THE WALKWAYS

Initial Design Ideas

Feasibility Report

July 2021

LANCASTER WEST NEIGHBOURHOOD TEAM

W11

Karakusevic Carson Architects

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CONTENTS

ACRONYM SUMMARY

AOV	Automatic Opening Vent
ASHP	Air Source Heat Pump
BEIS	The Department of Business, Energy and Industrial Strategy
BIM	Building Information Modelling
CDM	Construction Design Management
CFD	Computational Fluid Dynamics
CWI	Cavity Wall Insulation
EPC	Energy Performance Certificate
EWI	External Wall Insulation
DHN	District Heat Network
FRA	Fire Risk Assessment
IWI	Internal Wall Insulation
KCA	Karakusevic Carson Architects
LFB	London Fire Brigade
LSE	London School of Economics
LWNT	Lancaster West Neighbourhood Team
HIU	Heat Intake Unit
HNIP	Heat Network Investment Project
MEP	Mechanical, Electrical and Plumbing
MEWP	Mobile Elevated Work Platform
MVHR	Mechanical Ventilation with Heat Recovery
MEV	Mechanical Extract Ventilation
PAS	Publically Available Specification
PTM	Project Team Meeting
RIBA	Royal Institute of British Architects
RBKC	Royal Borough of Kensington Chelsea
SAP	Standard Assessment Procedure
SFS	Steel Frame System
SHDF	Social Housing Decarbonisation Fund
SME	Small, Medium Enterprises
TBC	To be confirmed

EXECUTIVE SUMMARY

Introduction

The Karakusevic Carson team are proud to have been selected to lead the re-design and upgrading of the Walkway blocks at the Lancaster West Estate to respond to the Resident's Top 10 issues and the Council's (RBKC) and Lancaster West Neighbourhood Team's (LWNT) ambitions to transform the estate and bring the buildings up to high and modern sustainable standard. The aspiration is to 'co-design' with residents, which means developing options with residents; giving them the opportunity to choose or influence solutions and changes to their homes. Some changes will be essential, such as some fire safety measures like new atrium skylights and glazing, but even in these cases residents input may influence how and when the work is done and what it will look like.

Since September 2020 we have worked closely with the LWNT team, various council departments and other estate-wide consultants to develop a clearer understanding of the buildings, the challenges to responding to the brief and how to resolve these with minimal disruption to residents but with maximum improvements for their benefit.

Sadly the impact of Covid has slowed down some of the normal early stage preparatory work, such as procuring surveys and achieving significant engagement with residents. Nevertheless we have been able to develop detailed models and drawings through the use of archive material and several on-site visits. Numerous on-line meetings and workshops have taken place and our engagement strategy has developed and included meetings with Block representatives and the LWNT Engagement, Communications, Housing, Fit-out and other teams, to ensure that consideration for residents needs and concerns have been taken into consideration.

The Walkways are a set of large and complex, occupied existing buildings so the range of work to date has spanned a number of conventional RIBA stages, such that some work has already developed into great detail, yet other elements of the brief or scope are still emerging. This report summarises key design and scope decisions, design development ideas, and potential approaches to resolving the strategic and detailed delivery of the Walkways project as well as considering procurement implications and options. Some options may be rejected or adapted as consultation and evaluation progresses but the report essentially represents the completion of RIBA Stage 2 - Concept Design.

Understanding the Building

Much of the initial work has focussed on understanding and modelling the building as well as identifying the scope, with a particular focus on improving the thermal and energy performance of the building. We have identified four main groups of potential work packages that could respond to the challenges of the brief and we have also identified several elements within those groups that might be necessary or required as a consequence of other essential work. Different work packages and elements may require varying degrees of access to homes and the buildings and different solutions may have varying degrees of effectiveness or have different financial implications for residents, depending on their tenure and the extent of the work. Ultimately there are likely to be a combination of packages and elements and some variation across the buildings and homes. The table overleaf identifies four main package groups and some elements of these which are **essential or necessary to achieve targets** and other elements which are **desirable, optional or potential to achieving improvements:**

Work Package Groups	Elements - likely to be essential or necessary to achieve targets	Elements - desirable, optional or potential to achieving improvements
Envelope	Completing the front door programme Roof insulation *Window/Balcony door replacement Basement soffit insulation	Triple glazed, as opposed to 'double' (to outside) Threshold removal Wall insulation EWI-External, **IWI-Internal*, or CWI-Cavity Parapet (to roof to enable insulation etc) Garage dropped ceilings Ceiling insulation Floor/balcony insulation
Atrium (Common areas)	Sky lights (AOV smoke extract) New bathroom/kitchen window (fireproof glazing) New intercom/video entry New entrance doors etc	Sky lights ventilation MVHR/ASHP Pram/cycle stores New staircases New Lifts
Homes	Sprinklers (with new ceilings), Smoke & Heat detectors Ventilation replacement/MVHR or MEV New lighting	New MVHR cupboards and wall vents General 'fitout improvements such as kitchens, bathrooms etc
Services Heating, Areas outside the building & Lower Ground floors	New vertical service risers Other services upgrades New Meters and Consumer Units Improve level access approach	Deck Level -1 new service floor Service cupboards, MVHR, HIU (etc) Service risers (incl. MVHR, HIU etc) Energy/service monitors

Work Package Groups & Elements - NB! Most elements are focussed outside homes, others with *asterisk may be able to be done with daytime access to homes with residents in-situ, those with Blue Italics are likely to require longer term access to homes and temporary re-housing.

Coordination

The work packages need to be designed and installed in concert with other major changes to the building services, fire performance and other functional elements, such as AOV's, refuse, lighting, alarms and garage use, which may be designed, delivered or installed, in part or entirely, by others. This presents a huge challenge to ensure coordination and avoid abortive work, but it also presents the opportunity for some work to satisfy more than one objective. For example the new atrium AOV's/skylights should, in addition to providing emergency smoke extract, should also be used to enhance the insulation of the walkways' atria and provide controlled ventilation and even 'Air source heating' (ASHP).

We are coordinating a series of workshops, meetings and presentation to help tie this work together and are using a number of project management tools to manage risk and record decisions such as:

- Issues Log - A live record of key decisions across a range of disciplines
- CDM records - To identify risks and assign responsibility to mitigate them and different work stages, from design and construction through to use and maintenance
- Engagement & Communications log - A live record of key messages, events and feedback

EXECUTIVE SUMMARY (CONT.)

Funding

A number of different funding streams have and are being explored by us and different members of the wider team to help finance different packages of work. Each fund has independent timelines and funding conditions. We have already put together a bid for over £12.9 million of Social Housing Demonstrator Funding (SHDF), which could pay for a significant amount of envelope and energy performance improvements and achieve ambitious performance targets as well as demonstrable procurement cost savings, in-house monitoring and future roll out elsewhere in the country. As a consequence, the scope of the team's work has expanded and an additional layer of evaluation and reporting is required to ensure that work packages are carefully associated with the optimum funding sources and that the funding criteria match those of our client and residents objectives.

