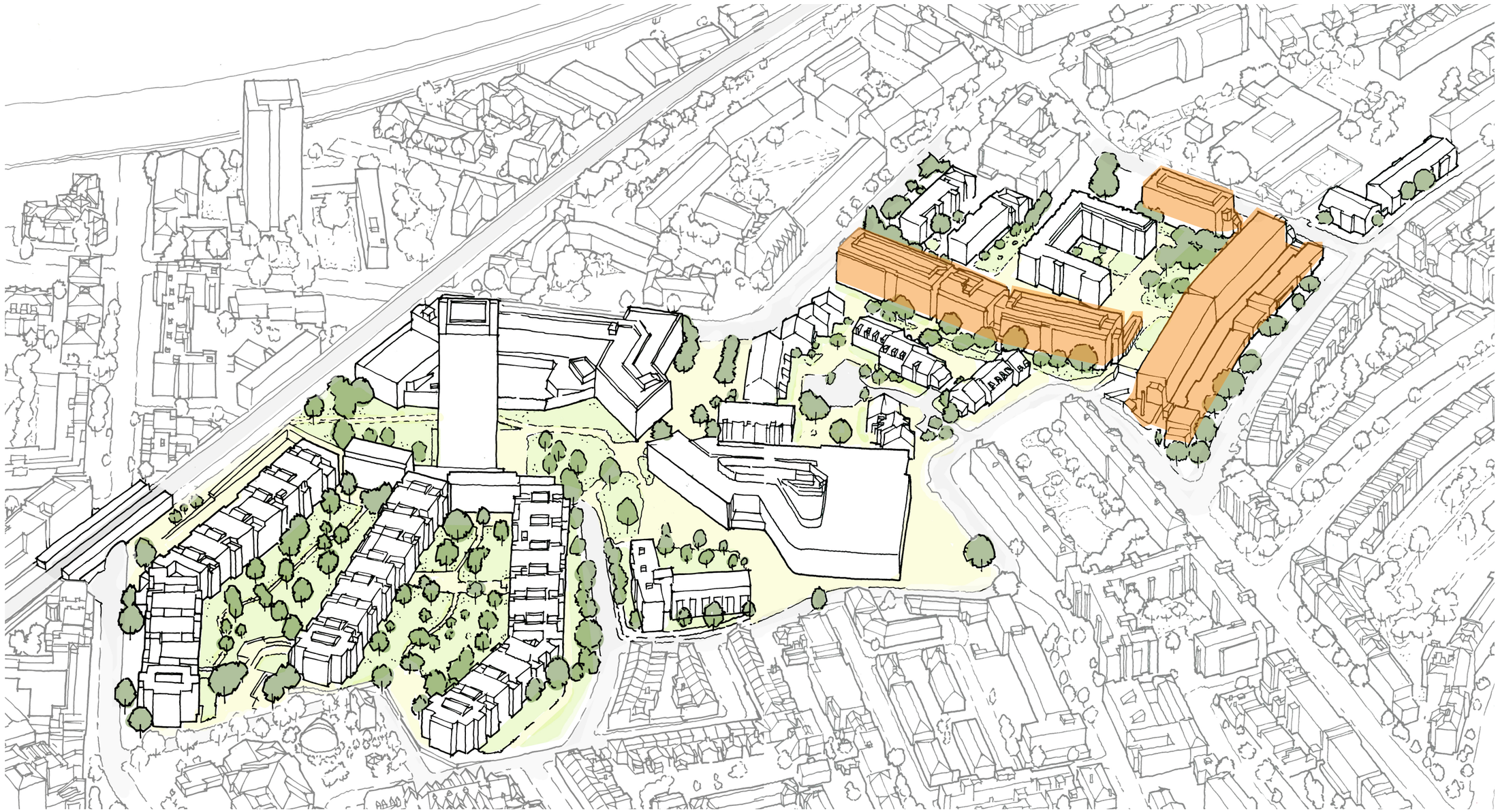
Penoyre & Prasad



Lancaster West Estate Refurbishment

Initial design Ideas: **Feasibility Report**

Clarendon Walk, Camelford Walk, Camelford Court, Talbot Walk

June 2021

LANCASTER WEST NEIGHBOURHOOD TEAM W11

Contents

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01
Introduction

This report has been prepared by Penoyre & Prasad in collaboration with the design team [XC02, Engenuiti, Potter Raper, Hickton Group] to provide the client, The Lancaster West Neighbourhood Team (LWNT), with a summary account of the development and activities carried out through RIBA Stage 0 - 1 for the refurbishment proposals for Lancaster West Estate Lot 2.

Our vision is for the refurbishment to meet LWNT's promise to residents that Lancaster West will be a model 21st century estate. We will strive to deliver a high quality and energy efficient refurbishment to all the blocks on the East Side, which will deliver tangible benefits to residents, as well as significant carbon savings to help meet Lancaster West, LWNT's and the UK's net-zero carbon goals.

Our design proposals will include bespoke solutions to each block, delivering benefits to residents including improved internal comfort, increased safety and lower energy bills. We will address existing issues in the blocks such as overheating, thermal bridging, draughts and damp. Throughout the refurbishment we will seek to keep resident disruption to a minimum.

It will be a collaborative process, drawing on the skills and experience of the Lancaster West Neighbourhood Team, and in co-design with the community. We wish to work closely with the residents to ensure they are involved throughout.

Acronyms and Frequently Used Terms

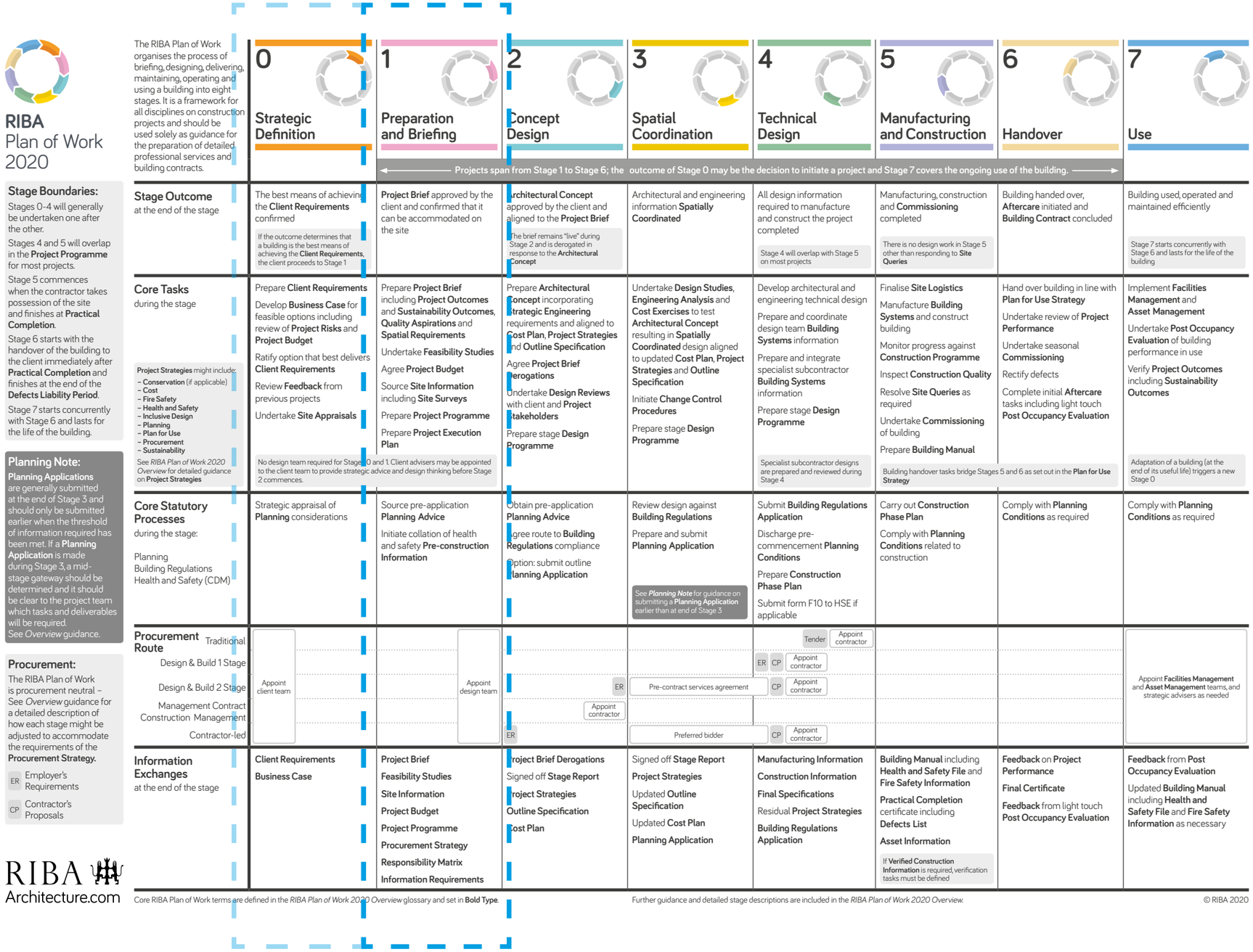
- LWNT - Lancaster West Neighbourhood Team
- MEP - Mechanical Engineering and Plumbing engineering
- FRA - Fire Risk Assessment
- MVHR - Mechanical Vent and Heat Recovery
- MEV - Mechanical Extract Vent
- PV - Photovoltaic
- RFI - Request for Information

1.1 RIBA Stage 0/1

Preparation and Definition
RIBA Stage 1 concerns the preparation of information to develop an understanding of the project context, and with it the development of the brief with which to progress the project.

Key tasks undertaken as part of RIBA Stage 1:

- Review of background information including Ideas Day and collated resident input and co-designed priorities.
- Collation of available information and identification of gaps to be completed with necessary surveys.
- Further definition of initial brief to align with client requirements, including sustainability aspirations.
- Mobilisation of design team including introductions with non-team consultants including TACE, Chapman BDSP, Derisk, Frankhams.
- Feasibility options with associated high level costs
- Established Lot 2 Project Programme
- Supporting client to obtain additional funding.



02
Brief

The client brief as defined within the original bid documents with amendments to reflect Stage 1 developments:

Project Scope

The works under consideration include for the external refurbishment of the blocks with potential retrofitting measures, internal communal area upgrades, and works within individual flats such as new kitchens and bathrooms that meet the standards agreed with residents.

Co-ordination Requirements

The following will also need to be considered and co-ordinated with the main works for inclusion in the overall tender documents prepared by the lead Consultants:

- Mechanical & Electrical works that will be scoped and designed by specialist MEP Consultants.
- FRA Type 4 works identified by independent FRA assessors.
- Consultants are required to consider all aspects of fire safety in the design and specification of materials.
- Principal Designer.

Typical Works under consideration include, but not limited to the following:

- External envelope repairs to brickwork and concrete surfaces.
- Retrofit measures for improved thermal efficiency, carbon reduction, energy savings. Roof repairs/ renewals (subject to closer inspection) including rainwater goods.
- Repairs/resurfacing of balconies.
- Repairs to drainage as necessary.
- New double-glazed or triple-glazed windows to comply with current Building regulations
- Innovative proposals to replace finishes in communal area walls and flooring (current mix of wall & floor tiling, Vinyl flooring and painted surfaces.)
- Repairs and redecorations to railings and staircases.
- Reconfiguration / new entrances to blocks.
- Lift installations where feasible

Works within individual flats *(May be included in ongoing rolling programme):*

- New Kitchens and bathrooms.
- Re-wiring throughout flats.
- New flooring.
- Re-configuration where possible and desirable.
- New controlled heating.

Desired Outcomes:

- To provide a holistic and sustainable approach to improving the external fabric of the buildings that provide a model solution in energy efficiency that meet user requirements of the landlord and resident, improves energy efficiency and reduces carbon emissions.
- For all properties to be EPC Band C as a minimum, and further improved to be Band A and B where feasible.
- For improved access to buildings including lifts.

Design requirements:

- These should be compatible with the overall holistic approach to deliver a sustainable and energy efficient solutions to reduce carbon emissions and improve thermal comfort.
- Consider spatial and planning implications
- This is a retrofit context with residents in situ, who are in recovery from the Grenfell tragedy. Minimising noise and disturbance where possible should always be considered
- Meeting and surpassing building regulations and compliance with British Standards
- FRA compliance to the highest possible standards, including Euroclass A1/A2 rated non-combustible products/materials where possible.
- Equality Act compliance, aiming to improve accessibility to as many homes as possible where feasible
- Quality, sustainable and efficient solutions and products, that help decarbonise the estate in the long term
- Due regard to embodied energy from manufacture, installation and future maintenance of building elements.

Stage 0 - 1 Scope Developments

Through the course of Stage 0-1, the scope has been further defined by the following:

- Resident's Established Top 10 Priorities for each of the 4 blocks.
- Design Team focus to be on energy improvements to the building fabric - Three package options to be reviewed: Bronze, Silver, Gold
- Aspirations to meet EnerPHit* standards where possible with all proposals to support move by estate to decarbonise by 2030.
- Internal refurbishment works to individual homes: To be covered by LWNT programme; Coordination with fabric improvement works required.
- Lifts to be provided. Coordination with Lift Consultants required.

***EnerPHit:**

This is a High Performance Energy Standard used to guide the retrofit of existing buildings. It is part of the PassivHaus design standards and works on the basis of designing a well insulated building to lower demand on energy use.

It is recognised as the Gold Standard of energy efficient design.

2.1 Resident Priorities

The Story So far...
Following the extensive engagement with residents across the Lancaster West Estate from the original Ideas Day sessions back in 2018, up to more recent direct engagement between LWNT and Lancaster West Resident's Association, key concerns and problems areas that are central to resident's quality of living and their health and well-being, have been extensively documented.

Ideas Books
In 2018 the Lancaster West Residents' Association and Kensington and Chelsea Council worked together with the residents to co-design the future of Estate in collaboration with some of the UK's leading architects. The result was an Ideas Book for each block, summarising resident's concerns with their homes and blocks, and prioritising works for the refurbishment.

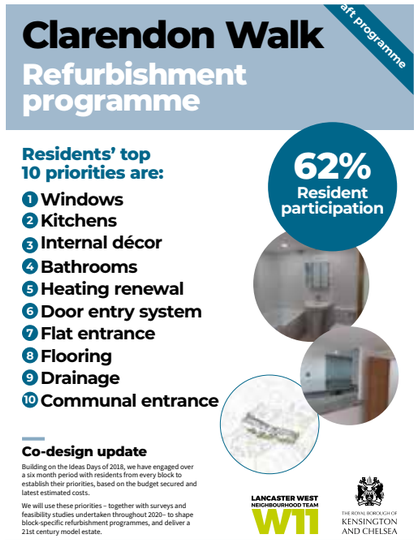
'Top 10s' for each Block
In 2019-20, LWNT engaged the Lancaster West Resident's Association and hundreds of residents across the estate to prioritise what they would most like to be delivered through the refurbishment of their home and block, based on the level of funding secured. These "Top 10s" will be fed into the detailed design phase of the refurbishment.

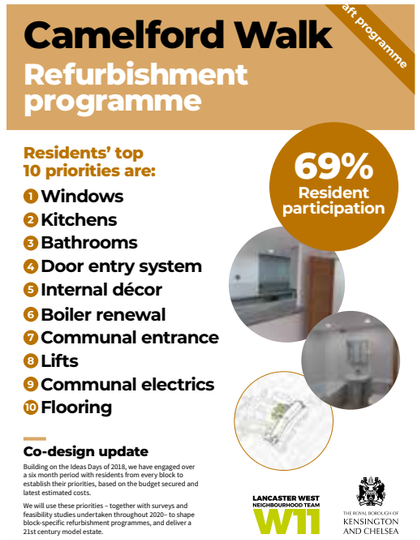
Resident Priorities for Lot 2
There are many shared resident concerns across the 4 blocks which will be addressed through our proposals. The number one priority for residents is replacing the single-glazed windows, as well as improving kitchens and bathrooms. Residents highlighted issues with damp and condensation within the flats, as well as draughts, which can be addressed through the retrofit works.

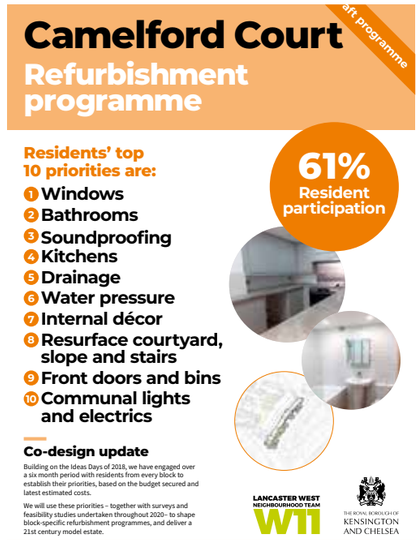
As well as shared concerns, we recognise there are also a number for block specific ones that have been raised. These will be further discussed with residents and LWNT as the project develops.

Continued Co-design
Co-Design opportunities remain at the forefront of the design team's considerations as the proposals develop. Following this early stage of information collation and initial proposal review, all emerging developments will be discussed with the residents to further shape the requirements and develop emerging proposals collaboratively.

Example comments from residents: Your homes







2.2 Sustainability & Green Funds

Vision for Sustainability
LWNT's vision is for Lancaster West to become a model net-zero carbon estate by 2030.

Their main objectives to achieve this vision are:
- Refurbishing the Lancaster West Estate and all other properties managed by LWNT to a high standard of energy performance.
- Reducing operational carbon emissions on the estate as far as possible and offsetting any remaining emissions to get to net-zero.
- Co-designing a sustainable and affordable future with residents
- Pioneering the net-zero carbon approach for the rest of Kensington & Chelsea.

Sharing that Vision
Early engagement sessions with residents identified recurring issues of cold, damp and condensation to their homes.

The Retrofit Accelerator for Homes study along with individual design team investigations identified the poor performing envelopes of the existing building as key causes, with extensive thermal bridging, single glazed windows, uninsulated walls, floors and ceilings.

As part of the current climate crisis and LWNT's commitment to achieve net-zero carbon across all their estates by 2030, the retrofit proposals for Lancaster West Estate must make the most of this opportunity to bring the buildings over and above current performance standards to safeguard it against an evolving climate and not simply correct current problems.

Design Team Sustainability Brief
The scope and focus of the Lot 2 Design Team has been on improvements to the building fabric. The confirmed brief is for proposals to 'aspire' towards Passivhaus EnerPHit standards as far as budget permits, and if viable, to achieve accreditation.

From an estate wide perspective, proposals will

Funding Applications
The Lot 2 Design Team have been supporting LWNT in the application and submission for a number of government funding opportunities, to support the sustainability aspirations of the project.

Green Homes Grant
(Camelford Court)
An application was made to support the upgrade of Camelford Court roofs.

This has now been confirmed successful.

Key issues:
- Potential planning - there may be implications to the existing parapet heights. Elevational survey information is required and communication with LWNT Planning to be made.
- Target site start January.

Social Housing Decarbonisation Fund
(Camelford Walk, Camelford Court)
An application was made to propose the upgrade of Camelford Court and Camelford Walk, with the Gold option retrofit package as a demonstrator project.

This funding has now been confirmed.

Green Homes Grant
(Clarendon Walk, Talbot Walk)
A further application is currently being prepared by LWNT to support the roof upgrades for Clarendon Walk, Talbot Walk.

This funding has now been confirmed.

Key issues:
- Potential planning - there may be implications to the existing parapet heights. Elevational survey information is required and communication with LWNT Planning to be made.
- Existing plant will impact the sequencing of the final agreed proposals and how this initial piece of work will be carried out.

2.3 Establishing the Brief Components

A Kit-of-Parts
Further to the initial bid brief and taking on board resident identified priorities and LWNT's sustainability aspirations, the adjacent diagram summarises the initial phase of engagement and identified issues into a kit-of-parts, to be prioritised and addressed through a series of programmes.

The scope of the Lot 2 Design Team focuses on the Communal Areas and External Fabric.

This Kit-of-Parts forms the overall brief components to fulfil the refurbishment and retrofit aspirations of LWNT and the LWE residents for Lot 2.

Not every component will be addressed as part of this phase of the refurbishment, but the intention will be to safeguard opportunities for later incorporation pending suitable funding.

Individually, each element addresses an identified resident priority. Collectively, the parts come together to support the holistic aspirations for Lancaster West Estate to become a fully zero carbon estate.

TOWARDS A ZERO CARBON ESTATE

INTERIORS

Bathrooms

Kitchens

Internal Decorating

Sound Insulation

Base Kit
To be included to all options.

Bathrooms / Kitchens developed by others. Coordination required. Sound Insulation indicated as priority on Camelford Court only - Form part of kit?

COMMUNAL

Stairs & Lifts

Corridors

Entrances

Decks

Particulars

LANDSCAPE

Opportunity: Creating cohesion | Tying the estate together.

FABRIC

Windows

Roof

External Doors

MVHR | MEV*

Air Tightness

Floor

Walls

Brise Soleil*

ENERGY

Heating Network

PVs*

Heating M&E by others. Coordination required. PVs as part of Zero Carbon Strategy.

INTERIOR M&E WORKS

e.g. video entry / drainage /water pressure / Heating M&E. Coordination required with Energy Strategy.

***Brise Soleil:**
A slated solar shading panel located horizontally above glazed areas and windows. Typically used to reduce solar heat gain.

***MEV / MVHR:**
Mechanical extract systems to enable good ventilation to homes without heat loss. Please see section 4.11

***PVs:**
Solar panels typically located on roofs to produce electricity from absorbing sunlight. Please see section 4.10

2.4 Surveys & Information

RFI (Requests for Information)
A tracker has been set up through this stage to collate information needed by the Design Team to be assisted by LWNT. The tracker remains live and contains a number of outstanding items to be addressed or discussed as we move into the next RIBA stages.

The tracker is located in **Appendix E**

Surveys
The following list highlights the surveys obtained and instructed to date, as well as surveys required.

Surveys Obtained

Historic Archive Information (Incomplete Set)
The team had access to historic archive information. A preliminary model has been constructed from the available data but is not reflective of the current building condition, nor does it capture additions and amendments made over time.

The archive information has been able to provide a comprehensive set of internal layouts and identify homes by flat types. The gaps in the information are: Flat Type A3 and D2 (Camelford Court), Flat Type A4 (Clarendon Walk).

Building Condition Survey
The building condition survey is intended to provide a report and photographic survey of the current condition of the buildings, including problem areas. This is currently in progress on site and due for completion by January 2021.

Roof Surveys
Roof build-up surveys were requested from Langleys and Bauder to identify existing build-ups to allow suitable specifications to be provided. The surveys provide a condition report of the existing roofs which are able to further support the main Building Survey Report.

Surveys in Progress

Topographical and Building Survey
Although a preliminary model has been built, the accuracy cannot be verified. The external elevations , staircores and topographical survey in particular are needed urgently to support planning discussions and understand interfaces of the circulation structures at ground level with the changes in levels.

Spatial Dimensions have been commissioned to complete the topographical and building surveys. The envelope information is now complete, with only the basement outstanding and due for delivery end of April.

Structural Survey
A number of structural surveys are in the process of being coordinated and commissioned. As structural elements are often covered up, surveys can be unavoidably intrusive in some cases.

Some of the surveys can be undertaken in empty properties (void properties). However, these may not cover the full sample required to provide the team with the necessary assurance. In these instances, resident volunteers will be appealed to for assistance.

Opportunities to install Green roofs and PVs cannot be determined without a clearer understanding of the existing structure. Due to the lack of information available, a structural survey is required to ensure preferred proposals for the roofs can be accommodated.

Timber Roof Survey

This survey is specific to the roofs of Camelford Court and is required to help us understand how strong the existing structure is, and how much extra load can be added through the proposals.

It will involve removing a section of the ceiling board to allow a visual inspection of the timber joists and how they are connecting back to the walls.

As there are no voids within Camelford Court that can provide roof access, resident volunteers will be needed.

Concrete Roof Survey

This survey applies to the roofs of Camelford Walk, Talbot Walk and Clarendon Walk. It is required to help us understand how strong the existing structure is, and how much extra load can be added through the proposals.

