SPACE STRATEGIES CW2 - AMENDED WITH A3 DRAWINGS

by Fynn Thompson

Submission date: 06-Jul-2019 10:30PM (UTC+0100)
Submission ID: 109343215
File name: Space_Strategies_and_Legislation_Coursework_2.docx (952.27K)
Word count: 2691
Character count: 13582

Space Strategies and Legislation: Coursework 2

Conversion and Design Report

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CONVERSION AND DESIGN REPORT

32-38 WELLS STREET, LONDON, W1T 3UW

Prepared for **PARIS FINANCE LTD**

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1: Introduction

Paris Finance Ltd recently purchased the freehold of 32-38 Wells Street, London, W1T 3UW from the University of Westminster. Our special projects division have been engaged to redesign and repurpose the ground and 1st floor of the building from its current layout and use as an educational establishment into commercial office space. The client has requested inclusion of accessible toilet facilities in the common parts of the building, and a canteen area on the first floor.

Given the client's status as a finance company, we have made some assumptions about the nature of the business and its potential requirements. We forsee a need for individual offices, private and ad-hoc meeting spaces in addition to open plan office space and break out areas. We also assume the requirement for server rooms, printing areas and archive facilities. There is a need for part of the layout to be open to visitors, such as potential clients or existing investors, which ought to be placed as close to the entrance as possible, to limit disruption to staff.

2. Current construction, services and layout

Wells Street was constructed circa 1960 and last refurbished in 1995. The building is of concrete structure with a flat roof, brick walls to the rear, metal window frames and external concrete cladding. The services are relatively basic, with central heating with radiators, and some ventilation units. The building receives little light due to its south elevation sharing a party wall with the adjacent building. The main entrance onto Wells Street is in the north-west corner of the building. There is a service entrance on the east side of the building.

Access and egress between floors is available via a stairwell near the main entrance in the north-west corner of the building, and a stairwell at the eastern end of the building, the furthest point from the entrance. Both stairwells can be classified as refuge points, as the surrounding walls are part of the concrete structure of the building. Each stairwell is adjacent to a lift. The lifts are standard lifts and cannot be used in an evacuation.

The present layout of the building is for educational purposes and support functions. The ground floor comprises open plan office areas and associated workspaces such as tea points, printing services and filing rooms. There are also plant rooms at the north end of the building. The first floor comprises tutorial space and small offices for teaching staff facing onto the exterior building, with an access corridor in the centre of the building in-line with the building's T-shape. There is no natural light in the central corridor, and little natural light in the offices and rooms due to the buildings location.

As per CDM regulations a refurbishment and demolition asbestos report was instructed and provided by the client to inform our proposal of any asbestos hazards in the building. The report identifies asbestos in ceilings and partition walls which would be removed by a licenced contractor during the construction phase of the proposal.

3. Client Brief and assumptions

Paris Finance Ltd have engaged our project team to submit a proposal for conversion of the ground and 1st floors of Wells Street into a suitable office space. The client has made a specific request for a canteen on the 1st floor, and for disabled toilets to be available in common areas of the building.

Given the limited scope of the instruction, we have made the assumption that the requirement for disabled toilets in common areas suggests there ought to be some restriction on movement throughout the office. With this in mind, we have designated part of the design as open to the public/visitors, and suggested access control to the different open plan office zones. Furthermore, disabled access is possible throughout all

areas of the building, including the first floor canteen. For the canteen, we have assumed a kitchen and related storage area will be required.

Given the company is a finance company, we have assumed the majority of space in the development will need to be hive/open plan benched desks. However in keeping with modern workspace trends, we have assumed the need for ad-hoc meeting spaces, as well as traditional meeting rooms. We have not included any individual offices in this development in line with modern workspace trends.

We also assume a requirement for server storage facilities, which will need to be in a protected area of the building. To meet insurance requirements, the area will also require some kind of automated extinguishant system.