Ongoing work, tenure and access to properties

A refit programme of home upgrades is already underway by LWNT, including replacement of kitchens and bathrooms. Some residents, regardless of tenure, may have personal circumstances and needs, which may influence the extent or timing of work and the access to their homes. In addition there is expected to be resistance from some residents to give access or agreement for repair, upgrades etc. As a consequence it appears that even the same home type may undergo a different combination of improvements ranging from a minimal approach e.g. windows, sprinklers, and ventilation up to a maximum full refit, including wall insulation, new kitchens, bathrooms and heating systems.

Logistics and temporary housing and access

There is a large number of homes in the blocks and each family or householder has different needs and vulnerabilities. Consideration has been given to how different works will impact residents and whether they can be done with residents in situ. A sophisticated mapping of voids, homes under construction and, where necessary, alternative respite or temporary accommodation is needed and will require clear communication with residents and their feedback to coordinate work with the minimum inconvenience and maximum speed. Using prefabricated elements and focusing new service installation in common areas, rather than inside homes, will help reduce construction time and impact, nevertheless there will still be disruption to residents. Full apartment fit-outs may take weeks and sprinkler installation and window replacement several days. Therefore there will be a need to vacate homes during the daytime or over a longer period in order to make significant changes or carry out essential work. LWNT have a range of solutions to help with temporary or respite accommodation to help residents, and the greater willingness and flexibility residents have to accommodate construction, the faster the work will be done.

Concept Designs - Temperate/Warm Atrium

Following on from the work begun at bid stage we have evaluated the performance of the Atrium and we are confident that by making this a 'temperate' or 'warm' space will improve the environment of the walkways and significantly reduce the energy demand of the apartments and any need to improve their insulation adjacent to the atrium. We are working with Fire engineers to ensure that the atria can also be significantly improved for fire safety.

Concept Designs - Envelope

In tandem with the temperate atrium we have assessed numerous combination of envelope improvements. Upgrading roof and basement soffit's insulation will help thermal performance significantly and our calculation show that upgrading cavity insulation, when windows are installed will also enable us to achieve over 80% reductions in heat load. We will conduct a series of invasive surveys that will create core samples of the envelope to assess if this upgrade is required. Some further improvements could be made by either adding insulation to the internal wall (during apartment fit-outs) or the external wall. The first would reduce the apartment area by a small amount and could become an element of choice depending on the extent of fit-out work (illustrations of this loss of internal area is shown for the most common home types later in this document. On average it is between 0.5-5%). The latter would be complex and therefore expensive to install due the unique design of the buildings.

Concept Designs - Services

Because it is difficult for LWNT to be certain about the timing of the delivery of the different packages and varied

funds as well as challenges in agreeing access to homes, we have begun to focus our upgrades and services strategy so that the maximum amount of work can be done outside of homes or with minimum disruption. Focussing new horizontal service runs at deck level -1 and vertical runs in the atrium light wells appear to be optimal locations. Creating service cupboards, pram and cycle stores and even new HIU (Heat Intake Unit) or MVHR (Mechanical Ventilation with Heat Recovery) equipment in the current corridor areas will also simplify construction and maintenance access, minimise disruption and give us the opportunity to upgrade the finishes and appearance of the common areas, with residents input. This approach will also enable a phased approach to the installation of different service and energy packages, while allowing current systems to remain in-situ.

Concept Designs - Areas outside the building & Lower Ground floors

The design strategies described above will necessitate some work to the lower ground deck level -1. The double height car park access route is no longer needed for refuse vehicles and so a new service corridor and floor could be installed. We have also assessed access for residents and services outside as well as inside the building and it appears that a range of options could be developed to enhance accessibility, such as dropped kerbs, removal of thresholds etc.

Co-Design

The current pandemic and related lock-down restrictions have severely impeded our ability to meet residents directly. Block representatives have been assembled by the LWNT team over recent months and we have managed to make an initial briefing to them. The complexity of the walkway buildings has also meant that most of the first stage's work has been evaluating strategic options and their implications. Consequently our Co-design process will only begin in earnest over the coming months and will begin with on-line communication.

Our approach will be based on trying to present ideas as clearly and transparently as possible and in a way that can include hard to reach residents. It will be crucial to differentiate between some work that is essential to achieve fire safety or other improvements, and other areas where choice is available. In any case residents views will be sought to develop the brief, review designs and influence their selection and appearance. Furthermore it will be crucial to success to involve residents in decisions about access and timings for construction work and even their involvement in the construction.

Pilots

In order to refine, test and review potential works we propose to make use one of the current apartment voids as a pilot. We will tie this in with the fit-out programme and the aim is to trial construction work and envelope upgrades to inform the design stages and tender packages. We will be able to test element of the current envelope and the effectiveness of different options. This full scale test will enable access for residents to see, first hand, the impact of potential changes, giving them a better understanding of the types of measures that might be possible within their homes, the level of disruption that would be involved and the effect of the measures on both the thermal and the physical environment of their homes.

Through testing of measures within the common parts and on the exterior of the buildings these works will also help to engage with the residents the ways in which the buildings could be improved to make them brighter, cleaner, safer, more accessible and easier to manage.

Trialling these measures will also give the design team a better understanding of the building and help to reduce the cost and improve the efficiency of the works through reducing the level of construction risk the main contractor may want to insure against. They will also create an evidence base for construction roll out and re-application elsewhere in the borough and beyond.

Procurement & Delivery

The complexity of the project, the large range of works, the likely need for phased installation and varied combination of measure suggests a more bespoke approach with a greater emphasis on managing the contract and packages and capitalising on the ability to learn from the progressive phases and to extend their delivery to include local labour and SME's (Small or Medium Enterprises) means the procurement route for the Walkways needs to be carefully selected and specifically suit the different works packages that the refurbishment will include.

EXECUTIVE SUMMARY (CONT.)

We have embarked on a series of procurement strategy workshops, which has included consideration of 'Termed Contracts', 'Traditional Contracts with Bills of Quantities' and 'Management Contracting'. The pilot work will give LWNT an opportunity to test this and the suitability of currently accessible framework contractors. Residents will be involved in the procurement process and we will seek contractors who are able to involve local people and SME's.

Costs may be reduced if LWNT accept more of the risk and management of the contract and we are convinced that the delivery of high quality results and good value will require contractors with the right attitude and a contractual framework where risk and rewards are shared, where lessons are learnt and feedback into the process of each phase and where residents are involved and their needs prioritised.