These surveys will be disruptive as it will involve removing a section of the ceiling board to allow a visual inspection of the concrete slab and how they are connecting back to the walls.

It will be possible to carry out some of these surveys in void properties, but resident volunteers will also be needed to complete the sample of surveys required.

Ground Investigation Survey

This survey is required to the grounds of all buildings, to understand the condition of the ground floor slab over the basement and how much load the building can transfer down.

This may temporarily inconvenience residents in some areas but will not require access into resident's homes.

Air-Tightness Surveys

This survey is required to help us understand how 'drafty' your homes currently are. It will enable us to understand where the problems currently are and also have a measure to assess against after the refurbishment works.

03
Site

Lot 2 Blocks
1. Clarendon Walk
2. Talbot Walk
3. Camelford Walk
4. Camelford Court

Total Number of Homes:
Total Number of Homes: 207

▲ Aerial of Lot 2

3.1 Clarendon Walk

104 Homes

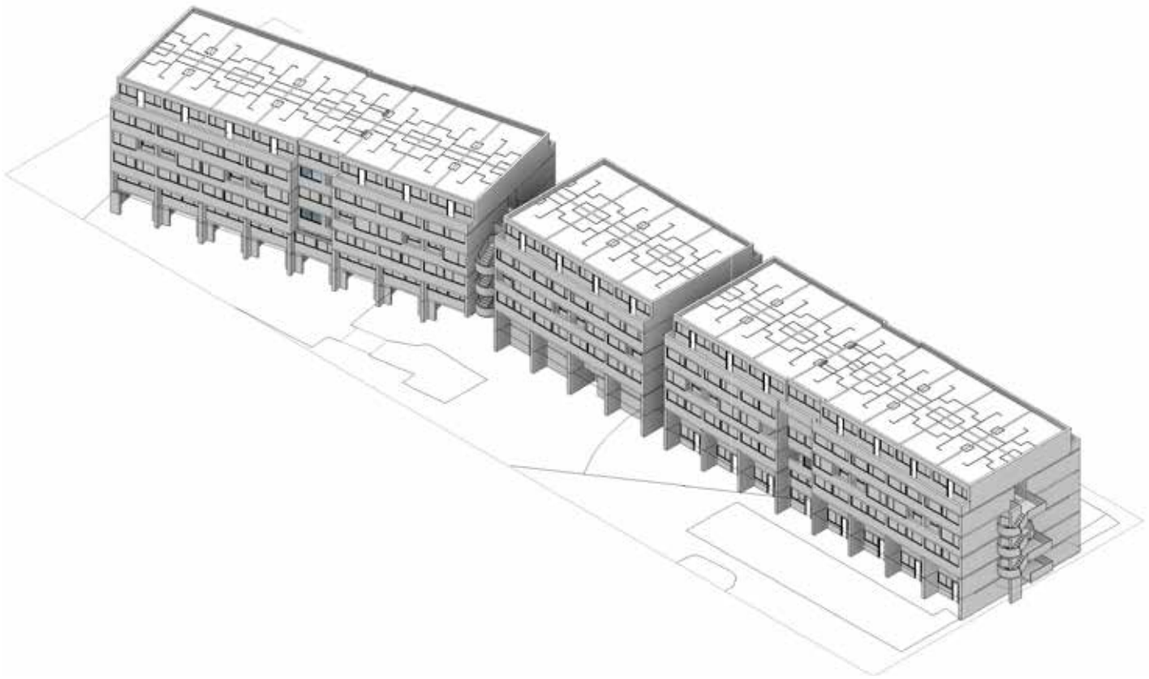
Typologies:

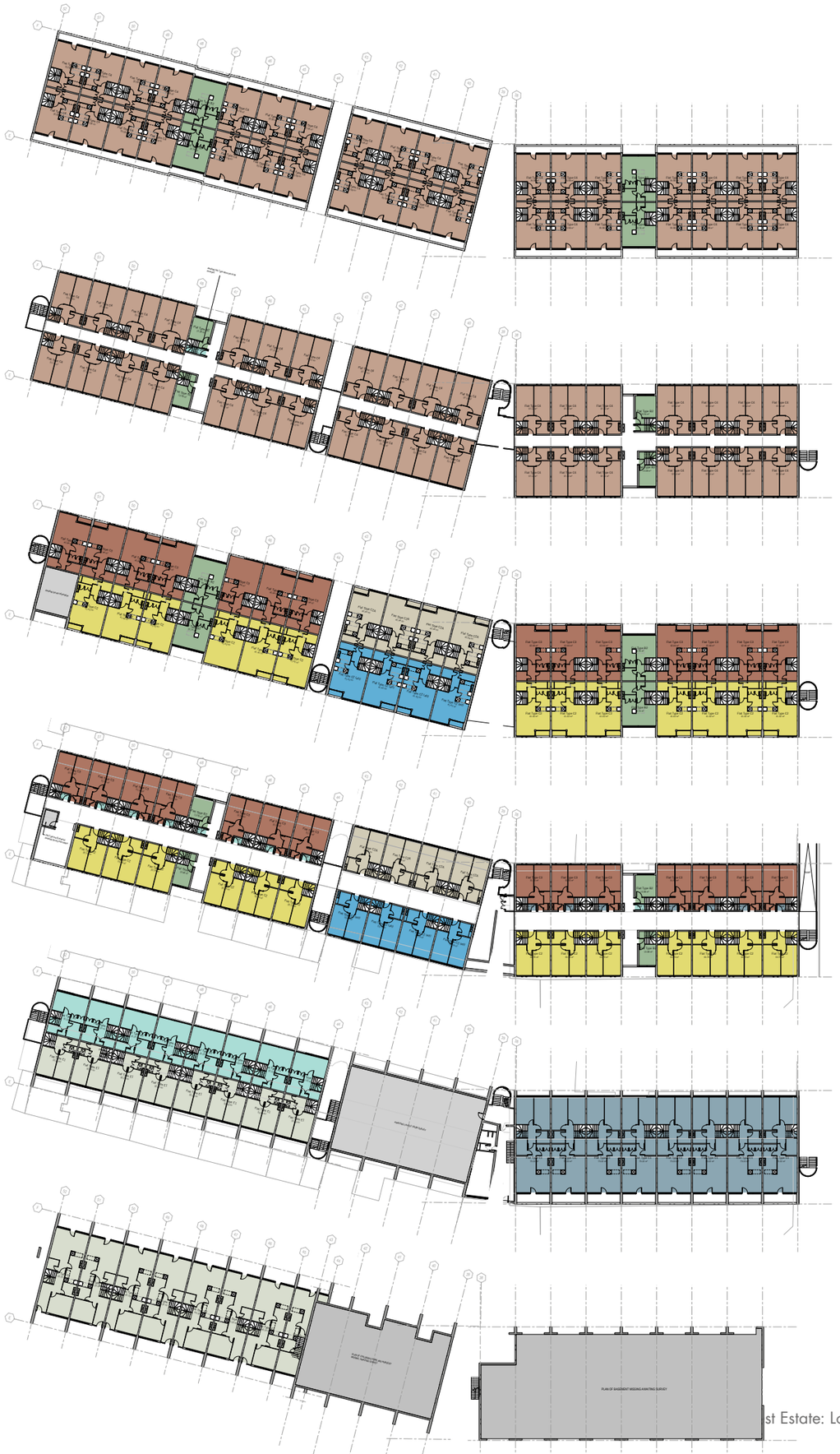
- Studio Flats: 9
- 1 Bedroom Flats: 8
- 2 Bedroom Flats: 79
- 3 Bedroom Maisonettes: 8

Height:
Below 18m - Exact height TBC with survey
6 Storeys + Basement

Flat Type Key:

- Flat type A1 - Studio
- Flat type B2 - 1 Bedroom Maisonette
- Flat type C1 - 2 Bedroom Flat
- Flat type C2 - 2 Bedroom Maisonette
- Flat type C2 (alt) - 2 Bedroom Maisonette
- Flat type C2A - 2 Bedroom Maisonette
- Flat type C3 - 2 Bedroom Maisonette
- Flat type C4 - 2 Bedroom Maisonette
- Flat type E1 - 3 Bedroom Maisonette





Level 04
Upper Clarendon Walk

Level 03
Upper Clarendon Walk

Level 02
Clarendon Walk

Level 01
Clarendon Walk

Level 00
Lower Clarendon Walk

Level B1
Lower Clarendon Walk

3.2 Talbot Walk

18 Homes

Typologies:

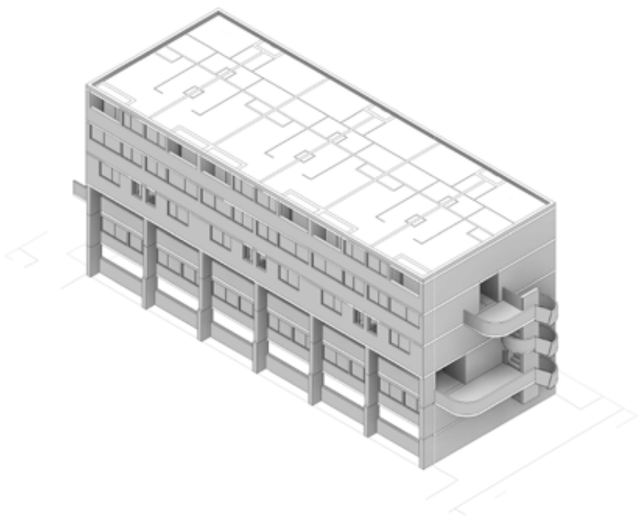
- 3 Bedroom Flats: 12
- 4 Bedroom Flats: 6

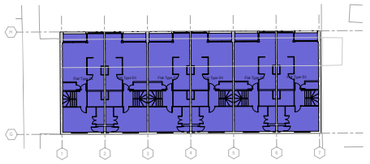
Height:
Below 18m - Exact height TBC with survey
5 Storeys + Basement

Flat Type Key:

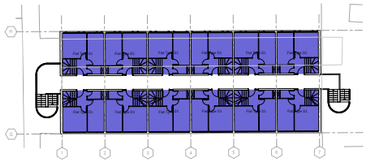
Flat type D1 - 3 Bedroom Maisonette

Flat type F1 - 4 Bedroom Maisonette

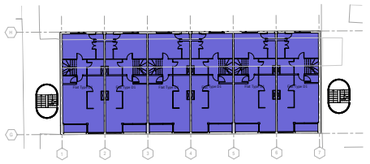




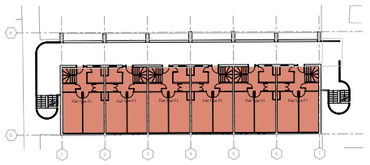
Level 04
Upper Talbot Walk



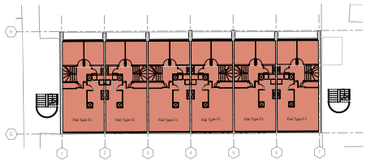
Level 03
Upper Talbot Walk



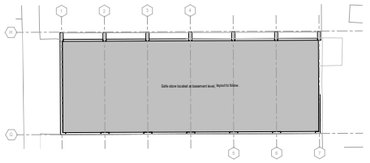
Level 02
Upper Talbot Walk



Level 01
Talbot Walk



Level 00
Talbot Walk



Level B1
Talbot Walk

3.3 Camelford Walk

59 Homes

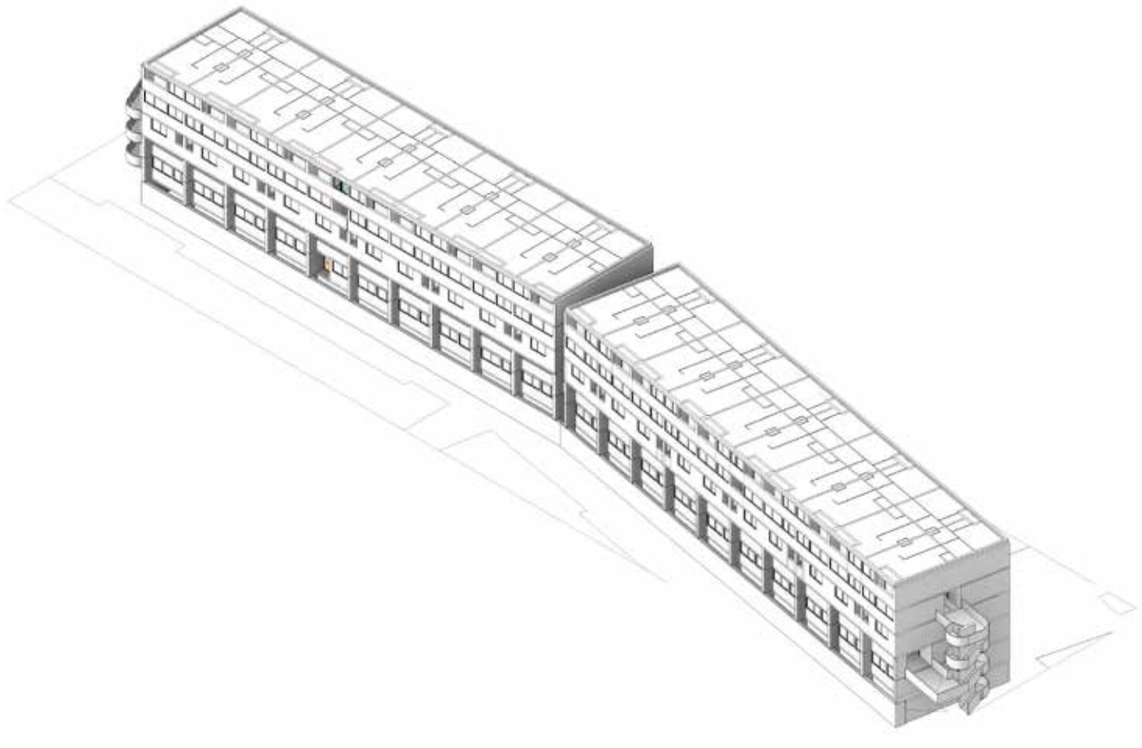
Typologies:

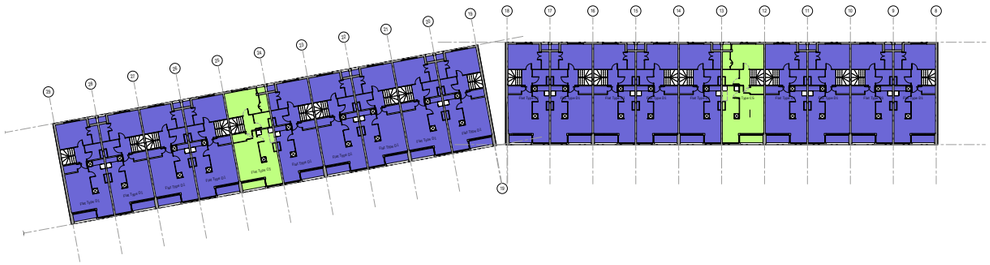
- 3 Bedroom Flats: 40
- 4 Bedroom Flats: 19

Height:
Below 18m - Exact height TBC with survey
5 Storeys + Basement

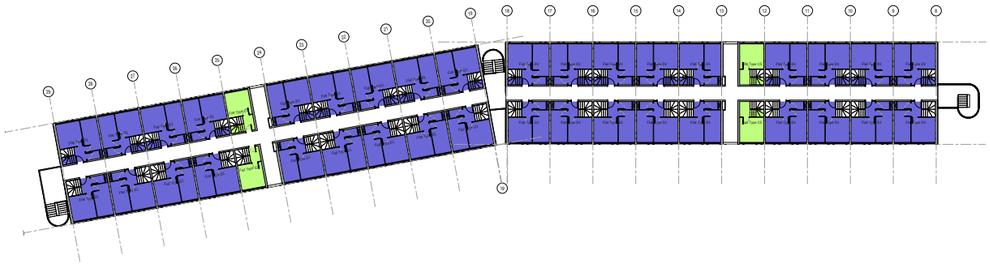
Flat Type Key:

- Flat type B3 - 1 Bedroom Flat
- Flat type C5 - 2 Bedroom Maisonette
- Flat type D1 - 3 Bedroom Maisonette
- Flat type F1 - 4 Bedroom Maisonette





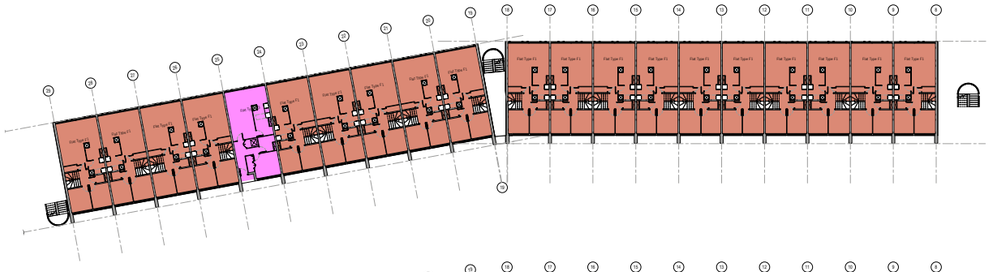
Level 04
Upper Camelford Walk



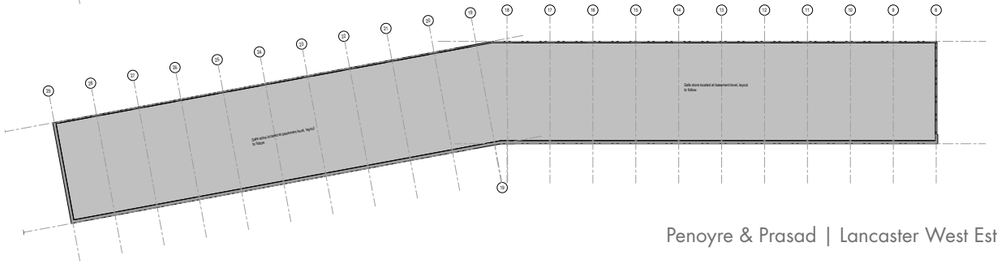
Level 03
Upper Camelford Walk

Level 02
Upper Camelford Walk

Level 01
Camelford Walk



Level 00
Camelford Walk



Level B1
Camelford Walk

3.4 Camelford Court

26 Homes

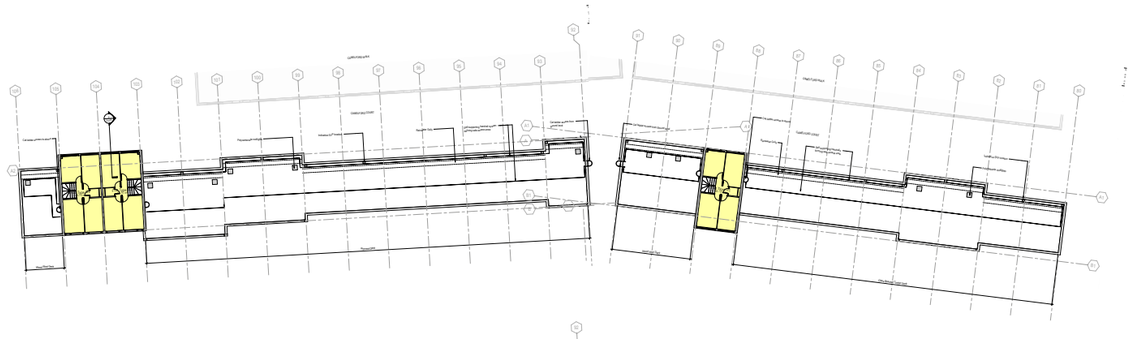
Typologies:

- Studio Flats: 6
- 1 Bedroom Flats: 1
- 2 Bedroom Flats: 10
- 3 Bedroom Maisonettes: 6
- 4 Bedroom Maisonettes: 3

Height:
Below 18m - Exact height TBC with survey
2-3 Storeys + Basement

Flat Type Key:

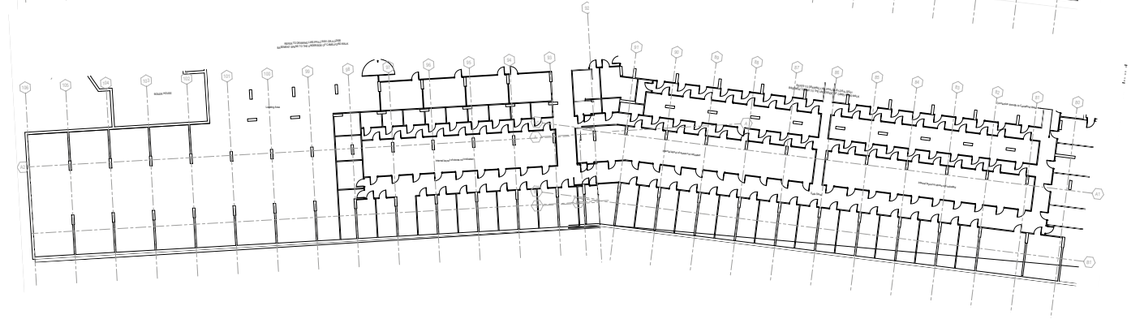
- Flat type A3 - 1 Bedroom Flat
- Flat type C6 - 2 Bedroom Maisonette
- Flat type D2 - 3 Bedroom Maisonette
- Flat type G1 - 5 Bedroom Maisonette
- Flat type awaiting survey



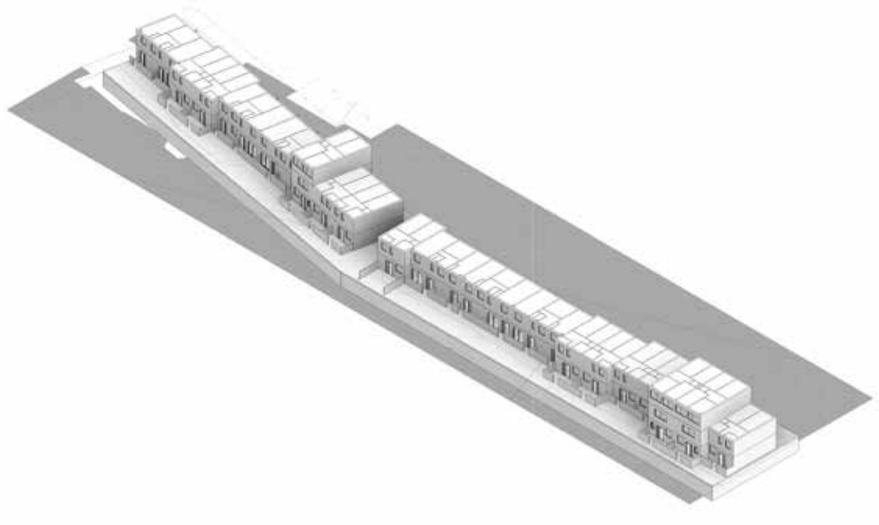
Level 02
Camelford Court

Level 01
Camelford Court

Level 00
Camelford Court



Level B1
Camelford Court



3.5 Lot 2 Commonalities

Clarendon Walk, Camelford Walk, Camelford Court, Talbot Walk

The blocks
Talbot Walk, Camelford Walk and Clarendon Walk were built around the same time with shared details across the blocks.

Talbot Walk and Camelford Walk in particular have more in common due to the same flat types used in the make-up of each block.

The Terrace
Camelford Court was built at slightly later date and also as a row of terraces rather than a block of flats; as such, building details vary slightly but are very similar and follow to the same principles as the other three blocks.

Efficiencies
As such, the commonality and repetition embedded across the Lot 2 blocks offer an opportunity to maximise efficiencies through a common approach, but in ways that enable opportunities for subtle variation and resident co-design.

Technical Issues
Where the commonalities have most significance is in the building fabric and the issues associated with it's current poor performance i.e. drafts, damp, condensation.

▲ Clarendon Walk (south side)

▲ Camelford Walk (north side)

▲ Talbot Walk (north side - St Mark's Street)

▲ Clarendon Walk (north side)

▲ Camelford Walk (south side)

▲ Camelford Court (north side)

04
The Kit-of-Parts

Developing the Options
Three retrofit options have been identified for consideration under different budget scenarios. Each is formed of a base kit of the essential components to meet the resident's priorities, and then is further determined by the energy improvement strategy to be delivered within different budget thresholds.

Bronze:
- Resident priorities
- The interventions achievable within original budget.

Silver:
- Resident priorities
- An intermediate option to achieve a best possible performing building fabric without a full external over-skin solution.

