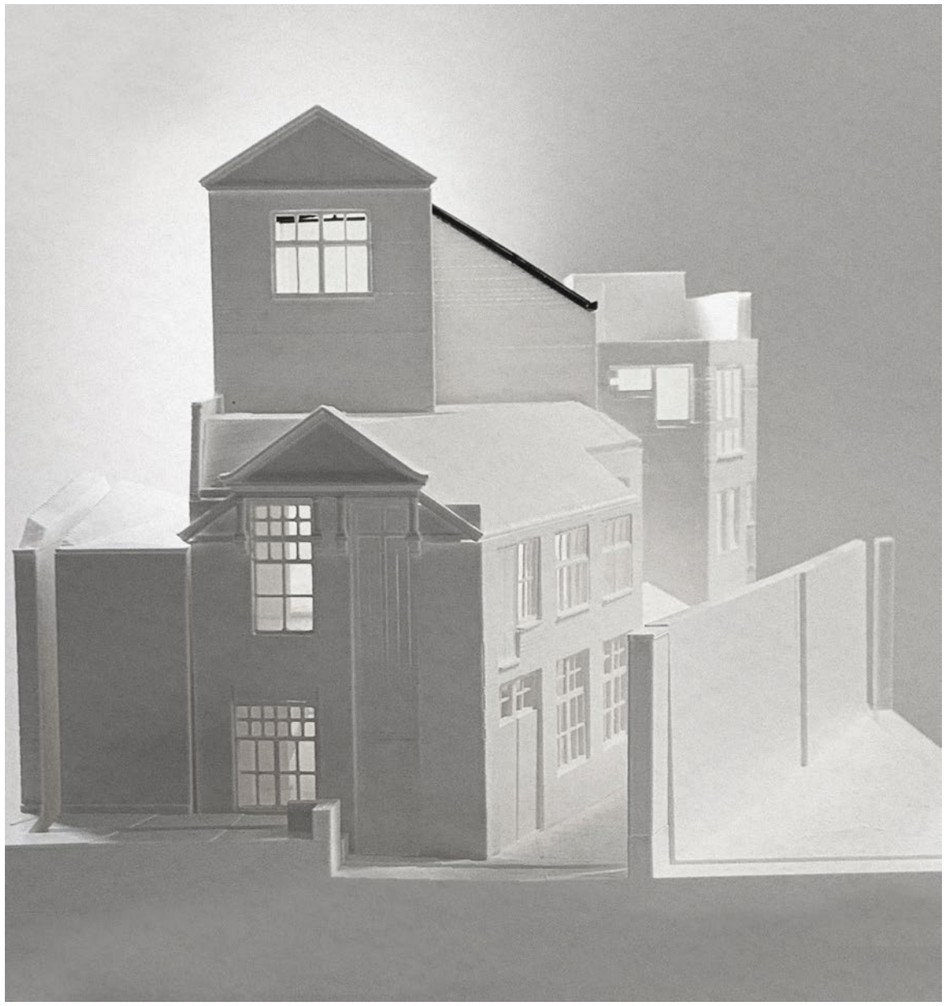
5.8 Model Photos



01
Physical Model External Elevations

02
Sectional cut through the model

03
Rear Elevations

04
Sectional cut through the model

6.0 Services Design

1.0 General

1.1 Introduction
This report outlines the scope and design considerations for the services installations for the refurbishment of 1-5 Flitcroft Street.

The proposals will include the complete removal of the existing services and new services will be provided throughout.

1.2 Energy Strategy
The works will be in full compliance with the requirements of Part L2B of the Building Regulations.
Modern energy efficient services will be installed throughout.
The principle energy efficiency measures will be:
• The provision of high thermal performance by means replacing existing glazed roof with a new double-glazed system to reduce heat loss.
• Improved air-tightness to minimise unwanted air infiltration, including draught proofing and air-tight windows.
• Reducing summertime overheating by providing windows and rooflights with low g-values.
• Employing natural ventilation in the galleries to avoid the need for air conditioning.
• A-rated appliances.
• Low energy light fittings with efficient automatic controls such as presence detection, and daylight dimming where possible

1.3 Design Criteria
The services will be designed in accordance with British Standards and Codes of Practice, the Building Regulations, IET (electrical) regulations and CIBSE Design Guides.

2.0 Mains Supplies

2.1 Electricity
The existing electricity supply to the site will be assessed during the detailed design stage and upgraded if deemed necessary. The electrical supply will serve local distribution boards on each floor. Each distribution board shall be split metered for lighting and power circuits in line with current Building Regulations.

2.2 Water
The existing water supply to the site will be assessed during design stage and upgraded if deemed necessary.

2.3 Gas
The existing gas supply to site shall be retained. The gas supply shall be diverted to the new plant room to feed to the boilers. A safety shut-off valve linked to the fire alarms system and to an emergency knock-off button will be located where the service pipe enters the building.

2.4 Drainage
Foul and surface water systems will connect to the existing drains in the street.

3.0 Mechanical Services

3.1 Heating
The heating source for the new building is proposed to be a high efficiency, condensing, low NOX, gas fired boiler. The boiler will be positioned in the basement plant room with flue exhausting through the roof.
The boilers will feed heating and hot water heating circuits, and each circuit shall have time and temperature control. Radiators shall provide space heating, each with thermostatic radiator valve.
The tall spaces in Galleries 1 and 2 below the rooflights will have 'destratification fans' to push the warm air from high level downwards – this will reduce heat loss through the roof glass and improve thermal comfort.

3.2 Ventilation
Mechanical fresh air ventilation will be supplied to the basement and rear of the ground floor, as there are no windows here. The system will be served by a rooftop fan unit which will connect to supply and exhaust ducting in each of these areas. The fan will have a heat recovery facility to utilise the waste heat from the extracted air to pre-heat the fresh air supply in winter.
In addition to the mechanical ventilation, air conditioning will be provided to the basement and ground floors from ceiling mounted cooling units in each room, with refrigerant pipe interconnection to rooftop condensing units. Each room unit will have its own controls
The first and second floor galleries will be naturally ventilated with openable windows and rooflights for fresh air and to control temperatures in warm weather.
Actuated rooflights will be controlled by temperature and CO2 sensors in the galleries. These detectors will monitor the quality of the internal environment and control the actuated openings accordingly. Rain sensors will automatically close the vents when necessary.
The toilet facilities in the building shall have mechanical extract ventilation by a central ducted fan which will exhaust at roof level. The make-up air will be transferred from the adjacent area into the toilet facilities via passive routes into each area.

3.3 Plumbing
Hot and cold water services will be supplied from the boosted mains, with a storage tank. Hot water will be provided by a central unvented hot cylinder located in basement plant room, heated from the boiler
All pipework will be insulated to reduce heat loss (hot water) and condensation risk (cold water).

The sanitary plumbing pipework system will be designed in accordance with the criteria set down within BS EN 12056 and the Building Regulations. A ventilated system will be provided to serve all toilet areas, plant rooms and floor gullies.

4.0 Electrical Services

4.1 Lighting
Low energy lighting will be provided throughout, with ceiling and wall mounted fittings in keeping with the interior design. Track lighting will be provided in the gallery spaces.
Emergency lighting and escape signage shall be provided throughout the new building areas in line with BS5266 recommendations, including a mixture of emergency converted and self-contained luminaires with 3 hour battery backup.
External lighting will include illumination of the entrance and roof terrace and shall be controlled via photocell sensor and automatic time clocks.
Lighting controls shall be provided in line with building regulation and lighting guide recommendations, including presence/absence detection to teaching/work spaces with daylight linking to ensure lights are automatically switched or dimmed where there is adequate daylight.

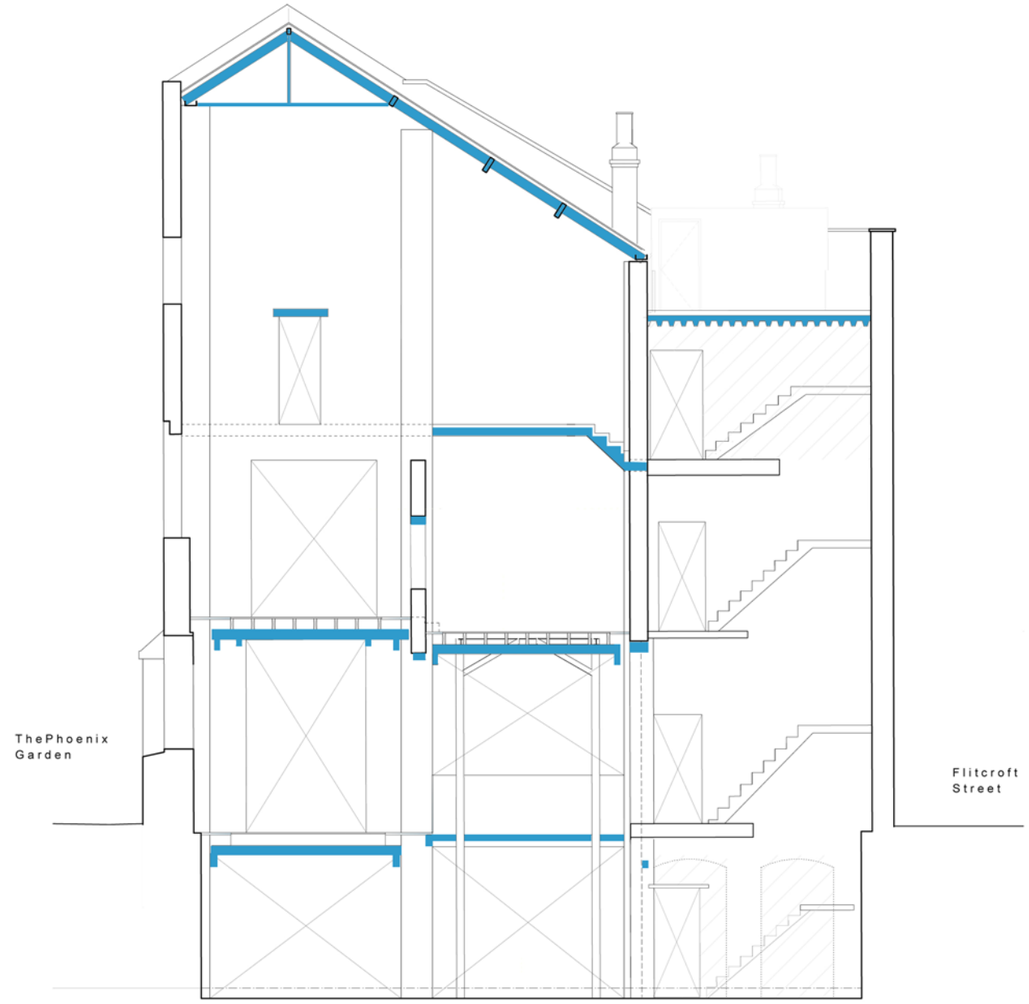
4.2 Power
There will be an adequate provision of general 13A power sockets and all necessary supplies to fixed equipment (e.g. mechanical services and appliances). Outlets will generally be wall mounted or within recessed floor boxes to suit the building layout.
Cable containment will be used throughout, including trunking and conduits so that the system will be fully re-wireable.

4.3 Protection systems

4.3.1 Fire alarm
A new addressable fire detection and alarm system will comprise smoke and heat detection, call points and sounders in accordance with the recommendations of BSEN5839-1 (category to be confirmed).

