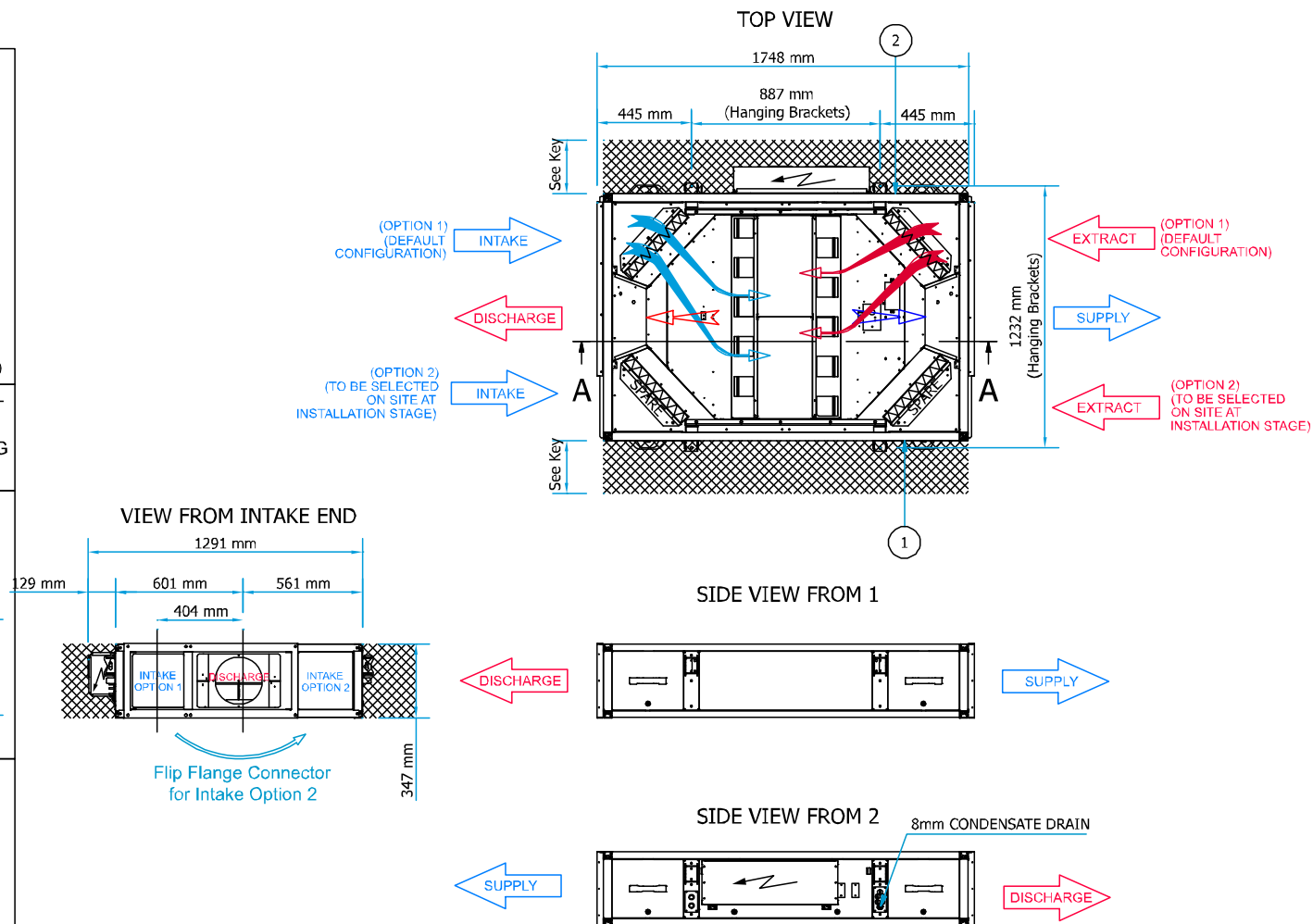
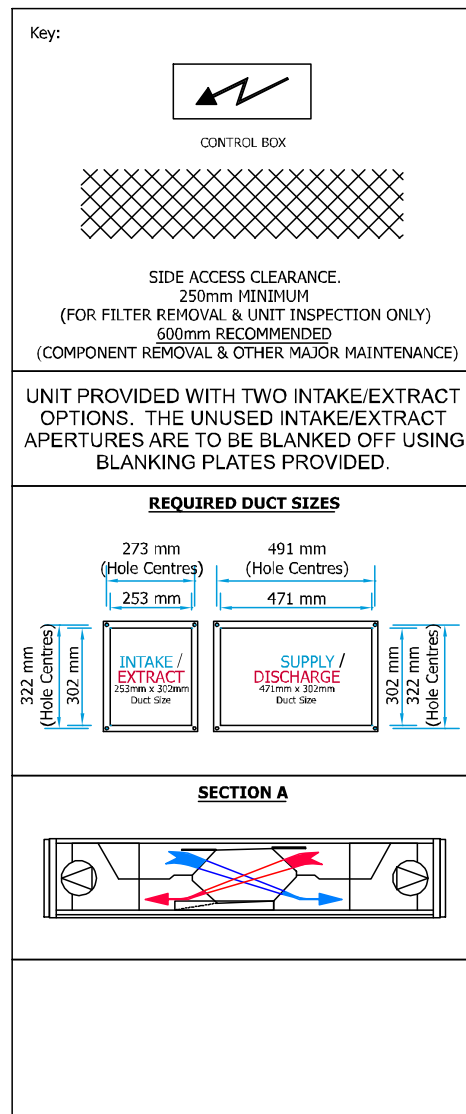


A	B	C	D	E	F	G	H	I
1713	1160	349	1773	130	210	640	404	30
J	K	L	M	kg				
252	270	1369	471	242.0				

Length: Width: Height:
1773 1160 349

Drawing is for dimensional purposes only. Dimensions in mm.

Please see selected ancillaries section for additional dimensions for any requested additional ancillaries.



You can download this CAD drawing from <http://nua-www01.domain.nuaire.co.uk/CAD/xbcplus25-hn-l.dwg>

Please Note: This drawing details the factory-standard unit ONLY (unless silencers are shown too). The total length or footprint may differ from that shown depending on the additional ancillaries offered on the quote or if the unit code ends in -QA*****