Gold:
- Resident priorities
- To achieve an EnerPHit standard, high performance retrofit.

The 'base kit' to address key resident priorities comprises off:
- Interiors: A full interior fit-out with new bathrooms, kitchens and fixtures and fittings - This element is covered by LWNT outside of the Design Team scope
- Communal: Lifts - This is a priority item for residents and will explored as part of the Design Team proposals.
- Retrofit Packages: This will be varying element but as a base, all packages will include window upgrades as well as roof improvements.

An associated cost per retrofit package has been prepared for discussion - Refer to Appendix D

BRONZE

INTERIORS	COMMUNAL	FABRIC	ENERGY	
New Bathrooms New Kitchens Internal Decoration *Sound Insulation*	Lifts *Redecoration of stairs & internal corridors* *Entrances - new doors & video entry*	Retrofit Package 1 *Cavity wall insulation* *Double glazed windows* All Options: *Brise soleil shading + Insulation to roofs & ground floor*	District Heating / Heat Network *MEV* *TBC with TACE*	**COST A**

SILVER

INTERIORS	COMMUNAL	FABRIC	ENERGY	
New Bathrooms New Kitchens Internal Decoration *Sound Insulation*	Lifts *Redecoration of stairs & internal corridors* *Entrances - new doors & video entry*	Retrofit Package 2 *Cavity wall insulation + internal wall insulation* *Double glazed windows*	District Heating / Heat Network *MVHR* *TBC with TACE*	**COST B**

GOLD

INTERIORS	COMMUNAL	FABRIC	ENERGY	
New Bathrooms New Kitchens Internal Decoration *Sound Insulation*	Lifts *Enclosure stairs & corridors* *Entrances - new doors & video entry*	EnerPHit Standard Package *Cavity wall insulation + external wall insulation* *Triple glazed windows*	District Heating / Heat Network *MVHR* *PVS (installed)* *TBC with TACE*	**COST C**

4.1 Building Fabric

Package Comparison

Key Issues of Lot 2 Building:
All of the four blocks have the same building conditions that are causing issues of cold, damp and condensation for residents:

- Single glazed windows
- Thermal bridging at slab edge lintels*
- Cold cavity brickwork walls
- Cold roof and terraces
- Cold ground floor slab
- Cold soffits

In each of the packages, the specifications of each of the elements has been considered to bring best value in terms of effectiveness on improving the overall performance. A holistic approach of the whole fabric has been taken to minimise risk of unintended consequences, which when focus on a particular element alone can sometimes bring.

The key difference between the packages, is in the approach of the external wall and overall facade.

The roofs and floors are proposed to achieve best performance specification across all the packages, as a one-time retrofit to bring best value to the building as a whole.

Bronze: The basic approach will be to make the most of existing build-up and allow for infill insulation and basic upgrade of the windows.

Silver: This approach looks at how the walls can be insulated to achieve a higher performance without an external application approach. The compromise is internal floorspace and resident impact.

Gold: This approach considers an external application to achieve best performance without impact to the internal space of resident's homes.

Note: All proposals are subject to confirmation following survey information.

RETROFIT PACKAGE 1 **ESSENTIALS** **(Cavity)**	RETROFIT PACKAGE 2 **HIGH PERFORMANCE ENVELOP** **(Cavity & Internal)**	RETROFIT PACKAGE 2 **ENERPHIT STANDARDS** **(New Wall)**
Walls (0.51w/m²K)	**Walls** (0.32w/m²K)	**Walls** (0.15w/m²K)
Windows (Double Glazed 1.3w/m²K)	**Windows** (Double Glazed 1.1w/m²K)	**Windows** (Triple Glazed 0.85w/m²K)
Roof* (0.10w/m²K)	**Roof*** (0.10w/m²K)	**Roof*** (0.10w/m²K)
Doors (1.0w/m²K)	**Doors** (1.0w/m²K)	**Doors** (1.0w/m²K)
MEV (0.9 ACH@atmospheric)	**MVHR** (0.2 ACH@atmospheric)	**MVHR** (0.2 ACH@atmospheric)
Air-Tightness (0.9 ACH@atmospheric)	**Air-Tightness** (0.2 ACH@atmospheric)	**Air-Tightness** (0.2 ACH@atmospheric)
Floor* (0.10w/m²K)	**Floor*** (0.10w/m²K)	**Floor*** (0.10w/m²K)
Brise Soleil (Shading)	**Brise Soleil** (Shading)	**Brise Soleil** (Shading)
		PVs (No battery storage)

***Thermal Bridge:** Also referred to as a 'cold bridge' This is an area of a building construction which has a significantly higher heat transfer than the surrounding materials.*

The white horizontal stripes on the Lot2 buildings are an example of a 'cold bridge'. These are concrete structure exposed to the weather which provides a route for cold and moisture to transfer directly into homes, causing heat loss, damp and mould. This is a typical issue of buildings constructed in this period and can be overcome through insulation.

4.1 Building Fabric

Comparison Table

Bronze

Silver

Gold

Level of Investment	
Minimal	£
Low	£ £
Moderate	£ £ £
High	£ £ £ £
Significant	£ £ £ £ £

Carbon Benefit	
Minimal	🍃
Low	🍃🍃
Moderate	🍃🍃🍃
High	🍃🍃🍃🍃
Significant	🍃🍃🍃🍃🍃

Disruption	
Minimal	↘
Low	↘↘
Moderate	↘↘↘
High	↘↘↘↘
Significant	↘↘↘↘↘

Okay	😐
Good	🙂
Excellent	😊

	LEVEL OF INVESTMENT	CARBON BENEFIT	DISRUPTION	BRONZE	SILVER	GOLD
Windows						
Double Glazed	£ £	🍃🍃	↘↘↘	😐		
Triple Glazed	£ £ £ £	🍃🍃🍃🍃🍃	↘↘↘		🙂	😊
Solar Shading	£ £ £	🍃🍃🍃🍃	↘↘	😊	😊	😊
Roofs						
Warm roof	£ £ £	🍃🍃🍃🍃🍃	↘↘	😊	😊	😊
Floors						
Floor Insulation	£ £ £ £	🍃🍃🍃🍃	↘↘↘↘	😊	😊	😊
Walls and insulation						
Cavity wall Insulation	£ £	🍃🍃	↘↘↘↘	😐		
Internal wall insulation	£ £ £	🍃🍃🍃	↘↘↘↘↘		😐	
External wall insulation	£ £ £ £	🍃🍃🍃🍃🍃	↘↘↘			😊
Insulating cold spots or 'Thermal Bridges'	£ £ £	🍃🍃🍃🍃	↘↘		😐	😊
Eliminate damp caused by soffits	£ £	🍃🍃🍃🍃	↘↘			😊
Eliminate Damp caused by Balconies	£ £ £ £ £	🍃🍃🍃🍃	↘↘↘↘			😊
Air tightness and Ventilation						
Eliminating draughts	£	🍃🍃	↘	😐	😐	😊
Major Airtightness measures	£ £	🍃🍃🍃🍃🍃	↘↘		😐	😊
Mechanical Ventilation	£ £ £	🍃🍃🍃🍃🍃	↘↘↘		😊	😊
Heating						
Sustainable Heat Recovery	£ £ £ £	🍃🍃🍃🍃🍃	↘↘↘		😐	😊
Renewable Energy Systems						
Solar Panels for Electricity	£ £ £ £ £	🍃🍃🍃🍃🍃	↘			😊
District Heat Network	£ £ £ £ £	🍃🍃🍃🍃🍃	↘↘↘↘	😊	😊	😊

4.1 Building Fabric

Outline Specification - Page 1 of 2

Indicative Specification
An outline specification has been collated to assist early costing and evaluation of the energy performance.

Finishes and suggested materials will be explored further in collaboration with residents.

Element	Specification		
	Bronze	**Silver**	**Gold**
Building Fabric			
External Walls	Cavity insulation (approx. 60mm). Allow for thermal imaging as preparation prior to installation. U-Value: 0.51 W/m2K	Cavity insulation (approx. 60mm). Allow for thermal imaging as preparation prior to installation. Internally applied 50mm A1 non-combustible wall insulation (e.g. Rockwool) with plywood protection layer. U-Value: 0.32 W/m2K	New external wall system. 170mm A1 non-combustible wall insulation (e.g. Rockwool) with air tightness taped vapour layer. Thermally broken helping hand/support brackets fixed to existing external wall, provided frame for new external skin. U-Value: 0.15 W/m2K Skin options: 1. Brick slips 2. Terracotta / ceramic tiles 3. Half brick 4. GRC panels
Windows	Composite timber / aluminium frame windows throughout. Double glazed. U-Value: 1.3 W/m2K	Composite timber / aluminium frame windows throughout. Double glazed. U-Value: 1.1 W/m2K	Composite timber / aluminium frame windows throughou. Triple glazed. U-Value: 0.85 W/m2K
Roof	Inverted roof system. Build-up to be based on A1 non-combustible insulation. Allow for 3mm ppc aluminium coping over existing brickwork parapet. U-Value: 0.10 W/m2K Uplifts to allow for: Allowance for green roof system. Allowance for roof to support PVs.	Inverted roof system. Build-up to be based on A1 non-combustible insulation. Allow for 3mm ppc aluminium coping over existing brickwork parapet. U-Value: 0.10 W/m2K Uplifts to allow for: Allowance for green roof system. Allowance for roof to support PVs.	Inverted roof system. Build-up to be based on A1 non-combustible insulation. Allow for 3mm ppc aluminium coping over new skin and existing brickwork parapet. U-Value: 0.10 W/m2K Uplifts to allow for: Allowance for green roof system. Allowance for roof to support PVs.
Roof Terraces	Inverted roof system. Build-up to be based on A1 non-combustible insulation. Finished with pavers. (Build-up depth to match existing threshold. Check balustrade height. U-value: best achievable)	Inverted roof system. Build-up to be based on A1 non-combustible insulation. Finished with pavers. (Build-up depth to match existing threshold. Check balustrade height. U-value: best achievable)	Inverted roof system. Build-up to be based on A1 non-combustible insulation. Finished with pavers. (Build-up depth to match existing threshold. Check balustrade height. U-value: best achievable)
Air Tightness	Parge coating or acceptable equivalent to internal face of wall. Weather stripping to external windows and doors.	Parge coating or acceptable equivalent to internal face of wall. Weather stripping to external windows and doors.	'Intelligent' vapour membrane with tape as part of new external envelope.

4.1 Building Fabric

Outline Specification - Page 2 of 2

Element	Specification		
	Bronze	Silver	Gold
Floor	Rockwool soffit slab insulation to be applied to basement soffits. Plastic fixings to be used. Insulation to be finished with hi-impact rigid cement fibre board facing. (Check approx. thickness required - 280mm+ is non-standard - may be difficult to source fixings) U-Value: 0.10 W/m2K NB: Allow for 60mm high perfomance insulation to internal floor void for Clarandon Walk: Block A where there is no basement. Where indicated on drawings, allow for 60mm high performance insulation to internal floor voids to approx. 750mm past cold point.	Rockwool soffit slab insulation to be applied to basement soffits. Plastic fixings to be used. Insulation to be finished with hi-impact rigid cement fibre board facing. (Check approx. thickness required - 280mm+ is non-standard - may be difficult to source fixings) U-Value: 0.10 W/m2K NB: Allow for 60mm high perfomance insulation to internal floor void for Clarandon Walk: Block A where there is no basement. Where indicated on drawings, allow for 60mm high performance insulation to internal floor voids to approx. 750mm past cold point.	Rockwool soffit slab insulation to be applied to basement soffits. Plastic fixings to be used. Insulation to be finished with hi-impact rigid cement fibre board facing. (Check approx. thickness required - 280mm+ is non-standard - may be difficult to source fixings) U-Value: 0.10 W/m2K NB: Allow for 60mm high perfomance insulation to internal floor void for Clarandon Walk: Block A where there is no basement. Where indicated on drawings, allow for 60mm high performance insulation to internal floor voids to approx. 750mm past cold point.
Exposed Soffits (to recessed balconies / flat type step-back)	Rockwool soffit slab insulation or acceptable equiavent, to be applied to underside of exposed soffits. Plastic fixings to be used. Faced with 3mm ppc aluminium with concealed fixings. (Thickness to be reviewed with implications of window frame beneath. U-value: best achievable.)	Rockwool soffit slab insulation or acceptable equiavent, to be applied to underside of exposed soffits. Plastic fixings to be used. Faced with 3mm ppc aluminium with concealed fixings. (Thickness to be reviewed with implications of window frame beneath. U-value: best achievable.)	Internalise situations creating exposed soffits (simplify envelop). Demolition of existing external brickwork wall; formation of new SFS wall with 60mm insulation between 90mm studs.
Structure			
Structural Frame	No works	No works	Additional structural framing required to support external insulation and new building skin
Slabs	No works	No works	Localised new slabs required where we are extending building envelope - precast concrete TBC.
Balconies	As existing	As existing	Additional structural framing required to support external insulation and new building skin
Communal Areas			
External Entrance Doors (and balcony doors)	Hardwood external timber doors. Secured-by-Design accredited. U-Value: 1.0 W/m2K	Hardwood external timber doors. Secured-by-Design accredited. U-Value: 1.0 W/m2K	Hardwood external timber doors. Secured-by-Design accredited. U-Value: 1.0 W/m2K
Stairs and Lifts	Lifts to entrance cores.	Lifts to entrance cores.	Lifts to entrance cores.
Ventilation			
MVHR / MEV	MEV System	MVHR System	MVHR System
External			
Brise Soleil	PPC aluminium brise soleil to all south-facing elevations. Full length of window opening. Min. 500mm depth.	PPC aluminium brise soleil to all south-facing elevations. Full length of window opening. Min. 500mm depth.	PPC aluminium brise soleil to all south-facing elevations. Full length of window opening. Min. 500mm depth.

4.1 Building Fabric

Roofs

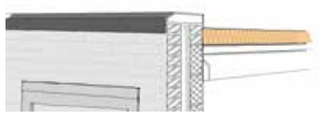
The Roofs
The same roof upgrade options are proposed for each of the package options, for each block, and there is an opportunity to do more than just insulate it better.

The basic warm roof will be formed of mineral wool A1 fire rated insulation. This will help to keep your homes warm and reduce your demand on heating.

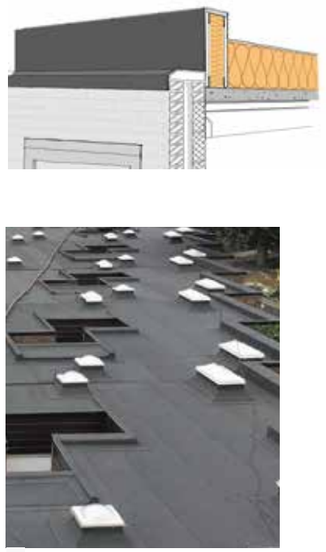
On top of this, there is the option to apply a Green Roof. These can increase biodiversity and may actually help to keep your buildings cooler.

On top of either the basic warm roof or a green roof, solar panels can be added, which can generate clean energy and help towards lowering your energy bills.

The roofs to Camelford Court, Talbot Walk and Clarendon Walk will be supported by a specific Green Homes Grant, so will proceed on an accelerated programme.

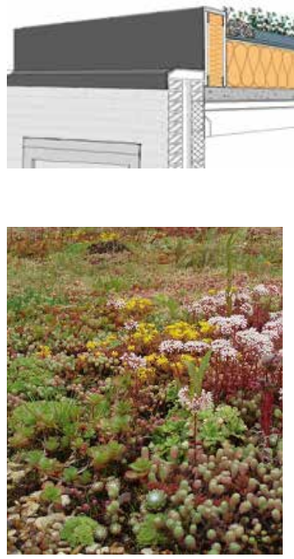


Typical existing roof with very little insulation

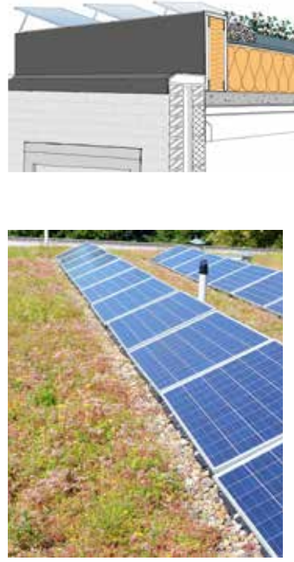


Warm Roof

Warm Roof & PVs



Warm & Green Roof



Warm & Green Roof & PVs

4.2 Building Fabric - Bronze Retrofit

Fabric Strategy

Cavity Insulation Approach
This package proposes to provide the essential upgrades to the overall envelope.

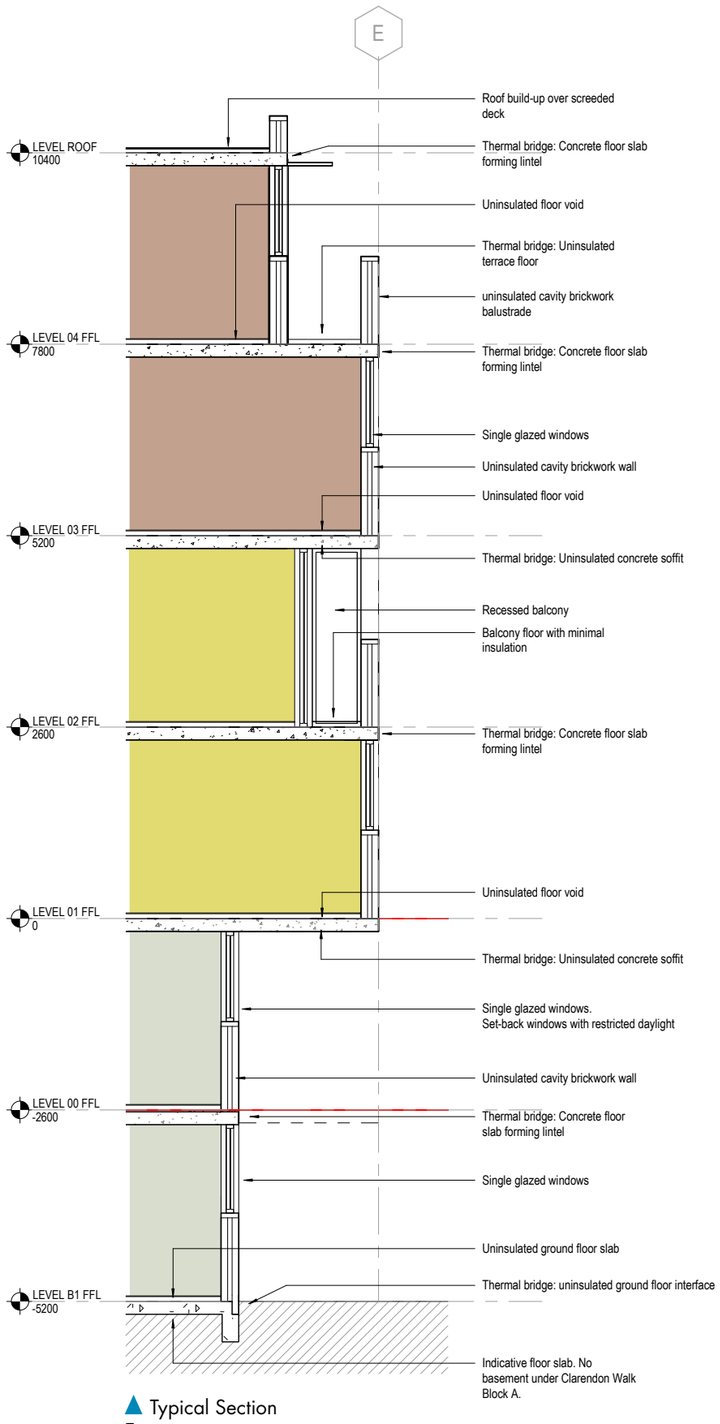
- Double glazed windows
- Infill insulation to cavity brickwork walls
- Insulated roofs
- insulated ground floor slab
- Solar shading to mitigate against overheating*
- MEV to maintain air quality

Unresolved areas remaining:
- Thermal bridging at slab edge lintels
- Cold terraces
- Cold soffits

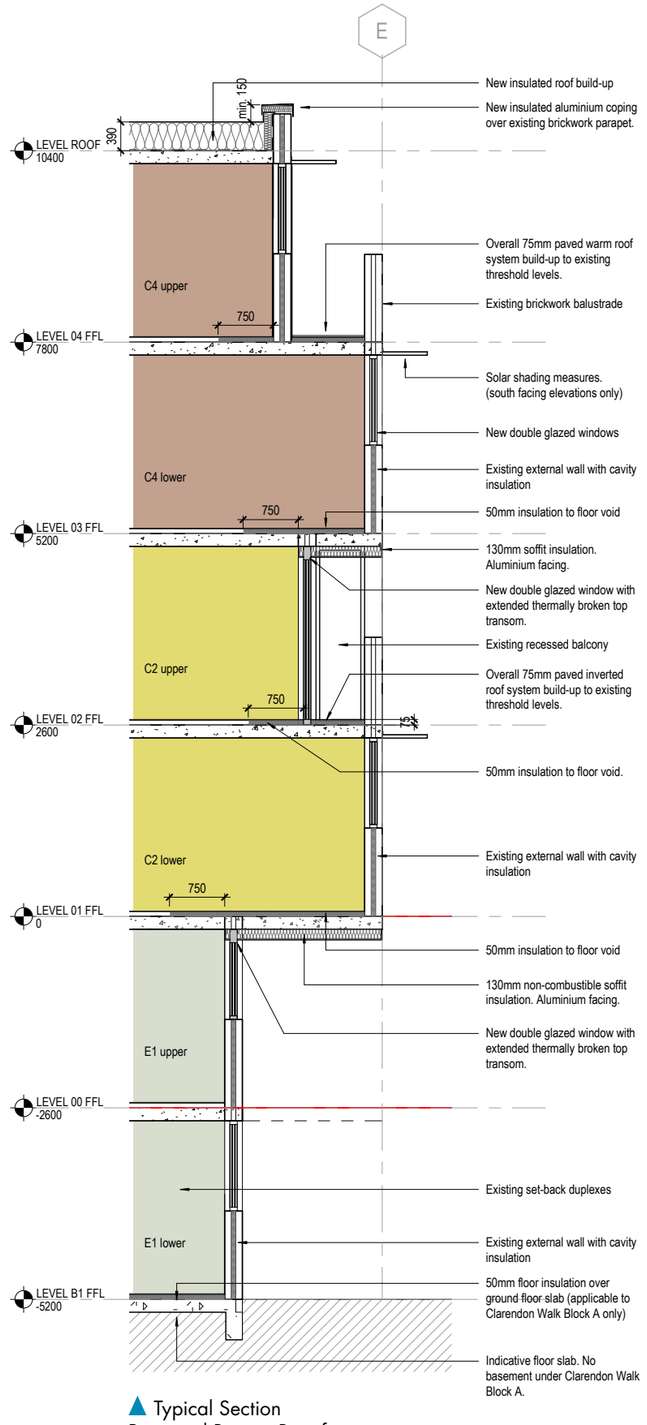
Pros
- No impact to resident's internal floor area.
- Access to resident's home should not be required.

Cons
- Specifications are not to aspired levels of thermal performance to support zero carbon
- Thermal bridging unresolved and will continue to be source of heat loss from homes.
- Scaffolding will be required.

(Refer to section 4.11 for MEV / MVHR information and impact to head height)



Typical Section
Existing



Typical Section
Proposed Bronze Retrofit

4.3 Building Fabric - Silver Retrofit

Fabric Strategy

Internal Insulation Approach
This package proposes to provide a higher performance upgrade to the overall envelope, applying further insulation to the internal face of the existing walls.