Cost

Successful delivery will depend on access to funding and maximising the impact of each measure. Our specialist Quantity Surveyors, Jackson Cole, have worked closely with our BIM team, other consultants and the LWNT to identify the cost effectiveness of different elements of work. This information will be used to inform client and resident decisions as well as the funding and tender process.

Programme

The initial idea of a sequential programme of roughly 9 months from start of Stage 1 to a start on site has had to be refined to reflect the complexity of the project, the limitations on access and developing the right procurement route. Identifying and using a pilot apartment to develop and test design options will, to some extent accelerate the process, but other factors, including increases in scope and funding implications mean that the programme is likely to need to be phased or even elongated for some elements.

In addition some packages of work, such as the district heating system, may take longer to design, tender and be ready for installation. Our centralised services strategy - located outside of homes - will minimise the future disruption of this and potentially shorten it's delivery programme but will still require our involvement for coordination and probably the installation of related Mechanical, Electrical and other equipment.

Maximising Fire Safety & CDM

The unique context of the Walkways means that Fire safety, Safety during Construction and Use of the building have been paramount in our technical and design approach. The unique design of the building's and the fact that they are currently in use means that a bespoke solution to the designs, their installation, maintenance and use is needed. We have engaged fire specialists Trigon and our engineers XC02 to work closely with other specialists to develop a comprehensive approach to the atrium re-designs that will significantly improve fire safety whilst addressing other brief targets to improve thermal performance and the general appearance and functionality of these spaces - including safe storage of prams, cycles and services.

Next Steps

A huge amount of valuable work has been done to date and we are in a good position to present strategic options to residents. We have reached out to residents and locals to encourage them to engage in the Co-design process. Further collaboration with LWNT team will inform the developing brief and develop an efficient and safe delivery strategy. This will include working closely with the fit-out team to form a bridge between their work, the pilot apartments and other specialist packages. We will also be working closely with Tace to ensure integration with a future-looking energy strategy to achieve the aims to lower fuel costs as well as carbon and climate impact. Detailed design work and development of the specifications will also be made, in collaboration with residents, to ensure a safe, beautiful and effective improvement to the buildings and surrounding environment. Although there is an appetite to do this as quickly as possible, there is also the imperative to do it well and as safely as possible.

1 PROJECT CONTEXT

1.1 BRIEF

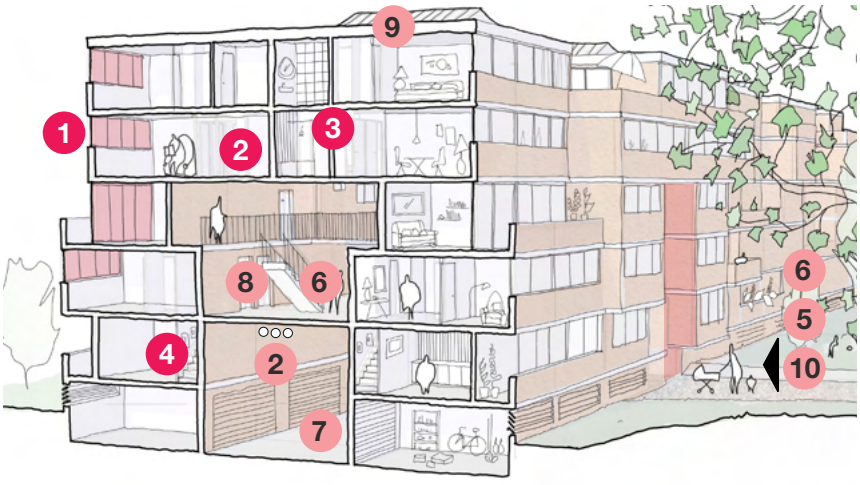
Following the bid process back in March 2020 there has been a substantial change in the context of the project due to the global pandemic. The multi-disciplinary team that Karakusevic Carson Architects have compiled to collaborate on the development of proposals for Lot 1: The Walkways have all adapted well to the new realities of remote working and have quickly realised new ways of coordinating design work and data to maximise the potential of all of the design opportunities that are to be developed with the residents and community.

The brief has also adapted to suit this new reality, with little to no opportunity for face-to-face interaction with residents the team have been focused on developing technical studies and clear optioneering for envelope and thermal upgrades that will be informed by residents, considering ways in which we enable residents to embark on a clear and meaningful co-design through remote interaction, whether this be by post, online or through use of digital and physical message boards. There is more on our approach to this process in the engagement section of this report.

The Walkways Top Ten
The top ten priorities as provided by the residents in November 2019 is our core brief and from this we have also derived the following mantra for improving the physical envelope of the buildings and the environment of the homes: All measures taken to upgrade the walkways buildings will complement one another, the resultant safety, security, comfort and health of the residents will be our paramount concern. Whilst working to keep any disruption to residents during implementation of works to the absolute minimum, all measures we will explore with residents will be focused on improving the residents' environments whilst reducing energy consumption and promoting healthy and safe spaces.

Individual homes

Communal areas



1 Windows*

2 Heating & hot water

3 Bathrooms

4 Kitchens

5 Door entry system

6 CCTV

7 Refuse storage

8 Communal Electrics and lighting

9 Roof repairs/renewal

10 Lifts

1 PROJECT CONTEXT

1.1 BRIEF

Bid proposal:
Our method statement as captured within our bid submission was to deliver a high-quality, retrofit design solution for the Walkways through resident engagement. Our initial review of the thermal performance of the building highlighted the following factors:

- Irregular and large external envelope surface area.
- Poor thermal performance and airtightness of glazing, inner and outer walls.
- Poor thermal performance of roofs, floors and lower ground soffits.
- Poor thermal performance and airtightness of inner walkways and atrium areas.

Our approach as to how these might best be developed to upgrade the thermal performance of the buildings is best illustrated in the diagrams opposite and within the text below:
Significant improvement to the energy costs and thermal performance of the existing homes can be made, whilst retaining the character and appearance of the original building's main external appearance. Ultimately, residents would have the choice to retain the appearance of the building or externally insulate the building changing its appearance.

External envelope – approx. 45% of envelope: Retain original external envelope appearance & upgrade the glazing and balcony doors. Additional improvements can be achieved thorough secondary glazing. Retaining the existing appearance would be dependent on the residents choice to external or internally insulate the building.

Internal envelope, roof and soffits - approx. 55% of envelope: Improve thermal performance, insulation and appearance of the current roof and inner thermal envelope through upgrading lower ground soffits, corridor walls and doors. This can be done in conjunction with residents, to improve the security of doorways and in keeping with the qualities of the existing and original building.

Lower Ground: Upgrading of windows, doors, wall, roof & floor linings should be integrated with the re-use of this floor.

