

# Air Handling Units Design Note - Planning

**Client:** Take 2

**Project Name:** 30 Cleveland Street

The logo consists of a white circle containing the letters 'GDM' in a bold, dark blue, sans-serif font.

**GDM**



Revision	Date	Description	Prepared By	Checked By
N1	24/02/2021	Planning Design Note	LR	

## Contents

<b>Introduction .....</b>	<b>2</b>
Planning Guidance Compliance .....	2

## Introduction

GDM Partnership Building Services Consultants Limited have been appointed by Take 2 to undertake the MEP design for the Category B fit out of 30 Cleveland Street London.

As part of the initial design process the ventilation requirement for the building indicated that additional air is required to accommodate the proposed client headcount over the 8no floors. This is to ensure adequate ventilation is provided to the new GYM located in the basement and the Town Hall located on the ground floor.

To accommodate this it is proposed that 2no Air Handling Units are provided in the basement lightwell area with associated run around coil, controls and services to suit. 1 no unit shall service the ground floor Town Hall with the other being provided for the basement Gym.

The existing 6<sup>th</sup> floor external Air Handling Unit is being utilised to ventilate all other areas of the building.

This design note describes the systems characteristics for Planning compliance and follows initial specifications and coordination with the design team.

## Planning Guidance Compliance

It has been requested that GDM provide a statement in response to the Camden’s Planning Guidance document “Energy Efficiency and Adaptation”.

Due to the current make-up of the building’s façade the use of Natural openings is not a feasible option to effectively ventilate the Gym & Town Hall areas. This is due to the fact the current windows are not designed to open and cover a large portion of the façade on these floors. Given that both areas are located at Ground and Basement level it would not be advised to replace the current windows with openable as this would pose security issues to the tenant.

The existing constant volume Air Handling Unit was found to not have sufficient capacity in the system to accommodate the tenants proposed usage of the building.

It should also be noted that the current recommendations during the pandemic advise that buildings should be efficiently ventilated. This would not be possible via means of natural ventilation therefore Mechanical Ventilation has been considered.

The design of the Air handling Units has ensured Specific Fan Powers are compliant with the “Non Domestic Building Services Compliance Guide”. The Specific Fan Power is a parameter that quantifies the energy efficiency of fan air movement.

Air distribution systems	Specific fan power (SFP) <sup>20</sup> (W/(l·s))	
	New buildings	Existing buildings
Central balanced mechanical ventilation system with heating and cooling	1.6	2.2
Central balanced mechanical ventilation system with heating only	1.5	1.8
All other central balanced mechanical ventilation systems	1.1	1.6
Zonal supply system where fan is remote from zone, such as ceiling void or roof-mounted units	1.1	1.4
Zonal extract system where fan is remote from zone	0.5	0.5
Zonal supply and extract ventilation units, such as ceiling void or roof units serving a single room or zone with heating and heat recovery	1.9	1.9
Local balanced supply and extract ventilation systems, such as wall/roof units serving single area with heating and heat recovery	1.6	1.6
Local supply or extract ventilation units such as window/wall/roof units serving single area (e.g. toilet extract)	0.3	0.4
Other local ventilation supply or extract units	0.5	0.5
Fan-assisted terminal VAV unit	1.1	1.1
Fan coil units (rating weighted average)	0.5	0.5
Kitchen extract, fan remote from zone with grease filter	1.0	1.0

Specific Fan Powers taken from the “Non Domestic Building Services Compliance Guide”

Details of each Air Handling Unit (SFPs) below

SPECIFIC FAN POWER			
Supply Fan		Extract Fan	
Filter Conditions	Clean	Filter Conditions	Clean
Absorbed Power	.56 Kw	Absorbed Power	.54 Kw
Drive Efficiency	100%	Drive Efficiency	100%
Inverter Efficiency	98%	Inverter Efficiency	100%
Motor Efficiency	100%	Motor Efficiency	100%
Air Volume	.860 m3/s	Air Volume	.860 m3/s
Motor Efficiency Class	EC	Motor Efficiency Class	EC
AHU SFP	1.29 Kw/m3/s		

Town Hall Air Handling Unit SFP

SPECIFIC FAN POWER			
Supply Fan		Extract Fan	
Filter Conditions	Clean	Filter Conditions	Clean
Absorbed Power	.82 Kw	Absorbed Power	.82 Kw
Drive Efficiency	100%	Drive Efficiency	100%
Inverter Efficiency	98%	Inverter Efficiency	98%
Motor Efficiency	100%	Motor Efficiency	100%
Air Volume	.840 m3/s	Air Volume	.840 m3/s
Motor Efficiency Class	EC	Motor Efficiency Class	EC
AHU SFP	1.51 Kw/m3/s		

GYM Air Handling Unit SFP

The filters specified in the Air Handling Units are of grade F7 (bag) and G4 (panel). The F7 filter offers high performance between 70 - 80% efficient. The panel filters are considered 90% efficient. See below specification of the units filters.

G4 / Panel Filter						
Class/Type	Clean Pd	Mean Pd	Dirty Pd	Qty/Size1	Qty/Size2	Qty/Size3
G4 / Panel	43.1 Pa	96.6 Pa	150 Pa	1 x 596 x 596 x 44 mm	1 x 298 x 596 x 44 mm	None
Withdrawal	Length	Velocity	Model	Efficiency	Media	
Side	50 mm	1.650 m/s	Perfect Pleat	90% < Am EN779:2012	Synthetic Media - Beverage Board	

  

F7 / Bag Filter						
Class/Type	Clean Pd	Mean Pd	Dirty Pd	Qty/Size1	Qty/Size2	Qty/Size3
F7 / Bag	60.1 Pa	130.1 Pa	200 Pa	1 x 592 x 592 x 380 mm	1 x 287 x 592 x 380 mm	None
Withdrawal	Length	Velocity	Model	Efficiency	Media	
Side	380 mm	1.650 m/s	DRIPAK SX	80<Em<90	Synthetic Fibre	



Town Hall Air Handling Unit Filter specifications

002 PANEL AND BAG FILTER						
Class/Type	Clean Pd	Mean Pd	Dirty Pd	Qty/Size1	Qty/Size2	Qty/Size3
G4 / Panel	42.1 Pa	96.1 Pa	150 Pa	1 x 596 x 596 x 44 mm	1 x 296 x 596 x 44 mm	None
Withdrawal	Length	Velocity	Model	Efficiency	Media	
Side	50 mm	1.610 m/s	Perfect Pleat	90% < Am EN779:2012	Synthetic Media - Beverage Board	
Class/Type	Clean Pd	Mean Pd	Dirty Pd	Qty/Size1	Qty/Size2	Qty/Size3
F7 / Bag	44.8 Pa	247.4 Pa	450 Pa	1 x 592 x 592 x 380 mm	1 x 287 x 592 x 380 mm	None
Withdrawal	Length	Velocity	Model	Efficiency	Media	
Side	380 mm	1.610 m/s	Soft Pocket Bag Filter	ePM2.5 70%	100% Synthetic	



**Gym Air Handling Unit Filter specifications**

In addition to this each Air Handling Unit shall be linked to space located CO2 sensors which shall monitor the CO2 levels and shall in turn adjust the fan speed to suit the CO2 levels in the space. This design has been incorporated to ensure the system is run as efficiently as possible due to varying occupancy levels in these areas. Each Air Handling unit is also provided with a water run around coil for Heat recovery purposes.



[www.gdmpartnership.com](http://www.gdmpartnership.com)