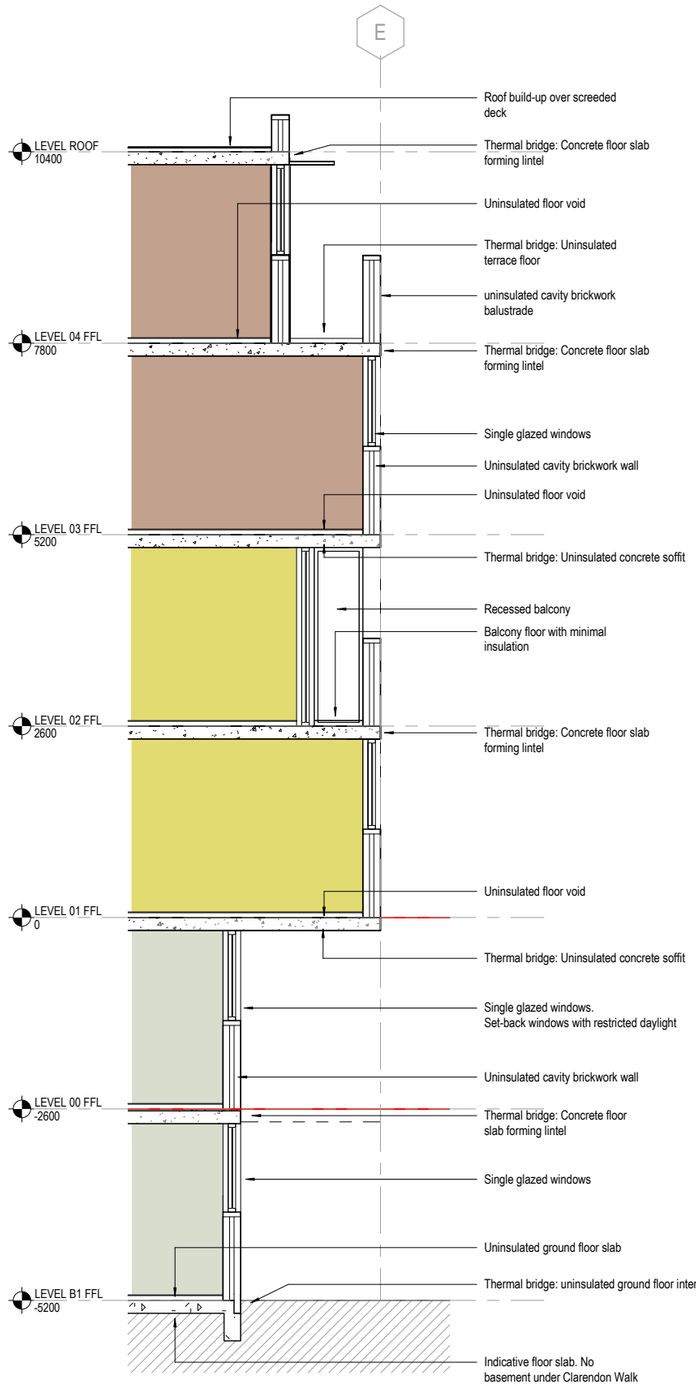
- Triple glazed windows
- Infill insulation to cavity brickwork walls + additional insulation to the internal face of the wall.
- Insulated roofs
- insulated ground floor slab
- Solar shading to mitigate against overheating*
- MVHR to maintain air quality

Unresolved areas remaining:
- Thermal bridging at slab edge lintels
- Cold terraces
- Cold soffits

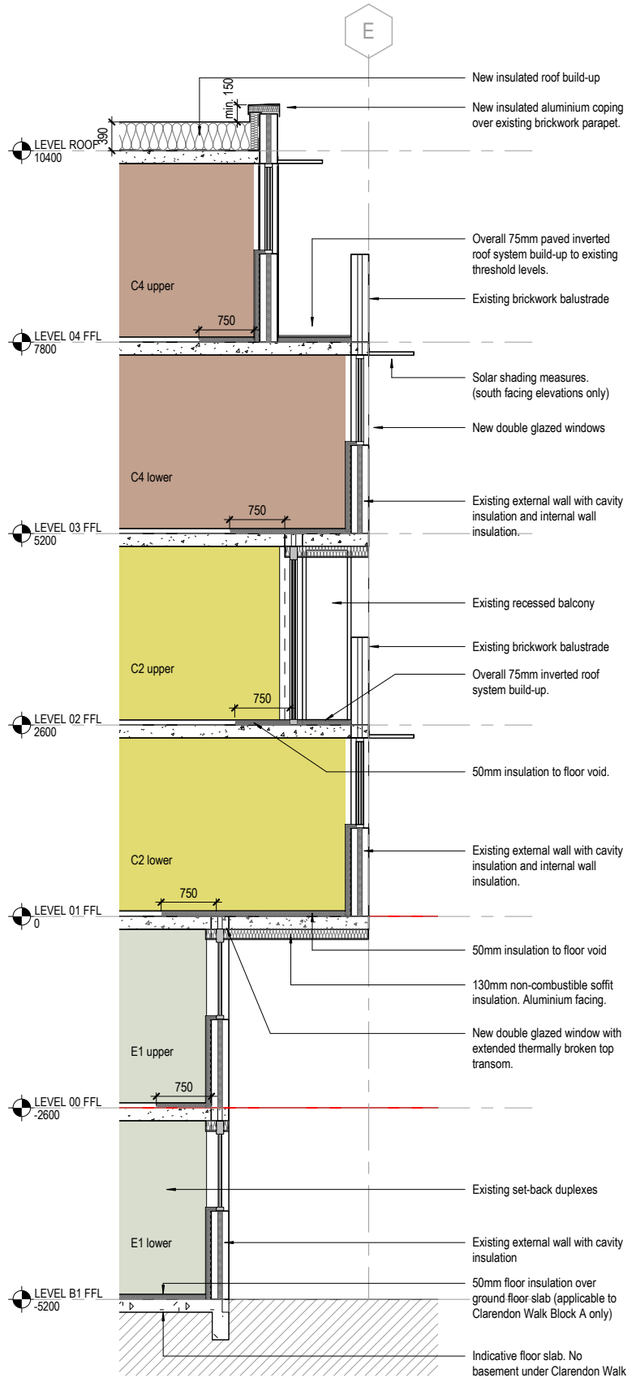
Pros
- Thermal performance much improved over essentials upgrade.

Cons
- Specifications are not to aspired levels of thermal performance to support zero carbon
- Thermal bridging unresolved and will continue to be source of heat loss from homes.
- Scaffolding will be required.
- Impact to resident's Internal floor area
- Access to resident's home required.

(Refer to section 4.11 for MEV / MVHR information and impact to head height)



▲ Typical Section
Existing



▲ Typical Section
Proposed Silver Retrofit

4.4 Building Fabric - Gold Retrofit

Fabric Strategy

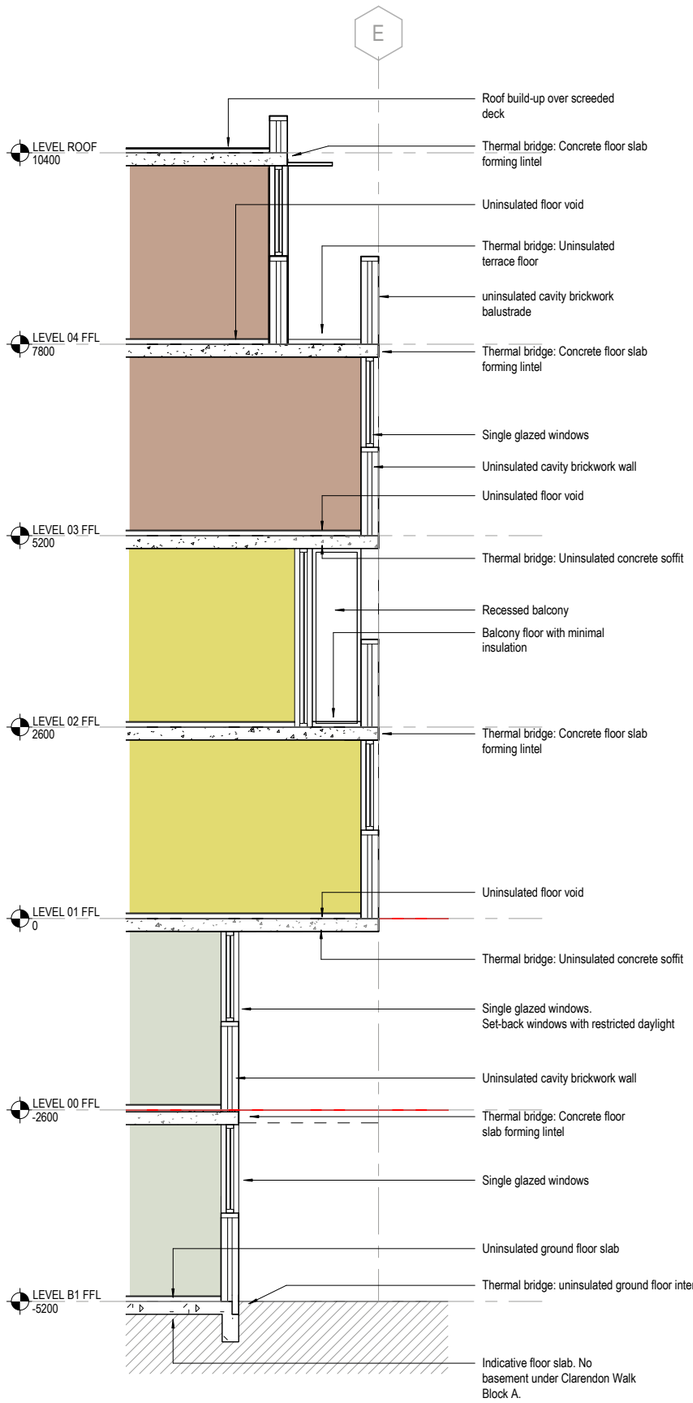
New Wall Approach
This package proposes to provide an thermal performance upgrade to EnerPHit standards across the overall envelop.

- Triple glazed windows
- Infill insulation to cavity brickwork walls with new external insulation and wall finish.
- Insulated roofs
- insulated ground floor slab
- Simplified envelop to address thermal bridges
- Existing recessed balconies replaced with new thermally broken balconies
- Remaining exposed soffits and terraces to be insulated
- Solar shading to mitigate against overheating
- MVHR to maintain air quality

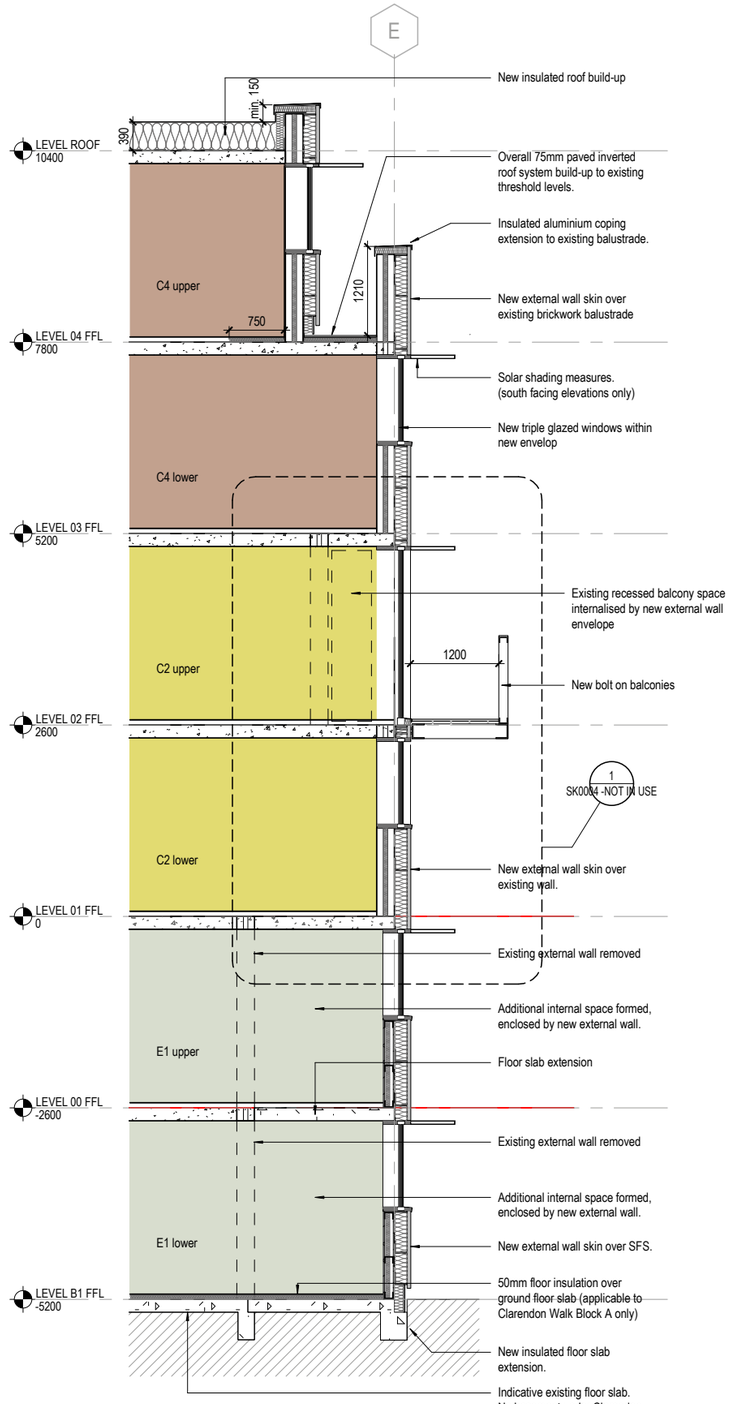
Pros
- No impact to resident's Internal floor area
- Access to resident's home should not be required.
- Specifications to aspired levels of thermal performance to support zero carbon
- Areas of thermal bridging resolved
- Scaffolding potentially not required pending pre-fabrication developments.
- Opportunity to create / strengthen block and estate identity with new materiality.

Cons
- A higher upfront cost

(Refer to section 4.11 for MEV / MVHR information and impact to head height)



Typical Section
Existing



Typical Section
Proposed Gold Retrofit

4.4 Building Fabric - Gold Retrofit

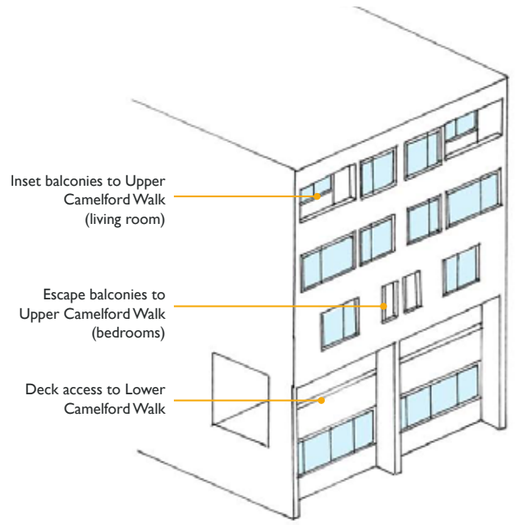
Simplify the Envelope

Benefits of a Simplified Envelope
A simplified envelop will enable straight lines of air-tightness to be achieved and easily maintained. This is achieved with the following features:

Internalised Recessed Balconies
- Existing balconies are dark and under-used.
- Removing the amenity and internalising it will gain usable internal floor space for residents and also address issues of water leakage.
- A new thermally broken bolt-on balcony will form a usable replacement amenity.

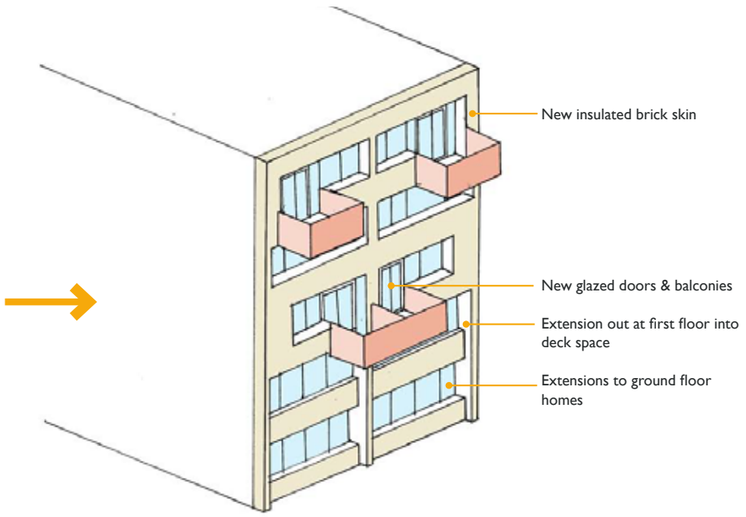
Internalised External Access Decks
- Removing the deck access will and aligning the ground level duplexes with the main building line will re-claim a substantial amount of internal floor space for the resident.
- With the additional space, there is opportunity for re-configuration of the internal layout to re-provide access directly to street level.

Insulating new brick skin
- Applied to the external face of existing building to cover the exposed concrete slab, currently forming extensive thermal bridging.



Existing building

▲ Diagram of Simplified Envelope Approach - Existing



Early Idea to add an insulated brick skin to the buildings, as well as new glazed doors & projecting balconies.

▲ Diagram of Simplified Envelope Approach - Proposed

Application
The following pages show how this over-skin approach has been tested on a selection of Flat Types to demonstrate the changes to the deck access, existing recessed balconies and the existing envelop.

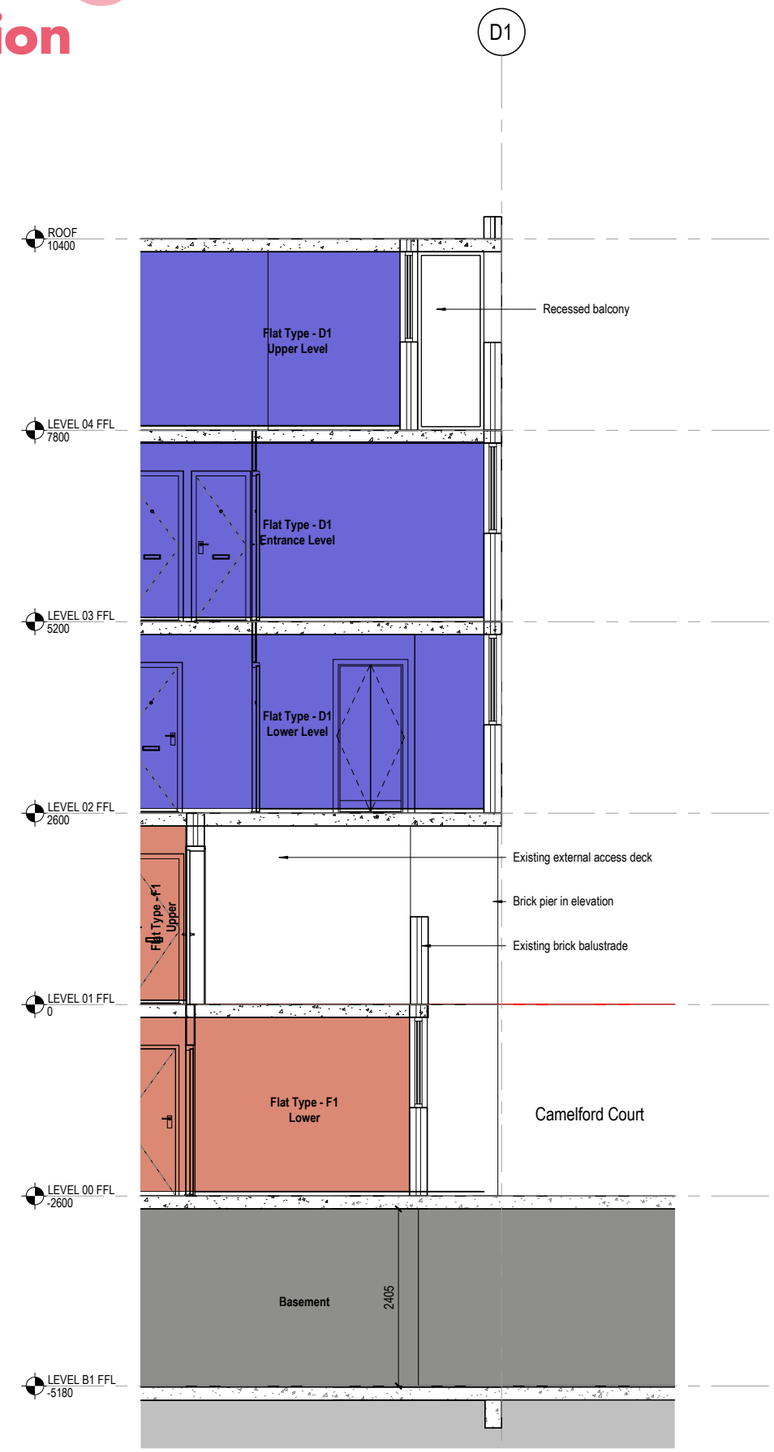
4.4 Building Fabric - Gold Retrofit

Indicative Application

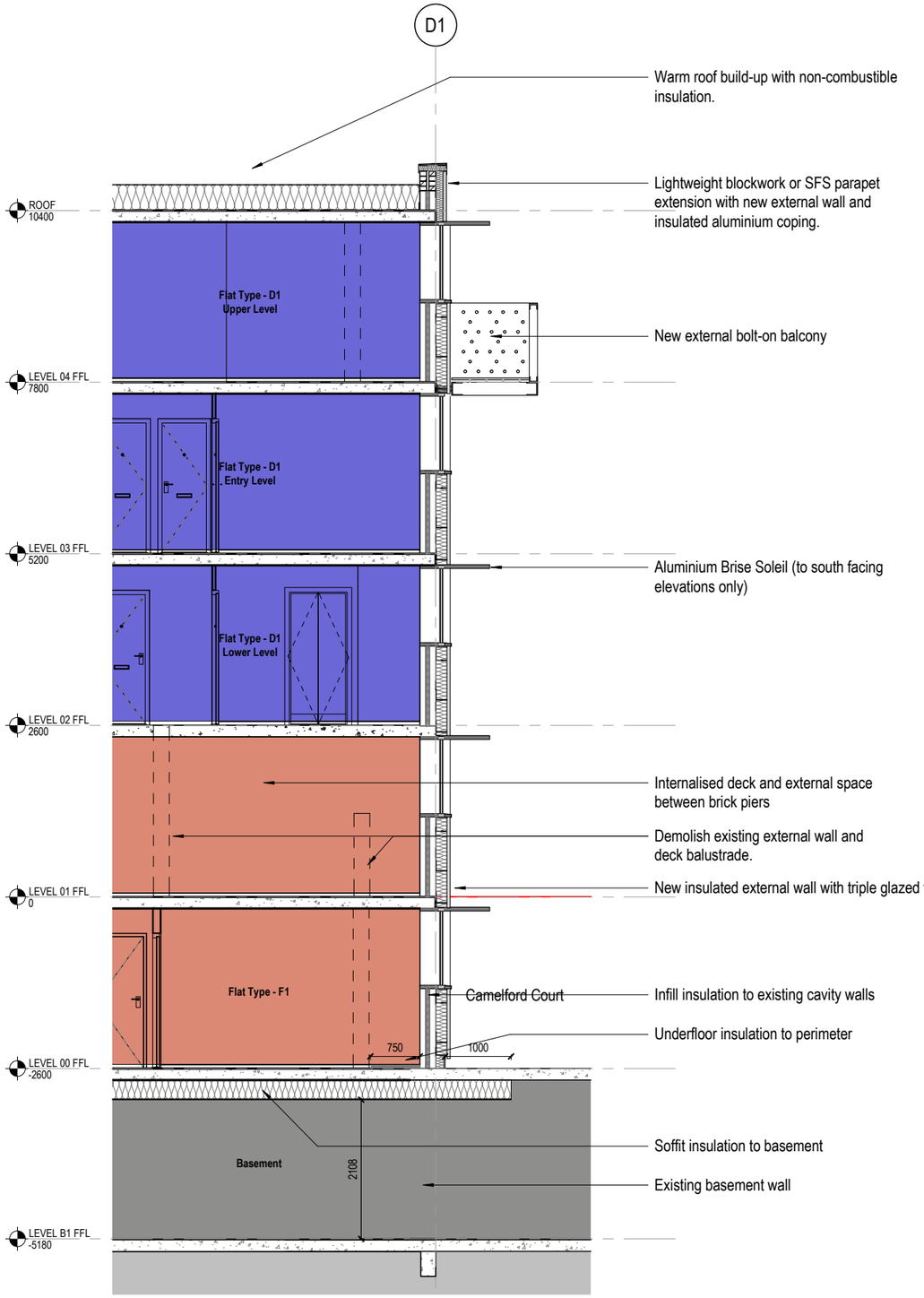
Camelford Walk - Block Typology
Talbot Walk and Camelford Walk have very similar flat type arrangements. The adjacent section shows a typical section of the existing building and how this would be with the proposed Gold application.