4.3.2 Lightning protection
A risk assessment will be undertaken to BSEN 62305 to confirm whether a lightning protection system is required, as the building is not protected at present. If needed, the system would comprise plastic coated copper roof terminations and down conductors

7.0 Structural Design



01
Diagram showing new structural elements

Ling Engineering Limited were asked by Chapman Architects to provide structural engineering advice on the refurbishment of 1-5 Flitcroft Street.

The following is a list of proposed structural works required in order to bring the building up to the level of habitability prescribed in the updated brief (on a floor by floor basis):

Roof
Replace existing glazed roof with lightweight structural steel framing with a high specification internal paint finish
Provide new steel and concrete composite roof to support plant with lightweight plant and stair enclosures

Second floor (design imposed load 2.5kN/m2)
New timber joisted floor to area of additional floor
Steel trimmers to form new service riser and openings

First Floor (design imposed load 5.0kN/m2)
Infill existing stair void with timber joists
Steel trimmers to form extra support for existing floors and to trim floor openings for glazed floor panels
Steel beams to form new openings through masonry walls to connect Gallery 2 with surrounding areas.

Ground floor (design imposed load 5.0kN/m2)
New timber joisted floor to Gallery 1 and smaller area to south.
Steel trimmers to floor edges to support glazed floor panels.
Possible spiral stair to connect basement through to first floor
Steel brackets to restrain retained painting frames and allow removal of some cross bracing to suit access.

Basement (design imposed load 5.0kN/m2)
Form new reinforced concrete sumps to suit drainage and drained cavity
Infill masonry panels around stair
Picture frame to enable removal of masonry column below entrance area

The above is not an exhaustive list but highlights the main structural works. The target design imposed loads on ground and first may result in a requirement to add additional stiffening/supports to existing structure, the extent of which would not be known until after a strip out.

Generally new steelwork (other than at roof level) should be fire protected by two layers plasterboard or intumescent paint.

CA

8.0 Access Strategy

As previously mentioned, Elm Lesters is Grade II listed and therefore upmost care has been taken in the design proposals to retain the existing character of the building and to preserve the asset for future generations.

Notwithstanding its heritage status, it is also recognised that the redevelopment presents an opportunity to create office space that improves the accessibility of the existing building for use by all.

The main ways in which the design seeks to achieve this within the constraints of the existing listed building are noted below;

Approach
The approach to the building on the pavement is level. There is a step into the building which is to be retained. It is possible that the pavement to the front of the building could be ramped slightly to allow for level access into the double height door at the front of the building, improving the existing condition.

Entrance
The existing double door entrance to the building has been retained. Two new entrances are proposed, one on to Flitcroft Street and re-opening and reuse of the existing double height door the main elevation. The new entrance to the front of the building will allow level access when required into the ground floor office space.

Horizontal Circulation
Where reasonably practical and the existing structure allows, the circulation has been designed so that wider corridors are achieved and all new proposed doorways are no less than 910mm S/O. The office spaces are proposed to be open plan with level access where possible whilst utilising the existing floors.

Vertical Circulation
A new accommodation stair connects basement to roof level. It is also proposed that the structure be adapted so that the platform lift can be installed if required by the tenant. This lift would connect the basement, ground and first floor levels which house the main office floors. This would be a vast improvement on the existing condition which had neither lift nor stair to connect all levels.

Means of Escape
With the new entrances proposed at the bottom of the new accommodation stair and also through the reused front door, this will provide an additional two means of escape from the building. This is an improvement on the existing condition which only had one means of escape from all levels.

Accessible W.C. Provision
There are no accessible toilets available in the existing building. The design proposes an accessible W.C. at ground floor level which is an improvement on the existing condition.

Overall, the principle that has been set out for the design is that where possible steps have been taken to improve the accessibility throughout the building working within existing listed building condition.

9.0 Appendices

Appendix A Historical Report and Listing Description
Appendix B Pre-Application Summary / Response
Appendix C Environmental Noise Survey

Appendix A - Historical Report & Listing

Report on the Elms Lester Painting Rooms, Nos. 1-5 Flitcroft Street (Grade II)[1]

Figure 1: The Elms Lester Painting Rooms in 2017

Background

Historically St Giles parish was noted for poverty, disease and debauchery, as immortalised by the 18th century artist William Hogarth, whose prints depict the poor of St Giles. Hogarth's *Gin Lane* and *First Stage of Cruelty* show the spire of St Giles in the background to these etchings of London low life. St Giles contained some of central London's most squalid slums from the mid-18th to mid-19th century, including the Rookery and Seven Dials Rookery. The poet George Galloway described one such slum in 1792 as 'a cluster of mean tenements densely populated by people of the lowest class'. In 1851 the population of the parish of St Giles in the Fields had risen to 37,407.[2] In 1844-7 major clearance of the slums began with the construction of New Oxford Street through the middle of the Rookery, and towards the end of the 19th century factories and commercial activity had started to replace the tenements immediately beside St Giles Church. Flitcroft Street[3] was historically known as

[1] See Appendix One for the full Listing Description
[2] https://stgilesonline.org/history
[3] The name changed from Little Denmark Street to Flitcroft Street in 1936

Lloyd's Court (see Figure 2), and afterwards as Little Denmark Street. By the end of the 19th century it contained a number of commercial warehouses and factories, several associated with metalwork. Close by was Crosse and Blackwell's pickle factory (see Figure 5).

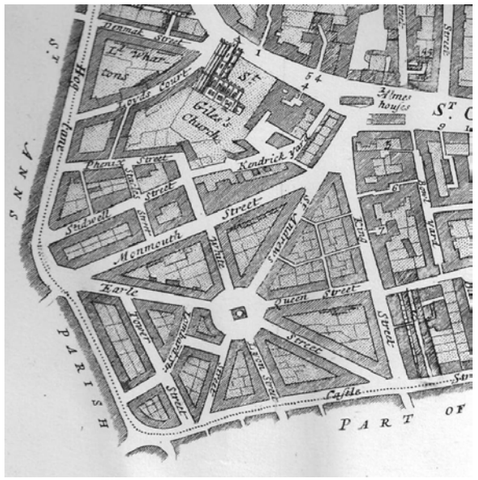


Figure 2: Map of the parish of St Giles in the Fields in 1720 showing the extensive churchyard

The site on which the Elms Lester Painting Rooms now stand is closely connected with the setting of the current St Giles in the Fields church, and lies partially within the churchyard, and on land that from the early 18th century was part of the estate of Benjamin Carter.[4] The church is a Grade I listed building and the Vestry House, which is attached to the Painting Rooms, is listed at Grade II. Built on the site of two earlier churches, the parishioners of St Giles petitioned the Commission for Building Fifty New Churches (appointed in 1711), for a grant to rebuild their church, as it was in poor repair. The parish was allocated £8,000 and the new church was built in 1730-33, designed by Henry Flitcroft.[5] He also designed the elegant Vestry House or Rooms which were built in 1734 for meetings of the Parish officials (see Figure 3). The parish of St Giles in the Fields was governed from here by the rector,

[4] Margaret Lawson, *Wilford School Through 250 Years*, (1986), p.4
[5] Henry Flitcroft (1697- 1769**)** was a protegee of Lord Burlington and worked in the Palladian style. He was responsible for the rebuilding of Woburn Abbey, Bedfordshire, designed Wimpole Hall in Cambridgeshire and Stowe House in Buckinghamshire and worked extensively on private commissions in the West End.

churchwardens and vestrymen until the 1830's, when other bodies started to take over.

Elizabeth Saywell (*née* Lloyd) in her will dated 5th January, 1712–3, gave all her real estate in St. Giles, to Benjamin Carter[6] for his life, and devised a fourth part of her estate to trustees for charitable purposes. Benjamin Carter in March, 1727, granted to trustees all that old capital messuage or tenement wherein Mrs. Saywell had resided, "which said capital messuage had been pulled down and several messuages, houses or tenements, had been erected on the ground whereon the said capital messuage stood … commonly called Lloyd's Court."[7]

Figure 3: The Vestry House building and the attached Elms Lester Painting Rooms

Thus, from the 1730s the land on which the Elms Lester Painting Rooms were later built, became part of Carter's Foundation. From then until 1909, the Foundation supported education in Bloomsbury (at first at the Charity Girls School)[8], as well as in Wilford in Nottingham, where Benjamin Carter had been Rector.[9] In 1909, the St

[6] Benjamin Carter born in London in 1667 and had connections with St Giles in the Fields via John Sharp, Rector of that parish, who later became Archbishop of York. Carter became Rector of Wilford, Nottinghamshire in 1694 and remained there until his death in 1732. Towards the end of his life he set up a foundation to support the education of poor children in Wilford and of girls at the Charity Girls School at St Giles in the Fields, based on the work of the Charity School Movement
[7] 'Site of the Hospital of St. Giles', in *Survey of London: Volume 5, St Giles-in-The-Fields, Pt II*, ed. W Edward Riley and Laurence Gomme (London, 1914), pp. 117-126. *British History Online*
[8] Margaret Lawson, *Wilford School Through 250 Years*, (1986), pp. 3-5
[9] Information in email from Roy Nettleship, Chairman of Carter's Educational Foundation

Giles section of the Foundation was separated off as the Carter's Bloomsbury Education Foundation, who received the income from No. 12 Flitcroft Street.

Early in the 19th century (c.1816) a charity school had been re-established in a new building close to the church under the instructions of the Vestry[10] (see Figure 4). St Giles National School was in Little Denmark Street, and in 1841 it advertised for three pupil teachers.[11] It moved to Endell Street in 1860, but the original three-storey, seven-sided building remained and was described as being in the churchyard, but was owned by Carter's Foundation.

Figure 4: Engraving of the old Schoolhouse, Churchyard, St Giles in the Fields in 1860 [© The Illustrated London News, 29 December 1860]

A plan in the possession of Carter's Educational Foundation, reputedly dating from *c.*1870, but possibly later, is reproduced in Figure 5 and shows the plan of the buildings adjacent to the churchyard. The OS Map of 1870 (Figure 6), shows the old school located beside the Vestry Room, close to the disused graveyard. As well as the seven-sided building, there was a wedge-shaped two-storey building that ran beside the Vestry House. The Elms Lester Painting Rooms occupy this site, and parts of the buildings were actually incorporated into the Painting Rooms in the early

[10] Rowland Dobie, *The History of the United Parishes of St. Giles in the Fields and St. George Bloomsbury* (1829), p. 255
[11] 30th Annual Report of the National Society for Promoting the Education of the Poor (1841), p.139

20th century. The entrance to the former school was from Lloyd's Court. By 1888, evidence from the Goad Insurance Plan shows that the former school building was occupied by G. Terry, a printer and lithographer, as commercial premises (see Figure 7). Mainly constructed in brick, there was a glass sky-light to the entrance and a two-storey wooden lantern at the centre. A single-storey building linked the heptagon to the wedge-shaped building fronting the churchyard.