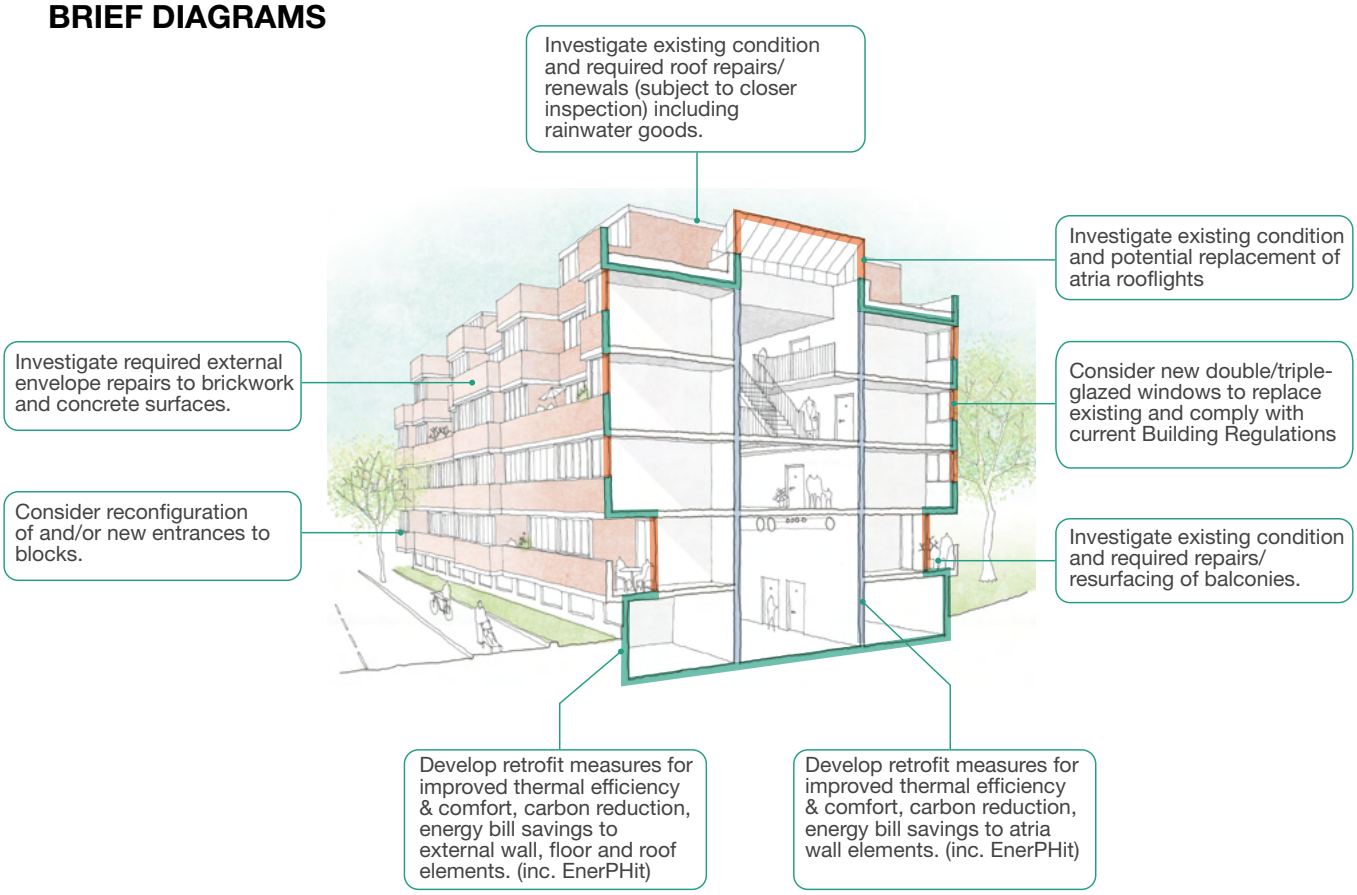
Trees: Tree planting, blinds & canopies can be used as a future-proofing measure to reduce solar gain.

RIBA stages 0-1: Strategic definition & Brief development: September to December 2020
Much of the early work that has been undertaken by the team has been to further develop the understanding of these rather complex buildings and develop design opportunities that respond to the residents clear top 10 priorities. In the absence of measured survey information the team have liaised with the original project architect from Clifford Wearden and Associates, and built up a clear picture from the archive material and original construction information gathered, alongside information from the RBKC archives, invaluable site visits and investigations, desktop surveys of the history of the estate and area and anecdotal information from the LWNT.
Developing clarity on how these building are put together has enabled to the team to explore ideas about ways to efficiently improve the thermal envelope of the building on a number of fronts, making it more comfortable and less expensive for residents. We have also started to build up an initial picture of the architectural identity of the estate and are keen to work with the resident s to develop a clearer picture of the shared community identity of these buildings and how residents might like to develop this in the future.

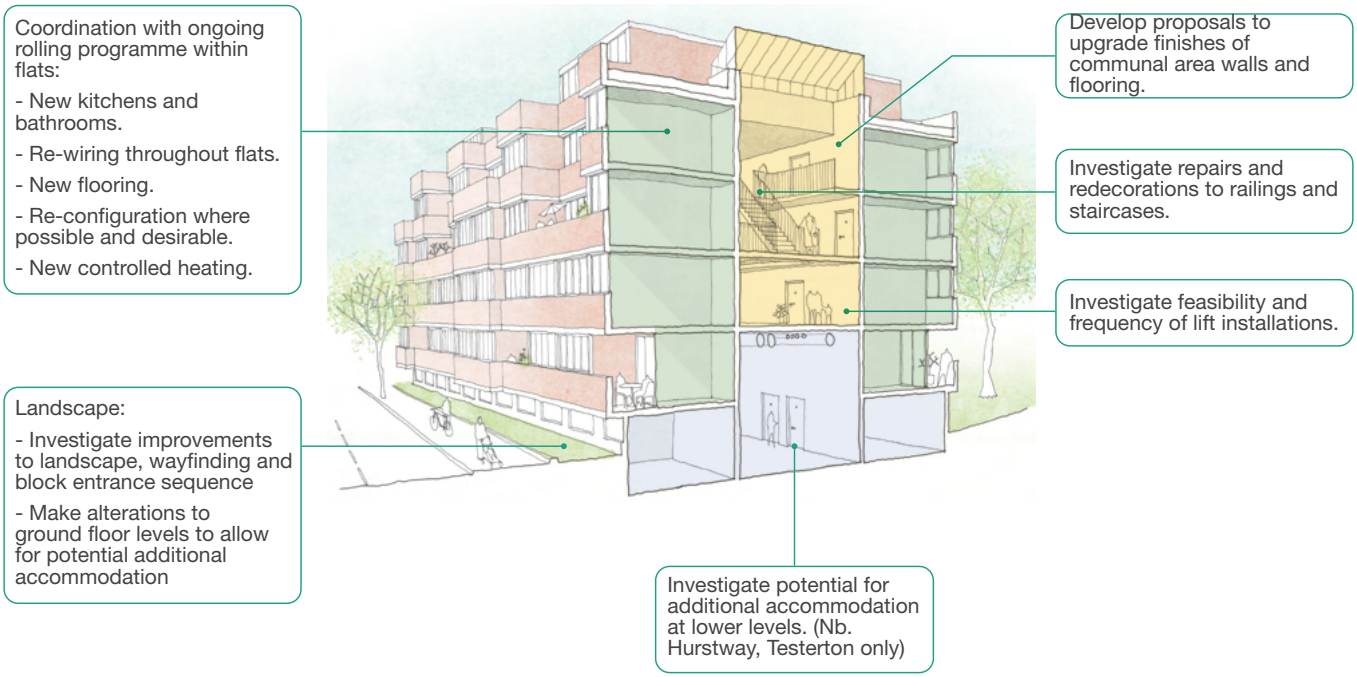
Through this process, following appraisal of the building, and additional to the thermal measures targeted above, we have added the following key criteria to the core brief:

- The new and upgraded services will require a service zone and new floor at Level -1.
- Explore the replacement of the roof lights to improve smoke extract but also to deliver upgraded insulation, ventilation and heating/cooling.
- Explore the replacement all atrium windows with sealed fire proof glazing which will require alternative ventilation in the homes.
- To improve the fire safety of the central corridor we are investigating providing new resident storage to remove prams, cycles, etc which are currently identified as a hazard. We are exploring how this could be done by creating new stores in levels -1, 0, 1 & 2

BRIEF DIAGRAMS



KCA bid submission diagram: Exploration of thermal measures and envelope upgrade



Brief development: Exploration of key areas of the buildings, internal and external measures

1 PROJECT CONTEXT

1.2 SHDF DEMONSTRATOR FUNDING

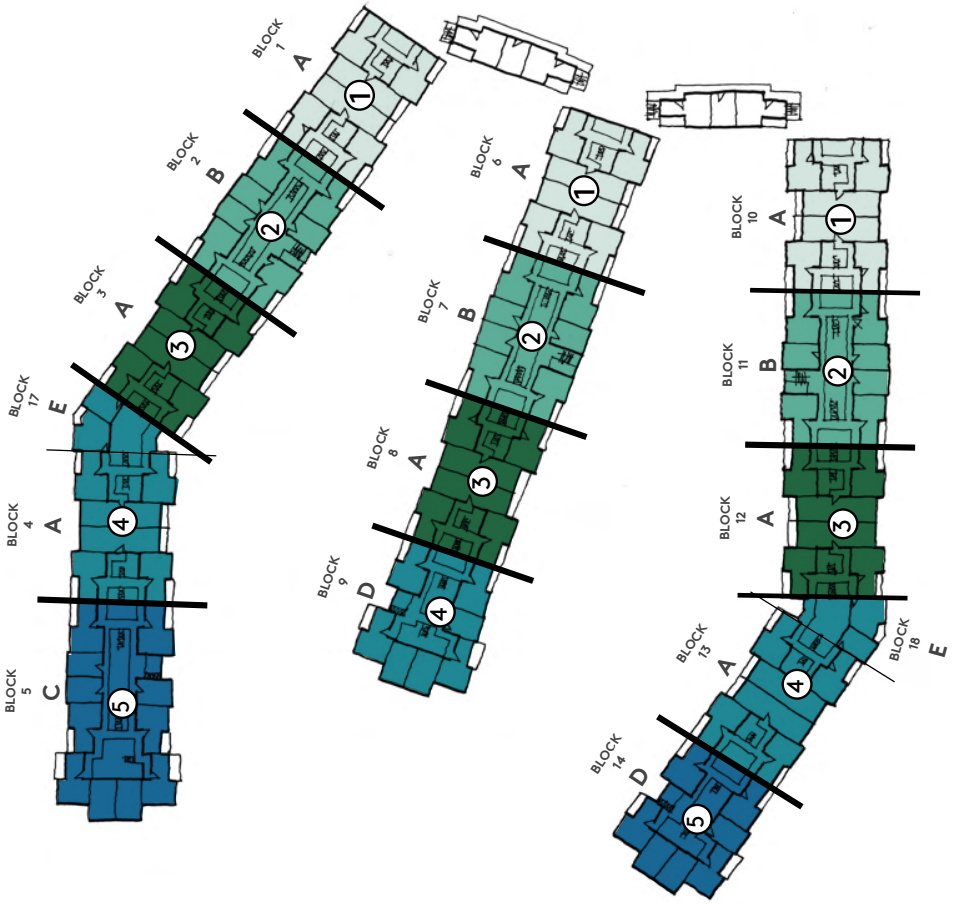
On 8 July 2020, the Chancellor's Summer Economic Update announced the UK-wide SHDF (Social Housing Decarbonisation Fund) Demonstrator to start the decarbonisation of social housing over 2020/21, and to support green jobs as part of the COVID-19 Economic Recovery Plan. This £50 million grant programme is designed to support social landlords to demonstrate innovative approaches to retrofitting social housing at scale.

The deadline for applications was 12 November 2020. Working with the LWNT team The Walkways design team compiled a detailed and ambitious set of proposals for rolling out whole house retrofit for every home in the walkways, and how this interfaced with the common area atria at the centre of the building. This incorporated detailed assessments of an entire housing 'bay' within the Walkways, scheduling out the different home typologies therein and providing the following outputs to support the application:

- Full cost analysis and quantities based on initial stage BIM modelling formed from archive material (Measured survey not available) identified both individual house fit out costs and as a whole cost for the full extents of the build. (See SHDF cost schedule which is appended to this report)
- Full scope of works for all areas of the buildings to support the application.
- Development of outline material and product specifications for testing
- SAP calc testing for a range of different typologies to determine that reduction to 50kwh target was viable.
- Coordination with other workstreams to ensure proposal would not preclude future funding applications and/or design strategies.
- Development of procurement options and delivery strategy to support the application.
- Development of strategic phasing to allow for residents to remain in situ where possible and allow for development of strategies to help Jump-start local economic recovery and upskill local residents
- Organograms explaining how the team would upskill to perform all retrofit roles as required by PAS2035
- Supporting case studies to provide evidence of experience of design team on retrofit refurbishment projects