4. Design

4.1 Walls & Ceilings

The current design of the building is incredibly claustrophobic. Across the 2 floors there are 35 rooms. The internal walls of each room do not currently have windows, meaning the internal corridors are only lit by lighting. Our proposal entails removing the majority of non load-bearing internal walls, and replacing them with double glazed, acoustically sound, glass partition walls with privacy frosting. This will allow more light into the workspace from the front of the building, and across the entire width of the "T" section at the back of the building. A high level of natural light will serve to improve employee wellness. Certain walls will be kept segregating different sections of the business.

FIGURE 1: FRAMED GLASS PARTITION

To accommodate the glazed partition systems a 2.8m suspended ceiling grid will be installed in the office areas.

4.2 Windows

In addition to the internal glazed partitions, the in-situ single glazed external windows are incredibly poor insulators, and ought to be replaced with double glazed units. As per approved document L2B[1], windows which have a U-Value higher than 3.3 W/m2 K ought to be replaced with windows which comply with the guidance laid out in paragraph 4.23 to 4.28 of the document. Without conducting accurate measurements of the current U value of the single glazing in-situ, and using guidance published by Pilkington Glass, the indicative U-Value of single paned glass would be 4.8[2]. Therefore I would suggest installation of double glazing using uPVC frames with non-metallic pane spacers to prevent unwanted heat dissipation through the window and frame, in order to reduce the U-value of the building's glazing below 3.3; the assumed U-Value of double glazing is anywhere between 1.9 and 2.7 depending on the type of glass and whether certain types of gas are used in the gap between the two panes. This will allow the building's windows to meet the requirements laid out in approved document L2B.

[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/540329/BR_PDF_AD_L2B_2013_with_2016_amendments.pdf

[2] https://www.pilkington.com/~/media/Pilkington/Site%20Content/UK/Reference/TableofDefaultUValues.pdf

4.3 Lighting

FIGURE 2: LED LIGHTING PANELS

To conserve energy, our proposal recommends LED lighting panels suspended in the ceiling grid, linked to Passive Infrared Sensors (PIR's). LED lighting panels consume little energy and ensure workers do not look directly at bulbs. Compared to old T5 reflective fittings the light diffusion offered by LED panels is more natural, PIR's will mean lighting is only on when people are in the area, further reducing the energy use. This combined with the natural daylight afforded by window replacements and introduction of internal glass partitions will more than meet the guidance set out by the HSE.[3]

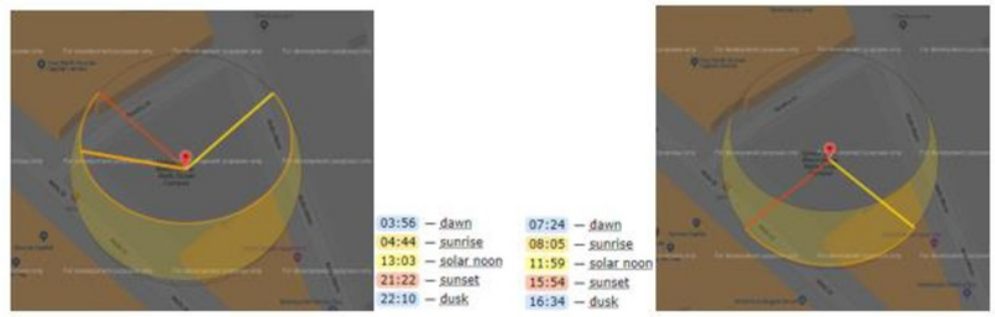

FIGURE 3: DAYLIGHT LEVELS 21ST JUNE (L) AND 21ST DECEMBER (R)

4.4 Heating and Cooling

Installation of HVAC systems throughout the building will allow for the proper regulation of temperature. The only information on the current system is from an exterior condenser/fan coil unit dated 2003. Approved Document L2B recommends replacing HVAC systems which are 15 or more years old[4]. Using an HVAC system with an efficient heat exchanger will allow some of the heat to be reclaimed and re-used in the system.