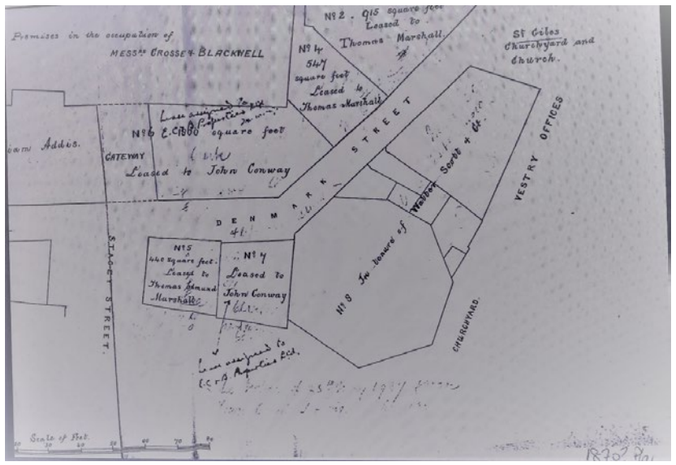
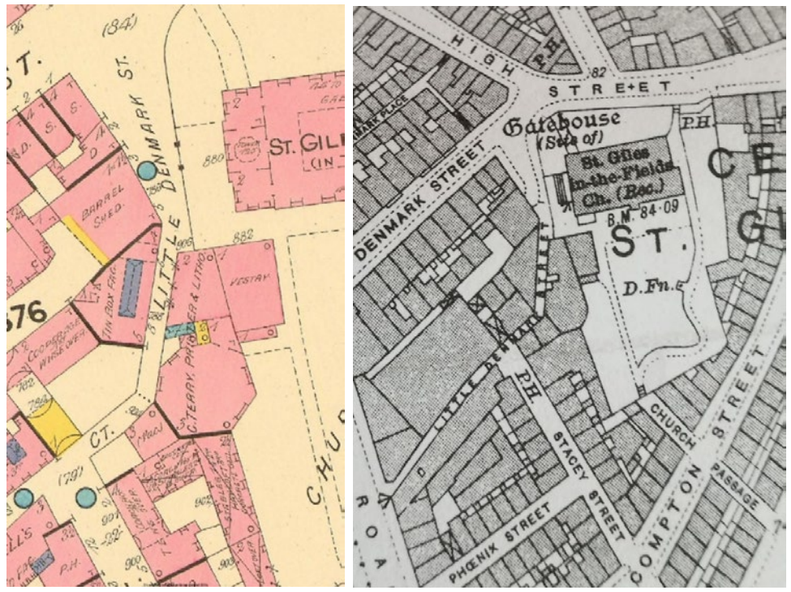


Figure 5: Plan in possession of Carter's Educational Foundation dating from the later 19th century

Figure 6: The OS Map of 1870

5

At the beginning of the 20th century the building was taken over by the scenic painting firm of Elms Lester. They built a state of the art scenic painting studios at Nos. 1-5 Flitcroft Street, which supplied many of the West End theatres with painted backdrops and theatrical scenery. It has always been assumed[12] that the whole of the building was purpose-built in 1903-4 as a workshop, but this research suggests that earlier building fabric from the 1816 school is incorporated into the design, especially at the rear, where the ground floor appears to have been retained (compare Figures 4 and 15). The Goad Insurance Plan, dating from 1942, shows the two top lit lanterns where the painting frames were located, fitting perfectly into the back portion of the heptagon (see Figure 9).



Figures 7 & 8: Goad Insurance Plan of 1888 and OS map of 1914

[12] See the Listing description below and B. Cherry & Niklaus Pevsner, *The Buildings of England, London 4: North* (1998)

6

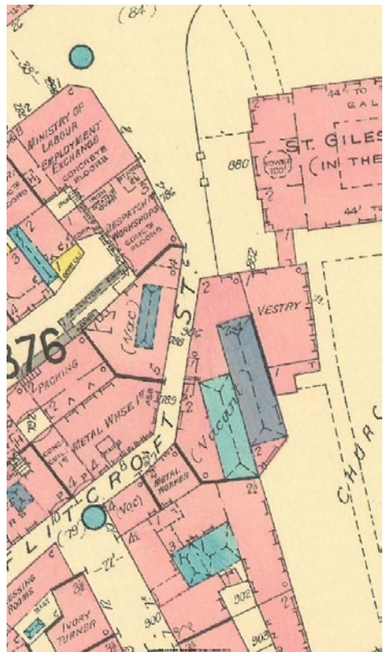


Figure 9: Goad Insurance Plan of 1942

To create purpose-built painting rooms for theatrical scenery and backdrops was an ambitious project in 1903-4. The centre of the building was occupied by the painting frames, and lit by the projecting lantern, which still exists and has cast-iron framework to the glazing. The first-floor painting area, supported on a steel frame[13], gave access to four 50 ft. by 30 ft. painting frames, which ran along the outer side walls and both sides of the inner dividing screen wall (see Figure 11).[14] Each cast-iron frame could be raised or lowered by electric winches. Each side of the painting room had a sink and studio stove, and it was surrounded by studios and artists' accommodation.[15]

[13] The use of steel as well as iron was technologically advanced in 1903-4. The West End theatres and entertainment venues were early users of structural iron and steel in buildings
[14] Listing Report
[15] Listing Report

Figures 10 & 11: The tallest Painting Room in Edwardian times and the 1950s

The large entrance lobby to the front has a hoist and trap doors, which facilitated the removal of completed backcloths from the painting rooms, via the door in the façade. At first this door was not as tall as it is now, but it was enlarged to become full-height, reaching the eaves of the roof (see Figures 12 & 13).

Elms Lester vacated the premises before 1923. In that year the premises were occupied by the Lyceum Theatre Scenic Painters.[16] In 1942 they were described as vacant, presumably due to wartime restrictions.[17] They suffered little structural damage during the air raids, although there was much devastation nearby.[18] Some attached buildings were demolished to create the space now occupied by the Phoenix Gardens.

[16] Camden Local Studies and Archives Centre, Goad Plan (revised 1923)
[17] Goad Insurance Plan 1942
[18] Laurence Ward, *LCC Bomb Damage Maps 1939-1945*, (2015)

Figures 12 & 13: An image from *c.*1903-4 showing the original entrance [© thelondoni.com/behind-the-green-door-elms-lester] and today with the full-height doors

In 1944, the premises were taken over by the renowned scenic painter Tod Kingman. He renamed them Key Studios and his team provided backdrops and scenery for theatre and musical productions all over the world, as well as in the West End.[19] Some of his most creative designs are now held in the V & A Museum archives. Under their ownership minor alterations were made to the premises in 1965. No planning application exists, nor any plans, but a sketch of the building survives in the Drainage Plans at Camden Local Studies and Archives Centre, which shows minor works to the side elevation to Flitcroft Street (see Figure 14).[20] *

By the beginning of the 1980s the premises were said to have been in poor condition. Paul Jones and Fiona McKinnon first bought the lease for the building in 1983, when it was semi-derelict, and, after four years of renovation[21], began exhibiting art shows on the ground floor. They renamed the premises the Elms Lester Painting Studios. They funded the art space by re-establishing the upper studios as a business creating backdrops for both theatres and advertising. They renovated the four electronically operated paint frames and Jones and McKinnon, recognising the unique heritage and importance of the building, invited English Heritage to consider the building for listing. It was listed in 1988.

[19] Peter T. Woodford (ed.) *The Streets of St Giles*, (2000), p.30
[20] Camden Local Studies and Archives Centre, Drainage Plans Reg No 7971 (1965)
[21] No planning applications have been located for works to the building, so they must have been internal alterations and mechanical renovations rather than structural works

* CA comment: *It has been brought to our attention that Carter's Educational Foundation has, in fact, comprehensive plans showing the 1965 minor alterations referred to in this report.*

Figure 14: Side elevation in 1965 showing minor works to the building [© Camden Local Studies and Archives Centre, Drainage Plans Reg No 7971]

The Painting Rooms are part of London's theatrical heritage and have provided artists with unrivalled painting facilities in Central London since 1904. The creation of large canvas backdrops was said to combine the skills of an artist with a scale more associated with house-painters. The paint frames at Elms Lester are unique and take the form of an enormous stretcher, which could move up in the light well and down into the cellar, allowing the painters to remain in a fixed position at ground level. Many other paint frames in the West End were destroyed before they could be listed. The Buildings of England has said it is 'The only working example of a scene painting workshop in the West End'.[22] Whether this is entirely true is debatable, as at the Theatre Royal Drury Lane, four painting frames survive and are in regular use. There are also examples at RADA, the Bloomsbury Theatre and the Britten Theatre.[23]

Until recently the building was maintained by income from film shoots, videos, events and exhibitions. But the paint frame was kept in use and was accessible to professional scene painters. Back drops for Mama Mia were quite recently painted there. Elms Lester became best known for exhibiting international street artists and since 2011, they worked exclusively with Adam Neate. The paint frames were very

[22] B. Cherry & Niklaus Pevsner, *The Buildings of England, London 4: North* (1998), p.317
[23] The Association of British Theatre Technicians Historical Research Committee: Paint Frames and Floors: A constantly developing listing of painting facilities for backcloths and scenery in the UK

often used by exhibiting artists who painted in residence**.** The gallery closed in October 2017, just maintaining an online presence.

Figure 15: The rear of the building showing part of the original heptagon

Dr Ann Robey
Revised 30.11.2017

Appendix One

Listing Description

ELMS LESTER PAINTING ROOMS, Nos.1-5, FLITCROFT STREET

TQ2981SE

GV II

Date first listed: 10-Jun-1988

Painting rooms for theatrical scenery. 1903-4. For Messrs W & J Elms Lester. English bond yellow brick, with facade of red brick; top-lit lantern, projecting above 1st floor level and lighting painting rooms, has facing of glazed white brick. Gabled, brick-coped Welsh slate roof; brick stacks. EXTERIOR: 2-storey pedimented facade, with legend ELMS LESTERS PAINTING ROOMS & STORES inscribed on tympanum of inner pediment, which is set above row of colonnettes which rest on cornice of main pediment. This cornice is broken by panelled full-height loading doors to right and tall window with glazing bars to left, the latter above a segmental-arched 2-light window with glazing bars. Pedimented facade to lantern storey has moulded stone lintel above 2-light transomed window. Right-side wall, of 2-storey, 3-window range has concrete lintels over 2-light transomed windows, and loft door above double doors to front: to rear of this range is lean-to porch with 8-panelled double doors attached to large 3-storey canted bay with plate-glass sashes. INTERIOR: the centre of the building is occupied by the painting frames, lit by the projecting lantern which has cast-iron framework to glazing. The 1st floor painting area, supported on a steel frame, gives access to four 50'x 30' painting frames which run along the outer side walls and both sides of the inner dividing screen wall. Each cast-iron frame can be raised or lowered by electric winches. Each painting room has a sink and studio stove and they are surrounded by studios and artists' accommodation. The large entrance lobby to the front has a hoist and trap doors, which facilitated the exit of completed backcloths from the painting rooms, via the full-height doors in the facade. HISTORICAL NOTE: an important and complete survival of a theatrical scene-painting workshop.