The flat types illustrated here are F1 and D1.

(Refer to section 4.11 for MEV / MVHR information and impact to head height)



▲ Typical Section with Deck Access
Existing



▲ Typical Section with Deck Access
Proposed Gold Retrofit Package

Camelford Walk Typical Section: Existing Section and Proposed Section with Gold Envelope Package Approach ►

4.4 Building Fabric - Gold Retrofit

Indicative Application

Recessed Balconies
Where there are existing recessed balconies, these are proposed to be internalised and new replacement balconies re-provided.

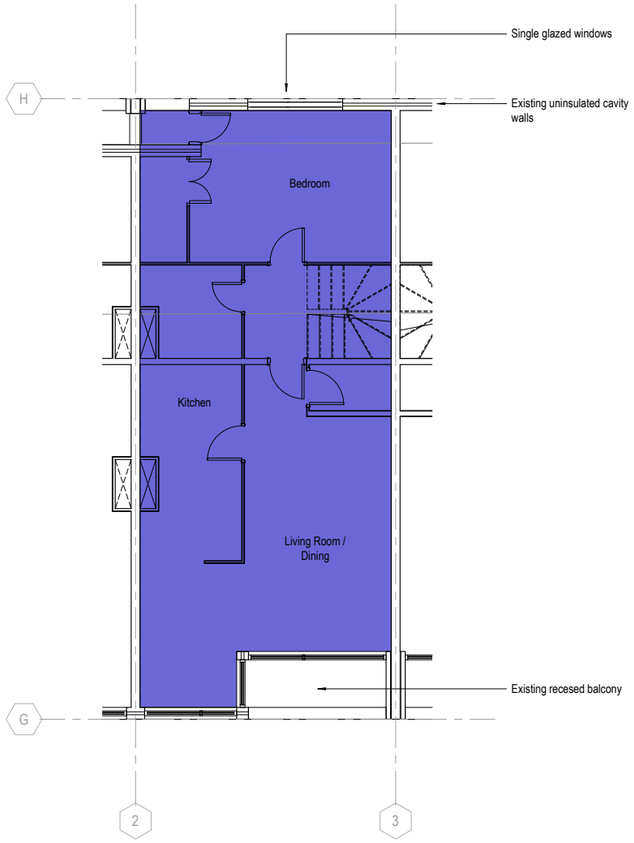
The key purpose of the new balconies will be to maintain a secure thermal line to the building by using thermally broken support brackets.

To wrap a new insulating layer around the existing balconies and still maintain the level of thermal performance targeted will be difficult. The floor area of the already narrow amenity will also be further reduced.

A new balcony will gain internal floor space for the resident and a better sized amenity.

There will be opportunity to co-design the balconies with residents, in terms of the finishes, potential patterns and also the sense of enclosure that may be important to residents.

Level 04
Existing Arrangement

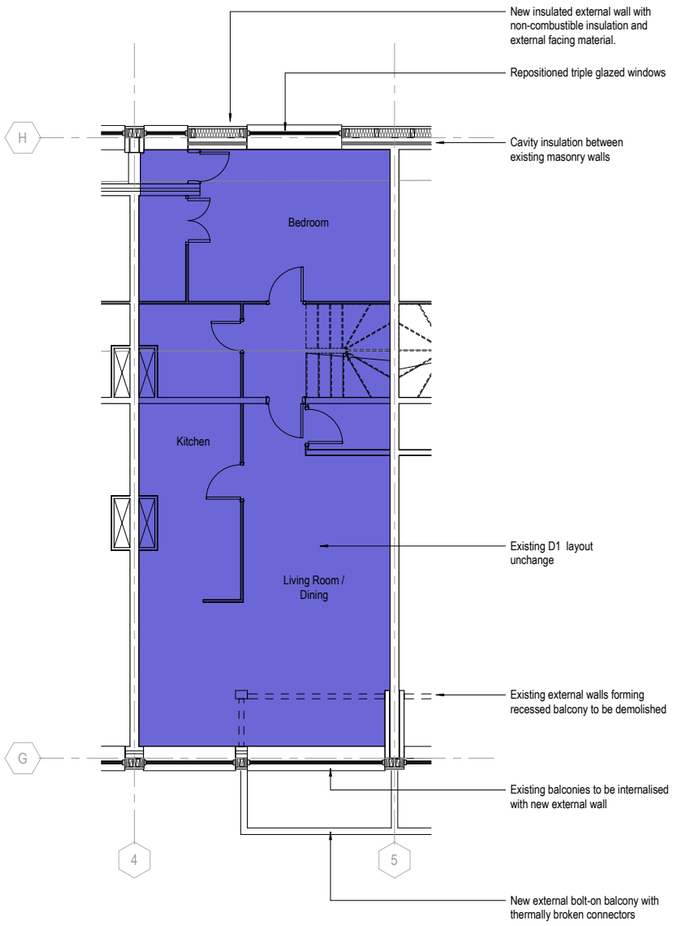


Level 04
Proposed Arrangement

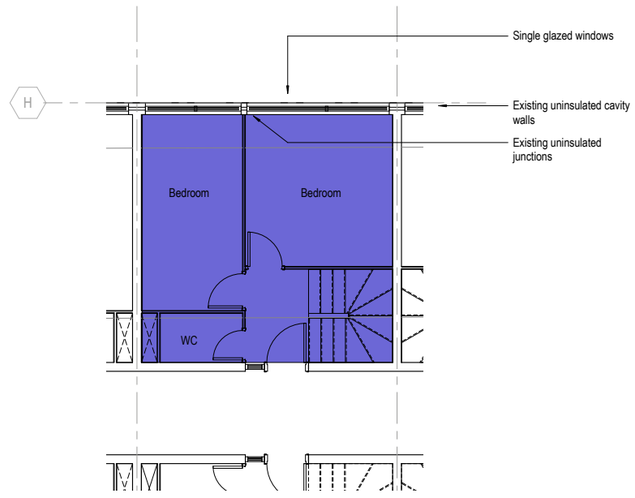
The layout of the flat will stay the same except the internalised balcony will gain additional floor space to the living/ dining room.

A new balcony with direct access out from the living space is re-provided.

The new external wall sits outside of the existing envelope.



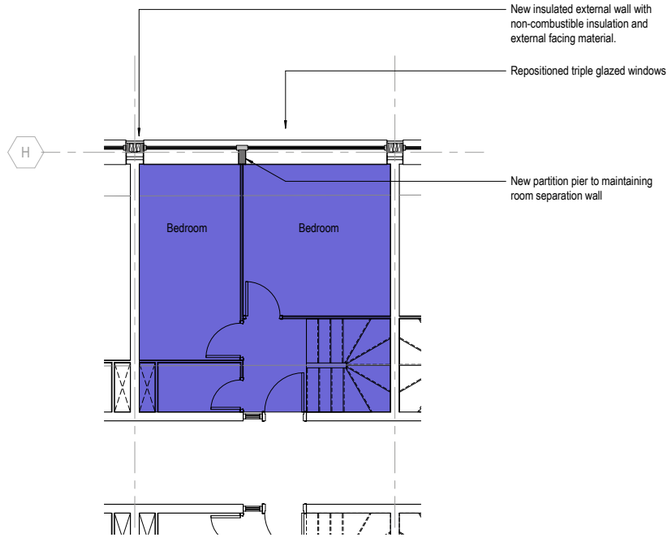
Level 03
Existing Arrangement



Level 03
Proposed Arrangement

The internal arrangement remains the same.

The new external wall sits outside of the existing envelope.



Typical Flat Type D1: Existing Layout and Proposed Layout with Gold Envelope Package Approach ▶

4.4 Building Fabric - Gold Retrofit

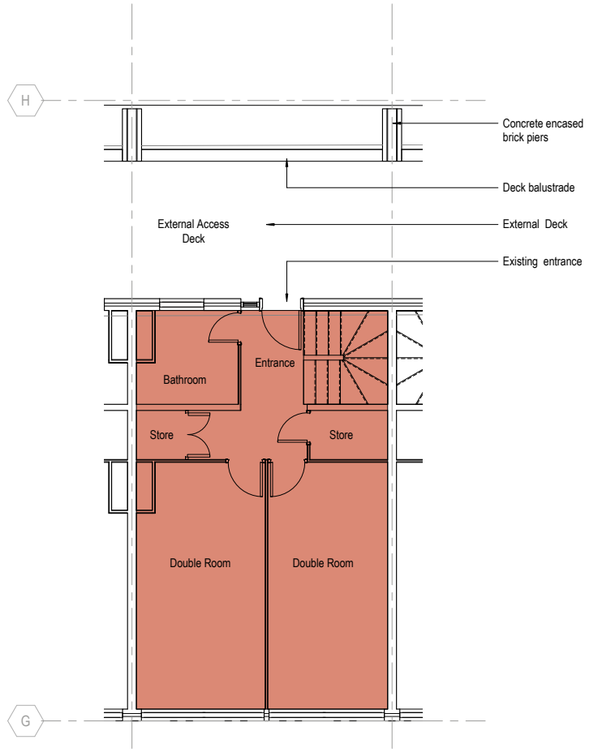
Indicative Application

Internalised Decks
The ground level maisonettes in Talbot Walk and Camelford Walk currently have an irregular entrance sequence, requiring residents to access the staircores to the first floor deck in order to enter at the upper level of their two storey home.

As part of the envelope simplification, it is proposed for this deck area to be internalised and reclaimed for the resident's home, and for entrances to be re-provided at ground level instead.

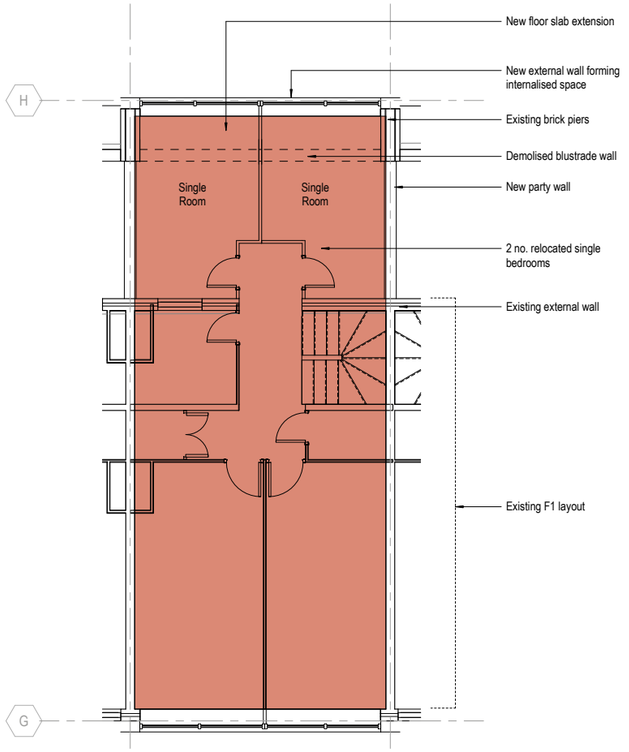
This will allow a secure thermal line to be achieved but also create an opportunity for these homes to have a direct access from the estate grounds, with access to the gardens.

Level 01
Existing Arrangement

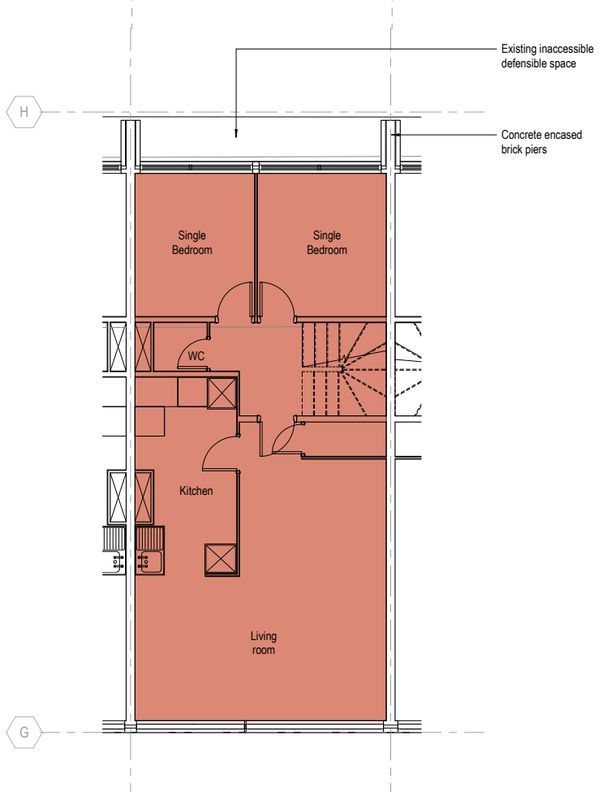


Level 01
Proposed Arrangement

The deck is internalised and reclaimed for the flat, allowing the layout to be re-arranged to create and upstairs sleeping area.

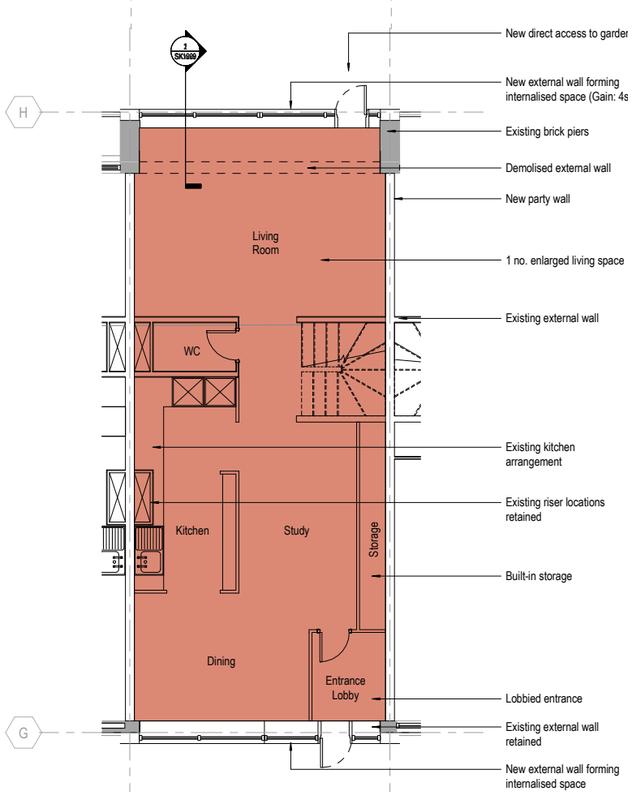


Level 00
Existing Arrangement



Level 00
Proposed Arrangement

With the relocation of the existing bedrooms up to first floor, the ground level becomes an open living area with large kitchen/dining and living room and direct access to both side of the block.



Typical Flat Type F1: Existing Layout and Proposed Layout with Gold Envelope Package Approach ►

4.4 Building Fabric - Gold Retrofit

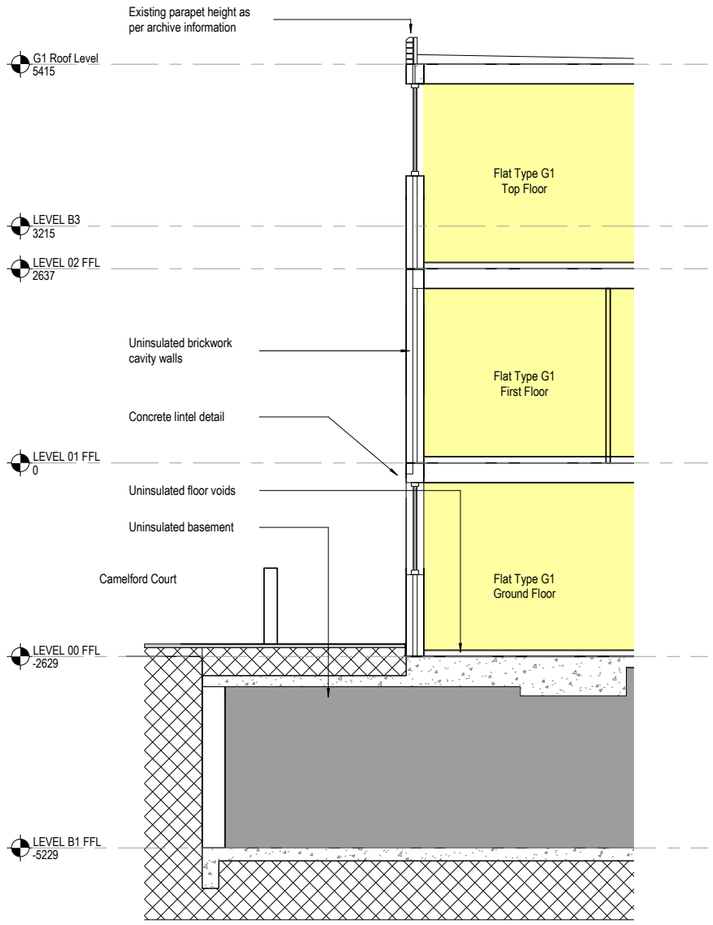
Indicative Application

Camelford Court - House Typology
Camelford Court does not have deck access or recessed balconies but does have variation in height and footprint alignment.

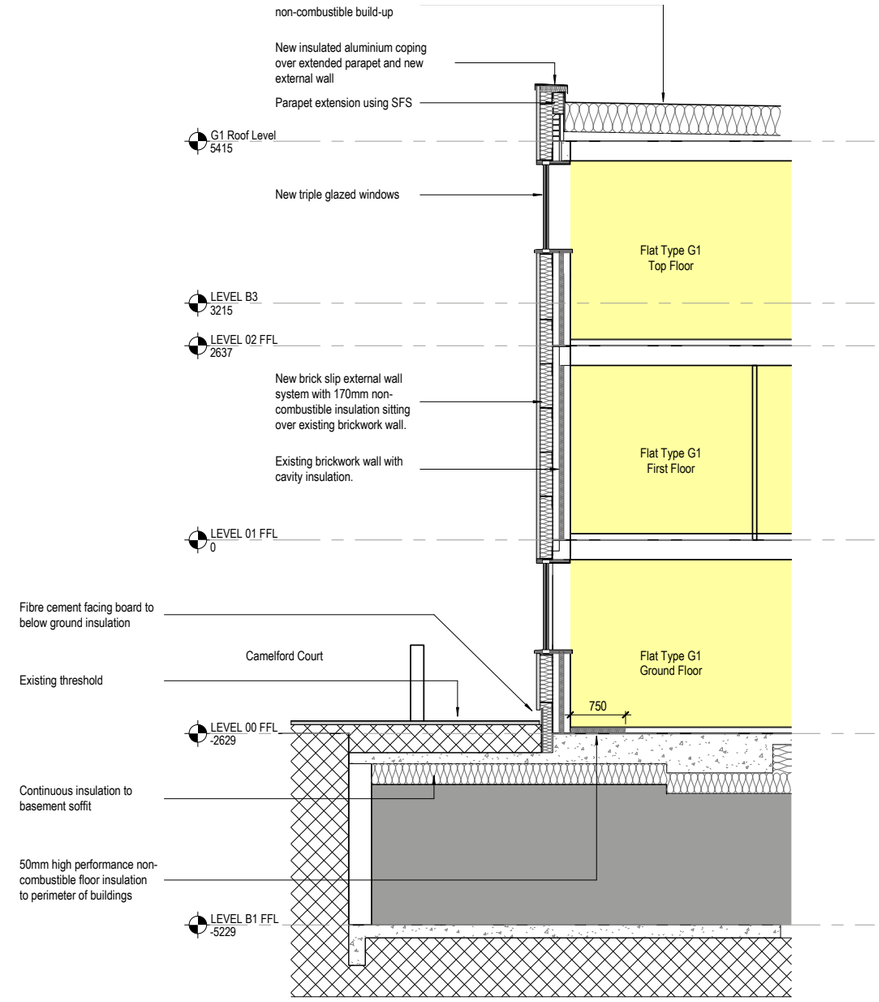
The adjacent section shows a typical 3-storey maisonette and illustrates how the Gold Envelop Package would be applied to it.

(Refer to section 4.11 for MEV / MVHR information and impact to head height)

Typical Maisonette Type G1: Existing Layout and Proposed Layout with Gold Envelope Package Approach ▶



▲ Typical Section at Camelford Court Existing



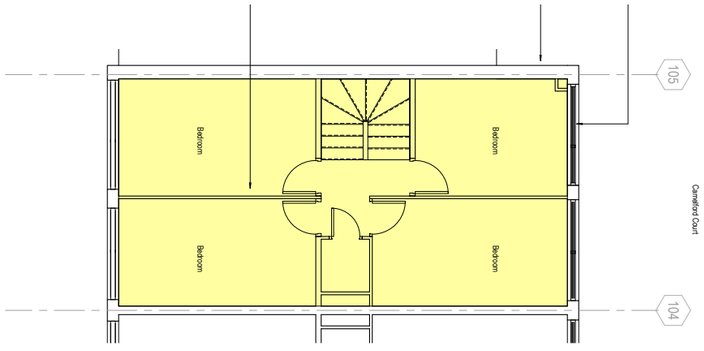
▲ Typical Section at Camelford Court Proposed Gold Retrofit Package

4.4 Building Fabric - Gold Retrofit

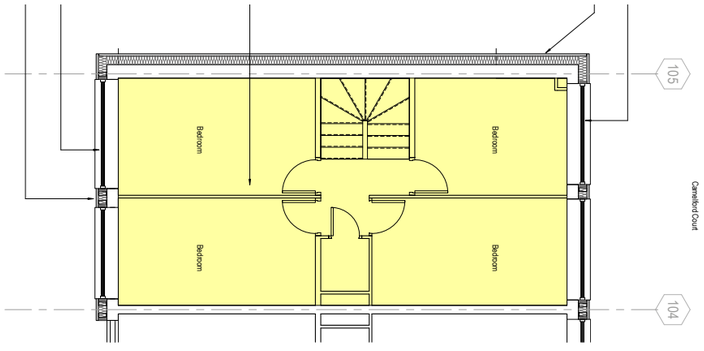
Indicative Application

Camelford Court - House Typology
Camelford Court does not have deck access or recessed balconies but does have variation in height and footprint alignment.

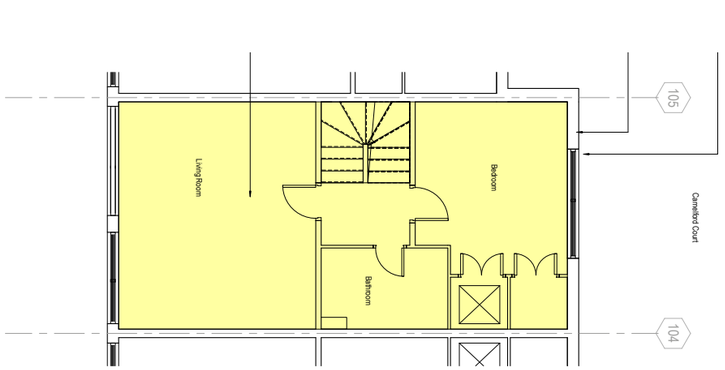
The adjacent plans show the changes that would be applied to it with a Gold Retrofit Package. The main change will be to the wall build-ups forming the envelope.