FIGURE 4: DAIKIN VRV INVERTER SYSTEM

Using an inverter air conditioning system will help reduce the overall power consumption as opposed to a traditional AC system. An inverter system is advantageous compared to its non-inverter counterpart as the AC motor has a variable speed, as opposed to being either on or off. This allows the system to vary the airflow and to maintain a constant temperature in building zones, reducing the overall power consumption by eliminating the power hungry stop-start requirements[5].

Use of centralised controls set up to ensure the HVAC system is only operational during office hours will ensure no energy is wasted. Setting the temperature of the building by centralised control to 23-24 degrees, perhaps allowing a degree or two of manual control, will ensure staff and students are not able to set the HVAC to unreasonable temperatures; setting air conditioning too hot or cold can potentially damage the

[3] Lighting at Work, HSE (1997), HSG 38
[4] Approved Document L2B, P22, Table 6, Section 1.
[5] Cheng, C et al, Smart Sensors enable smart air conditioning control, Sensors (Basel), 2014.

unit and having significant temperature disparity between HVAC units, in particular open plan areas, puts strain on the system[6].

4.5 Fire Protection and Safety

Fire protection and safety systems broadly serve two functions; protection of life and protection of property. Our design includes a provision for both of these elements under the assumption as a finance company, in addition to the workforce there will be business critical IT equipment which will require protection in the event of a fire.

In terms of life protection, we would replace the current fire alarm and detection system with a new panel, with heat and smoke detectors in all areas. The fire system will be wired with each compartment of the office area forming its own zone on the fire panel. Emergency lighting will be strategically placed along routes of egress to the front and rear of the building, via protected concrete stairwells. Signage directing workers to nearest routes of egress will be installed. Open plan office areas will be designed with routes of egress in mind to comply with the evacuation requirements detailed in approved document B[7]. Because the lifts in the building are not designed as fire evacuation lifts, evacuation chairs for disabled personnel will be present on each landing of the protected stairwells. Maglocked doors will automatically release in the event of a fire to allow ease of escape.

To prevent the spread of fire, all internal glazed partitions will be fire rated to 60 minutes (Double glazed panes each 17-33mm thick). The grid ceiling will also be fire rated to 1hr. Any solid wood fire doors will be designed with reinforced glass vision panels and intumescent strips to help contain the spread of fire, and to provide a means of seeing whether fire is present in the next room. HVAC systems will be linked to the fire alarm system and will shut down in the event of a fire to prevent the spread of fire via ventilation shafts. All penetrations through walls will be sealed with an appropriate fire retardant seal.

FIGURE 5: EXAMPLE OF FM200 ACTIVATION

Areas containing business critical equipment, such as IT servers, will be provided with an FM200 extinguishant system which will activate in the event of a fire to limit property damage, comply with insurance requirements and ensure business continuity.

4.6 Access Control

Given the nature of the client as a finance company, we forsee a requirement for a centrally controlled access control systems throughout the offices to ensure sensitive information cannot be accessed by either visitors, or members of different departments. The doors will be controlled by maglocks, which will automatically release in the event of a fire. The workforce will be issued with a keycard to enter or exit the offices, and all entry and exit will be logged. Because entry and exit is logged, in the event of a fire the system will be able to produce a checklist of employees present. Furthermore, our design incorporates meeting rooms outside of the main offices to limit the need for visitors to enter the main body of the offices, further increasing security.[8]

4.7 Asbestos

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[6] Sannikommu, N, Centralised Control and Monitoring of Air Conditioning Units, Journal of Scientific and Industrial Research, Vol. 68, 2009 pp 934-939

[7] Approved Document B, Section B1

[8] A specifiers guide to access control systems (2016), BSIA

Prior to the design phase of this project we instructed a Refurbishment and Demolition (R&D) survey as required under the Control of Asbestos Regulations 2012. The R&D survey found asbestos in the walls and ceilings of the building. Due to design involving replacement of internal walls with glass, and the replacement of the ceiling with a grid system, it will be necessary to engage a licenced, specialist contractor to remove the asbestos containing materials (ACM's)[9].