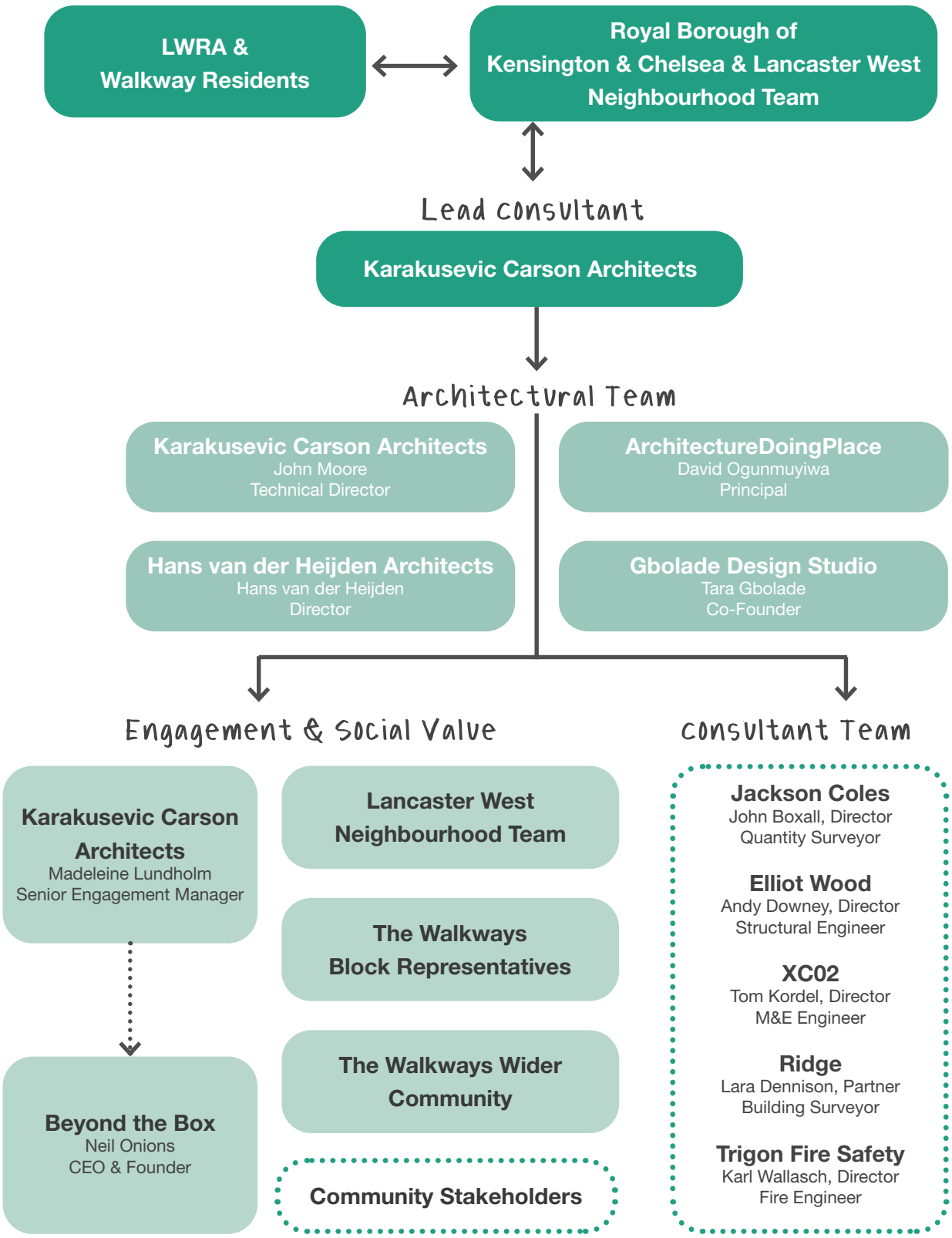
Within the application with LWNT we highlighted the following expected outcomes:

- Reduction in space heating demand to meet or improve on 50kWh/m2 (dependant on the home location and quantum of external surface area)
- Lean construction approach will limit impact on residents and keep capital costs at a minimum by avoiding the need for off-site rehousing.
- A significant reduction in fuel bill savings annually for each household
- More control over environment for residents, delivering a more stable and improved environment, avoiding cold bridging and over heating and providing better end user control
- By reducing demand we will enable centralised energy systems to be extended to a wider network within the Borough. This will benefit social infrastructure such as local businesses, leisure centre and schools etc.
- Improved environments will have positive impact on resident health and well-being and could contribute to better green living.
- Creating jobs- apprenticeships, resident involvement and on site education.