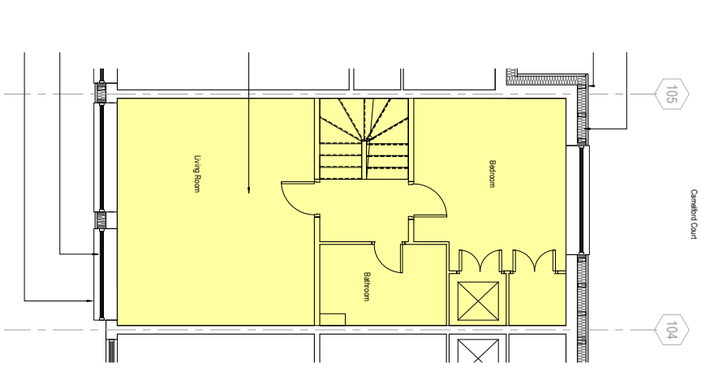
▲ Flat Type G1 - Level 02
Existing



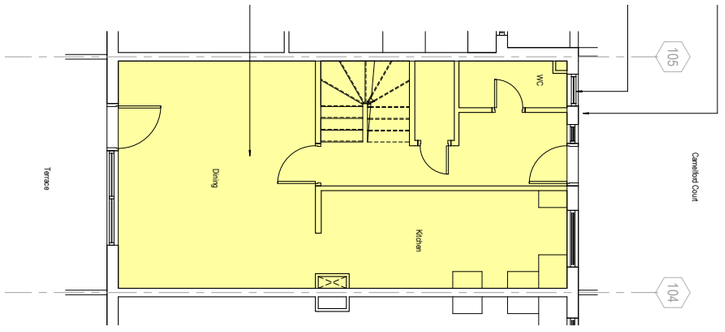
▲ Flat Type G1 - Level 02
Proposed Gold Retrofit Package



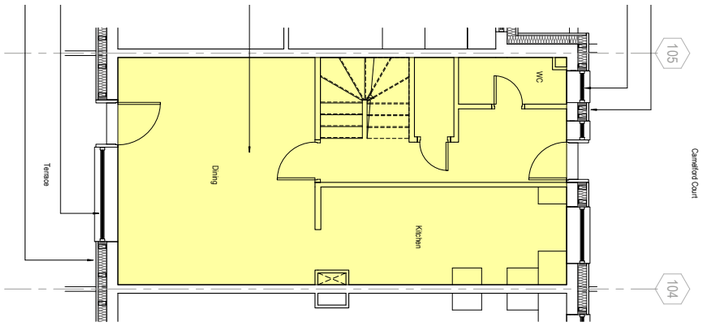
▲ Flat Type G1 - Level 01
Existing



▲ Flat Type G1 - Level 01
Proposed Gold Retrofit Package



▲ Flat Type G1 - Level 00
Existing



▲ Flat Type G1 - Level 00
Proposed Gold Retrofit Package

4.4 Building Fabric - Gold Retrofit

Pre-fabrication

Making the most of Repetition
Given the repetition and existing modular rhythm of the Lot 2 blocks, there is huge potential to standardise the new external skin as a holistic panel for pre-fabrication.

Envisaged benefits of a pre-fabricated system:

- Minimised impact on site and surroundings as the majority of works are located off-site.
- Speed of construction will shorten inconvenience and disruption to residents and Lancaster West Estate community,
- Installation should be faster and more efficient with less noise, dust and personnel on site
- Minimised disruption to residents - the new wall will be installed in front of the existing wall, allowing works to go ahead first, with removal of existing windows and making good of internals to take place at a later date at a time convenient to the resident.
- Cost efficiencies and scales of economy could be achieved - particularly between Camelford Walk and Talbot Walk as the flat types making up their elevations are the same.
- A more sustainable form of construction in terms of minimised waste and cut-offs, fewer site deliveries and site waste.
- The factory controlled environment will typically produce better quality outcomes.
- Where possible, A1/A2 materials will be used to form the panel.

Some initial possibilities of how a panel could be designed and applied have been explored. The adjacent sketches by the structural engineer enable a conversation to be initiated with potential contractors and fabricators.

The challenge will be in designing the panels to meet passivhaus EnerPHit standards.

Engenuiti early pre-fabrication explorations ►

Surface mounted supports to existing structural walls

(2) Pre-fabricated external skin panels, incorporating steel transoms at top and bottom, and built up from rigid insulation with rainscreen or brick slip exterior. Can be mounted in a sequence to be determined. The steel transoms set within the panels would be bolted to the PFC verticals in situ.

(4) New window units can be installed on top of the new prefabricated insulated panels. The possibility of incorporating the prefabricated panel and installing all as one piece could also be explored

(3) The transoms at top and bottom of each insulated panel can be designed to span under lateral load between the party wall lines, thereby minimising the need for fixings into the existing brickwork directly behind

(1) Steel PFC vertical elements mounted onto existing facade first. These to be fixed via resin anchor bolts which go through the existing brickwork cladding into the ends of the concrete party walls behind

(5) Would need to seal around the window unit (and/or the insulated panel) until the adjacent windows and panels were also installed - sequencing needs careful consideration

(6) Could build external skin in same line as rest of facade to create new internal spaces behind. This can be in the form of insulated panels and window panels, or an alternative insulated system

Side supports with internal fix to existing structural walls

(4) Whilst this approach works in the general case, consideration would need to be given to how to deal with features such as the inset balconies.

(5) New windows would form a part of the new prefabricated panels. They would sit in the line of the new external skin and again consideration needs to be given to how to seal around the window to form an airtight box.

(3) The steel framing built into the panel would be designed to have sufficient stiffness to be able to rely solely on four fixing points (through the corners of the window opening). The vertical steel elements act as cantilevers below the sill level to support the steel transoms under lateral load.

(2) To install panel, existing window is removed. New panel is offered up. Steel arms extend in through window opening and can be fixed into the faces of the concrete party walls.

(1) Pre-fabricated facade panel would comprise vertical steels with outstand 'arms' and horizontal steel transoms as shown. Panel built up from rigid insulation with rainscreen or brick slip exterior.

(6) Could build external skin in same line as rest of facade to create new internal spaces behind. In this case, framing would likely need to be connected in to the side of the existing brick/concrete piers.

4.4 Building Fabric - Gold Retrofit

Pre-fabrication

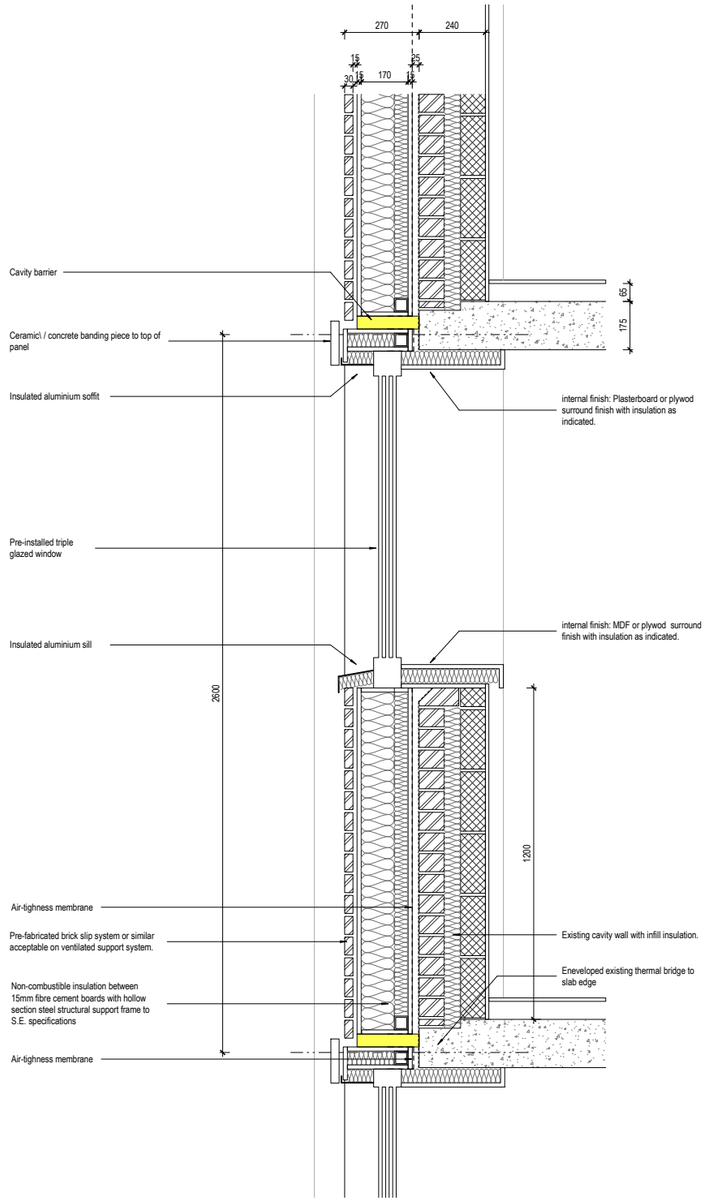
Prefabricated Facade Panel
The panels are proposed to span from structural line to structural line, forming a bay-wide, storey-high panel.

The panel will encompass the full build-up of the new external wall:

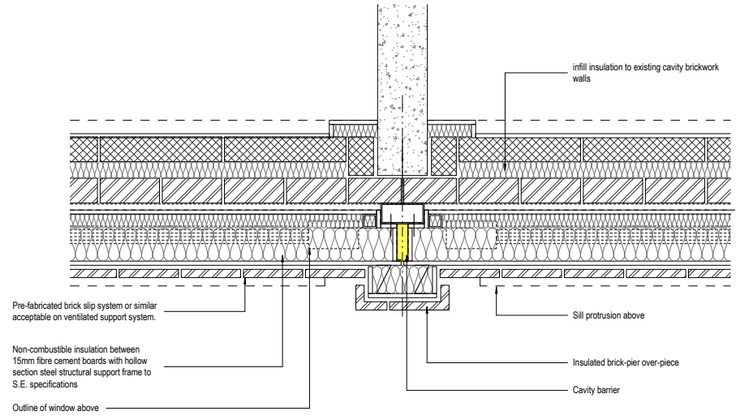
- Non-combustible insulation
- New brickwork skin
- Air-tightness membrane
- Integrated triple glazed windows
- Integrated MVHR plenum

▲ Example of prefabricated brickwork panel manufactured in factory

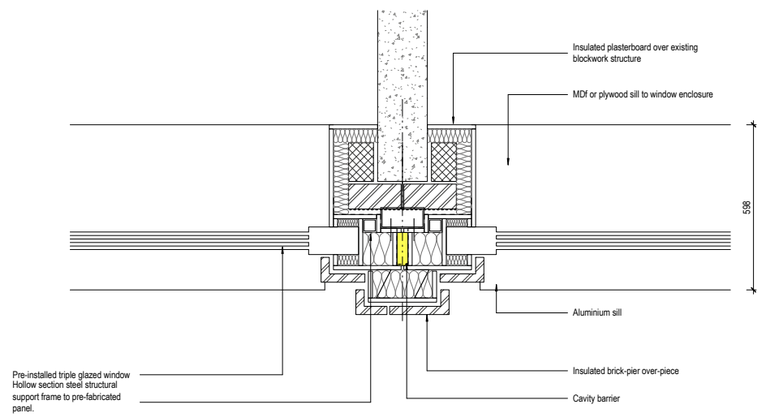
Indicative panel assembly [Work in Progress] ►



1. Gold Option
Pre-fabricated panel - Section



2. Gold Option
Pre-fabricated panel - Plan through existing wall

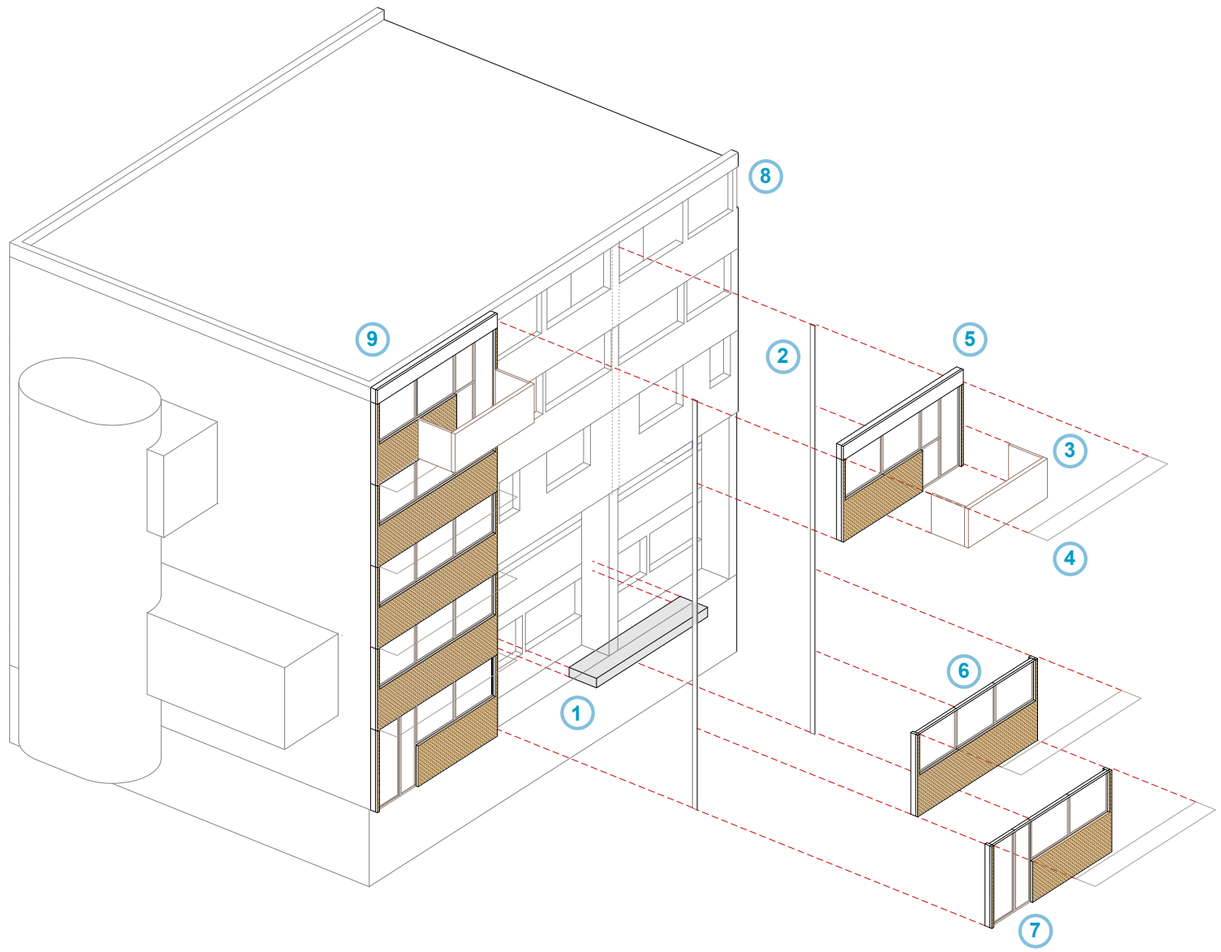


3. Gold Option
Pre-fabricated panel - Plan through window

4.4 Building Fabric - Gold Retrofit

Pre-fabrication

Assembly
The adjacent diagram illustrates the proposed sequence of the various prefabricated elements that come together to form the overall new skin.



Exploded axonometric of proposed pre-fabricated components ▶

1 **Infill Slab**
Reclaiming internal space

2 **Structural Frame**
Fixed over the existing brickwork at party wall lines

3 **Bolt-on balcony**
Replacement amenity for the internalised balconies

4 **Brise Solei**
(South facing elevations only)

5 **Typical Panel with Balcony Door**
Providing access to new bolt-on balconies

6 **Typical Panel**
Incorporating windows, insulation and new brickwork skin

7 **Typical Panel with New Entrance**
Providing direct access to street level for reconfigured duplexes

8 **Existing Building**
With repeating bays

9 **Completed Installation**
One bay wide

4.4 Building Fabric - Gold Retrofit

Materials

All proposed facing materials will be A1/A2 rated.

The facing material of the new external wall will likely be a brick tile system, for robustness and also familiarity with the current estate identity. Other material options such as GRP, ceramic tile and stone could also be explored.

Brick offers a warm choice of colour which need not be too different from the existing brick colour of the blocks, but perhaps with more warmth, and also opportunity for gentle variations and small pops of colour.

Using materials in brighter colours bring a change in visual texture to break down long, repeating elevations. It can also open up opportunities to highlight entrances and create marker points to support way-finding and identity making.

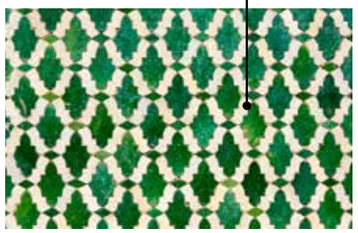
Indicative Palette ▶

Etched metal to maintain solidity around a balcony without feeling too 'heavy'

Pops of colour to highlight entrances

Simple render

Adding pattern through brickwork



Traditional tile patterns as a source of influence

Simple clean details that allow patterns to be announced elsewhere

Changes in texture and perforations to functionally hide bin stores and services

Using relief to break down large areas

Highlighting entrances with glazed bricks

4.5 Communal Areas

Lifts

Lifts
Identified as a key resident priority, new lifts will be incorporated to each block.

Potential locations to incorporate new lifts to each block have been identified for discussion with LWNT and residents. Each location will be subject to further survey information of the ground level interfaces and also better understanding of the existing structure of the stairs and building.

There are 3 options currently under consideration:

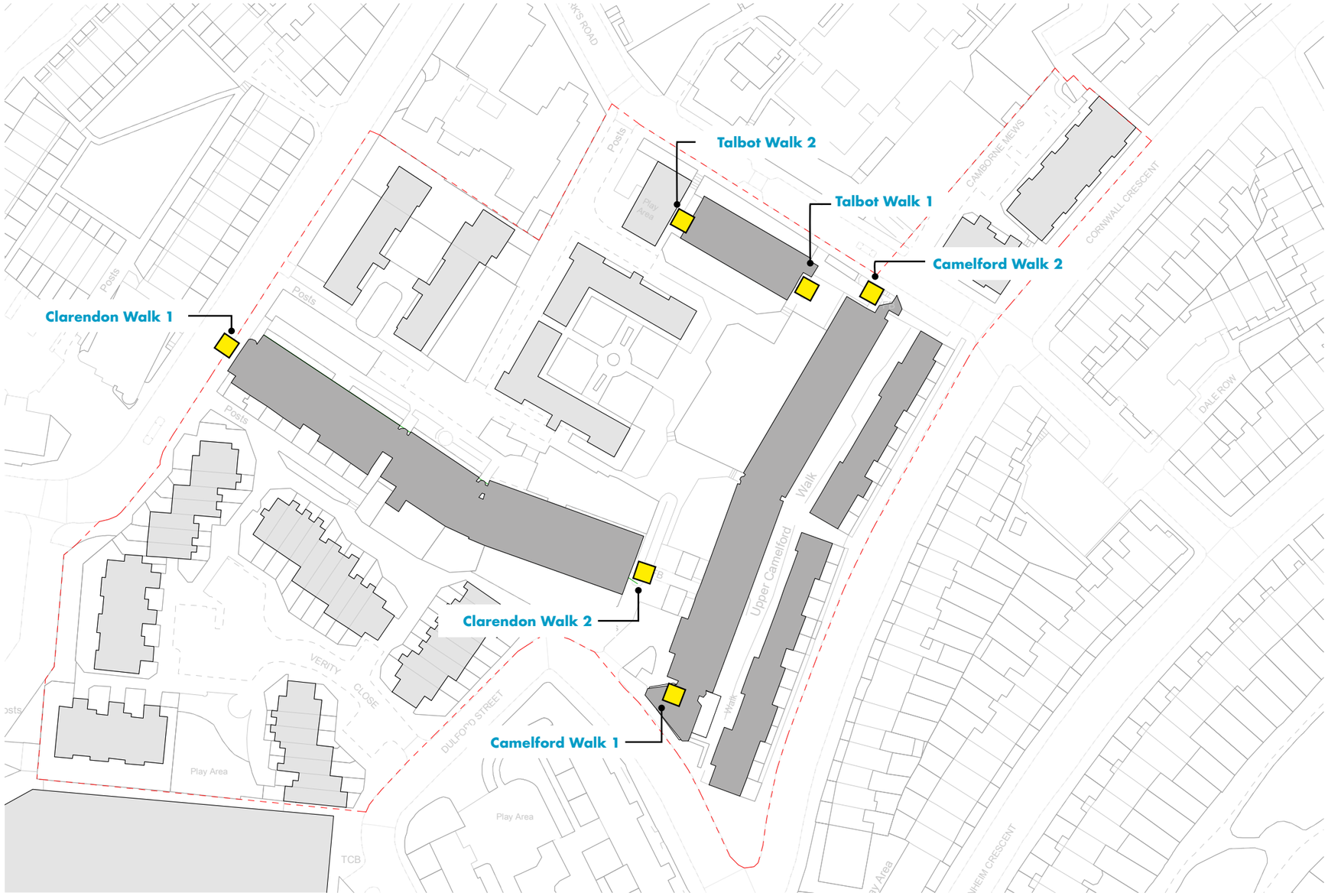
- **(A) No Lifts** - Existing stairs and entrances are retained.
- **(B) New Lifts** - Existing stairs are retained but new entrances required.
- **(C) New Lifts and New Stairs** - old stairs are demolished and new entrances created.

Where new lifts are proposed, the preference will be to locate them at the ends of each block, next to new or existing stairs for ease of wayfinding. A new entrance will be needed to enable access to the new lift to be accommodated.

Demolition of the stairs is a potential option to enable a more holistic proposal and better thermal performance. All options require further review following a measured building survey.

2 no. lifts are proposed for Camelford Walk
2 no. lifts are proposed for Clarendon Walk
2 no. lifts are proposed for Talbot Walk

Lift sizes are as per proposals by Chapman BDSP.



Proposed Lift Locations ▲
(Subject to discussion and survey)

Suggested Lift Location

4.5 Communal Areas

Lift Locations - Camelford Walk [1]

Proposed Locations
A lift is proposed to site at either end of Camelford Walk. Both locations are subject to review.

Lift 1 to the north should be a straight forward installation but will interface with an existing structure at ground level, the use of which is required to be confirmed.

Lift 2 to the south would interface with the existing ramp. Further understanding of the site levels and existing structure will need to be confirmed.

These locations are applicable to:

- **(B) New Lifts** - Existing stairs are retained but new entrances required.
- **(C) New Lifts and New Stairs** - old stairs are demolished and new entrances created.

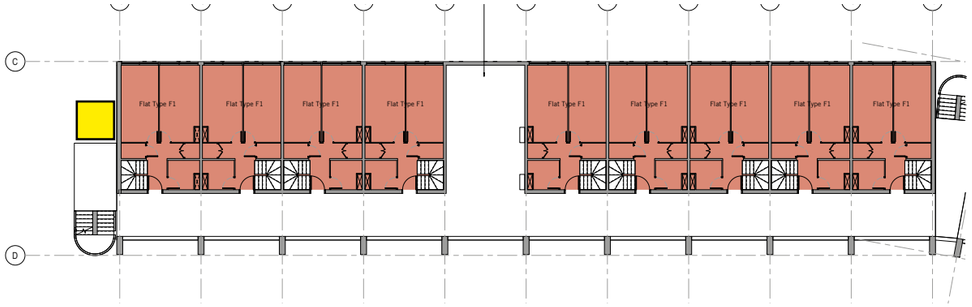
New lift shaft

Note: Location to be confirmed. Clash with existing boiler house to be reviewed.

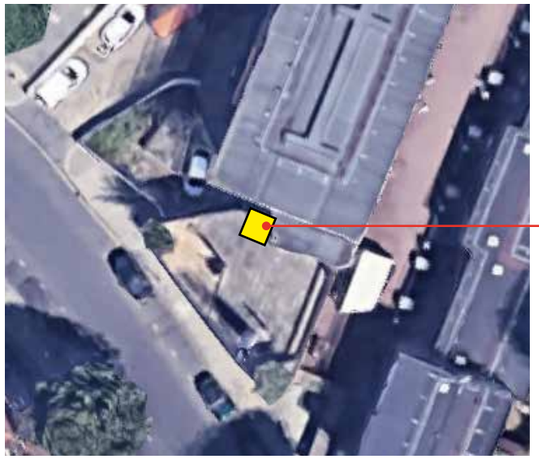
Demolish existing porch structure.

Allow for new entrance.