4.8 Washroom facilities

The existing washroom facilities will be retained on both floors. An additional disabled toilet will be installed on the first floor near the visitors meeting room to accommodate external visitors.

5. Description of layout

5.1 Ground Floor

Ground Floor

Rooms	Total Sq/M	New Designation
G1-5, G19	186.3	Open Plan 1
G6-G7	22.2	Meeting Room 1
G8-9, G11-12A	56	Open Plan 2
G13-14, G16-17	46.3	Open Plan 3
G21, G10	20.6	Meeting Room 2
G18	101.8	Open Plan 4

On the ground floor, we propose removal of partition walls between rooms G1-G5, and G.19. This will create an open plan office area of 186.3 sq/m. A second smaller office area will be created by removing partition walls between G8-9, G11-12A, for a total of 56 sq/m space. A third open plan office area will be created by removing partitions between G13-14, G16-17. A fourth open plan area already exists as room G18. Our reasoning for creating smaller partitioned areas is to allow the company to control who has access to different areas of the building using the aforementioned access control system, in the interests of protecting sensitive information. Two meeting rooms will also be created by removing walls between G6-G7 and G21, G10 respectively.

5.2 1st Floor

1st Floor

Rooms	Total Sq/M	New Designation
101-103	50.8	Open Plan 5
104-105	66.1	Canteen
106	33.9	Kitchen
107	10.1	Storeroom
108-109	14.2	Storeroom
112-115	93.4	Open Plan 6
117-118	21.2	Meeting Room 3
119-120	20.2	Meeting Room 4
120	5.6	Disabled WC (Partitioned from Meeting Room 4)

[9] Control of Asbestos Regulations (2012), HSE L143

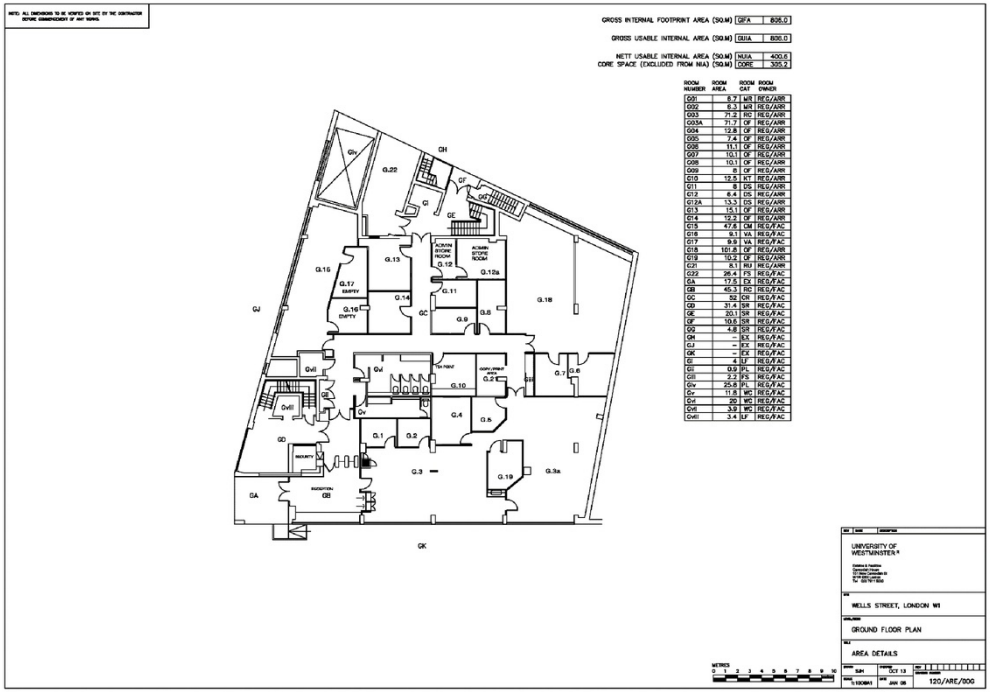
On the 1st Floor, 2 open plan office areas will be created. Open Plan 5 will be created by removing partition walls between rooms 101-103. The internal wall between Open Plan 5 and the corridor will be removed and replaced with a double glazed acoustic partition, with privacy frosting. The canteen will be created by removing partition walls between 104-105, and again replacing the internal wall with a glass partition. Room 106 will be converted to a kitchen facility, with the adjacent room 107 serving as a storeroom. Open Plan 6 will be created by removing walls between room 112-115, and the internal wall to the existing corridor. Note the wall on the other side of the corridor will remain intact to maintain compartmentalisation for the business.