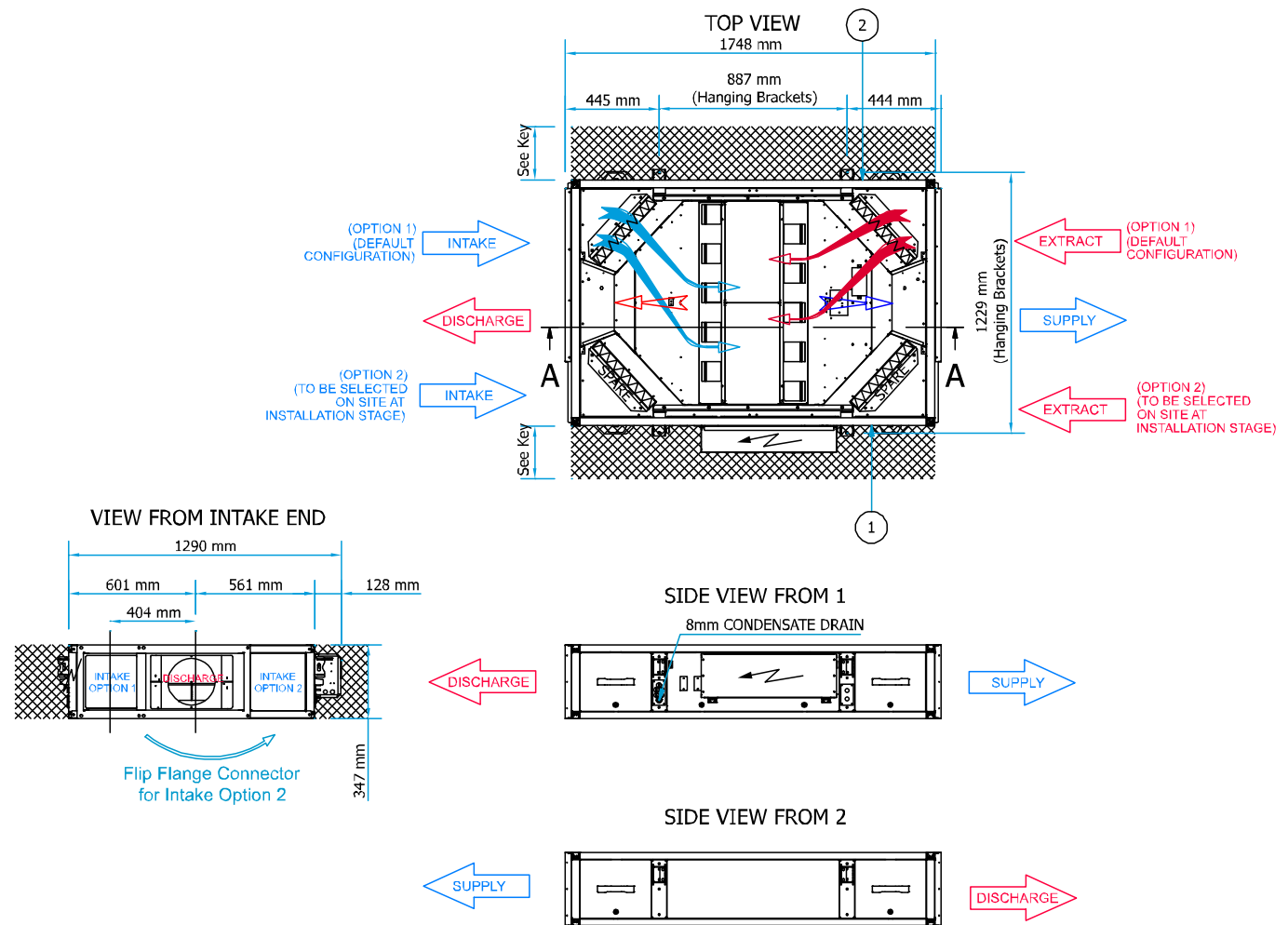
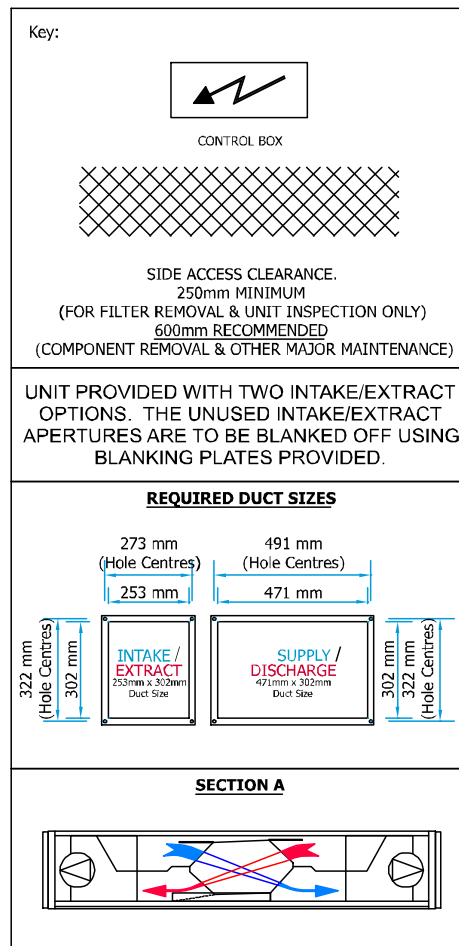
Please DO NOT sign this drawing to confirm handings.
Please request the official handing drawings from Nuaire.

Drawing generated automatically by Nuaire Selector

Do NOT scale from this drawing.

nuaire

Nuaire, Western Ind Est, Caerphilly, Wales, CF83 1NA
Tel: 02920 858 6200 <https://www.nuaire.co.uk>



You can download this CAD drawing from <http://nua-www01.domain.nuaire.co.uk/CAD/xbcplus25-hn-r.dwg>

Please Note: This drawing details the factory-standard unit ONLY (unless silencers are shown too). The total length or footprint may differ from that shown depending on the additional ancillaries offered on the quote or if the unit code ends in -QA*****

Please **DO NOT** sign this drawing to confirm handings.
Please request the official handing drawings from Nuaire.

Drawing generated automatically by Nuaire Selector

Do **NOT** scale from this drawing.

nuaire

Nuaire, Western Ind Est, Caerphilly, Wales, CF83 1NA
Tel: 02920 858 6200 <https://www.nuaire.co.uk>



SUMMARY FAN DATA SHEET

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Project: 24/14747/COM

AVONDALE DRIVE ESTATE PHASE 1A

Location: HRU/00/03 - Bike Store - Underground Sprinkler Tank Room-

Technical Data

XBC+

Fan Code: **XBC10HA-NNN-E-LS1S**

Installation Manual Links: **671948**

Supply

Required duty: 0.054 m³/s at 100 Pa

Actual duty: 0.061 m³/s at 127 Pa

Actual at required flow: 0.054 m³/s at 147 Pa

Extract

Required duty: 0.054 m³/s at 100 Pa

Actual duty: 0.061 m³/s at 127 Pa

Actual at required flow: 0.054 m³/s at 147 Pa

When speed controlled to required duty:

Motor input power: 0.057 kW

Specific Fan Power: 1.1 W/(l/s)

At full speed:

Motor input power: 0.083 kW

Specific Fan Power: 1.4 W/(l/s)

Maximum Fan Speed: 3,200 RPM

Electrical Supply: 230V 1 Phase 50 Hz

Nominal Motor Rating 0.16 kW

Motor Current (flc): 1.5 A

Motor Current (sc): 1.5 A

Max. operating temp: 55°C

Weight: 195 kg

Sound Data

Noise calculated speed controlled to required duty (88.51%)

Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k	dBA
Breakout	56	52	37	38	36	32	29	18	21
Induct Intake	65	54	47	48	54	47	39	35	35
Induct Supply	70	66	57	58	60	56	51	49	42
Induct Discharge	70	67	57	59	60	57	52	50	43
Induct Extract	64	53	47	47	53	47	37	33	34
For 100% speed:	+3	+3	+3	+3	+3	+3	+3	+3	

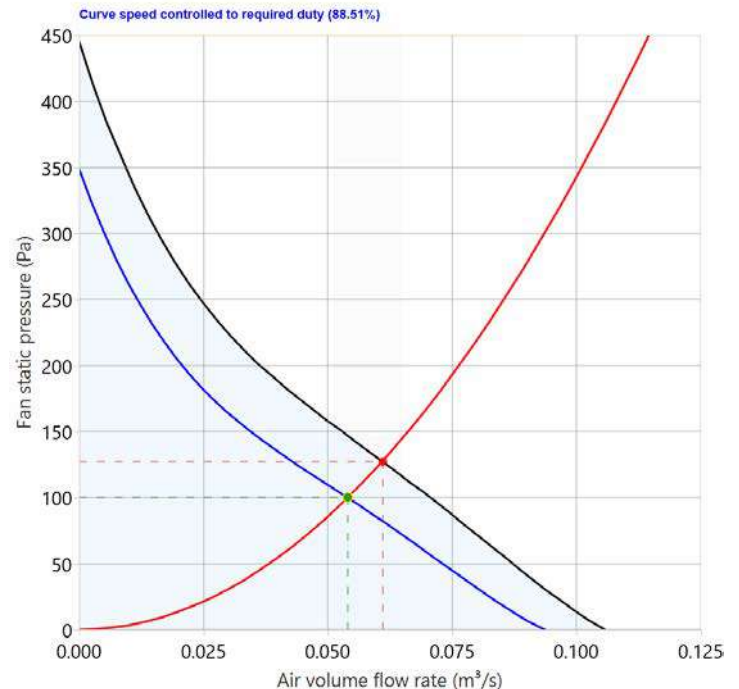
dBA is spherical at 3 metres. For hemi-spherical add 3 dBA.

Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

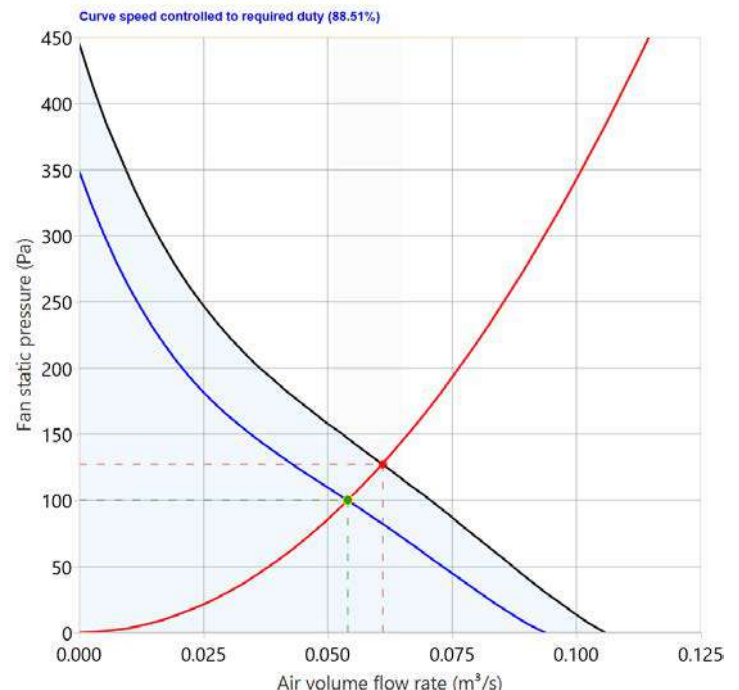
Specification

XBC10HA-NNN-E-LS1S. Nuaire XBOXER Supply & Extract HX unit. Incorporating high efficiency Counterflow heat exchanger 100% bypass facility (patent app. for) automatic control and actuator. Backward curved impellers, IP54 EC motors and speed control. Double skinned construction (patented). G4 Supply G4 Extract panel filters (spares included). EcoSmart Classic control of ventilation/heating. For ceiling/underfloor/slab mounted applications. Supply/Discharge connections on unit centreline; Intake/Extract connections are configurable on site to either side of unit. Rotational side mounted control. Unit will be supplied LEFT HANDED. 5 year warranty (UK and Ireland only)

Performance Chart (supply)



Performance Chart (extract)



Additional Notes

Please note this unit has been offered for internal mounting only and without any heating & cooling coils. Please Advise if any amendments are required prior order placement. Please see the unit data sheets for the full technical, dimensional and sound information on the unit offered for suitability.

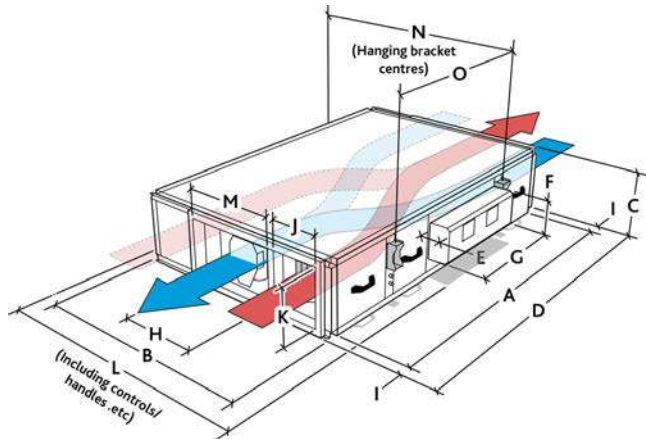
Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

This data sheet produced on 13 Mar 2025 11:19 using software version 5.8.4600.0

Fan Dimensions



A	B	C	D	E	F	G	H	I
1600	1000	260	1660	140	210	640	334	30
J	K	L	M	N	O	kg		
238	220	1205	347	1068	832	195.0		

Length: Width: Height:

1600 1000 260

Drawing is for dimensional purposes only. Dimensions in mm.

Please see selected ancillaries section for additional dimensions for any requested additional ancillaries.

Key:



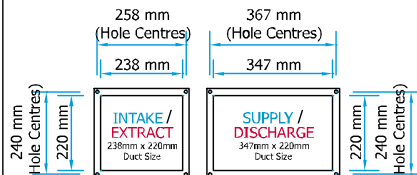
CONTROL BOX



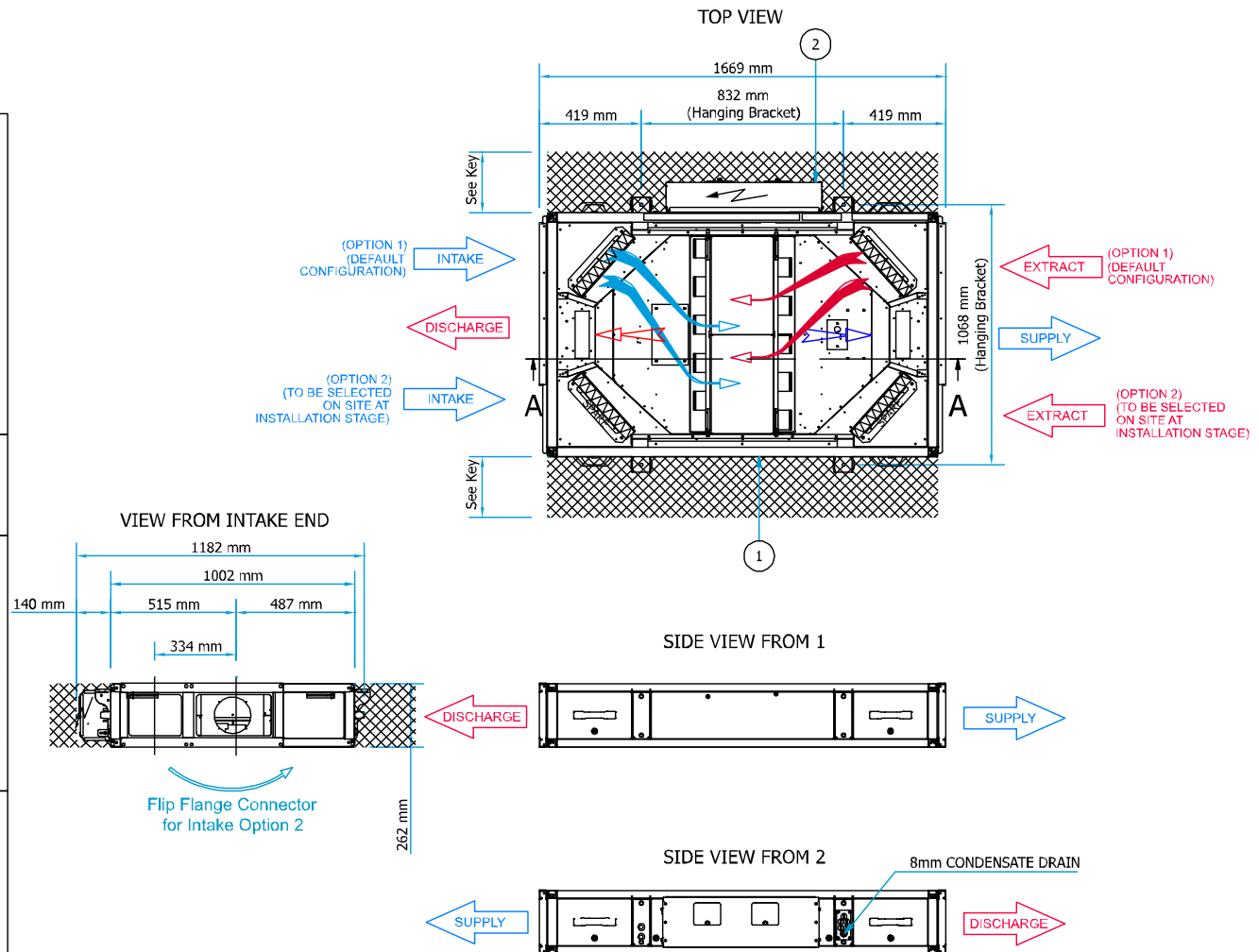
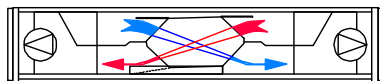
SIDE ACCESS CLEARANCE.
250mm MINIMUM
(FOR FILTER REMOVAL & UNIT INSPECTION ONLY)
600mm RECOMMENDED
(COMPONENT REMOVAL & OTHER MAJOR MAINTENANCE)

UNIT PROVIDED WITH TWO INTAKE/EXTRACT OPTIONS. THE UNUSED INTAKE/EXTRACT APERTURES ARE TO BE BLANKED OFF USING BLANKING PLATES PROVIDED.