Listing NGR: TQ2994281229

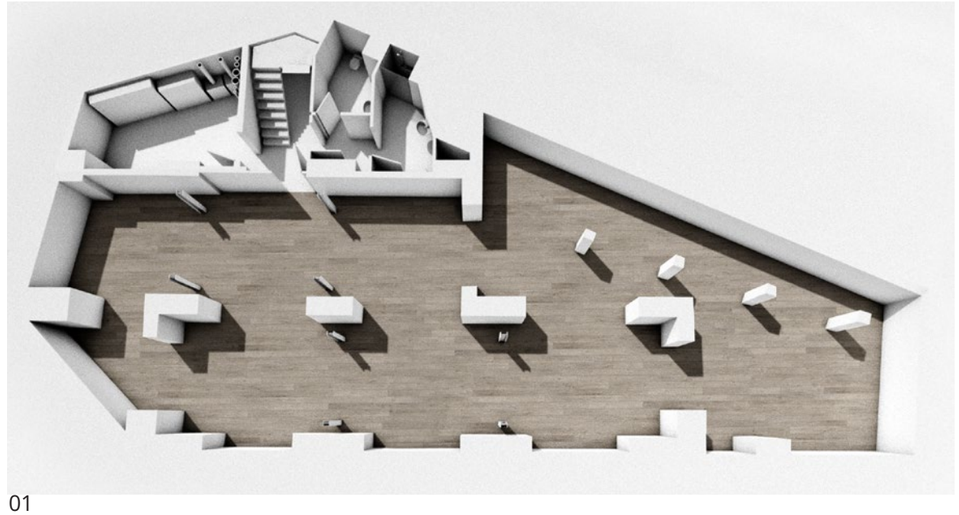
Selected Sources

Legacy Record - This information may be included in the List Entry Details

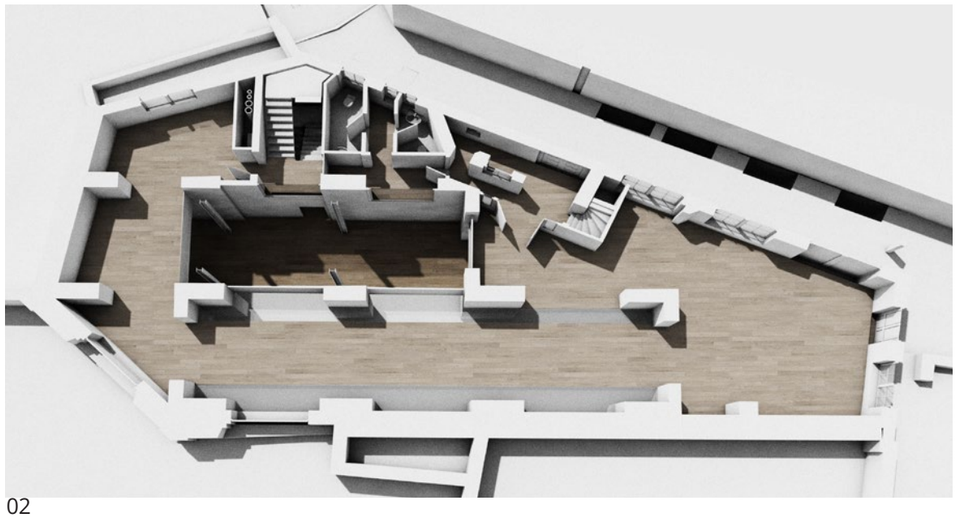
National Grid Reference: TQ 29942 81229

Appendix B - Pre-Application Summary / Response

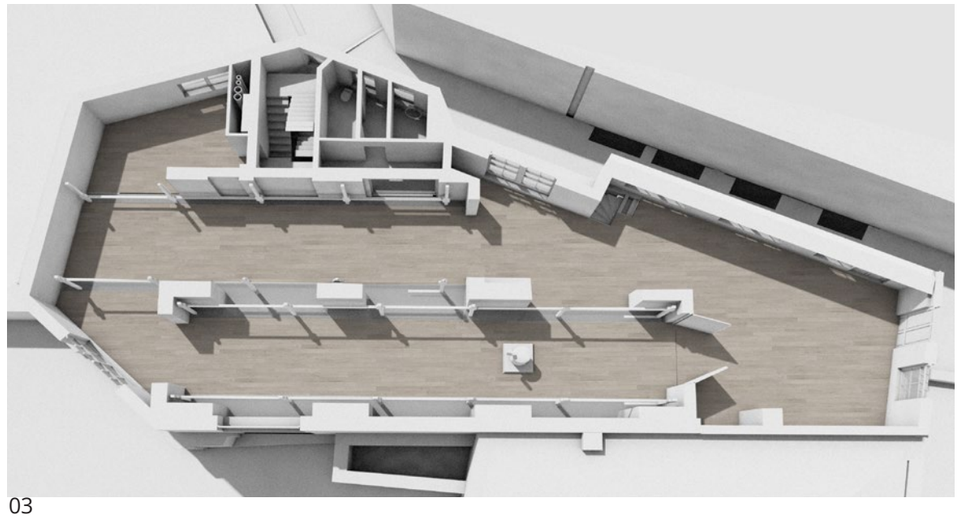
Submitted Plans



01
Basement Floor Plan



02
Ground Floor Plan



03
First Floor Plan

04
Second Floor Plan

Date: 29 October 2018
Our Ref: 2018/4335/PRE
Contact: Elizabeth Martin

Email: Elizabeth.Martin@camden.gov.uk

Development Control
Planning Services
London Borough of Camden
5 Pancras Square
London N1C 4AG

www.camden.gov.uk/planning

Larisa Dobie
Chapman Architects
6 Borough High Street
London SE1 9QQ

Dear Larisa,

Re. Planning Pre-application advice meeting ref. 2018/4335/PRE.
1 - 5 Flitcroft Street, London WC2H 8DH.

The proposals are for refurbishment throughout the building, internal changes including the creation of new openings, bridge access across floors and installation of new staircases and the creation of a rooftop terrace and plant.

I refer to our pre-application meeting held on 5th October 2018 regarding the above pre-application submission. Please find below comments on the submitted proposal:

Context

1-5 Flitcroft Street is a 2 storey yellow brick building with red brick façade, built in 1903-4 as painting rooms for theatrical scenery. Grade II listed, it sits within the Denmark Street Conservation Area in very close proximity to the Grade I listed St. Giles in the Fields Church. The historic heart of the conservation area is St Giles Church and churchyard. The historic street pattern and network of narrow passageways which remains in much of the southern part of the area lends an intimate character and the surrounding architecture is a varied mix of former residential, industrial and commercial, dating from the late 17th Century to the early 20th Century, but which has a consistency of materials and scale.

The pre-application submission seeks to refurbish the building and make a number of internal alterations to improve the usability of the space for tenants and to open up areas of the building which are currently empty.

Relevant Policy:

National Planning Policy Framework 2012

Chapter 7- Requiring good design (paragraphs 56-61, 66).
Chapter 12- Conserving and enhancing the historic environment (paragraphs 128, 134,138).

The London Plan March 2016

Policy 7.4- Local character.
Policy 7.6- Architecture.
Policy 7.8 Heritage assets and archaeology.

Camden Local Plan 2017

A1- Managing the Impact of Development.
D1- Design.
D2- Heritage.

Supplementary Planning Guidance

CPG1 Design (July 2015, Updated March 2018).
Denmark Street Conservation Area Appraisal and Management Plan (2010).

Comments

General Comments

The works proposed are sensitive to the original floorplan of the building, retaining its legibility. The loss of historic fabric is minimal and where new openings are proposed, they reflect earlier openings within the wall. New openings as shown are supported in principle, however the cast iron painting frame should remain intact.

Historic features including the basement stair and first floor wood burner should be retained. Features from the residential properties formerly on the site (the curved staircase, sash window in the entrance hall and decorative cornice) should also be retained; these features all show the evolution of the building and its former uses. Windows should be retained and repaired where possible; where replacement is unavoidable, double glazed units will not be supported.

The most potentially intrusive part of the works relates to the installation of access ways at high level. There is no objection to this in principle provided the painting frames are kept intact, however it should be ensured that the access ways are designed to be as visually lightweight as possible to ensure the spatial quality of the rooms is not affected.

The visual impact of a new roof terrace is likely to be minimal due to the position of the building and the narrow width of Flitcroft Street which means visibility from the street is very limited. However in order to ensure this is the case, roofplant should be designed to be as discrete as possible and the design of balustrades/railings and privacy screens (if required) will also need to be carefully considered.

The privacy of neighbouring occupiers should also be considered in your Design and Access statement with an assessment of whether the proposed alterations will likely harm privacy.

It should be noted that at application stage, you will need to submit a noise, vibration and ventilation assessment in order for colleagues in Development Management to assess the acceptability of the roof plant. Further guidance on this is available via the following link:

Summary

Based on the submitted drawings, and subject to further detail of the proposed roof terrace, plant and walkways, the scheme is generally supported by the Council.

I hope the feedback given on the scheme has been useful.

This document represents the Council's initial view of your proposals based on the information available to us at this stage. It should not be interpreted as formal confirmation that your application will be acceptable nor can it be held to prejudice formal determination of any planning application we receive from you on this proposal.

Please note that if you (the applicant or their representative) have drafted any notes of the pre-application meeting(s) held with the council you cannot assume that these are agreed unless you have received written confirmation of this from the case officer.

If you have any queries about the above letter please do not hesitate to get in touch.

Thank you for using Camden's pre-application advice service.

Yours sincerely,

Elizabeth Martin
Planning Officer (Conservation)
Development Management
Supporting Communities
London Borough of Camden

Telephone: 0207 974 1204

5 Pancras Square
London N1C 4AG

Appendix C - Environmental Noise Survey

1.0 Introduction

As part of refurbishment works to the property of address 1-5 Flitcroft Street, London, WC2H 8DH, it is proposed that a number of items of mechanical plant be installed on the roof of the building.

Paragon Acoustic Consultants Ltd has been commissioned to conduct an environmental noise survey to obtain statistical noise data to characterise the existing local background and ambient noise climate at the site and to derive noise limits to atmosphere based on Local Authority Noise Policy and other relevant guideline documents. This information is used to determine if the proposed new mechanical plant selections will meet with the derived noise.

This practice has been verbally advised that the plant will operate daytime hours between 08:00 to 19:00 hours.

2.0 Site Description and Proposed Plant Location

2.1 Site Description

The site under consideration is situated at 1-5 Flitcroft Street, London, WC2H 8DH (herein referred to as "the site"), within The London Borough of Camden.

The site lies with its frontage on Flitcroft Street which has pedestrian access only past the site.

To the north-north east lies the St Giles Church and associated grounds and Vestry. To the east lies a public park and children's play area, beyond which lie six storey high residential premises.

Immediately to the south lies an area of undeveloped land of marked on the OS map as a "play area", although the exact use is not known.

To the south-south west lie residential flats in "The Alcazar", extending to four stores in height. To the south west lie terraced properties with their frontage on Flitcroft Street.

To the west lie the buildings on the north side of Flitcroft Street, these being of commercial use in appearance and did not show up as residential on a Council Tax valuation list search. These properties are close to the site under consideration (Approx 7m from the proposed plant)

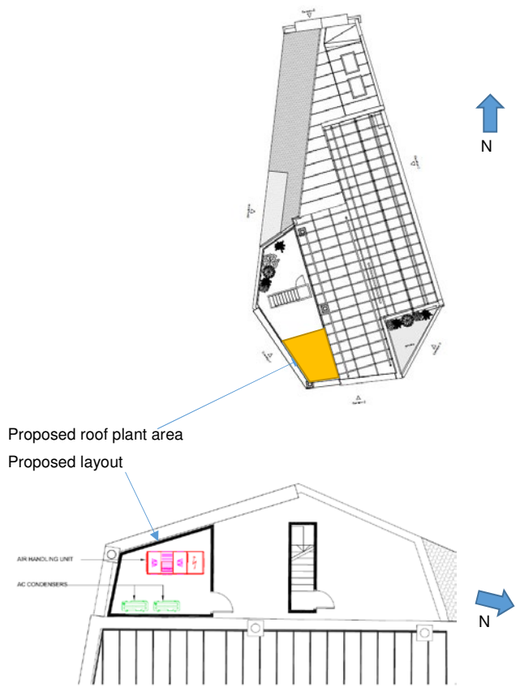
The site is illustrated by plan in Appendix A.