03 - Corridor Level Access



01 - Deck Level Access
(Access to this level not required for Gold option)



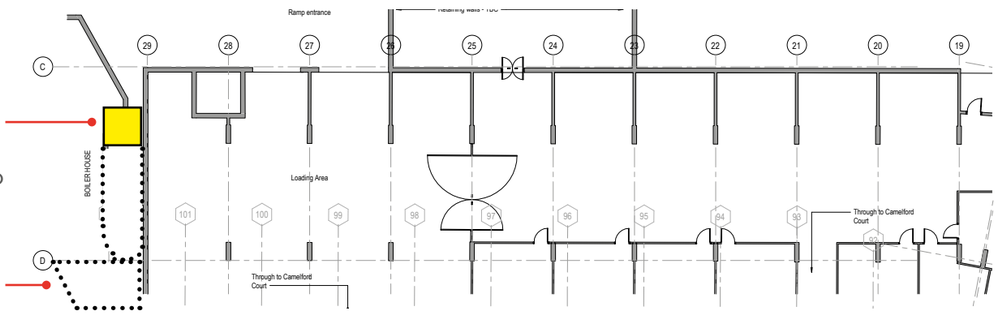
New lift shaft

Note: Location to be confirmed. Clash with existing boiler house to be reviewed.

New lift shaft

Note: Location to be confirmed. Clash with existing boiler house to be reviewed.

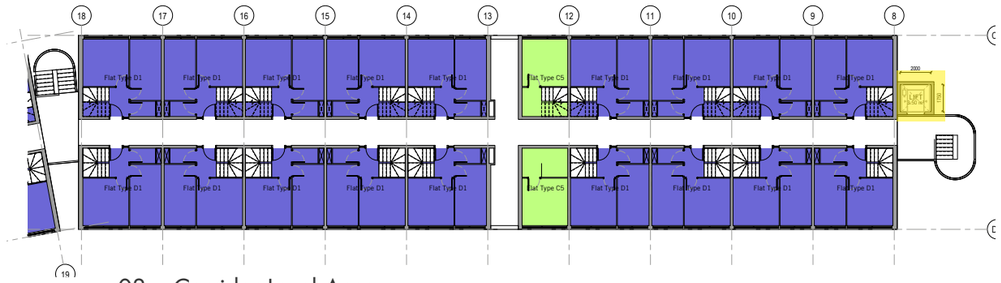
Existing entrance from Camelford Court side.



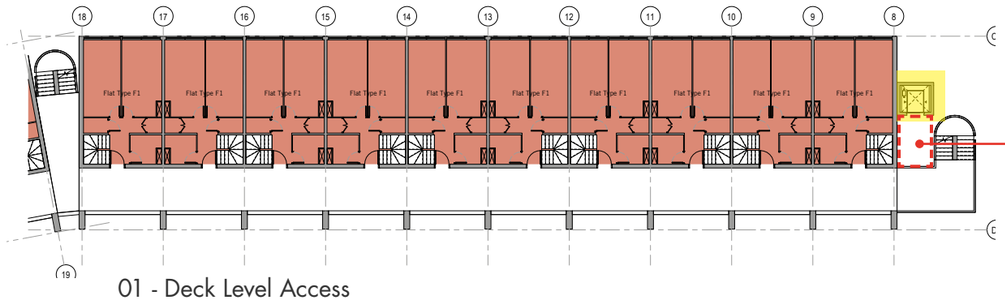
B1 - Basement Level at grade.
Access and Location to be confirmed - Clash with existing boiler house

4.5 Communal Areas

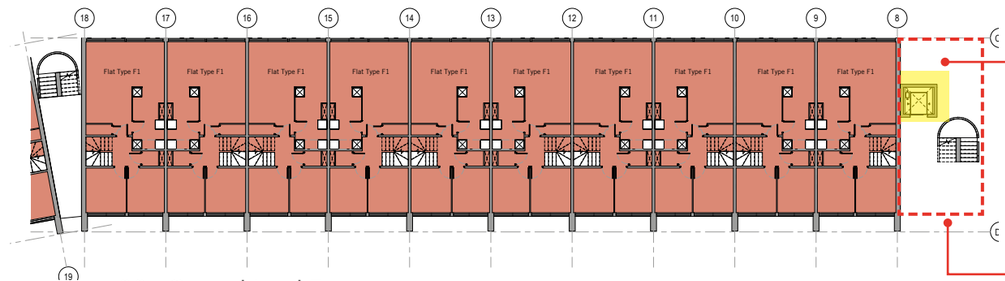
Lift Locations - Camelford Walk [2]



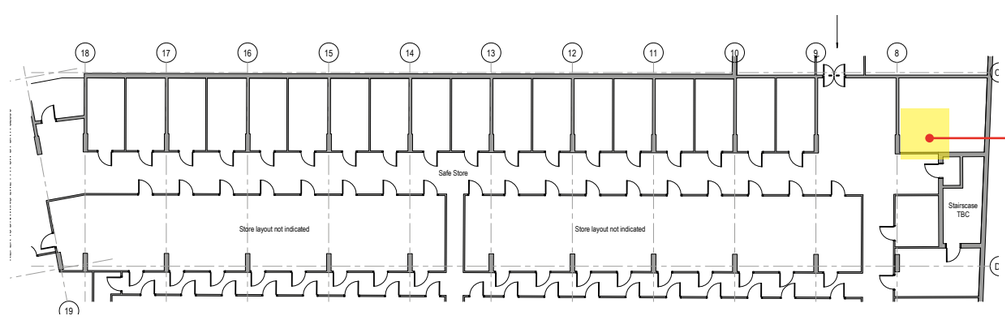
03 - Corridor Level Access



01 - Deck Level Access
(Access to this level not required for Gold option)



00 - Ground Level Entrance



B1 - Basement Level - No Access

Demolish existing porch structure

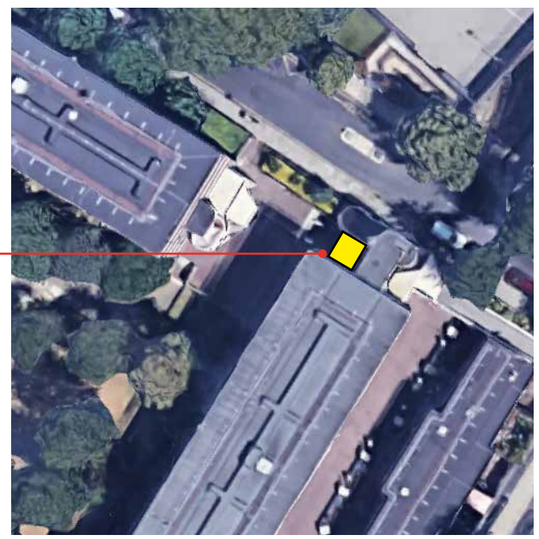
New lift shaft

Landing extension to lift.

Existing ground level enclosure to be demolished and rebuilt to re-house existing services within.

Note: Location to be confirmed. Potential clash with services within existing structure.

New entrance to lift and stair.



New lift shaft

Shaft to drop to basement slab for support only.

4.5 Communal Areas

Lift Locations - Clarendon Walk [1]

Proposed Locations
A lift is proposed to site at either end of Clarendon Walk. Both locations are subject to review.

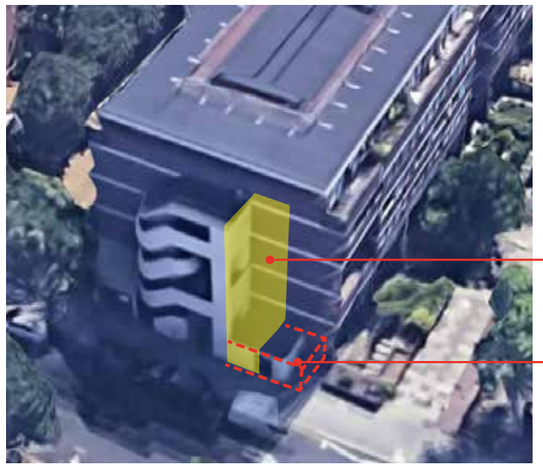
Lift 1 to the south would interface with the current boiler house. Understanding of the final strategy by TACE for the locations of the site wide district heater(s) is required to ascertain whether this proposed location would be possible.

Lift 2 to the north is potentially more straight forward but will interface with an existing structure at ground level, the use of which is required to be confirmed.

These locations are applicable to:

- **(B) New Lifts** - Existing stairs are retained but new entrances required.
- **(C) New Lifts and New Stairs** - old stairs are demolished and new entrances created.

The 'Berlin Wall'
For all options, the current 'Berlin wall' installed between each block in Clarendon Walk is proposed to be removed and through access to be reinstated.



New lift shaft

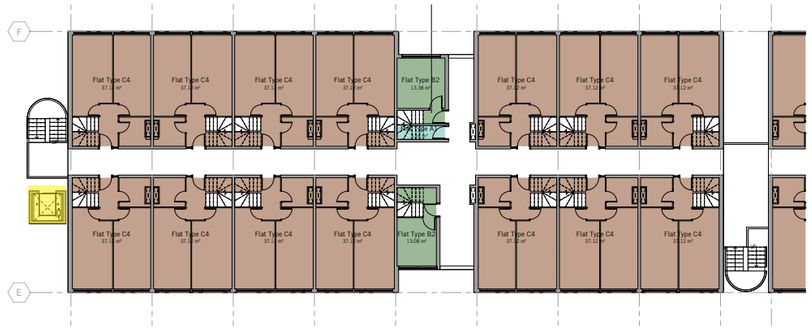
Existing ground level enclosure to be demolished and rebuilt to re-house existing services within.

Note: Location to be confirmed. Potential clash with services within existing structure.

New lift shaft

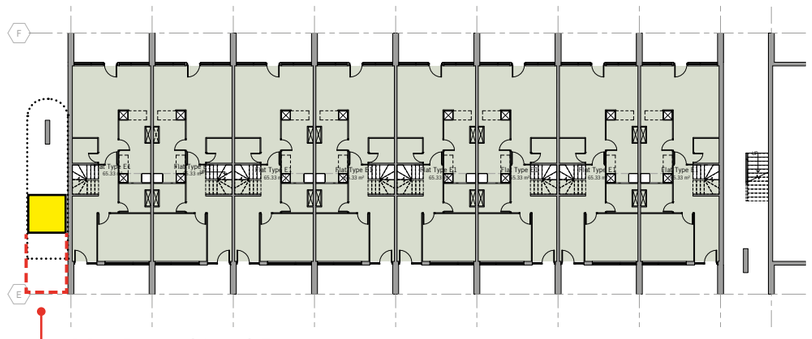
Create new entrance.

Existing ground level enclosure to be demolished and rebuilt to re-house existing services within.



03 - Corridor Level Entrance

01 - Corridor Level Entrance



00 - Ground Level Entrance

Create new entrance.

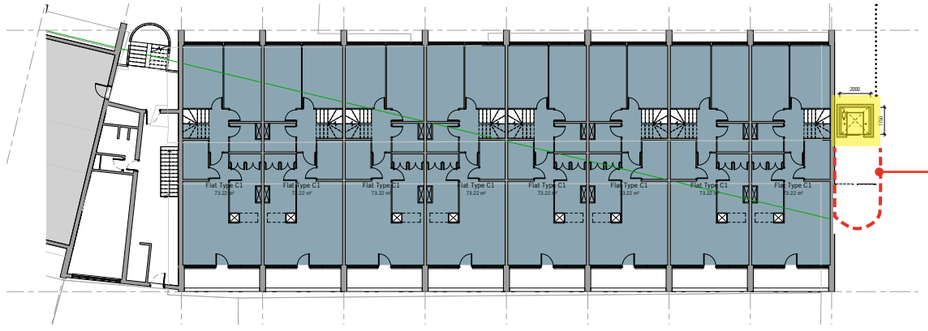
Existing ground level enclosure to be demolished and rebuilt to re-house existing services within.

4.5 Communal Areas

Lift Locations - Clarendon Walk [2]

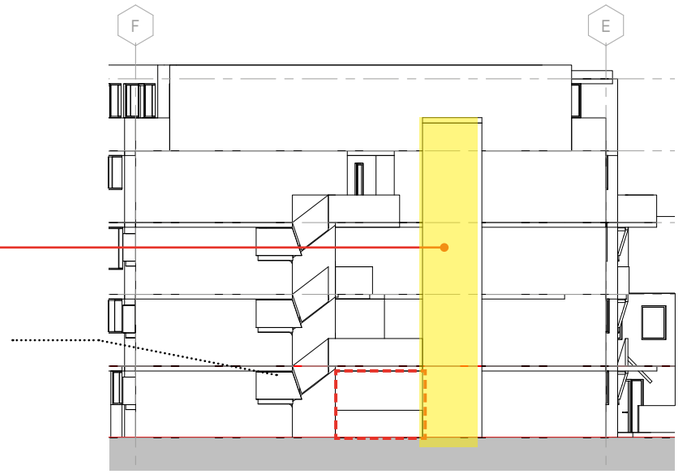
03 - Corridor Level

01 - Corridor Level



00 - Ground Level Entrance

New lift shaft



Demolish existing ramp to locate new lift shaft.

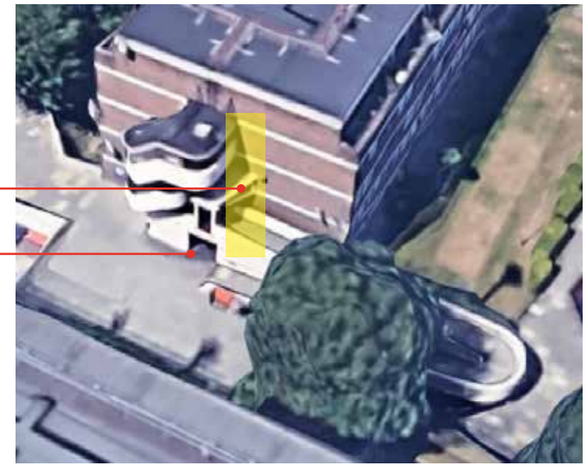
New lift shaft

New entrance

Demolish existing ramp to locate new lift shaft.

Entrance from 00.

Note: Level differences between existing ramp and new entrance at level 00 to be confirmed pending survey. Additional provisions to landscape may be required to maintain access.



New entrance.

Existing stair to be extended down to level 00.

Existing ramp to be demolished.

New lift shaft location.

4.5 Communal Areas

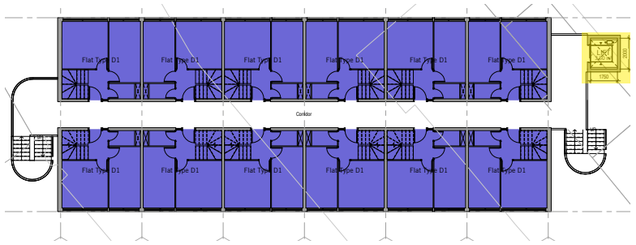
Lift Locations - Talbot Walk

Proposed Locations
One lift is proposed to Talbot Walk. The suggested location is subject to review.

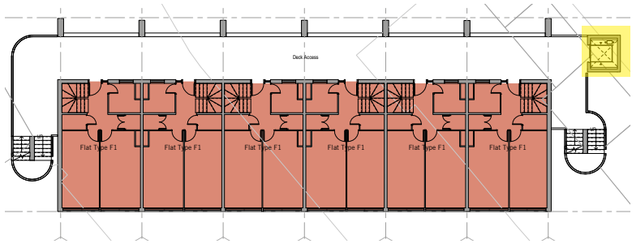
Located to the east side of the block, the lift would interface with an existing structure at ground level, the use of which is required to be confirmed.

These locations are applicable to:

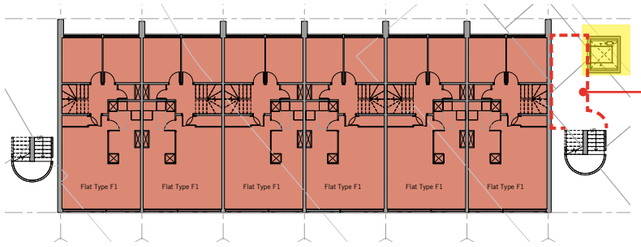
- **(B) New Lifts** - Existing stairs are retained but new entrances required.
- **(C) New Lifts and New Stairs** - old stairs are demolished and new entrances created.



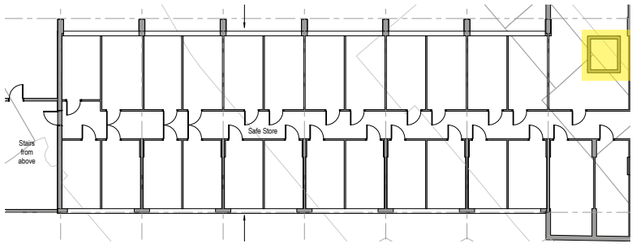
03 - Corridor Level Access



01 - Deck Level Access
(Access to this level not required for Gold



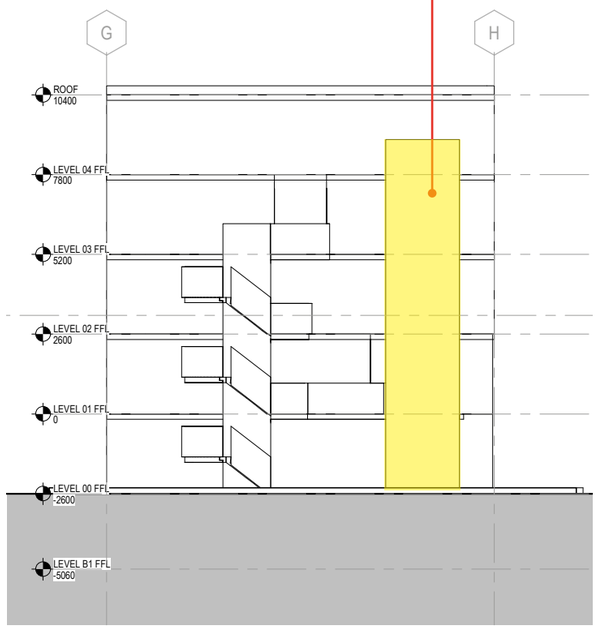
00 - Ground Level Entrance



B1

B1- No access
Shaft to drop to basement slab for support only.

- New lift shaft.
- Existing porch to be demolished.
- New entrance to be provided.



Existing entrance porch to be demolished. New entrance to lift and stair.

Existing entrance porch to be demolished. New entrance to lift and stair.

Note: Location to be confirmed. Potential clash with services within existing structure.

Existing entrance porch to be demolished. New entrance to lift and stair.

4.6 Communal Areas - Gold Retrofit

Corridors

Internalising the Corridors
This proposal will only be applicable to the Gold Package option.

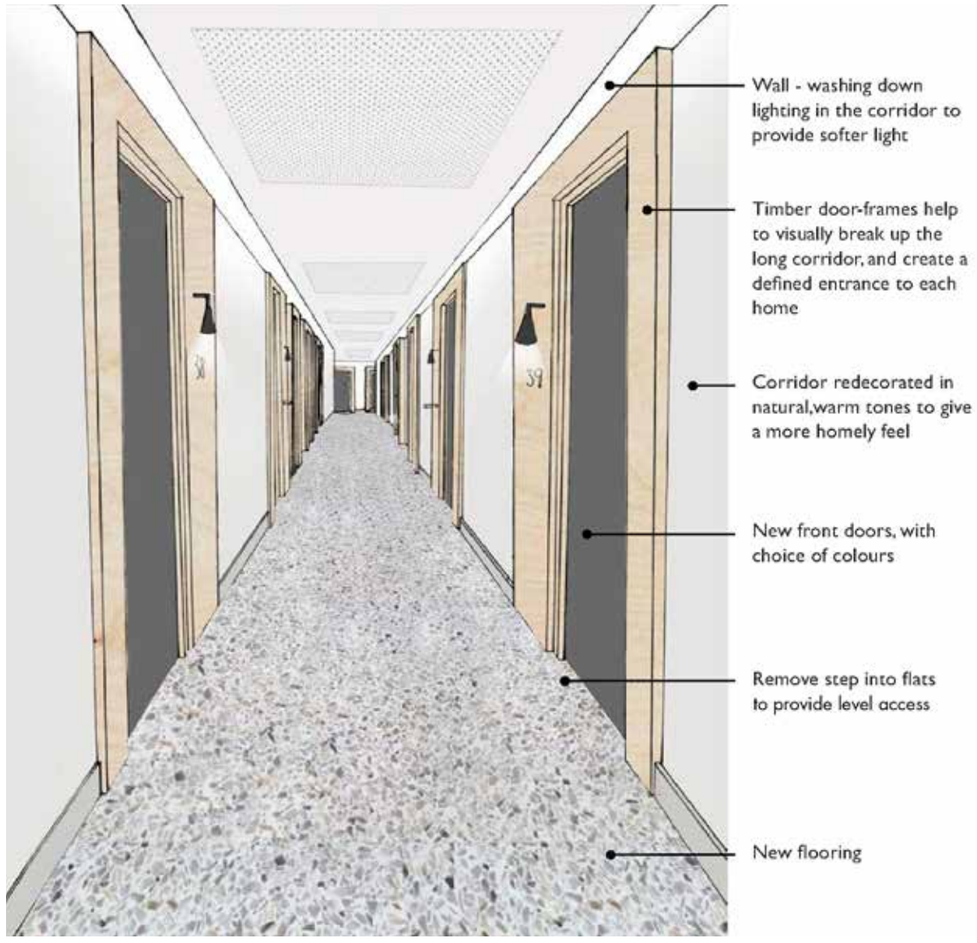
The purpose of internalising the corridors is to enable a continuos thermal line around the perimeter of the building, to mitigate additional thermal insulation to the corridor fronting party walls.

The diagrams on the following pages illustrates the principle.

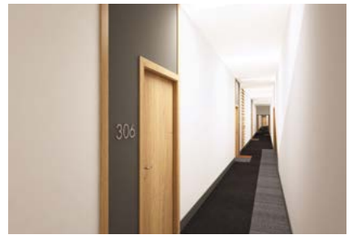
Opportunity
With the internalisation of the corridors, there may be opportunity to refurbish and upgrade the corridors as an internal space, improving the corridor entrance sequence for residents such as installing feature reveals, inset entrance matting and improved lighting.

Thresholds
As part of the review of the corridors, we are keen to address stepped access and level thresholds where possible, to enable level access at resident front doors as well as general communal areas.

Lighting
The lighting strategy will be developed further at the next stage. The intention is to provide a softer lighting through the communal spaces using diffused up or down lighting.



Opportunity to improve the corridor entrance sequence ▲
Indicative finishes / material palette ►



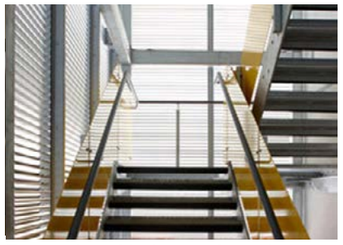
Example of a light corridor with welcoming entrances


Example of timber front doors


Example of a corridor with feature down-lighting


Example of material palette


Terrazzo floor & timber doors


Example of light enclosed staircase


Indicative lighting - soft lit using diffused light fittings.

4.6 Communal Areas - Gold Retrofit

Corridors - Clarendon Walk

Separation Corridors
As a result of internalising the space, separation fire doors are required to be located along the corridors. The precise requirements will need to be understood further.

Residual Space
A series of spaces located between flats will become residual or are already currently being used as informal storage. These areas can be reviewed further with LWNT and residents to understand how best to prepare and use these spaces.