REQUIRED DUCT SIZES



SECTION A



You can download this CAD drawing from <http://nua-www01.domain.nuaire.co.uk/CAD/xbcplus10-hn-l.dwg>

Please Note: This drawing details the factory-standard unit ONLY (unless silencers are shown too). The total length or footprint may differ from that shown depending on the additional ancillaries offered on the quote or if the unit code ends in -QA*****

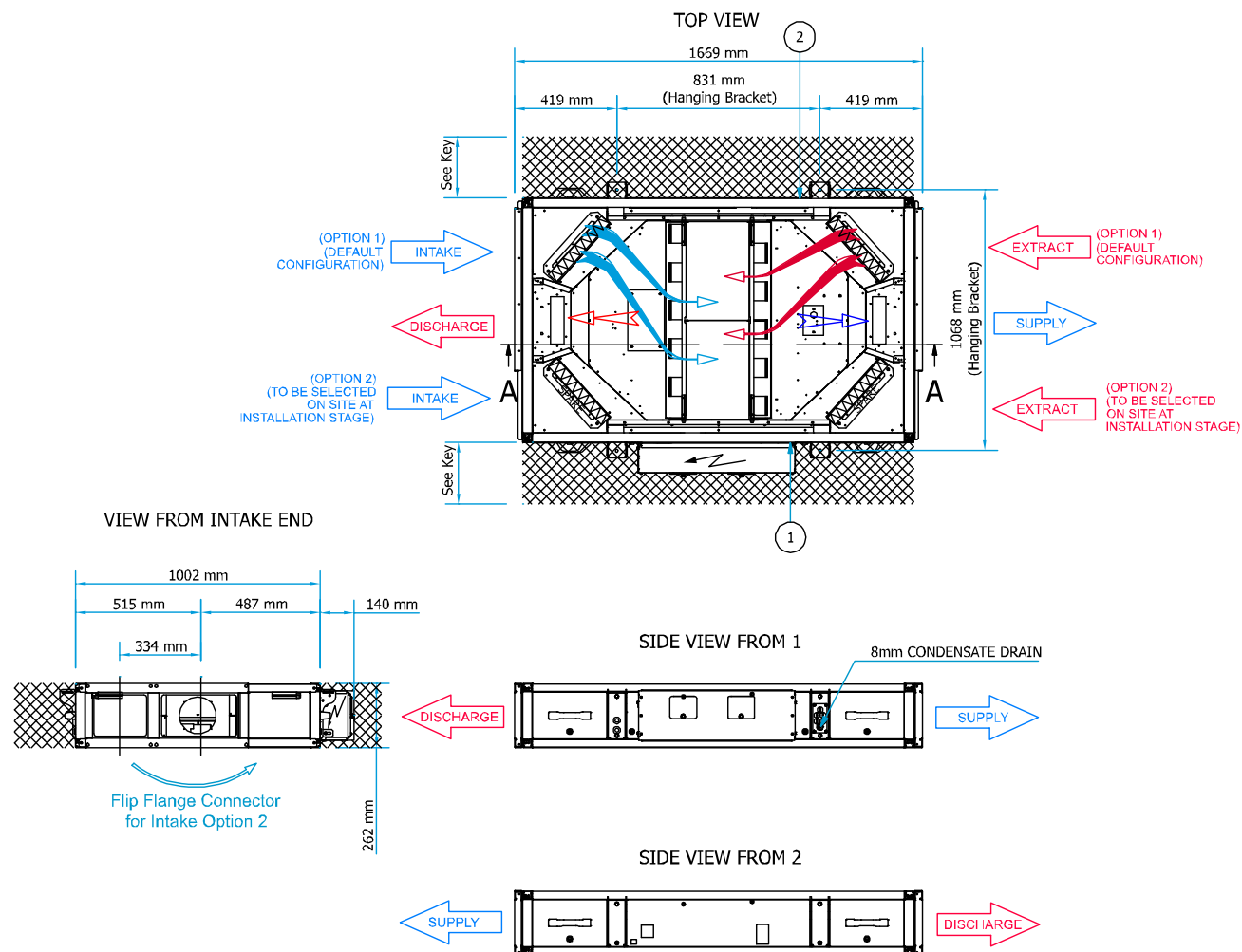
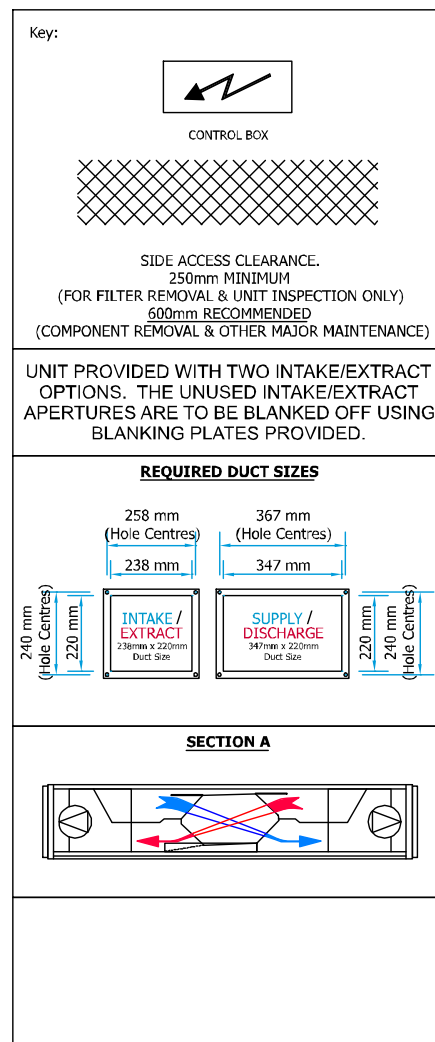
Please **DO NOT** sign this drawing to confirm handings.
Please request the official handing drawings from Nuaire.

Drawing generated automatically by Nuaire Selector

Do **NOT** scale from this drawing.



Nuaire, Western Ind Est, Caerphilly, Wales, CF83 1NA
Tel: 02920 858 8200 <https://www.nuaire.co.uk>



You can download this CAD drawing from <http://nua-www01.domain.nuaire.co.uk/CAD/xbcplus10-hn-r.dwg>

Please Note: This drawing details the factory-standard unit ONLY (unless silencers are shown too). The total length or footprint may differ from that shown depending on the additional ancillaries offered on the quote or if the unit code ends in -QA*****

Please **DO NOT** sign this drawing to confirm handings.
Please request the official handing drawings from Nuaire.

Drawing generated automatically by Nuaire Selector

Do **NOT** scale from this drawing.



Nuaire, Western Ind Est, Caerphilly, Wales, CF83 1NA
Tel: 02920 858 8200 <https://www.nuaire.co.uk>

Date: 26/10/2023
Status: S1-PRELIMINARY
Revision: P01
Project: HAYES TOWN CENTRE
Reference: HTC-SYN-P1ZZ-XX-SCH-0105

EQUIPMENT SCHEDULE

COLD WATER BOOSTER SETS

REFERENCE	BS/00/01	CAT5/00/02	
Location	Ground Floor Water Services Plantroom	Ground Floor Water Services Plantroom	
System	Combined Sprinkler and Residential Boosted Cold Water	Landlords CAT 5 Boosted Cold Water	
Main Pump Design Duty (l/s)	6.7	0.5	
Design Pressure (Bar)	6	4.6	
Maximum Working Pressure (Bar)	10.5	7.2	
Pump Connections	2 1/2" BSPM	1" BSPM	
PUMP DETAILS			
Pump Type	Variable Speed	Variable Speed	
Number of Pumps	3 @ 50%	1	
Pump Operation	Duty-Assist-Standby	Duty	
Pump Speed (rpm)	3600	2900	
ELECTRICAL DETAILS			
Electrical Supply (V/Ph/Hz)	400V/3ph/50Hz	240V/1ph/50Hz	
Motor Power	3 x 3kW 6.74Amps	0.55kW 3.07 Amps	
Pump Starter	3 x Inverters	DOL	
VESSEL DETAILS			
Vessel Volume (l)	1 x 24	1 x 8	
Type	-	-	
SUPPLIER DETAILS			
Manufacturer	KGN Pillinger	KGN Pillinger	
Model Reference	AV-1-24HP/3PVX1006 KGN	BTC/EV-1-8/1PH1HME08/PW225	
Additional Equipment	Mimic Control Panel wall mounted monitoring device with battery backed alarm. Anti Surge Arrestors at top of riser.	225 litre BREAK TANK (sized assuming mains supply equal or greater than booster flow rate).	
Controls	Control Panel with Auto Duty sequence changeover	Inverter Control	