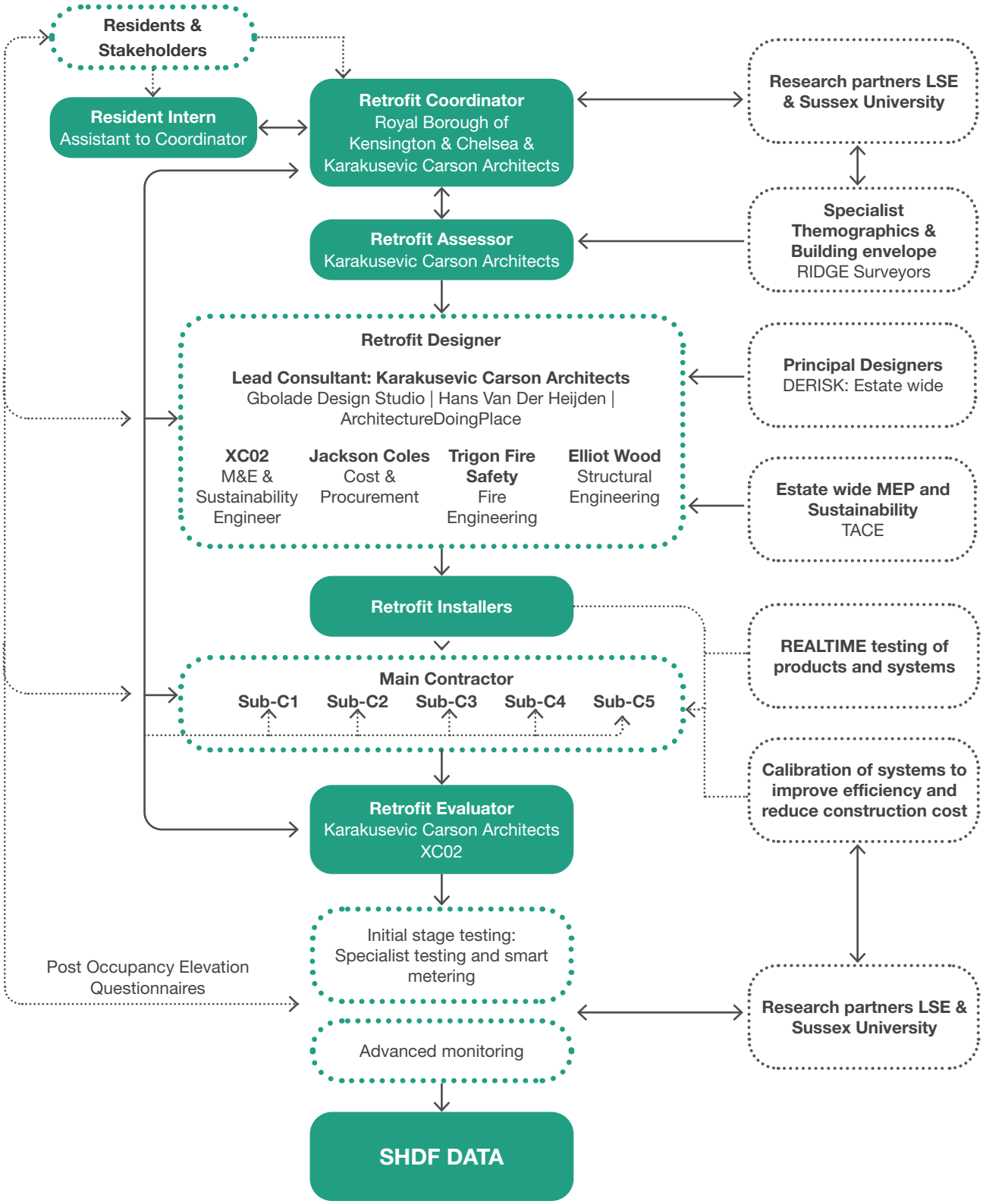


The Walkways | Proposed Phasing and delivery diagram

1.3 THE PROJECT TEAM



PAS 2035 RETROFIT ROLES



1 PROJECT CONTEXT

1.4 OTHER WORKSTREAMS

The Lancaster West Estate project involves a number of different disciplines working across the estate.

Lot 1 led by KCA
The Walkways (Barandon, Hurstway and Testerton Walk)

Lot 2 led by Penoyre & Prasad (P&P)
Clarendon Walk, Camelford Walk, Talbot Walk & Camelford Court

Lots 3, 4, 5 & 6 led by ECD Architects
Lot 3 – Morland House and Talbot Grove House
Lot 4 – Treadgold House
Lot 5 – Camborne Mews
Lot 6 – Verity Close

Estate Wide Consultants (for all lots)

CDM & Principal Designer Services
Derisk

FRA Type 4 Assessors
Frankhams

Mechanical, Electrical and Plumbing
TACE

Site infrastructure & DHN for HNIP funding
Ramboll

CCTV, door entry, and digital TV
TGA Consultancy

Lifts
Chapman BDSP

Lancaster West Estate boundary in red with the Walkways highlighted in green.

Since commencing work on the project the team has been regularly coordinating and collaborating with the other Lot architects and designers and other workstream teams to explore commonalities and shared areas of design.

Other architecture lots:
We first liaised with the other architectural teams back in September 2020 following the induction session with the LWNT, exchanging critical path information such as archive material and measured survey scope to identify common approach to securing relevant information for development of design. Following the 4i interactive workshop sessions with all workstreams we set up a series of regular meetings to feedback to one another on the following key areas:

- Engagement and co-design: to enable us to share a common approach and avoid mixed messages with the resident community
- Engagement with Statutory Stakeholders such as Planning & Building control
- Technical design approach such as external wall insulation measures
- Public realm approach: to understand where a common shared approach might be necessary and fortuitous
- Measures to improve access across the estate: common areas of design such as lighting and access control- these will be developed with TGA consultancy and Chapman BDSP at the next stages of design

TACE:
Following a number of high level workshop sessions we had our first collaborative design workshop with TACE in December, at which point started to explore ways in which the Walkways buildings might be able to adapt over time with limited disruption to residents. This means any forthcoming infrastructure for the District Heat Network, or alternative measures for a new heating network, might be able to be delivered as part of the initial retrofit works readying the walkways for future connections, avoiding the need for further invasive works in years to come.
These design ideas are covered within the project opportunities section of this report. We are progressing these ideas with the TACE team to prepare a succinct number of design and delivery options to take forward with residents through co-design.

Maximising Fire Safety:
In a similar vein to development of the TACE strategy we have also reviewed the Fire Risk Assessments from both Frankhams and BB7 that have been commissioned to date and discussed feedback from meetings that the RBKC Fire Safety Team have had with the LFB. Whilst looking at future accommodating for heating and ventilation infrastructure we are investigating means of improving the life safety measures within the walkways, reducing the volume of the spaces thereby making it easier to remove smoke, incorporating safer and quicker means of escape and removing current issues such as prams and cycle storage in common parts.
These points are covered in the project opportunities section of this report and in the fire safety section.

CDM (Construction Design Management): Mark Allen at Derisk:
Mark has been attending our project team meetings since November and a number of our weekly workshops with the client to develop design opportunities. We have collated a designers risk register for the walkways with Mark and have incorporated a breakdown of key areas of focus in the CDM cheaper of this report.

1 PROJECT CONTEXT

1.5 DESIGN PROGRAMME

The design programme for The Walkways buildings is continuously evolving. The scope of the project is primarily led by the top 10 priorities as identified by the residents and the aspiration by both residents and LWNT to make these buildings a model social housing estate for the 21st Century. We are focused on extending the life of these buildings by investing in their envelope and modernising building systems improving the buildings' overall efficiencies to reduce carbon and energy bills. The funding that the project will be receiving from the SHDF demonstrator fund has strict methods of evaluating the benefits of different retrofit measures and the timeframes in which data needs to be accrued. It is imperative that these timeframes and deliverables are clearly scoped out at the next stages of design to ensure KCA, LWNT and the named research partners are meeting all requirements of this funding such as the PAS 2035 requirements for retrofit design, installation and assessment.

We are committed to the 10 principles that LWNT agreed with the residents in respect of the resident led co-design process. Much of our work over the last 4 months has been focused on understanding the buildings on the Walkways and the materials that they are made from. It has been important for our team to explore how all of the homes are situated around the central walkways and what opportunities these arrangements can offer.
The next stage of the programme will be guided by our co-collaboration with the residents, with the resultant design scope more clearly marked out through discussions surrounding the nature of construction work, the resulting disruption and the long term impact different measures will have on residents comfort, security, safety and quality of life.

The programme that was identified at bid stage responded to the core scope of the Walkways appointment. The RIBA stages that have been adhered to for the purposes of procuring design services on the project are not particularly well suited to the more complex and multi-faceted nature of this type of retrofit and refurbishment design. The RIBA stages are more typically aligned with a new build design and procurement process. Much of these design stages will be running in tandem, with different parts of the buildings developing at a faster pace to meet the requirements of the funding streams and others running at a slower pace to allow for more co-design with the residents.

The indicative timeline below indicates broadly when these different RIBA stages will be running for the duration of the design stages up to and including the tender period.

Next steps: Construction and delivery

During the design stages of the project and as indicated oppposite there will be some construction work undertaken within one of the empty flats of the estate. This is to test some of the design solutions that the team has been investigating over recent months, there is more information on this in the later sections of this report.

The construction and delivery programme will be heavily influenced by all forthcoming discussions with the residents about the nature of the construction works, levels of disruption, respite options and ways in which we might be able to accelerate the programme and reduce long term impact on residents.