Internalised Areas

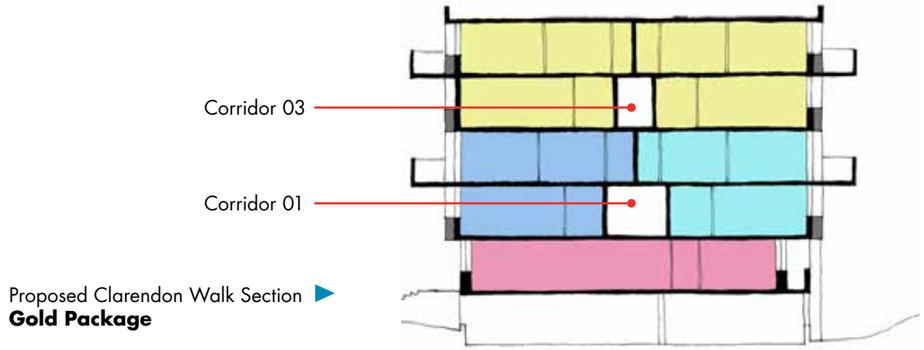
potential storage/use to be discussed with residents

window / door within new insulated external wall

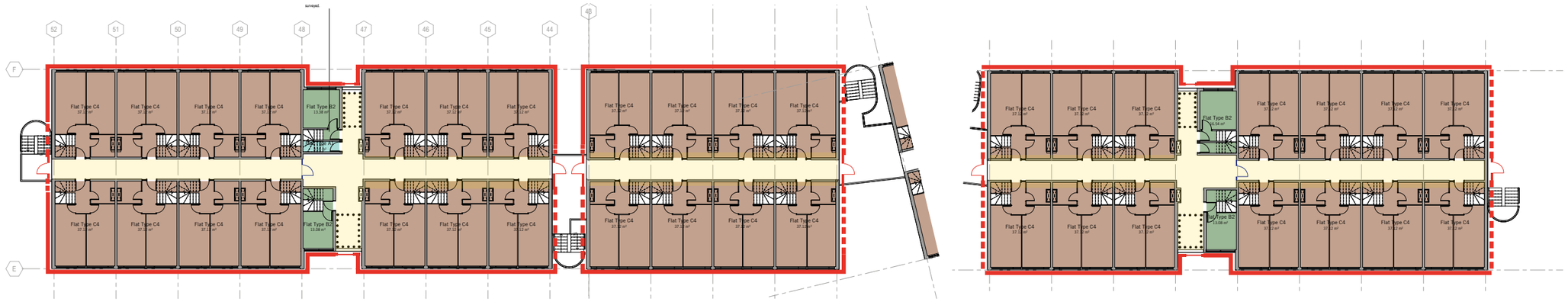
corridor separation doors

new insulated external wall line

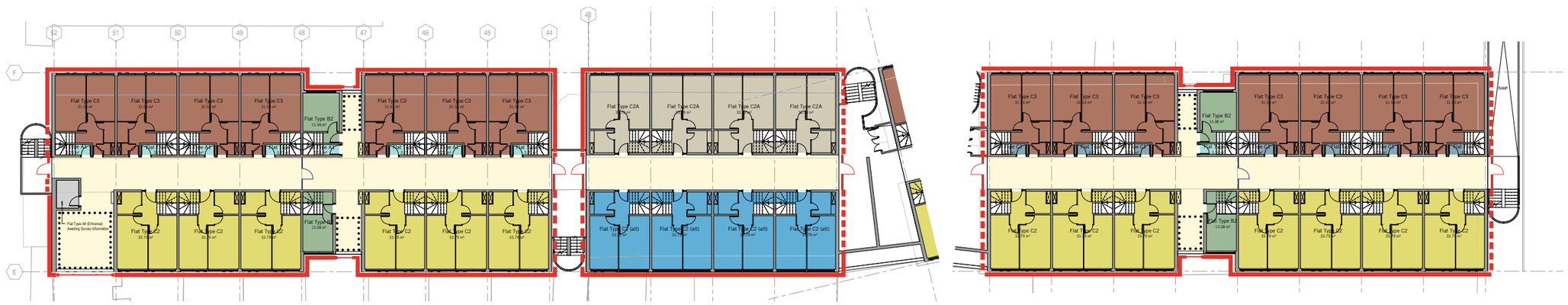
new insulated external wall line (TBC)



Proposed Clarendon Walk Section ▶
Gold Package



Level 03 ▶
Gold Package Option



Level 01 ▶
Gold Package Option

4.6 Communal Areas - Gold Retrofit

Corridors - Camelford Walk & Talbot Walk

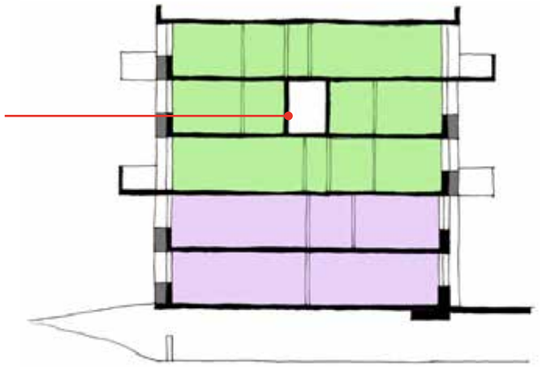
Wrapping the Envelope around the Stairs
The strategy for the maintaining a thermal line around the perimeter of the building will need further detailed consideration at the interfaces with the stairs.

The interface the between the stairs and the building is likely to be a thermal bridge.

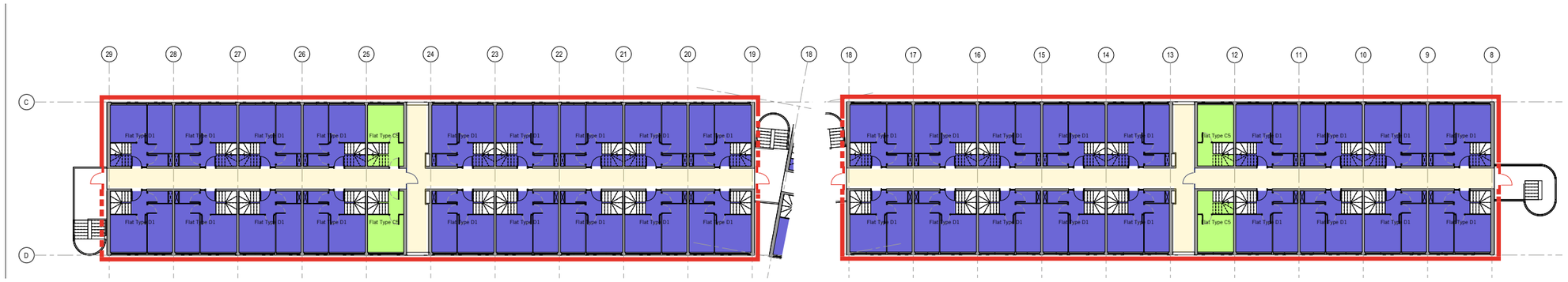
Two options are currently being considered:

Option 1:
To extend the thermal line around the stair enclosure, thereby making it an internal space. This will have implications on the fire escape strategy.

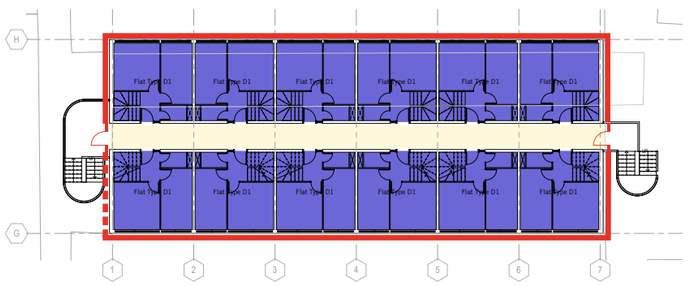
Option 2:
To demolish and reinstate the stairs with a thermal break. This may enable a more integrated design proposal to be considered together with the lifts, but as much loved features, this will need carefully considered justification.



Proposed Typical Section
Talbot Walk / Camelford Walk
Gold Package



Camelford Walk - Level 03
Gold Package Option



Talbot Walk - Level 03
Gold Package Option

- Internalised Areas
- potential storage/use to be discussed with residents
- window / door within new insulated external wall
- corridor separation doors
- new insulated external wall line
- new insulated external wall line (TBC)

4.7 Interiors

Scope
The interior refurbishment falls outside of the scope of the Lot 2 Design Team and will be carried out by LWNT as a separate stream of works.

Coordination between the these two strands will be required to mitigate abortive work and avoid disrupting residents more than is necessary.

Scenarios where overlap of works may occur:

- Making good of internals after works done to the external fabric.
- Installation of MEV / MVHR system and connection interface with the external wall.
- Internal reconfiguration of certain flat types (predominately maisonettes at ground level) to provide direct access from ground level.

Flat Types
16 Flatypes have been identified in the make-up of the four blocks.

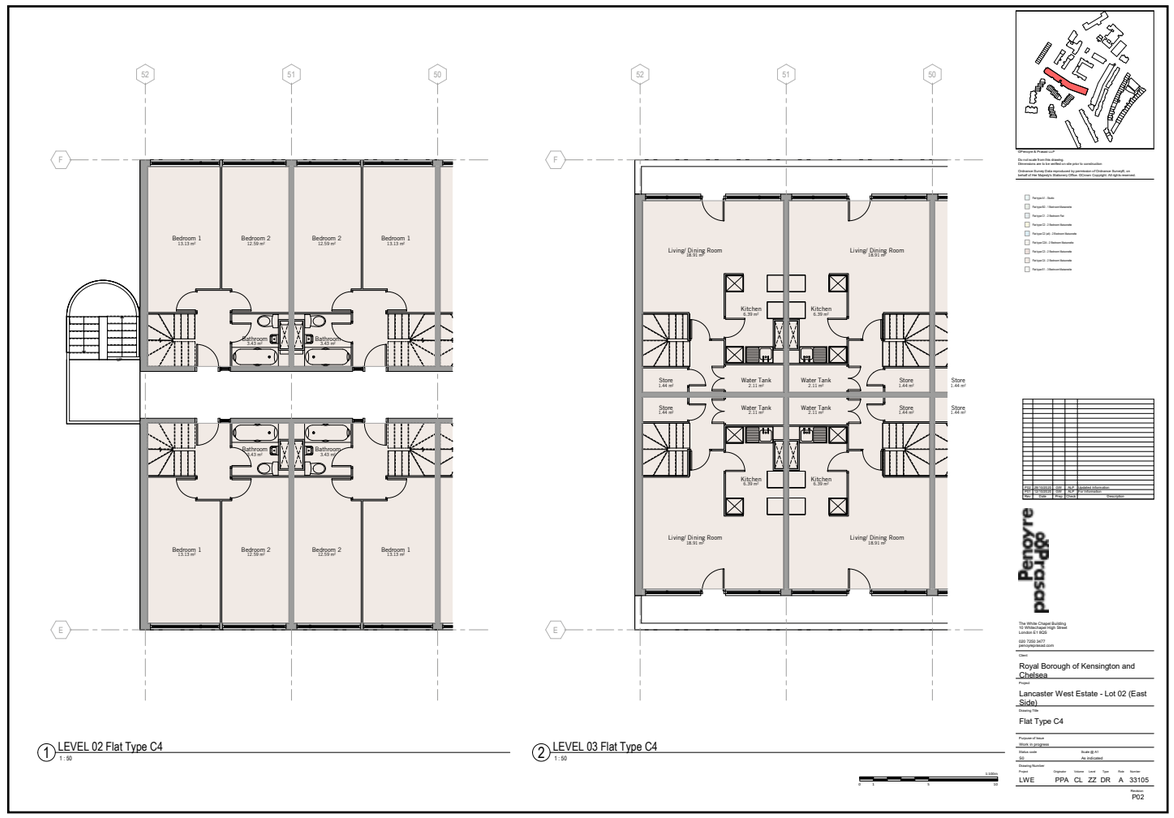
Internal layout drawings of each type have been prepared based on archive information (three flat types yet to be confirmed.) The layouts are indicative for reference only and does not capture any amendments made since the original construction.

Flat Type Overview

Flat Types/ Blocks	A1	A3	A4	B2	B3	C1	C2	C3	C4	C5	C6	D1	D2	E1	F1	G1
Clarendon	x		x	x		x	x	x	x					x		
Camelford Court		x									x		x			x
Camelford Walk					x					x		x			x	
Talbot Walk												x			x	

x = Known Internal Layout
x = Missing Internal Layout

(By Archive information)



◀ Sample internal layout based on archive information - Flat Type C4 from Clarendon Walk

4.10 Solar Photovoltaics (PVs)

Renewable Energy

Solar Photovoltaics (PVs)
Solar Photovoltaics, or PV panels, are panels that enable electricity to be generated through the absorption of sunlight. It is classed as a source of renewable energy and often used to support net-zero ambitions.

Panels come in a range of sizes and are typically fitted to face south, on the roofs of buildings. The larger the area (or array) of panels, the more sunlight absorbed, and the more electricity produced.

As part of the refurbishment proposals, the installation of PVs to each block is being reviewed. The intention is to understand the implications, to enable a decision to be made as to whether PVs can be installed as part of the current works, at a later date, or not at all.

For the Gold fabric option, PVs are proposed as part of the upgrade, to support the targets of the Gold option to meet PassivHaus EnerPHit and LWNT's aspiration to become zero carbon by 2030.

Coverage
An early stage review by our sustainability consultant XC02 provided a high level calculation of the area of PV array needed to achieve zero carbon and the estimated available roof area over each block.

A number of factors will define how much available roof area there will be to locate PVs:

- Existing structure and how much extra load can be accommodated
- Existing drainage and rainwater features
- Both existing and new services that will need to be located at roof level.
- Allowance for safe access and maintenance.

This will become clearer as more is known of the existing roofs (measured surveys) and proposed works involved.

The estimates and implications will be developed further in the following stages in conjunction with TACE.

	Estimated Roof area	PV area for Zero Carbon	Req'd roof area for PV*
Clarendon Walk	1780m^2	1350m^2	1930m^2
Talbot Walk	350m^2	250m^2	360m^2
Camelford Walk	1533m^2	767m^2	1095m^2
Camelford Court	880m^2	500m^2	715m^2

*70% spatial efficiency

▲ Indicative area of PV required to meet zero carbon

▲ Typical PV panel

▲ Indicative arrangement of panels over a biodiverse green roof.

◀ Indicative arrangement on a flat roof.
Panels are angled to achieve maximised sunlight absorption for the specific building.

4.11 MEV / MVHR

Ventilation

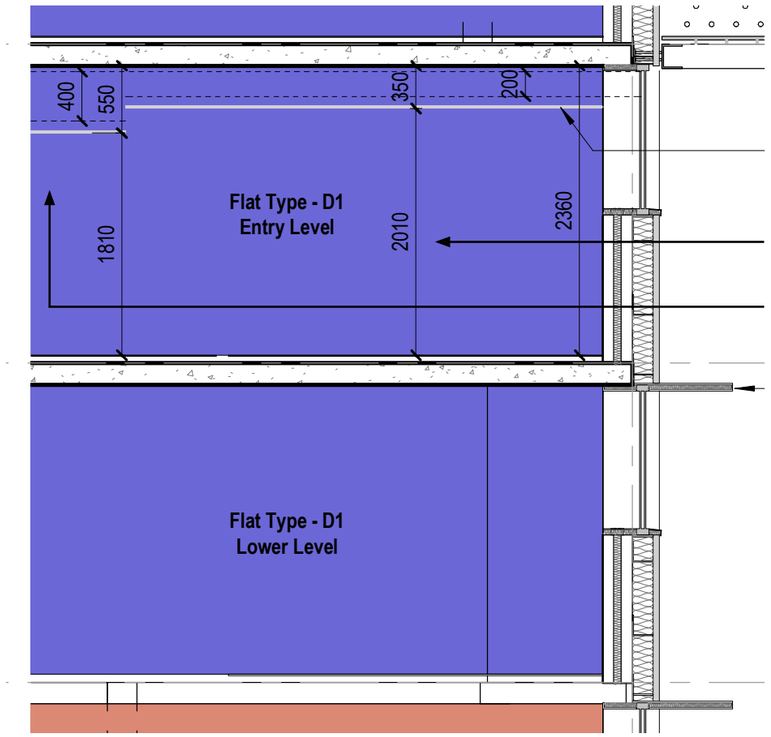
Ventilation
MEV (Mechanical Extract Ventilation) and MVHR (Mechanical Ventilation with Heat Recovery) systems, are used to remove stale air and bring in fresh air in a thermally controlled way. These will be required to every home to ensure resident well-being is not compromised by the improved thermal performance of the envelope.

Implications
Indicative guidance of average clear zones required for typical MVHR duct systems have provided a preliminary indicative of the potential impact on head heights.

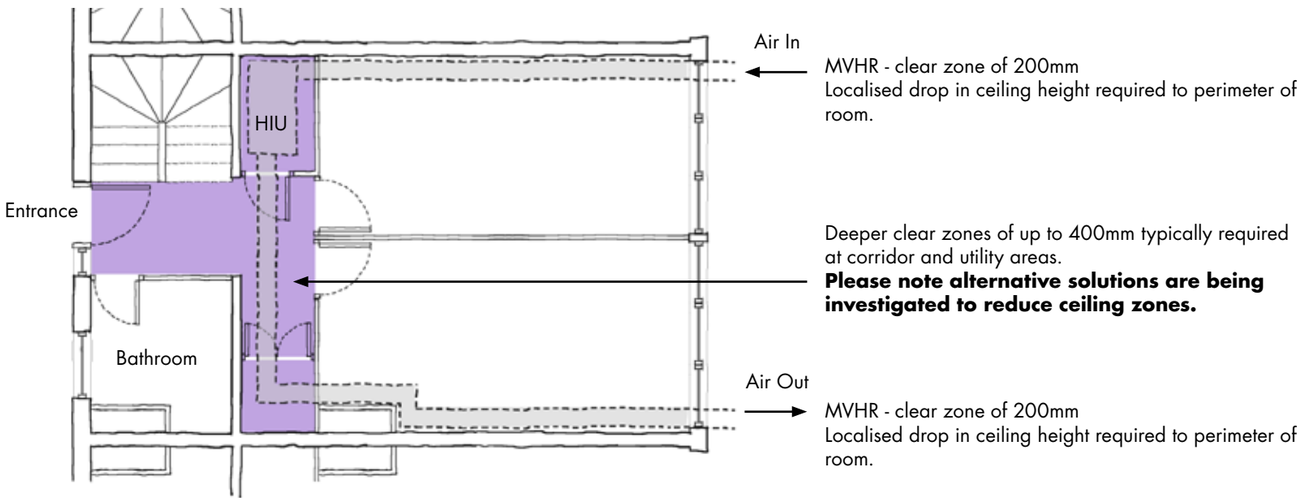
The general ductwork will require review to be located to room perimeters, in order to allow localised bulkheads to be created to conceal it. This will allow the ceiling height to be maximised for the rest of the room.

A deeper zone is typically required to Corridor / WC / Utility areas to allow for crossover and interfaces; The current allowances would drop the clear heights below the 2m threshold. Further review to explore alternative solutions will be undertaken in the following stage.

Issues of noise and available space within existing flat layouts will also be explored further in conjunction with TACE and the location the HIU (Heat Interface Unit)



▲ Typical section indicating potential impact to head clearances from incorporating a MVHR system.



▲ Indicative flat layout with HIU and how MVHR ductwork connects back to the outside.

05
Fire Safety

Trigon Fire Safety Ltd (Trigon) has been appointed as the fire safety consultants for the Lancaster West Estate, Lot2.

The overview here provides a brief introduction to their approach to fire safety and initial high-level considerations of the design proposals.

Fire Safety Overview
A full range of fire safety implications and proposals will be set out at the next design stage in Trigons initial fire strategy report. This will include, but not limited to, consideration to the following:

- Fire and smoke detection systems within flats and common areas.
- Residential sprinkler protection to flats and consideration of enhanced and extended sprinkler system.
- The proposals will likely affect the means of escape from the common areas therefore it will need to be ensured that these common escape routes will continue to be suitably protected including the provision of fire separation, smoke ventilation and fire detection.
- Upgrade of existing means of escape provisions such as common stairs cores with consideration of appropriate lift installations.
- Where internal layouts of flats are altered, the safe means of escape from within the flats will be not be compromised.
- Suitable materials used in construction. For example, ensuring the materials which become part of an external wall do not provide a medium for fire spread (i.e. European Classification A2-s1, d0 or A1, in accordance with BS EN 13501-1:2007+A1:2009).
- Appropriate fire separation provided between the flats, to ancillary areas and to common escape routes. Including walls, doors and risers.
- Suitable and sufficient access and facilities for the fire and rescue service.
- Emergency lighting and signage for escape.
- Fire safety management.
- Cavity barrier and fire stopping provisions are suitable and carried out by third party accredited contractor.
- Third-party accreditation and or testing of the fire safety performance of systems, products and materials.

Further review and consideration will be had regarding the ancillary areas such as basement car park and storage areas and ascertain whether there is a benefit and scope to improve fire safety provisions in these areas.

Next Steps
Trigon will be carrying out a site visit of the blocks (subject to COVID-19 restrictions/protocols) to further understand the existing fire safety provisions. In addition, Trigon will complete their review of the proposals and produce a fire safety strategy report which will be developed as the design progresses. As part of the fire safety strategy development Trigon will liaise with the design team and other stakeholders including Approval Authorities.

06
Summary

Overview
The following is a summary account of the progress made to date.

Brief development
The scope of the design brief has been clarified with Interior Works extracted as a separate stream led by LWNT and for the design team to focus on the external fabric and communal areas.

External Fabric
Three package options have been identified as per the Stage 1 requirements:

Bronze:
An essentials upgrade package.

Silver:
An enhanced performance upgrade package that will require works to the internal side the external wall.

Gold:
An EnerPHit standard retrofit to support zero carbon aspirations.

The cost of each package has been preliminarily evaluated by Potter Raper for discussion. (refer to appendix D)

The energy performance of each has been preliminarily evaluated by XC02 for discussion. (refer to appendix B)

Communal Areas:
Lifts have been identified as a priority item to be included to each package option. Locations have been preliminarily identified for further discussion and also pending further survey information. An initial allowance has been made to each package.

The current proposed locations of the lifts sit adjacent to the existing staircores and provide an opportunity to reconsider the main entrances to the blocks for residents.

Further communal area works (The corridors) have been proposed to the Gold package to support the energy improvement targets.

Design Team Input
The package proposals have been developed with support from the design team disciplines including sustainability, structural and cost.

The Gold Retrofit proposals have been reviewed with our fire consultant Trigon to ensure the basic design principles can be developed further with fire safety in mind.

Next Steps
- Instruction to proceed directly into RIBA stage 2 as per programme.
- LWNT to identify the preferred package option for development and co-design.
- Resident engagement to understand views on each of the packages, which elements are key and which raise concerns.
- Lifts - Review suitability of locations and interface at ground level.
- To have a discussion on the ground level maisonettes and concept of street frontage as part of bigger picture for LWE.
- Preparation for planning.
- Establish accelerated programmes of work due to funding requirements e.g. roofs for Camelford Court.
- Establish the BEP (Bim Execution Plan) to reflect LWNT BIM (Building Information Management) requirements (site wide).
- Completing gaps in required information (see surveys required - Section 02 and outstanding RFIs - Appendix E) including basement areas.
- Appoint fire consultant.

Key Risks
- The measured survey will need to be commissioned as a priority of the next stage. A delay on its delivery may have an impact on the proposals for the circulation areas and how they relate to existing information.
- Key structural surveys will require coordination with Internal Refurbishment team to access voids and support from residents where no voids are available.
- The interface of Clarendon Walk with Grenfell Nursery will need closer review and further understanding to mitigate potential abortive work and avoid impact to the now granted Nursery planning approval.
- Separate programmes of work which will take place in parallel to the main design works will need to be communicated to the design teams to identify areas of overlap and opportunities for coordination to avoid abortive work and additional cause of disruption to residents. (e.g. internal refurbishment programme and potential re-configuration works)
- Current package proposals consider interventions at basement level. Existing and proposed basement uses need to be understood by the design team, to allow coordination, understand implications to head clearances and to avoid unintended consequences of thermal misalignment.
- A preferred retrofit package and direction of development will need to be understood early in the next stage to mitigate abortive work within a challenged programme and allow design exploration to focus on the appropriate aspects.
- The upgrade for Camelford Court roofs will need to be extracted as a separate stream of work to an accelerated programme. Full client and design team support will be required to meet the tight delivery target for completion by March 31st 2021 to avoid retraction of the awarded funding.
- The upgrade for Talbot Walk and Clarendon Walk roofs will also need to be extracted as a separate stream of work to an accelerated programme. Full client and design team support will be required to meet the tight delivery target for completion by September 30th 2021 to avoid retraction of the awarded funding.
- Late input from an appointed MEP consultant may cause abortive work and impact to delivery programme.
- To enable a successful BIM delivery, a BEP (BIM Execution Plan) will need to be established as a priority at the next stage start to allow model set-up and coordination with the other Lot teams. A late incorporation may impact how well coordinated models will be and unravel progressed work.

The above risks will need support from LWNT and the Lancaster West Resident's Association to address.