Date: 26/10/2023
Status: S1-PRELIMINARY
Revision: P01
Project: HAYES TOWN CENTRE
Reference: HTC-SYN-P1ZZ-XX-SCH-0105

EQUIPMENT SCHEDULE

COLD WATER BOOSTER SETS

REFERENCE	BS/00/01	CAT5/00/02	
Location	Ground Floor Water Services Plantroom	Ground Floor Water Services Plantroom	
System	Combined Sprinkler and Residential Boosted Cold Water	Landlords CAT 5 Boosted Cold Water	
Main Pump Design Duty (l/s)	6.7	0.5	
Design Pressure (Bar)	6	4.6	
Maximum Working Pressure (Bar)	10.5	7.2	
Pump Connections	2 1/2" BSPM	1" BSPM	
PUMP DETAILS			
Pump Type	Variable Speed	Variable Speed	
Number of Pumps	3 @ 50%	1	
Pump Operation	Duty-Assist-Standby	Duty	
Pump Speed (rpm)	3600	2900	
ELECTRICAL DETAILS			
Electrical Supply (V/Ph/Hz)	400V/3ph/50Hz	240V/1ph/50Hz	
Motor Power	3 x 3kW 6.74Amps	0.55kW 3.07 Amps	
Pump Starter	3 x Inverters	DOL	
VESSEL DETAILS			
Vessel Volume (l)	1 x 24	1 x 8	
Type	-	-	
SUPPLIER DETAILS			
Manufacturer	KGN Pillinger	KGN Pillinger	
Model Reference	AV-1-24HP/3PVX1006 KGN	BTC/EV-1-8/1PH1HME08/PW225	
Additional Equipment	Mimic Control Panel wall mounted monitoring device with battery backed alarm. Anti Surge Arrestors at top of riser.	225 litre BREAK TANK (sized assuming mains supply equal or greater than booster flow rate).	
Controls	Control Panel with Auto Duty sequence changeover	Inverter Control	

Date: 26/10/2023
Status: S1-PRELIMINARY
Revision: P01
Project: HAYES TOWN CENTRE
Reference: HTC-SYN-P1ZZ-XX-SCH-0105

EQUIPMENT SCHEDULE

COLD WATER BOOSTER SETS

REFERENCE	BS/00/01	CAT5/00/02	
Location	Ground Floor Water Services Plantroom	Ground Floor Water Services Plantroom	
System	Combined Sprinkler and Residential Boosted Cold Water	Landlords CAT 5 Boosted Cold Water	
Main Pump Design Duty (l/s)	6.7	0.5	
Design Pressure (Bar)	6	4.6	
Maximum Working Pressure (Bar)	10.5	7.2	
Pump Connections	2 1/2" BSPM	1" BSPM	
PUMP DETAILS			
Pump Type	Variable Speed	Variable Speed	
Number of Pumps	3 @ 50%	1	
Pump Operation	Duty-Assist-Standby	Duty	
Pump Speed (rpm)	3600	2900	
ELECTRICAL DETAILS			
Electrical Supply (V/Ph/Hz)	400V/3ph/50Hz	240V/1ph/50Hz	
Motor Power	3 x 3kW 6.74Amps	0.55kW 3.07 Amps	
Pump Starter	3 x Inverters	DOL	
VESSEL DETAILS			
Vessel Volume (l)	1 x 24	1 x 8	
Type	-	-	
SUPPLIER DETAILS			
Manufacturer	KGN Pillinger	KGN Pillinger	
Model Reference	AV-1-24HP/3PVX1006 KGN	BTC/EV-1-8/1PH1HME08/PW225	
Additional Equipment	Mimic Control Panel wall mounted monitoring device with battery backed alarm. Anti Surge Arrestors at top of riser.	225 litre BREAK TANK (sized assuming mains supply equal or greater than booster flow rate).	
Controls	Control Panel with Auto Duty sequence changeover	Inverter Control	

Date:

26/10/2023

Status:

S1-PRELIMINARY

Revision:

P01

Project:

HAYES TOWN CENTRE

Reference:

HTC-SYN-P1ZZ-XX-SCH-0104

EQUIPMENT SCHEDULE

COLD WATER STORAGE TANK SCHEDULE

REF	LOCATION	MANUFACTURER/MO DEL NO.	OUTLET SIZE	ACTUAL CAPACITY (L)	NOMINAL CAPACITY (L)	EXTERNAL DIMENSIONS mm (L x W x H)	DRY WEIGHT (kg)	NOTES
WT/00/01	Ground Floor Water Plantroom	KGN PILLINGER - INTERNALLY FLANGED BASE SECTIONAL GRP TANK	2 1/2 Inch BSP	15,000	18,000	3450 x 3450 x 2550	TBA	GRP Hot Press Sectional Tank, Manufactured to BS EN 13280:2002. Complete with Ball Valve Housing; Internal & External Ladders, Selaed heavy Duty Lid; Internal Division; Access Hatches; Contents Gauge; Overflow Screening; Warning Pipe Screening; Factory Insulation; Externally Flanged sides and Internally Flanged Base. Top Inlet & Bottom draw off point. Top access unit.

Technical Submission

Client Reference	Higgins Partnerships	
Project Reference	C2422 – Hayes Town Centre	
Document Title	Circulating Pumps	
Document Reference:	HTC-WHE-XX-XX-TSU-X35-014M_P01_S3_ Circulating Pumps _A4	
Date:	06.10.24	



Folder	Description of Technical Submission
	TS – 0014 we propose the specified twin head LTHW Pumps and single head hot water pump. We propose the Grundfos twin head Magna 3 D 40-80 with threaded pipe connections for the LTHW pumps. For the hot water we propose 1 no. Grundfos Alpha 1 25-40 N. The 20-40 model has been discontinued by Grundfos and this is the closest suitable replacement. Attached for reference is the schedules and technical data sheet. Also attached is the schematic which contradicts the schedules with reference numbers/quantities.

STATUS / COMMENTS

Company	
Date	

Date: 28/03/2024
Status: S1-PRELIMINARY
Revision: P01
Project: HAYES TOWN CENTRE
Reference: HTV-SYN-P1ZZ-XX-SCH-0117

EQUIPMENT SCHEDULE

CIRCULATION PUMPS

REFERENCE	P/RF/01	P/RF/02	
LOCATION	Roof Plantroom	West and East Block Heating Plant Room	
System	LTHW Circuit	DHW Return	
Selection Duty (l/s)	1.06	0.2	
Selection Pressure (kPa)	45 kPa	25 kPa	
Working Temperature Range (°C)	Heating 43- 38 Cooling 6-12	45-55	
Maximum Temperature (°C)	110 deg C	80 deg C	
Minimum Temperature (°C)	-10 deg C	TBC	
Max Operating Pressure	10 bar	10 bar	
CONSTRUCTION			
Material	Stainless Steel	Stainless Steel	
Rated Pump Speed (rpm)	-	-	
Drive	Inverter	Inverter	
ELECTRICAL DETAILS			
Electrical Supply	1 ph / 230V / 50Hz	1 ph / 200-240V / 50Hz	
Power Input (kW)	0.27	0.050	
Rated Current (A)	1.24	0.46	
SUPPLIER DETAILS			
Manufacturer	Grundfos	Grundfos	
Model Reference	MAGNA 3 D 40-80 F	Grundfos Alpha 1 20-40 N	
Notes	Pipe Mounted, Twinpump	Pipe Mounted	

TECHNICAL SUBMISSION - ASSISTED NATURAL VENTILATION SYSTEM

Date: 24/01/2025
Ref: PVEPR22291

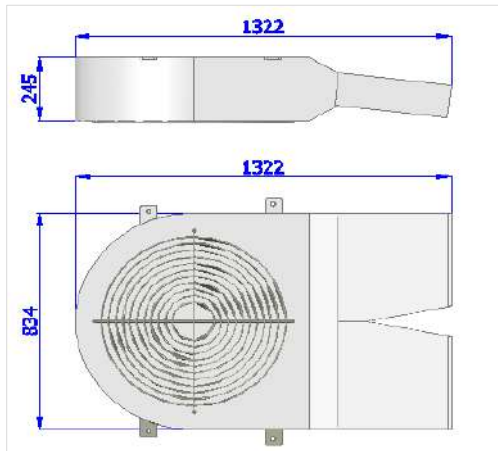
Project: : Hayes Town Centre Phase 1.
Assisted Natural Car Park Ventilation (3ACH)
Design, Manufacture, Install & Commission