2.2 Proposed Plant Location

An extract of drawing indicating the proposed plant location is shown below

Project:	1-5 Flitcroft Street, London, WC2H 8DH	Date:	28/03/19
Client:	Carter's Educational Foundation	Ref:	4342

Figure 1: Proposed Plant Location



3.0 Existing Noise Climate

3.1 Road Traffic

Noise emanating from vehicular road traffic was deemed to provide a significant contribution to the ambient noise climate proximal to the nearest affected residential premises. The overall noise comprises both individual "event" type emissions from vehicles passing along local roads, and also continuous low frequency "rumble" due to middle distance traffic flows.

3.2 Rail Traffic

Rail traffic was not observed during the manned period at the start and end of the survey.

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3.3 Aircraft

Aircraft over flights were observed sporadically during the manned survey at the start and end of the period. Their contribution to the background noise climate will have been included within the measurements taken.

3.4 Construction Noise

Construction noise was clearly audible during the manned periods of the survey, with a large number of constructions sites in the vicinity of the site under consideration. The construction noise will have been included within the measurements taken, although it is likely to have been limited to normal construction working hours.

4.0 Environmental Noise Survey

4.1 Measurements

The noise monitoring took place between the following dates / times:

- Start : 14/02/2019 at 10:29 hours
- End : 18/02/2019 at 10:29 hours

The noise monitoring was generally un-manned and was undertaken at the location as described below.

- **MP1**: On the roof of the site at the southern point of the roof.

The measurement location is illustrated on the site layout drawing in Appendix A.

Various statistical broad-band and spectral sound pressure level measurements were obtained during the survey. A measurement time interval Tm = 15 minutes was used for sampling. Measurements of the percentile level $L_{A90,T}$ were made using time weighting F as per clause 3.4 of BS 4142:2014.

The quantities recorded included:

- **L_{Aeq}:** the equivalent continuous A-weighted sound pressure level over the measurement period
- **L_{Amax}:** the maximum A-weighted sound pressure level for the measurement period
- **L_{A10}:** the A-weighted sound pressure level exceeded for 10% of the measurement period
- **L_{A90}:** the A-weighted sound pressure level exceeded for 90% of the measurement period

4.2 Weather during survey period

The weather conditions at the start of the manned period of the survey were mild (10 Deg c) and dry with a slight breeze. At the end of the survey the weather conditions were similar. The weather forecast did not indicate that adverse weather conditions would occur for the survey duration.

4.3 Instrumentation

Sound pressure level measurements were obtained using the following instrumentation complying with the Type 1 specification of BS EN 60804, BS EN 60651, BS EN 60942, BS EN 61260, and BS EN 61672-1:

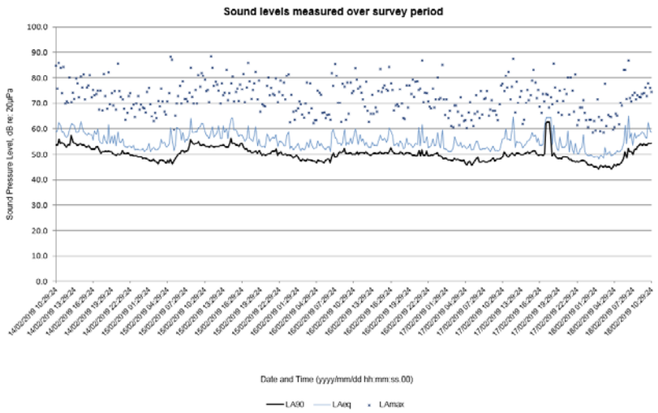
- SVAN 971 Sound level meter serial number 56214, pre-amplifier type SV18 serial number 57307, and type 7052E ½" microphone serial number 65484.

Calibration checks were made prior to and after completion of measurements using a Norsonic Type 1251 acoustical calibrator complying with Class 1 of BS EN 60942, calibration level 114.0 dB ± 0.3 dB, @ 1.0 kHz. All instrumentation carries a current manufacturer's certificate of conformance a copy of which is available upon request.

4.4 Results

The recorded survey data is shown within Appendix B. Broadband sound pressure level data over the survey period (L_{A90} background levels, L_{Aeq} and L_{Amax} measurements) are shown graphically below:

Figure 2: Graphical Survey Data



The Typically Lowest Existing Representative Background Noise Level for daytime and night-time have need assessed to determine their values. The following graphs show the daytime /evening and night time distributions of L90 background noise levels for the 15 minute sampling periods:

Figure 3: L90 distribution for Daytime and evening periods over the survey duration

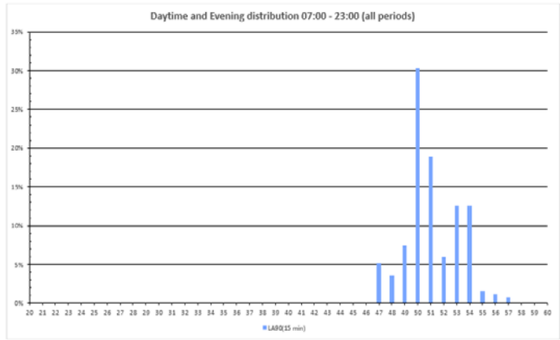
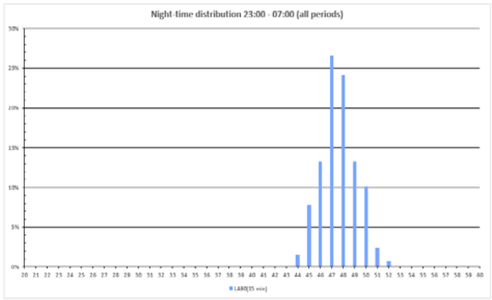


Figure 4: L90 distribution for night time periods over the survey duration



The typically lowest existing representative background noise levels are summarized as follows:

Table 1: Typically Lowest Existing Representative Background Noise Level

Measurement Position	Daytime 07:00-23:00 $L_{A90,(15\ min)}$	Night-time 23:00-07:00 $L_{A90,(15\ min)}$
MP1 measurement position	50 dB	47 dB

5.0 Evaluation of External Noise Criteria

The local vicinity contains properties of mixed usage, which must be given due consideration in terms of acceptable levels of noise exposure from the new plant.

5.1 Noise Sensitive Properties

It is necessary to consider the requirements of the Local Authority. Recent correspondence from the London Borough of Camden advised the following:

"For the correct criterion, reference should be made the Noise Thresholds in Appendix 3 of the Local Plan 2017, specifically Table C/ the "Design Criterion of 10dB below background which increases to 15 dB if the noise source requires acoustic correction.

Table C of the Appendix 3 of the Local Plan 2017 *advises the following:*

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing Noise sensitive receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings**	Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)	Day	'Rating level' 10dB* below background	'Rating level' between 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings**	Outside bedroom window (façade)	Night	'Rating level' 10dB* below background and no events exceeding 57dB L_{Amax}	'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L_{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dB L_{Amax}

*10dB should be increased to 15dB if the noise contains audible tonal elements (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.

**levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.

The document confirms that the 'Rating Level' shall be required to be 10 dB below the background and this should be increased to 15dB if the noise contains audible tonal elements.

The above document confirms that "*levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises".* As such, the proposed noise limits for commercial premises are confirmed as follows:

5.2 Commercial Properties

The methods described in BS4142:2014 use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident. It is considered reasonable that commercial properties not used for residential purposes be assessed in line with the guidelines provided in BS 8233:2014. BS 8233:2014 provides guideline noise levels for internal areas of buildings, reproduced as follows:

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Figure 5: BS8233:2014 table of typical noise levels in non-domestic buildings

Table 6 Typical noise levels in non-domestic buildings

Activity	Location	Design range dB $L_{Aeq,T}$
Speech or telephone communications	Department store Cafeteria, canteen, kitchen	50 – 55
	Concourse Corridor, circulation space	45 – 55
Study and work requiring concentration	Library, gallery, museum	40 – 50
	Staff/meeting room, training room	35 – 45
	Executive office	35 – 40
Listening	Place of worship, counselling, meditation, relaxation	30 – 35

Figure 6: BS8233:2014 table of indoor ambient noise levels

Table 2 Indoor ambient noise levels in spaces when they are unoccupied and privacy is also important

Objective	Typical situations	Design range $L_{Aeq,T}$ dB
Typical noise levels for acoustic privacy in shared spaces	Restaurant	40 – 55
	Open plan office	45 – 50
	Night club, public house	40 – 45
	Ballroom, banqueting hall	35 – 40
	Living room	35 – 40

NOTE See Noise control in building services [28] and BS EN ISO 3382.

In view of the details presented above it is considered reasonable to adopt a noise criterion of 40 dB $L_{Aeq,T}$ for commercial office space in the proximity of the site.

It is also reasonable to consider a noise criterion external to commercial property windows that takes account of the internal design range, plus the loss expected through an openable window. In a research study conducted for DEFRA NANR116: "Open/Closed Window Research", numerous references are provided which quantify losses through open and partially open windows:

Figure 7: DEFRA NANR16 Summary of findings

Information Source	Summary of Findings
PPG 24 (1994) [2]	A reduction of 13 dB(A) from the facade level is assumed for an open window
WHO (1999) [4]	A reduction of 15 dB from the facade level is assumed for a partially open window. (no reference)
BS 8233 (1999) [5]	Windows providing rapid ventilation and summer cooling are assumed to provide 10 - 15 dB attenuation (no specific reference)
BRE Digest 338 (1988) [6]	A partly open window has an averaged level difference, $D_{1/3rd\text{-}oct\ 100\text{-}3150}$ of 15 dB
DoE Design Bulleting 26 (1972) [7]	A reduction of 5 dB(A) with a window wide open
Nelson - Transportation Noise (1987) [8]	Sound insulation of an open single window is 5 – 15 dB. (theoretical)
Mackenzie & Williamson DoE Report (1972-73) [9] [10]	A vertical sliding sash window open 0.027 m^2 (summer night-time ventilation) and 0.36 m^2 (daytime summer ventilation) provided a sound level reduction of 16 and 11 dB(A) respectively. (Lab Study)
Kerry and Ford (1973 – 74) [11] [12]	A horizontal sliding sash window open 25 mm and 200 mm provided averaged sound reduction indices, R_w, of 14 and 9 dB respectively. (Field Study)
Lawrence and Burgess (1982 – 83) [13] [14]	A vertical sliding sash open 9% of the total façade provided a sound reduction index R_w 10 dB. (Field study)
Hopkins (2004) [15]	Road traffic noise reductions through window openings resulted in reductions of between $D_{2m,nT}$ 8 and 14 dB. (Field Study)

Table 1.1 Summary of open-window acoustic transmission literature

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The findings of the study are referenced in this report to substantiate the use of a 13dB(A)loss through a partially open window.

5.3 External Noise Criteria

The derived external noise criteria which the new building services plant shall be required to achieve are shown below:

Table 2: Limiting Noise Criteria applicable at the affected premises

Plant Location	Receptor	Daytime / Evening 07:00-23:00 L_{Art}	Night-time 23:00-07:00 L_{Art}
Any Location on the site	Noise Sensitive Developments [3]	40 dB [1] [2]	37 dB [1] [2]
	Commercial premises	53 dB L_{Aeq} [2]	

[1] Note: Noise levels to be assessed in accordance with BS4142:2014. LArT is the "Rating" noise level that includes corrections fort the character of the noise.

[2] Note: The limiting noise levels are deemed to be considered at a position 1 metre outside the nearest affected premises.

[3] Note: Noise sensitive premises shall include all premises used for residential purposes including hotels, hostels, etc.

General note: It is taken that the noise Criteria apply at the surrounding third party premises. Noise levels may be exceeded external to windows of the client's premises.