A meeting room will be created by removing the wall between 117-118, and another public room by removing the wall between 119-120. Room 120 will have 5.6m2 partitioned from it to square off the meeting room, and allow for the creation of an accessible disabled toilet in the visitors area of the 1st floor.

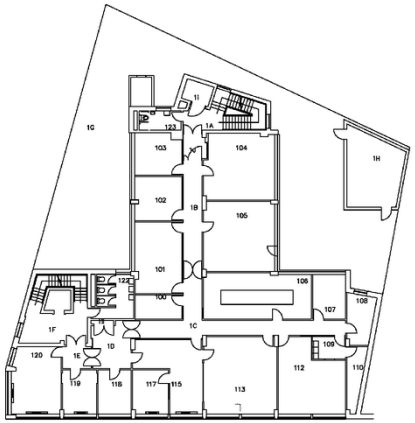
6. Conclusion

The design put forward for this project is relevant to the needs of a 21st century finance business. By utilising elements of the pre-existing design we would create an office with 536 sq/m of usable office space with the flexibility to partition off teams as required by the needs of the business. By utilising technologies such as LED lighting and VRV HVAC systems the design is eco-friendly and complies with the approved documents for lighting and ventilation. By using glazed partitions in the area at the rear of the building, the design maximises the availability of daylight which is quite limited at this site. By using an open plan system, the business retains the flexibility to change the layout of their office to suit the evolving needs of the business.

GROUND FLOOR EXISTING



1ST FLOOR EXISTING



GROSS INTERNAL FOOTPRINT AREA (SQ.M)	GIFA	780.7
GROSS USABLE INTERNAL AREA (SQ.M)	GUIA	527.3
NETT USABLE INTERNAL AREA (SQ.M)	NUIA	330.4
CORE SPACE (EXCLUDED FROM NIA) (SQ.M)	CORE	165.1

ROOM NUMBER	ROOM AREA	ROOM CAT	ROOM OWNER
100	7.8	FS	REG/FAC
101	23.2	GT	REG/T
102	14.3	OF	REG/SSH
103	13.3	GT	REG/T
104	31.8	GT	REG/LET
105	24.3	GT	REG/LET
106	33.9	GT	REG/LET
107	10.1	OF	REG/SSH
108	8.0	OF	REG/SSH
109	5.2	DS	REG/SSH
110	7.1	KT	REG/SSH
112	30.5	DS	REG/SSH
113	26.6	OF	SU/SU
115	24.1	OF	SU/SU
117	11.0	OF	SU/SU
118	10.2	OF	REG/SSH
119	10.5	OF	MAN/MES
120	15.2	OF	SU/SU
122	11.8	WC	REG/FAC
123	8.6	WC	REG/FAC
1J	4	LF	REG/FAC
1I	5.8	PL	REG/FAC
1A	18.1	SR	REG/FAC
1B	18.1	CR	REG/FAC
1C	30.5	CR	REG/FAC
1D	12.2	CR	REG/FAC
1E	4.4	CR	REG/FAC
1F	28	SR	REG/FAC
1G	–	RO	REG/FAC
1H	28.7	PL	REG/FAC
1J	4.1	CR	REG/FAC