Download our Free
Design iPhone App



eco-park® Dual Purpose IDV-HC-50-v2



Technical Specification (by 20°C)

Parameter	Nominal	Measured Low	Measured High
Thrust	50.0 N	12.2 N	47.6 N
Volume flow rate	1.90 m³/s	0.94 m³/s	1.86 m³/s
Flow Speed	22.0 m/s	10.8 m/s	21.4 m/s
Sound production	69 dB(A) on 3m/45°	51 dB(A) on 3m/45°	69 dB(A) on 3m/45°
Absorbed current	3.5 Amps	1.1 Amps	3.0 Amps

Motor Specification (by 40°C)

Parameter	Specification	
Type	Standard Motor	
Power	1.30 kW	0.23 kW
Rated current	3.5 Amps	1.2 Amps
Speed	1420 r/min	720 r/min
Protection class	IP55	F300
Rated voltage	400 Volt (50 Hz)	



Material Specification

Item	Specification
Casing	Zinc plate, provided with KLT 7 Powder coated
Motor support	Steel Plate (RSt37-2), powder coated
Impeller	Steel Plate (RSt37-2), hot dip galvanised
Inlet cone	Galvanised
Protection grille	Galvanised, powder coated

General Specification

Item	Specification
Fan colour	RAL 7032 (pebble grey)
	RAL colour can be chosen at additional cost.
Fan weight	approx. 82kg
Temperature	300°C - 120min (class F300) in accordance with EN12101-3

A P P E N D I X C

Noise monitoring locations and results

McDonnell John

NML 1 (2250/4) height: 6m

NML 2 (2250/6) height: 6m

Google Earth

30 m

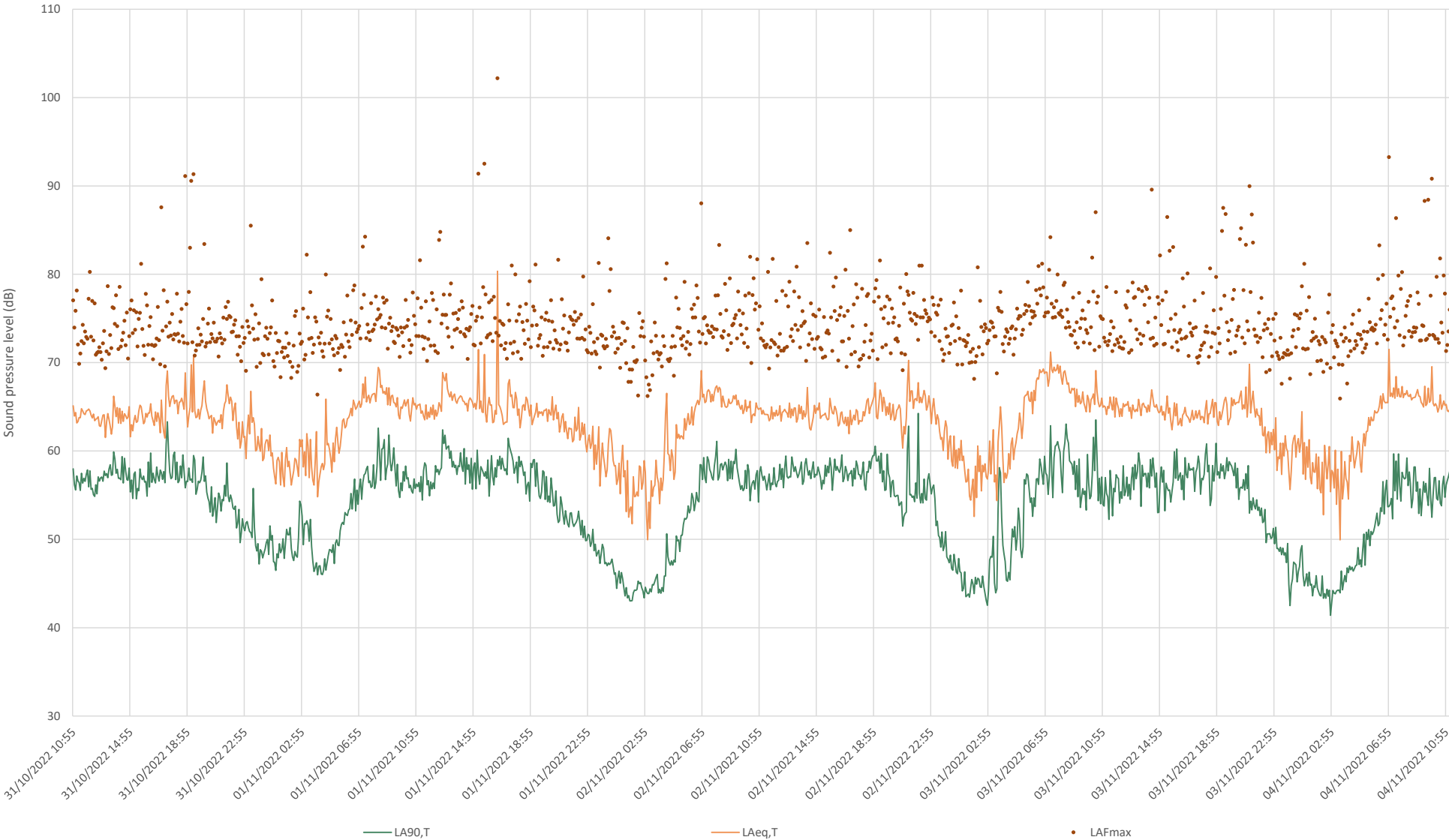
Camera: 303 m 51°30'23"N 0°25'00"W

33 m

NML 1: Overlooking Pump Lane



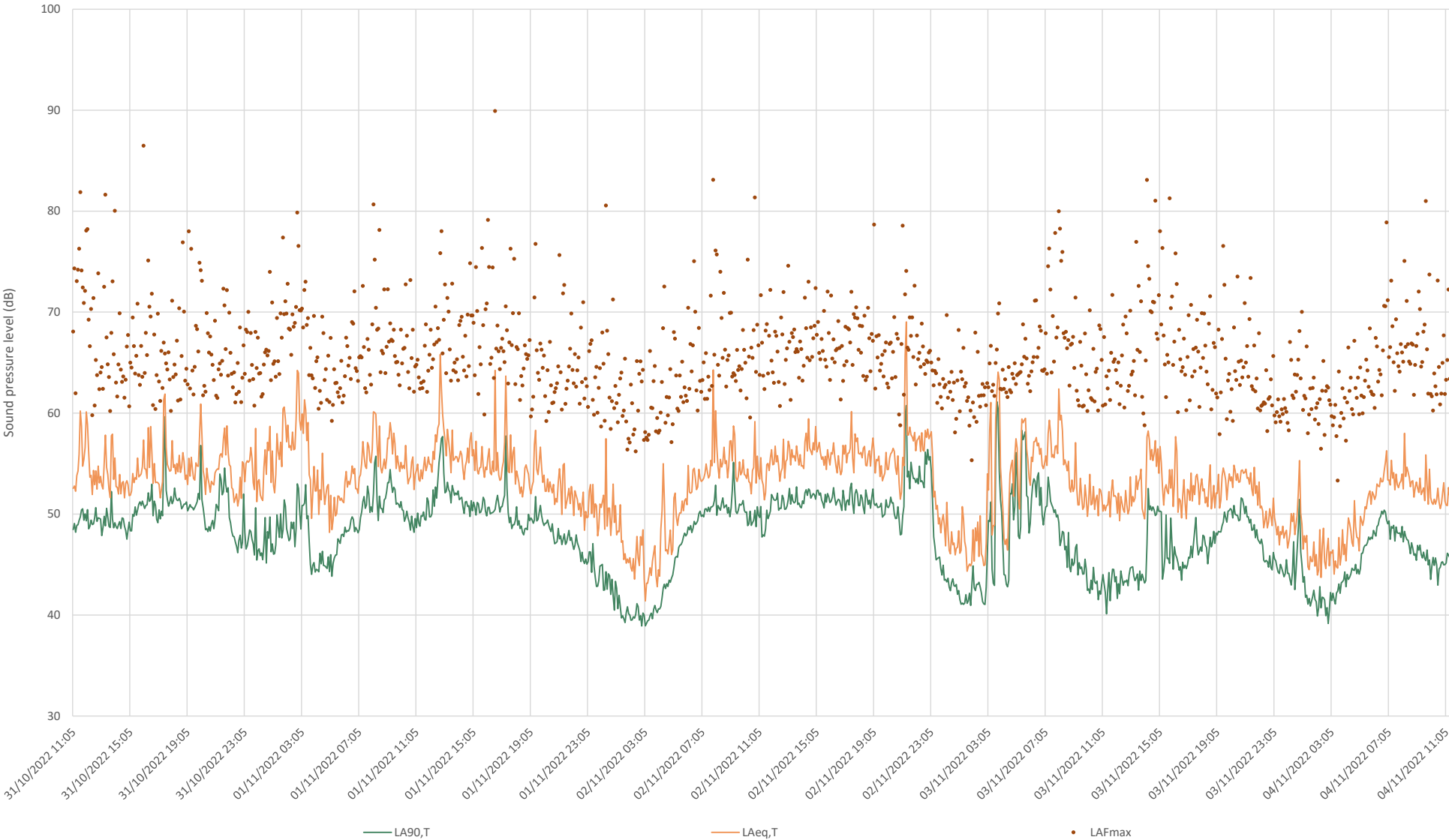
Measured sound level (T = 5min)