6.0 Review of Proposed Plant

6.1 Introduction

The new plant will comprise the following:

- 1 Number Air Handling Unit (AHU) by Swegon
- 2 Number AC condensers Daikin Model RXYSCQ5TV1

Detailed calculations have been carried out in order to determine the likely level of airborne noise transmission outside the identified assessment locations due to the operation of the proposed new plant to be installed.

Section 2.2 details the plant location/s used in the assessment.

The following sections provide a record of the proposed new plant, the operational sound levels used as the basis for this assessment, and a specification for noise mitigation treatments.

At this stage, the scope of work herein is limited to the consideration of mechanical plant noise emissions to atmosphere and does not include evaluation of the transmission of noise via building envelopes to internal areas of the building. It is recommended that the client employ acoustic consultants to assess this aspect at the appropriate stage of the project.

6.2 Plant Noise Data

The noise levels / acoustic data for the proposed new plant items are shown below:

Project:	1-5 Flitcroft Street, London, WC2H 8DH	Date:	28/03/19
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Figure 8: Noise data for Air Handling Unit

Sound power level

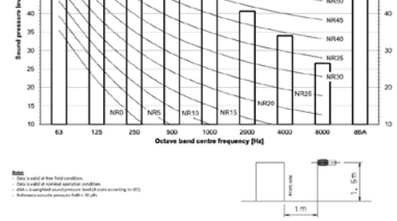
Frequency band	Hz	63	125	250	500	1k	2k	4k	8k		All	
To supply air duct		72	68	65	65	66	64	60	57	dB	71	dB(A)
To outdoor air duct		66	63	56	55	44	42	36	35	dB	55	dB(A)
To surroundings		61	54	42	44	33	31	26	26	dB	45	dB(A)
To surroundings incl. exh. air		64	57	45	47	36	34	29	29	dB	48	dB(A)

Heating coil in casing, TCLE-1-05

Version		4	
Static pressure drop		9	Pa
Air velocity		2.5	m/s
Air temperature	-5.0	20.0	°C
Relative humidity	80	14	%
Required coil capacity		9.04	kW
Selected coil capacity		12.00	kW
Electrical connections		3*400V+N+earth, 17.3A	

Supply fan

Figure 9: Noise data for Daikin Model RXYSCQ5TV1 condensers



6.3 Predicted Plant Noise Levels

Calculations have been carried out using the data presented earlier within this report to predict the resultant sound pressure levels due to airborne transmitted noise outside the nearest exposed noise assessment position, and corresponding to the quietest period of plant operation. The predicted results are summarised below:

Table 3: Predicted Noise Levels at nearest affected premises

Plant under consideration	Worst case assessment location	Approx. distance to receiver	Direct line of sight?	Predicted Lp L_{Art}	Derived noise limit daytime L_{Art}
1 Number Air Handling Unit (AHU) by Swegon2 Number AC condensers Daikin Model RXYSCQ5TV1	Residential properties of The Alcazar located south west of Stacey Street	24 m	Yes (however, partially obscured by parapet in certain directions)	40 dB L_{Art}	40 dB L_{Art}
	Commercial properties on the west side of Flitcroft Street	8 m	Yes	51 dB L_{Art}	53 dB L_{Art}

Predictions are based on the plant operating normally at the noise levels detailed herein, and it is considered that the noise emitted from the proposed plant will not be impulsive, contain tones or other characteristics sufficient to attract attention at the assessment locations. Condensers have been taken as potentially operating intermittently.

It can be seen that for affected third party noise sensitive properties, the proposed plant will maintain the derived noise limit. For affected third party commercial properties, the proposed plant will also maintain the derived noise limit.

Example Calculation sheets are provided in Appendix C

6.4 Vibration

It is recommended that the client provisions for appropriate vibration isolation mountings for the proposed mechanical plant items. It is recommended that the plant be installed on vibration isolation mounts providing a minimum of 98% isolation efficiency at all forcing frequencies using an isolation mount system approved by the plant supplier. In addition, all pipework should be suitably isolated from the building structure.

7.0 Conclusions

A background noise survey has been undertaken to determine the noise climate likely to exist in the vicinity of 1-5 Flitcroft Street, London, WC2H 8DH where the positioning of new mechanical plant is proposed.

Appropriate external criteria have been identified on the basis of Local Authority noise policy, and predictions of the proposed mechanical plant noise emissions have been undertaken.

It is predicted that the proposed mechanical plant noise emissions will meet the existing noise policy operated by London Borough of Camden. On this basis, reservations are not expected from the planning authority on the grounds of noise.

Project:	1-5 Flitcroft Street, London, WC2H 8DH	Date:	28/03/19
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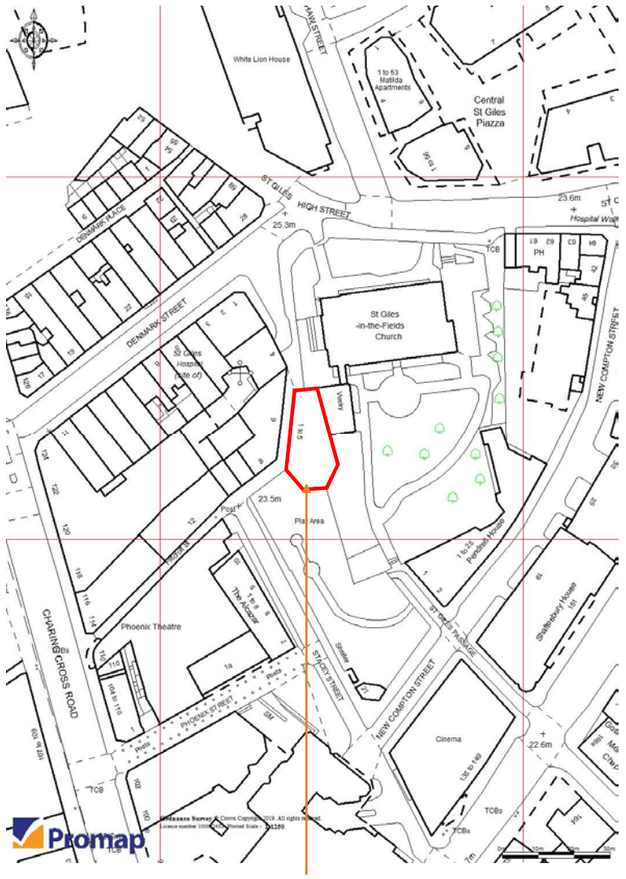
Appendix A: Site Plan

Red Line - 1-5 Flitcroft Street, site



MP1

Project:	1-5 Flitcroft Street, London, WC2H 8DH	Date:	28/03/19
Client:	Carter's Educational Foundation	Ref:	4342

Appendix B: Recorded Survey Data

1st day	LAF(max)	LAeq	L10	L90
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
00:00	0.00	0.00	0.00	0.00
14/02/2019 10:29:24	84.85	58.86	59.60	53.70
14/02/2019 10:44:24	75.76	58.94	60.00	53.60
14/02/2019 10:59:24	85.91	62.44	63.90	56.00
14/02/2019 11:14:24	83.91	61.23	60.80	54.20
14/02/2019 11:29:24	73.92	58.43	61.00	54.60
14/02/2019 11:44:24	84.30	58.65	60.10	54.00
14/02/2019 11:59:24	69.97	56.91	59.10	53.30
14/02/2019 12:14:24	70.64	56.68	59.40	52.90
14/02/2019 12:29:24	70.14	57.50	60.10	53.80
14/02/2019 12:44:24	80.11	59.52	63.40	53.70
14/02/2019 12:59:24	70.46	61.83	63.90	57.20
14/02/2019 13:14:24	74.04	61.56	63.90	54.60
14/02/2019 13:29:24	73.73	61.46	64.40	54.40
14/02/2019 13:44:24	79.68	58.52	60.90	54.10
14/02/2019 13:59:24	77.74	58.47	60.30	53.30
14/02/2019 14:14:24	72.36	59.02	61.90	53.90
14/02/2019 14:29:24	80.48	62.74	65.30	54.20
14/02/2019 14:44:24	76.37	60.67	64.20	53.60
14/02/2019 14:59:24	81.22	58.72	60.30	53.60
14/02/2019 15:14:24	71.52	58.19	60.80	53.00
14/02/2019 15:29:24	76.24	57.51	59.70	52.90
14/02/2019 15:44:24	77.01	58.35	60.50	53.20
14/02/2019 15:59:24	80.94	57.64	60.30	52.60
14/02/2019 16:14:24	72.19	57.67	60.40	52.10
14/02/2019 16:29:24	75.15	55.54	57.60	52.00
14/02/2019 16:44:24	72.99	58.91	60.90	52.10
14/02/2019 16:59:24	73.69	57.66	59.90	52.80
14/02/2019 17:14:24	75.08	60.10	62.80	53.10
14/02/2019 17:29:24	67.48	55.48	58.30	51.50
14/02/2019 17:44:24	74.95	54.60	57.20	50.30
14/02/2019 17:59:24	67.14	54.18	56.40	50.90
14/02/2019 18:14:24	81.62	57.34	57.10	50.90
14/02/2019 18:29:24	72.75	55.64	58.30	51.10
14/02/2019 18:44:24	67.74	54.04	55.90	50.80
14/02/2019 18:59:24	82.06	61.63	59.30	51.10
14/02/2019 19:14:24	69.66	54.27	56.30	50.90
14/02/2019 19:29:24	73.98	57.08	57.80	51.00
14/02/2019 19:44:24	69.16	54.21	56.40	50.10
14/02/2019 19:59:24	74.63	57.30	57.10	49.80
14/02/2019 20:14:24	67.60	53.98	55.30	49.50
14/02/2019 20:29:24	85.69	58.85	56.50	50.00
14/02/2019 20:44:24	74.57	55.02	55.90	49.80
14/02/2019 20:59:24	72.68	54.58	57.40	50.20
14/02/2019 21:14:24	71.41	56.10	58.10	51.50
14/02/2019 21:29:24	67.67	53.10	54.80	50.30
14/02/2019 21:44:24	63.65	52.95	54.70	50.20
14/02/2019 21:59:24	66.22	52.51	54.20	50.30
14/02/2019 22:14:24	72.73	53.12	54.80	50.30
14/02/2019 22:29:24	73.96	53.20	55.30	49.60
14/02/2019 22:44:24	67.96	52.45	54.30	49.80
14/02/2019 22:59:24	69.38	53.41	54.80	49.20
14/02/2019 23:14:24	64.57	51.67	53.50	49.40
14/02/2019 23:29:24	70.00	51.97	53.40	49.10
14/02/2019 23:44:24	72.71	51.75	53.20	49.00
14/02/2019 23:59:24	67.51	51.56	53.10	49.00
15/02/2019 00:14:24	69.29	51.61	53.10	49.10
15/02/2019 00:29:24	68.40	52.06	53.30	48.20
15/02/2019 00:44:24	67.98	51.08	52.90	48.40
15/02/2019 00:59:24	66.38	51.62	53.30	48.30
15/02/2019 01:14:24	74.46	51.87	53.20	48.10
15/02/2019 01:29:24	76.06	54.14	54.00	47.60
15/02/2019 01:44:24	69.69	51.00	53.30	47.60
15/02/2019 01:59:24	64.73	51.93	54.40	47.40
15/02/2019 02:14:24	63.02	52.71	55.80	47.90
15/02/2019 02:29:24	66.16	51.84	54.80	47.20
15/02/2019 02:44:24	63.99	51.51	54.40	46.90
15/02/2019 02:59:24	70.86	52.00	54.90	46.10
15/02/2019 03:14:24	68.83	52.90	55.70	47.40
15/02/2019 03:29:24	75.74	55.79	58.50	47.70
15/02/2019 03:44:24	70.65	54.29	57.20	47.40
15/02/2019 03:59:24	66.68	54.87	58.00	47.20
15/02/2019 04:14:24	65.69	52.87	56.10	46.30
15/02/2019 04:29:24	70.76	52.92	55.90	47.50
15/02/2019 04:44:24	73.91	53.96	56.80	46.60
15/02/2019 04:59:24	88.21	60.25	57.40	48.00
15/02/2019 05:14:24	87.12	56.41	55.70	46.20
15/02/2019 05:29:24	59.62	51.38	53.90	47.20
15/02/2019 05:44:24	65.23	53.52	56.90	47.90
15/02/2019 05:59:24	69.85	60.73	65.20	49.20
15/02/2019 06:14:24	72.74	60.04	64.60	50.00
15/02/2019 06:29:24	76.85	59.55	62.60	50.20
15/02/2019 06:44:24	69.89	55.66	58.20	51.40