WELLS STREET, LONDON W1

FIRST FLOOR PLAN

AREA DETAILS

METRES 0 1 2 3 4 5 6 7 8 9 10

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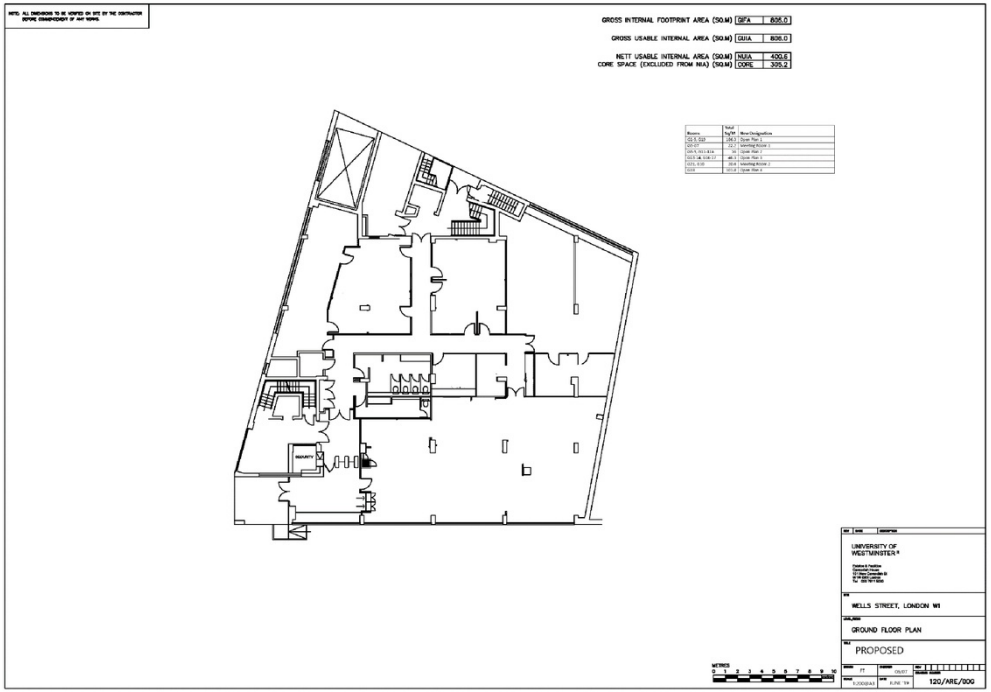
GROUND FLOOR PROPOSED



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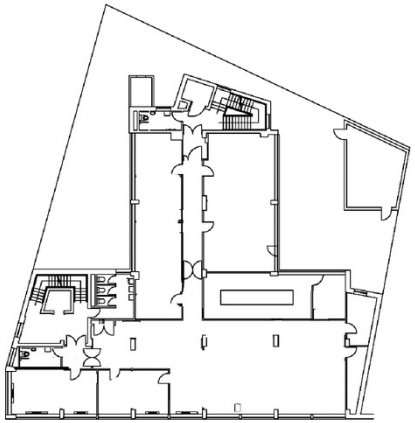

GROSS INTERNAL FOOTPRINT AREA (SQ.M)	GIFA	780.7
GROSS USABLE INTERNAL AREA (SQ.M)	GUIA	527.3
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WELLS STREET, LONDON W1

FIRST FLOOR PLAN

AREA DETAILS

METRES 0 1 2 3 4 5 6 7 8 9 10

AS MAR 13

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FINAL GRADE

74/100

GENERAL COMMENTS

Instructor

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