NML 2: Overlooking Austin Road



Measured sound level (T = 5min)



A P P E N D I X D

Noise model results

Haye Town Centre

Phase 1 plant

Report: Table of Results
 Model: Plant with installed silencers + GF plant room openings blocked with metal panel
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name Receiver	Description	Height	Night Total	31	63	125	250	500	1000	2000	4000	8000
Ph1_B	[3/27]	4.70	40	--	27	39	30	25	19	19	12	5
Ph1_B	[17/27]	4.70	40	--	25	32	34	34	21	28	30	26
Ph1_B	[2/27]	4.70	39	--	27	38	30	24	19	18	12	4
Ph1_B	[2/28]	4.70	38	--	12	22	26	31	34	33	23	14
Ph1_B	[18/20]	4.70	38	--	12	22	26	31	34	33	23	14
Ph1_B	[3/28]	4.70	38	--	11	21	25	31	33	33	23	16
Ph1_B	[19/20]	4.70	38	--	11	21	25	31	33	33	23	16
Ph1_A	[18/27]	1.50	36	--	21	27	30	30	18	25	27	23
Ph1_A	[47/56]	1.50	36	--	21	27	30	30	18	25	27	23
Ph1_A	[1/27]	1.50	35	--	22	34	26	23	18	17	10	2
Ph1_B	[27/56]	4.70	34	--	19	25	28	29	17	23	25	21
Ph1_B	[18/27]	4.70	34	--	19	25	28	28	16	23	26	21
Ph1_B	[47/56]	4.70	34	--	19	25	28	28	16	23	26	21
Ph1_B	[1/27]	4.70	34	--	21	32	25	22	18	17	9	2
Ph1_A	[8/56]	1.50	34	--	13	24	24	29	27	26	18	18
Ph1_B	[4/27]	4.70	33	--	20	31	23	22	20	19	10	4
Ph1_C	[2/27]	11.00	33	--	20	32	23	18	14	13	6	0
Ph1_A	[48/56]	1.50	31	--	17	23	26	26	13	19	21	19
Ph1_A	[19/27]	1.50	31	--	17	23	26	26	13	19	21	19
Ph1_C	[2/28]	11.00	31	--	8	19	19	24	27	26	16	10
Ph1_C	[18/20]	11.00	31	--	8	19	19	24	27	26	16	10
Ph1_B	[8/56]	4.70	31	--	11	21	22	27	25	23	16	16
Ph1_C	[3/28]	11.00	31	--	7	18	19	24	26	26	16	8
Ph1_C	[19/20]	11.00	31	--	7	18	19	24	26	26	16	8
Ph1_A	[5/27]	1.50	31	--	17	28	21	21	21	20	11	5
Ph1_E	[2/20]	23.00	31	--	-1	18	24	26	25	21	15	6
Ph1_E	[3/20]	23.00	31	--	0	11	24	26	25	22	15	7
Ph1_C	[1/28]	11.00	31	--	8	20	18	24	26	25	16	11
Ph1_C	[17/20]	11.00	31	--	8	20	18	24	26	25	16	11
Ph1_B	[1/28]	4.70	31	--	10	22	21	25	25	23	16	17
Ph1_B	[17/20]	4.70	31	--	10	22	21	25	25	23	16	17
Ph1_B	[4/28]	4.70	31	--	7	18	18	25	26	25	16	11
Ph1_B	[20/20]	4.70	31	--	7	18	18	25	26	25	16	11
Ph1_A	[7/56]	1.50	31	--	12	23	21	25	24	23	14	12
Ph1_E	[19/20]	23.00	31	--	6	19	23	25	25	23	15	6
Ph1_C	[3/27]	11.00	30	--	17	29	21	18	15	14	6	0
Ph1_B	[5/27]	4.70	30	--	16	28	21	21	20	20	11	5
Ph1_B	[48/56]	4.70	30	--	16	22	25	25	12	18	20	18
Ph1_B	[19/27]	4.70	30	--	16	22	25	25	12	18	20	18
Ph1_A	[14/28]	1.50	30	--	15	29	19	17	5	12	12	10
Ph1_B	[7/56]	4.70	30	--	10	21	20	24	24	23	14	11
Ph1_E	[18/20]	23.00	30	--	6	19	22	24	24	22	14	6
Ph1_C	[4/28]	11.00	30	--	6	17	16	22	25	25	15	6
Ph1_C	[20/20]	11.00	30	--	6	17	16	22	25	25	15	6
Ph1_A	[6/56]	1.50	30	--	13	25	20	23	22	21	12	8
Ph1_C	[17/27]	11.00	30	--	14	21	23	25	13	19	21	16
Ph1_C	[1/27]	11.00	29	--	16	28	20	16	14	13	5	-2
Ph1_B	[13/28]	4.70	29	--	15	28	18	15	4	7	7	1
Ph1_E	[1/20]	23.00	29	--	-1	16	22	24	23	19	13	4
Ph1_C	[4/27]	11.00	29	--	16	28	19	17	13	11	4	1