2nd day	LAF(max)	LAeq	L10	L90
15/02/2019 06:59:24	78.17	58.39	59.60	51.40
15/02/2019 07:14:24	79.81	59.84	64.60	50.60
15/02/2019 07:29:24	71.70	55.70	57.80	51.10
15/02/2019 07:44:24	70.73	55.54	57.40	51.40
15/02/2019 07:59:24	74.02	57.98	60.40	53.10
15/02/2019 08:14:24	84.06	64.14	67.00	55.70
15/02/2019 08:29:24	72.68	58.46	60.90	54.30
15/02/2019 08:44:24	69.85	58.49	61.40	53.80
15/02/2019 08:59:24	75.18	58.82	61.30	54.00
15/02/2019 09:14:24	69.86	58.75	61.70	54.30
15/02/2019 09:29:24	81.02	60.41	63.30	54.80
15/02/2019 09:44:24	76.57	60.98	62.80	53.50
15/02/2019 09:59:24	81.77	62.09	66.20	53.40
15/02/2019 10:14:24	80.82	62.01	64.10	53.80
15/02/2019 10:29:24	79.14	58.81	60.50	53.40
15/02/2019 10:44:24	74.75	57.32	59.40	53.10
15/02/2019 10:59:24	75.18	57.04	58.60	53.00
15/02/2019 11:14:24	70.52	56.20	57.90	52.70
15/02/2019 11:29:24	88.48	58.78	59.10	53.30
15/02/2019 11:44:24	83.96	60.95	60.00	53.10
15/02/2019 11:59:24	76.79	56.51	58.20	52.90
15/02/2019 12:14:24	78.49	57.67	59.10	53.00
15/02/2019 12:29:24	77.18	58.45	59.60	53.00
15/02/2019 12:44:24	74.88	61.14	66.80	53.10
15/02/2019 12:59:24	69.83	55.98	57.80	53.20
15/02/2019 13:14:24	77.76	56.04	57.40	53.20
15/02/2019 13:29:24	73.04	61.14	67.40	53.50
15/02/2019 13:44:24	74.25	58.56	60.50	53.00
15/02/2019 13:59:24	81.08	60.18	61.40	52.90
15/02/2019 14:14:24	71.11	55.99	58.10	52.90
15/02/2019 14:29:24	74.01	60.41	63.80	54.00
15/02/2019 14:44:24	77.94	64.19	67.90	56.30
15/02/2019 14:59:24	80.45	64.07	67.20	54.10
15/02/2019 15:14:24	75.92	59.39	61.20	54.40
15/02/2019 15:29:24	74.53	59.44	61.80	53.60
15/02/2019 15:44:24	75.64	58.14	58.80	53.50
15/02/2019 15:59:24	71.09	56.94	58.30	53.10
15/02/2019 16:14:24	77.35	57.59	59.20	54.00
15/02/2019 16:29:24	75.53	57.53	59.20	54.50
15/02/2019 16:44:24	81.53	56.40	57.50	52.50
15/02/2019 16:59:24	70.32	55.14	56.90	52.30
15/02/2019 17:14:24	76.25	56.24	58.30	52.20
15/02/2019 17:29:24	85.85	61.15	59.20	51.30
15/02/2019 17:44:24	78.63	62.42	67.30	53.50
15/02/2019 17:59:24	71.80	55.61	57.40	50.60
15/02/2019 18:14:24	75.31	54.99	55.70	50.60
15/02/2019 18:29:24	78.00	57.45	58.40	51.00
15/02/2019 18:44:24	82.43	60.92	56.60	51.10
15/02/2019 18:59:24	71.40	53.12	54.40	50.40
15/02/2019 19:14:24	79.00	55.81	56.00	51.50
15/02/2019 19:29:24	66.30	53.30	55.10	50.30
15/02/2019 19:44:24	69.01	53.79	54.50	49.50
15/02/2019 19:59:24	69.01	53.08	55.00	50.00
15/02/2019 20:14:24	68.88	52.57	54.50	49.70
15/02/2019 20:29:24	76.76	57.83	59.20	49.80
15/02/2019 20:44:24	79.92	56.91	57.90	50.10
15/02/2019 20:59:24	73.13	55.15	56.40	50.00
15/02/2019 21:14:24	76.09	56.21	58.30	51.00
15/02/2019 21:29:24	73.74	56.62	58.90	51.20
15/02/2019 21:44:24	73.05	56.09	57.60	51.20
15/02/2019 21:59:24	79.69	57.73	57.70	51.90
15/02/2019 22:14:24	70.59	52.96	54.20	49.50
15/02/2019 22:29:24	74.49	55.01	55.10	50.40
15/02/2019 22:44:24	79.01	54.92	55.70	50.80
15/02/2019 22:59:24	71.15	54.58	55.80	49.80
15/02/2019 23:14:24	78.01	53.13	53.90	49.80
15/02/2019 23:29:24	71.52	53.13	54.60	50.20
15/02/2019 23:44:24	80.71	57.13	57.00	49.60
15/02/2019 23:59:24	81.35	58.77	61.00	49.90
16/02/2019 00:14:24	62.38	52.00	53.80	49.60
16/02/2019 00:29:24	73.58	53.12	53.50	49.20
16/02/2019 00:44:24	66.85	51.60	53.60	48.60
16/02/2019 00:59:24	65.40	52.28	54.30	49.90
16/02/2019 01:14:24	66.85	52.86	54.70	49.50
16/02/2019 01:29:24	67.96	54.24	57.00	49.00
16/02/2019 01:44:24	70.73	52.33	53.80	48.00
16/02/2019 01:59:24	69.56	53.22	52.90	47.30
16/02/2019 02:14:24	65.40	52.37	55.30	48.00
16/02/2019 02:29:24	64.36	51.65	54.60	47.60
16/02/2019 02:44:24	70.00	52.34	54.40	47.20
16/02/2019 02:59:24	78.25	54.75	55.40	48.10
16/02/2019 03:14:24	66.28	52.54	55.70	47.80
16/02/2019 03:29:24	77.84	55.83	59.60	47.60
16/02/2019 03:44:24	68.14	53.67	56.30	47.40
16/02/2019 03:59:24	62.14	52.04	55.00	47.30
16/02/2019 04:14:24	63.26	52.33	55.20	47.20
16/02/2019 04:29:24	63.14	52.25	55.60	46.60
16/02/2019 04:44:24	74.85	55.18	57.50	47.80
16/02/2019 04:59:24	74.06	53.24	55.30	47.10
16/02/2019 05:14:24	73.33	54.22	55.50	47.10
16/02/2019 05:29:24	66.30	53.29	56.80	46.90
16/02/2019 05:44:24	66.36	52.09	54.60	46.60
16/02/2019 05:59:24	64.10	51.97	54.90	47.50
16/02/2019 06:14:24	65.45	52.52	54.80	48.00
16/02/2019 06:29:24	65.17	52.98	55.50	48.00
16/02/2019 06:44:24	63.60	51.17	53.60	46.70

3rd day	LAF(max)	LAeq	L10	L90
16/02/2019 06:59:24	81.83	58.40	60.00	49.70
16/02/2019 07:14:24	76.81	59.84	63.30	51.30
16/02/2019 07:29:24	85.20	56.41	55.80	48.80
16/02/2019 07:44:24	80.77	56.12	56.30	49.10
16/02/2019 07:59:24	70.30	54.02	56.00	50.00
16/02/2019 08:14:24	70.24	54.53	56.50	51.00
16/02/2019 08:29:24	62.71	53.44	55.20	50.70
16/02/2019 08:44:24	77.50	54.62	56.10	50.90
16/02/2019 08:59:24	76.67	59.69	62.50	52.30
16/02/2019 09:14:24	63.64	53.34	55.20	50.30
16/02/2019 09:29:24	78.06	54.83	56.40	50.00
16/02/2019 09:44:24	66.01	53.60	55.90	50.30
16/02/2019 09:59:24	78.20	56.43	57.30	50.70
16/02/2019 10:14:24	73.88	54.03	55.40	49.80
16/02/2019 10:29:24	74.64	56.43	57.20	50.00
16/02/2019 10:44:24	83.81	60.15	59.30	49.90
16/02/2019 10:59:24	79.26	57.05	57.70	50.90
16/02/2019 11:14:24	75.77	53.60	54.90	49.90
16/02/2019 11:29:24	76.56	57.68	59.90	50.60
16/02/2019 11:44:24	74.18	55.13	56.60	50.60
16/02/2019 11:59:24	71.60	56.16	58.60	50.70
16/02/2019 12:14:24	68.57	53.32	55.30	50.40
16/02/2019 12:29:24	78.47	54.81	56.80	50.80
16/02/2019 12:44:24	67.04	53.04	54.90	50.10
16/02/2019 12:59:24	62.79	52.63	54.70	49.80
16/02/2019 13:14:24	66.00	52.51	54.50	49.70
16/02/2019 13:29:24	73.20	54.75	56.00	50.20
16/02/2019 13:44:24	65.79	53.38	55.40	50.30
16/02/2019 13:59:24	68.34	53.91	55.10	50.40
16/02/2019 14:14:24	66.83	53.17	55.00	50.10
16/02/2019 14:29:24	74.78	55.07	56.90	50.30
16/02/2019 14:44:24	83.49	57.53	57.00	50.90
16/02/2019 14:59:24	74.38	55.88	57.20	50.40
16/02/2019 15:14:24	76.12	55.78	56.90	50.20
16/02/2019 15:29:24	77.06	56.36	56.40	50.70
16/02/2019 15:44:24	75.37	54.80	56.50	50.70
16/02/2019 15:59:24	74.95	55.77	56.60	50.30
16/02/2019 16:14:24	84.19	60.36	60.20	51.20
16/02/2019 16:29:24	77.91	58.86	61.60	52.50
16/02/2019 16:44:24	75.18	57.34	59.60	51.30
16/02/2019 16:59:24	67.16	53.42	55.60	50.40
16/02/2019 17:14:24	69.18	53.70	55.90	50.20
16/02/2019 17:29:24	69.72	54.37	56.50	50.10
16/02/2019 17:44:24	68.94	53.97	55.00	49.10
16/02/2019 17:59:24	75.61	55.18	57.40	51.00
16/02/2019 18:14:24	69.91	54.20	56.30	50.70
16/02/2019 18:29:24	84.01	62.08	63.70	49.90
16/02/2019 18:44:24	63.74	52.36	53.90	50.10
16/02/2019 18:59:24	76.95	56.40	56.80	50.70
16/02/2019 19:14:24	68.36	53.82	55.70	50.60
16/02/2019 19:29:24	77.18	54.23	54.90	50.30
16/02/2019 19:44:24	73.61	53.35	54.90	50.10
16/02/2019 19:59:24	79.29	52.62	53.70	49.70
16/02/2019 20:14:24	72.59	53.27	54.40	49.70
17/02/2019 00:29:24	78.35	54.25	54.70	49.30
17/02/2019 00:44:24	78.63	53.83	54.80	49.40
17/02/2019 00:59:24	75.20	53.73	55.00	49.40
17/02/2019 01:14:24	75.81	53.27	54.50	49.40
17/02/2019 01:29:24	86.94	61.63	60.70	51.60
17/02/2019 01:44:24	70.53	54.72	57.10	49.70
17/02/2019 01:59:24	74.18	54.53	55.30	49.50
17/02/2019 02:14:24	74.01	56.90	58.50	51.30
17/02/2019 02:29:24	70.79	52.28	53.50	49.20
17/02/2019 02:44:24	68.68	52.83	53.80	49.30
17/02/2019 02:59:24	68.04	53.18	55.00	49.90
17/02/2019 03:14:24	75.79	56.00	56.00	49.60
17/02/2019 03:29:24	68.28	53.35	54.10	50.00
17/02/2019 03:44:24	71.51	53.52	55.40	50.00
17/02/2019 03:59:24	79.93	58.35	56.40	50.70
17/02/2019 04:14:24	71.39	54.33	56.40	49.40
17/02/2019 04:29:24	71.96	52.41	53.00	49.20
17/02/2019 04:44:24	85.08	59.44	55.90	48.30
17/02/2019 04:59:24	71.52	52.12	53.80	48.10
17/02/2019 05:14:24	65.46	52.08	54.30	48.60
17/02/2019 05:29:24	71.55	51.85	53.70	47.90
17/02/2019 05:44:24	64.13	51.04	53.90	47.80
17/02/2019 05:59:24	67.04	51.13	53.10	47.70
17/02/2019 06:14:24	61.16	51.07	53.90	47.40
17/02/2019 06:29:24	60.60	52.25	55.40	47.40
17/02/2019 06:44:24	69.02	56.97	60.70	48.30
17/02/2019 06:59:24	69.04	55.28	59.50	47.70
17/02/2019 07:14:24	66.65	53.15	56.30	47.90
17/02/2019 07:29:24	61.49	53.12	56.60	47.60
17/02/2019 07:44:24	72.22	54.80	57.00	47.40
17/02/2019 07:59:24	65.09	52.69	56.30	47.10
17/02/2019 08:14:24	63.01	53.52	57.00	47.70
17/02/2019 08:29:24	63.12	52.75	56.10	46.20
17/02/2019 08:44:24	80.25	52.14	55.50	46.00
17/02/2019 08:59:24	66.44	52.96	56.10	47.00
17/02/2019 09:14:24	70.53	53.88	56.90	47.10
17/02/2019 09:29:24	63.24	51.68	55.00	45.70
17/02/2019 09:44:24	61.04	51.76	55.10	46.40
17/02/2019 09:59:24	65.79	53.49	56.70	47.30
17/02/2019 10:14:24	71.18	55.03	57.90	48.30
17/02/2019 10:29:24	66.71	54.90	58.20	48.70
17/02/2019 10:44:24	64.07	52.15	55.20	46.80

CHAPMAN ARCHITECTS

CA

Project:	1-5 Flitcroft Street, London, WC2H 8DH	Date:	28/03/19
Client:	Carter's Educational Foundation	Ref:	4342

4th day	LA(F/max)	LAeq	L10	L90
17/02/2019 06:59:24	74.69	53.68	53.30	46.80
17/02/2019 07:14:24	65.54	52.24	54.80	47.30
17/02/2019 07:29:24	71.80	52.06	54.60	47.30
17/02/2019 07:44:24	72.00	52.08	54.50	46.80
17/02/2019 07:59:24	74.63	52.53	54.20	47.00
17/02/2019 08:14:24	65.09	53.72	54.30	47.30
17/02/2019 08:29:24	67.45	50.94	52.80	47.30
17/02/2019 08:44:24	71.35	53.18	53.80	48.00
17/02/2019 08:59:24	66.94	53.06	54.90	48.50
17/02/2019 09:14:24	66.85	51.27	52.80	47.30
17/02/2019 09:29:24	68.28	53.52	53.70	48.00
17/02/2019 09:44:24	63.35	51.37	53.50	48.00
17/02/2019 09:59:24	69.59	51.62	53.60	48.10
17/02/2019 10:14:24	72.09	54.03	54.40	48.20
17/02/2019 10:29:24	72.10	56.04	57.30	49.00
17/02/2019 10:44:24	74.58	56.08	58.50	53.00
17/02/2019 10:59:24	80.89	60.12	62.60	50.20
17/02/2019 11:14:24	76.40	55.93	57.40	49.10
17/02/2019 11:29:24	82.50	56.22	55.10	49.00
17/02/2019 11:44:24	71.42	55.26	57.60	49.80
17/02/2019 11:59:24	76.65	59.20	61.30	50.40
17/02/2019 12:14:24	87.52	64.68	68.70	49.80
17/02/2019 12:29:24	86.50	62.75	54.70	49.60
17/02/2019 12:44:24	76.48	55.16	56.90	50.40
17/02/2019 12:59:24	70.27	54.03	56.80	50.50
17/02/2019 13:14:24	72.58	54.71	56.20	50.10
17/02/2019 13:29:24	78.57	54.60	54.90	49.80
17/02/2019 13:44:24	61.83	52.46	54.60	49.80
17/02/2019 13:59:24	63.65	53.56	55.20	50.10
17/02/2019 14:14:24	70.13	54.04	56.30	50.30
17/02/2019 14:29:24	75.24	55.33	56.80	50.90
17/02/2019 14:44:24	71.34	55.28	57.70	50.30
17/02/2019 14:59:24	72.96	56.56	59.30	50.70
17/02/2019 15:14:24	78.94	58.47	59.00	50.90
17/02/2019 15:29:24	83.17	56.78	57.80	51.50
17/02/2019 15:44:24	78.96	57.37	57.90	51.20
17/02/2019 15:59:24	72.07	54.64	56.50	50.20
17/02/2019 16:14:24	75.17	56.23	57.40	49.50
17/02/2019 16:29:24	68.66	53.46	55.30	49.80
17/02/2019 16:44:24	66.31	53.46	55.80	49.80
17/02/2019 16:59:24	73.62	53.82	55.70	49.50
17/02/2019 17:14:24	70.72	61.00	65.00	50.10
17/02/2019 17:29:24	73.53	64.26	65.80	62.30
17/02/2019 17:44:24	73.38	64.35	65.80	62.50
17/02/2019 17:59:24	68.24	64.27	65.30	62.50
17/02/2019 18:14:24	72.29	64.27	66.30	57.30
17/02/2019 18:29:24	69.60	53.72	56.00	49.40
17/02/2019 18:44:24	85.59	63.45	58.00	50.40
17/02/2019 18:59:24	76.31	65.39	56.10	49.20
17/02/2019 19:14:24	71.06	52.16	53.70	48.60
17/02/2019 19:29:24	66.42	53.41	53.50	48.30
17/02/2019 19:44:24	75.05	56.61	55.90	48.60
17/02/2019 19:59:24	65.48	52.53	54.90	48.00
17/02/2019 20:14:24	70.99	52.51	54.10	49.10
17/02/2019 20:29:24	75.52	52.70	54.40	49.10
17/02/2019 20:44:24	71.49	53.75	55.90	48.80
17/02/2019 20:59:24	80.30	58.52	57.30	48.90
17/02/2019 21:14:24	65.72	50.80	52.40	47.70
17/02/2019 21:29:24	80.13	55.48	54.00	48.00
17/02/2019 21:44:24	74.83	51.62	53.20	47.20
17/02/2019 21:59:24	66.73	50.32	52.20	47.30
17/02/2019 22:14:24	85.30	54.36	53.80	46.80
17/02/2019 22:29:24	61.31	50.33	52.50	47.30
17/02/2019 22:44:24	83.38	60.99	52.00	47.00
17/02/2019 22:59:24	68.28	51.76	53.70	47.20
17/02/2019 23:14:24	68.33	53.72	54.30	47.40
17/02/2019 23:29:24	71.26	57.71	61.50	47.40
17/02/2019 23:44:24	66.12	50.98	53.30	47.10
17/02/2019 23:59:24	63.15	50.03	52.20	46.60
18/02/2019 00:14:24	60.48	49.54	52.00	45.90
18/02/2019 00:29:24	63.42	49.37	51.80	45.70
18/02/2019 00:44:24	63.50	48.69	52.10	45.90
18/02/2019 00:59:24	58.54	49.22	51.60	45.50
18/02/2019 01:14:24	63.09	48.74	51.30	45.10
18/02/2019 01:29:24	59.37	49.09	51.80	45.30
18/02/2019 01:44:24	71.51	49.10	50.90	44.90
18/02/2019 01:59:24	64.55	48.39	50.70	44.40
18/02/2019 02:14:24	58.92	49.56	52.30	45.50
18/02/2019 02:29:24	63.38	49.37	51.80	45.40
18/02/2019 02:44:24	58.43	48.37	51.20	44.70
18/02/2019 02:59:24	77.57	52.62	54.60	45.60
18/02/2019 03:14:24	63.24	49.74	52.80	44.70
18/02/2019 03:29:24	65.35	50.48	53.60	45.00
18/02/2019 03:44:24	64.93	51.05	53.80	45.00
18/02/2019 03:59:24	64.59	49.39	53.40	44.30
18/02/2019 04:14:24	59.62	49.77	53.30	44.70
18/02/2019 04:29:24	60.62	50.32	53.20	45.80
18/02/2019 04:44:24	65.80	50.43	53.20	45.40
18/02/2019 04:59:24	65.15	51.36	54.00	46.20
18/02/2019 05:14:24	61.78	50.79	53.60	46.00
18/02/2019 05:29:24	70.04	51.40	53.70	46.30
18/02/2019 05:44:24	69.06	51.82	54.00	47.30
18/02/2019 05:59:24	83.26	54.41	55.70	48.30
18/02/2019 06:14:24	81.27	61.44	63.60	50.80
18/02/2019 06:29:24	71.66	54.00	56.00	48.50
18/02/2019 06:44:24	86.90	65.13	64.80	52.30

5th day	LA(F/max)	LAeq	L10	L90
18/02/2019 06:59:24	72.14	56.43	60.50	51.00
18/02/2019 07:14:24	70.83	58.53	61.90	50.90
18/02/2019 07:29:24	73.07	53.48	55.50	49.80
18/02/2019 07:44:24	74.17	58.00	60.80	51.80
18/02/2019 07:59:24	71.17	56.43	57.80	51.90
18/02/2019 08:14:24	73.13	57.27	59.40	53.10
18/02/2019 08:29:24	72.55	57.48	59.60	53.30
18/02/2019 08:44:24	72.24	57.86	60.10	54.20
18/02/2019 08:59:24	73.67	58.85	59.70	53.20
18/02/2019 09:14:24	73.89	58.07	59.60	54.20
18/02/2019 09:29:24	76.18	56.71	58.50	53.50
18/02/2019 09:44:24	72.73	56.47	58.40	53.60
18/02/2019 09:59:24	77.86	62.37	68.20	54.30
18/02/2019 10:14:24	75.94	58.94	60.80	54.10
18/02/2019 10:29:24	74.43	58.40	61.00	54.30
00:00	0.00	0.00	0.00	0.00