All shown dB values are A-weighted

Haye Town Centre

Phase 1 plant

Report: Table of Results
 Model: Plant with installed silencers + GF plant room openings blocked with metal panel
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name Receiver	Description	Height	Night Total	31	63	125	250	500	1000	2000	4000	8000
Ph1_A	[26/56]	1.50	29	--	14	21	23	24	12	16	18	13
Ph1_B	[14/28]	4.70	29	--	14	28	18	16	5	11	11	9
Ph1_B	[6/56]	4.70	28	--	10	20	19	22	22	21	12	8
Ph1_C	[18/27]	11.00	28	--	13	20	22	23	10	18	20	15
Ph1_B	[26/56]	4.70	28	--	13	21	22	24	11	15	17	12
Ph1_E	[4/20]	23.00	28	--	4	16	21	23	22	18	12	4
Ph1_D	[2/28]	17.00	28	--	7	18	17	21	23	23	13	6
Ph1_D	[18/20]	17.00	28	--	7	18	17	21	23	23	13	6
Ph1_A	[49/56]	1.50	28	--	13	20	23	23	10	16	17	12
Ph1_A	[20/27]	1.50	28	--	13	20	23	23	10	16	17	12
Ph1_D	[3/28]	17.00	28	--	6	17	17	21	23	22	12	4
Ph1_D	[19/20]	17.00	28	--	6	17	17	21	23	22	12	4
Ph1_C	[5/27]	11.00	27	--	14	26	18	17	13	11	4	2
Ph1_B	[49/56]	4.70	27	--	13	19	22	23	10	15	17	12
Ph1_B	[20/27]	4.70	27	--	13	19	22	23	10	15	17	12
Ph1_D	[2/27]	17.00	27	--	14	25	20	15	10	8	1	-3
Ph5_A	[34/36]	1.50	27	--	12	20	21	22	10	14	15	10
Ph5_A	[33/36]	1.50	27	--	12	19	21	22	10	14	15	10
Ph1_C	[19/27]	11.00	27	--	12	19	21	22	9	14	16	14
Ph5_B	[34/36]	4.70	27	--	12	19	21	22	10	14	15	10
Ph5_B	[33/36]	4.70	27	--	12	19	21	22	10	14	15	10
Ph1_D	[3/27]	17.00	26	--	14	25	17	15	10	7	0	-3
Ph1_A	[25/56]	1.50	26	--	11	20	21	22	9	14	15	10
Ph5_A	[35/36]	1.50	26	--	12	20	21	22	9	13	15	9
Ph1_D	[1/28]	17.00	26	--	7	19	15	20	21	20	12	7
Ph1_D	[17/20]	17.00	26	--	7	19	15	20	21	20	12	7
Ph5_A	[32/36]	1.50	26	--	12	19	21	22	10	13	15	9
Ph5_B	[35/36]	4.70	26	--	12	19	20	22	9	13	14	9
Ph5_B	[32/36]	4.70	26	--	12	19	20	22	10	13	15	9
Ph1_D	[1/27]	17.00	26	--	13	25	17	14	10	8	1	-4
Ph1_D	[4/27]	17.00	26	--	13	25	17	15	11	8	0	-2
Ph1_A	[15/28]	1.50	26	--	11	24	17	16	5	9	11	6
Ph1_B	[25/56]	4.70	26	--	11	19	20	21	9	13	15	9
Ph1_E	[13/20]	23.00	26	--	6	17	21	21	17	12	5	-3
Ph1_D	[5/27]	17.00	25	--	12	24	16	16	13	10	1	-1
Ph1_B	[15/28]	4.70	25	--	11	24	17	16	4	9	10	6
Ph1_A	[17/28]	1.50	25	--	10	20	19	20	8	12	14	8
Ph5_A	[31/36]	1.50	25	--	11	18	20	21	9	13	14	8
Ph5_B	[31/36]	4.70	25	--	11	18	20	21	10	12	14	8
Ph1_D	[4/28]	17.00	25	--	5	17	14	18	20	19	10	4
Ph1_D	[20/20]	17.00	25	--	5	17	14	18	20	19	10	4
Ph1_C	[20/27]	11.00	25	--	10	17	20	20	7	13	15	9
Ph1_E	[17/20]	23.00	25	--	7	18	16	18	18	17	10	4
Ph1_D	[17/27]	17.00	25	--	10	18	19	20	7	12	14	9
Ph1_B	[17/28]	4.70	25	--	10	18	19	20	8	12	13	8
Ph5_A	[8/14]	1.50	25	--	10	20	18	19	8	11	12	6
Ph1_A	[16/28]	1.50	25	--	10	21	17	17	6	10	11	6
Ph5_B	[8/14]	4.70	25	--	10	20	18	19	7	11	12	6
Ph1_E	[14/20]	23.00	24	--	4	16	20	19	16	11	4	-4
Ph1_D	[18/27]	17.00	24	--	10	17	19	19	7	12	14	8

All shown dB values are A-weighted

Haye Town Centre

Phase 1 plant

Report: Table of Results
 Model: Plant with installed silencers + GF plant room openings blocked with metal panel
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name Receiver	Description	Height	Night Total	31	63	125	250	500	1000	2000	4000	8000
Ph1_E	[12/20]	23.00	24	--	5	16	20	19	16	10	4	-5
Ph1_C	[14/28]	11.00	24	--	10	23	15	15	4	8	8	3
Ph5_A	[30/36]	1.50	24	--	10	17	19	20	9	11	13	7
Ph5_A	[9/14]	1.50	24	--	10	21	17	18	7	10	11	5
Ph5_B	[30/36]	4.70	24	--	10	17	19	20	9	11	12	7
Ph5_B	[9/14]	4.70	24	--	10	20	17	18	7	10	11	5
Ph1_B	[3/20]	4.70	24	--	6	12	14	18	18	16	14	14
Ph1_D	[19/27]	17.00	24	--	9	17	19	19	7	12	13	8
Ph1_E	[20/20]	23.00	24	--	5	16	15	17	18	17	7	1
Ph5_A	[6/14]	1.50	24	--	9	15	17	20	8	11	12	6
Ph1_C	[17/28]	11.00	24	--	9	19	17	18	6	10	12	6
Ph5_A	[7/14]	1.50	24	--	9	16	18	19	8	12	13	7
Ph1_C	[15/28]	11.00	24	--	9	21	15	15	4	8	9	4
Ph1_C	[7/27]	11.00	24	--	3	13	14	18	18	17	6	-5
Ph5_B	[7/14]	4.70	24	--	9	16	18	19	7	11	12	6
Ph5_A	[29/36]	1.50	23	--	9	16	18	19	8	10	11	5
Ph5_A	[10/14]	1.50	23	--	9	19	16	17	7	9	10	3
Ph1_C	[16/28]	11.00	23	--	9	20	16	17	5	9	10	5
Ph5_B	[29/36]	4.70	23	--	9	16	18	19	9	10	11	5
Ph1_B	[16/28]	4.70	23	--	9	19	17	17	5	10	11	5
Ph5_B	[10/14]	4.70	23	--	8	19	16	17	8	9	10	3
Ph1_D	[20/27]	17.00	23	--	8	16	18	18	6	11	12	7
Ph5_A	[11/14]	1.50	23	--	8	19	16	17	8	9	9	2
Ph5_B	[11/14]	4.70	23	--	8	19	16	17	8	9	9	2
Ph1_D	[10/27]	17.00	23	--	0	12	17	18	17	12	4	-7
Ph5_B	[6/14]	4.70	23	--	9	16	17	18	6	10	11	5
Ph1_C	[8/27]	11.00	23	--	0	10	14	18	17	16	6	-2
Ph1_D	[9/27]	17.00	23	--	0	12	17	18	16	11	3	-8
Ph5_A	[12/14]	1.50	23	--	8	19	15	16	8	8	8	1
Ph5_B	[12/14]	4.70	23	--	7	19	15	16	8	8	8	1
Ph1_D	[16/27]	17.00	22	--	4	13	16	17	16	13	4	-6
Ph1_D	[17/28]	17.00	22	--	8	18	16	17	5	9	10	5
Ph5_A	[28/36]	1.50	22	--	8	15	16	18	6	9	10	4
Ph5_B	[28/36]	4.70	22	--	8	15	16	17	7	9	10	4
Ph1_D	[16/28]	17.00	22	--	7	18	15	16	4	8	9	3
Ph1_E	[15/20]	23.00	22	--	3	15	17	17	13	8	2	-7
Ph1_D	[14/28]	17.00	22	--	7	19	14	14	3	7	7	2
Ph1_D	[15/28]	17.00	22	--	7	19	15	15	4	7	8	2
Ph1_D	[15/27]	17.00	22	--	-2	10	14	16	16	14	4	-7
Ph1_E	[11/20]	23.00	22	--	3	13	17	17	13	8	1	-8
Ph1_D	[11/27]	17.00	21	--	-1	10	15	17	15	11	3	-8
Ph1_C	[13/28]	11.00	21	--	7	19	13	13	2	6	6	0
Ph1_D	[8/27]	17.00	21	--	1	12	16	17	14	8	-1	-12
Ph1_D	[7/27]	17.00	21	--	3	13	16	16	14	8	-1	-10
Ph5_A	[27/36]	1.50	21	--	7	14	16	16	4	8	9	2
Ph5_B	[27/36]	4.70	21	--	7	14	16	16	5	8	9	2
Ph1_D	[12/27]	17.00	21	--	-2	10	15	16	15	10	2	-8
Ph1_D	[13/27]	17.00	21	--	-2	10	15	16	15	10	2	-8
Ph1_C	[12/28]	11.00	21	--	7	19	12	13	2	5	6	-1
Ph1_B	[2/20]	4.70	21	--	2	8	11	15	15	13	11	9

All shown dB values are A-weighted

Head Office

Spectrum Acoustic Consultants Ltd
27-29 High Street
Biggleswade
Bedfordshire
SG18 0JE
UNITED KINGDOM

 +44 (0)1767 318871

 enquiries@spectrumacoustic.com

 www.spectrumacoustic.com