2 EXISTING ESTATE

2.1 WIDER CONTEXT

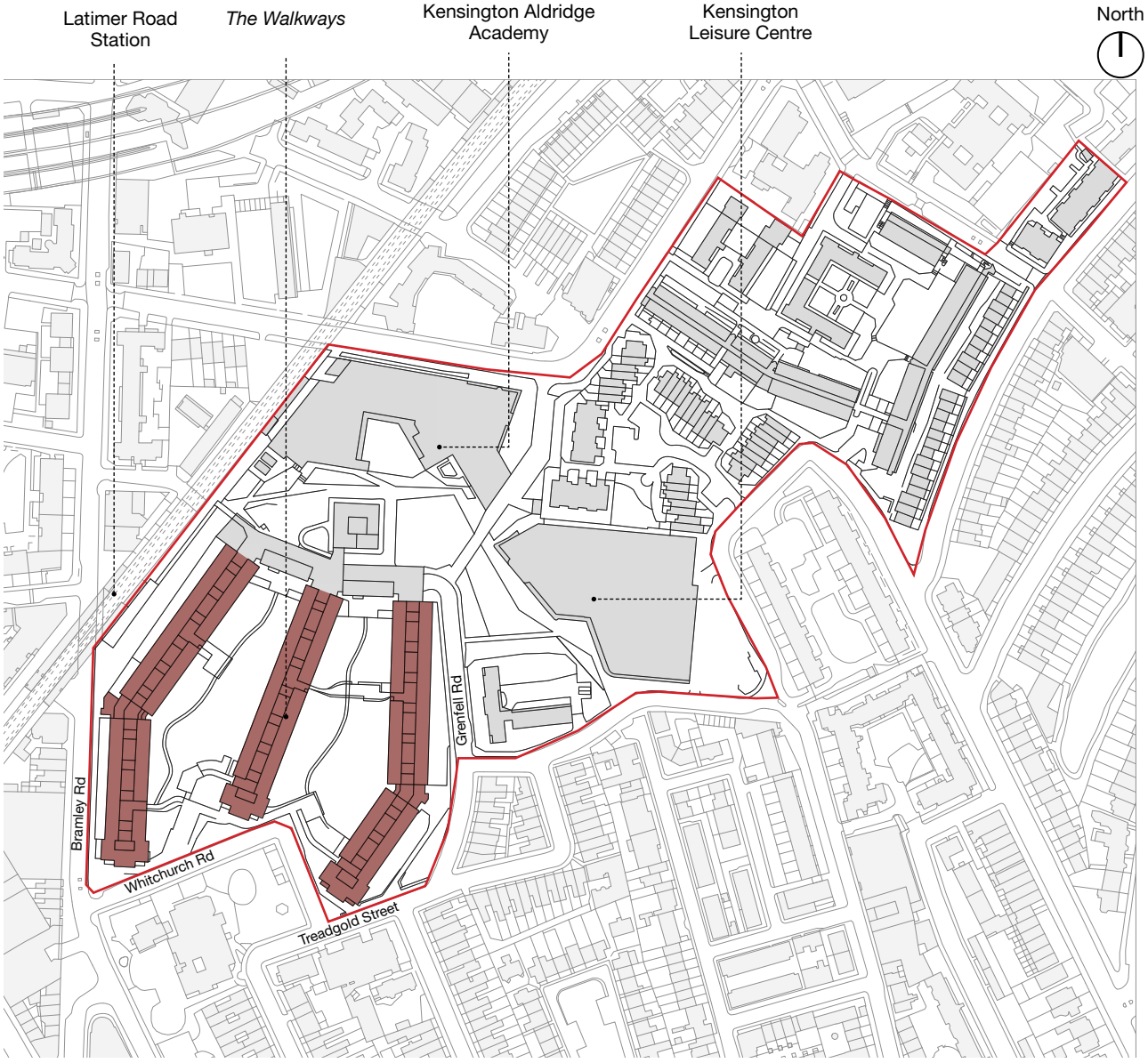
CHAPTER INTRODUCTION

This chapter presents our analysis and understanding of the existing Walkway buildings and their setting in the local context.

The analysis looks at how the homes are arranged to make up the blocks, our observations and analysis on the existing condition of the building's envelope and different key spaces, the different property and home types, and an accessibility study.

This will be the basis of our proposals and will be built upon as the project progresses as a way to inform and coordinate them with the LWNT and Walkways residents. The Walkways sit to the South of the Lancaster West Estate. The estate sits within the Notting Dale ward of the Royal Borough of Kensington and Chelsea.

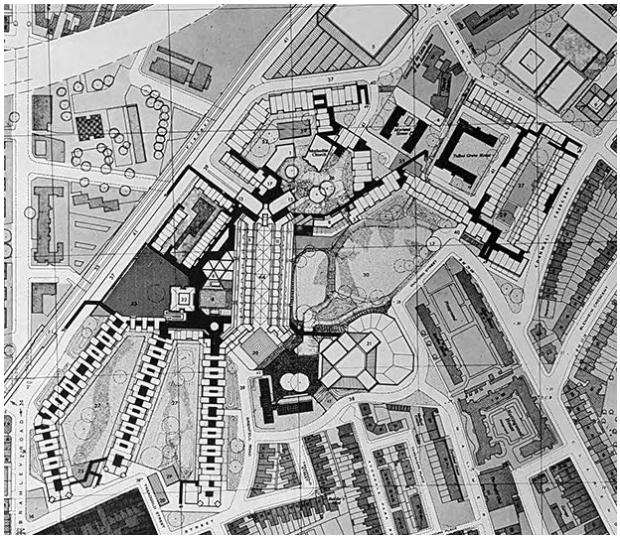
The Walkways are bounded to the West by Bramley Road, to the East by Grenfell Road and to the south by Whitchurch Road and Treadgold Street.



Lancaster West Estate boundary in red with the Walkways highlighted in green.

THE HISTORY OF THE ESTATE

Historical map from 1954 showing the area was covered in tightly packed terraced townhouses. The Walkways take their name from the previous streets. On the right is a photo of the former streets before demolition.



Original masterplan from 1968. The Walkways are located in the bottom left corner of the image. The masterplan differs to what was built today, however the Walkways remain the same in principle. The image on the right shows the scheme after completion in the mid-1970s, with Grenfell Tower and Latimer Road Station in the foreground.

2 EXISTING ESTATE

2.1 WIDER CONTEXT

LOCAL EDUCATION FACILITIES

The Walkways and the wider Lancaster West community are supported by a number of educational facilities. There are several schools catering for a range of ages and learning needs in the immediate area.

The Walkways

SCHOOLS

Nursery

1. Grenfell Nursery
2. St Annes & Avondale Park Nursery
3. Latymer Childrens Centre

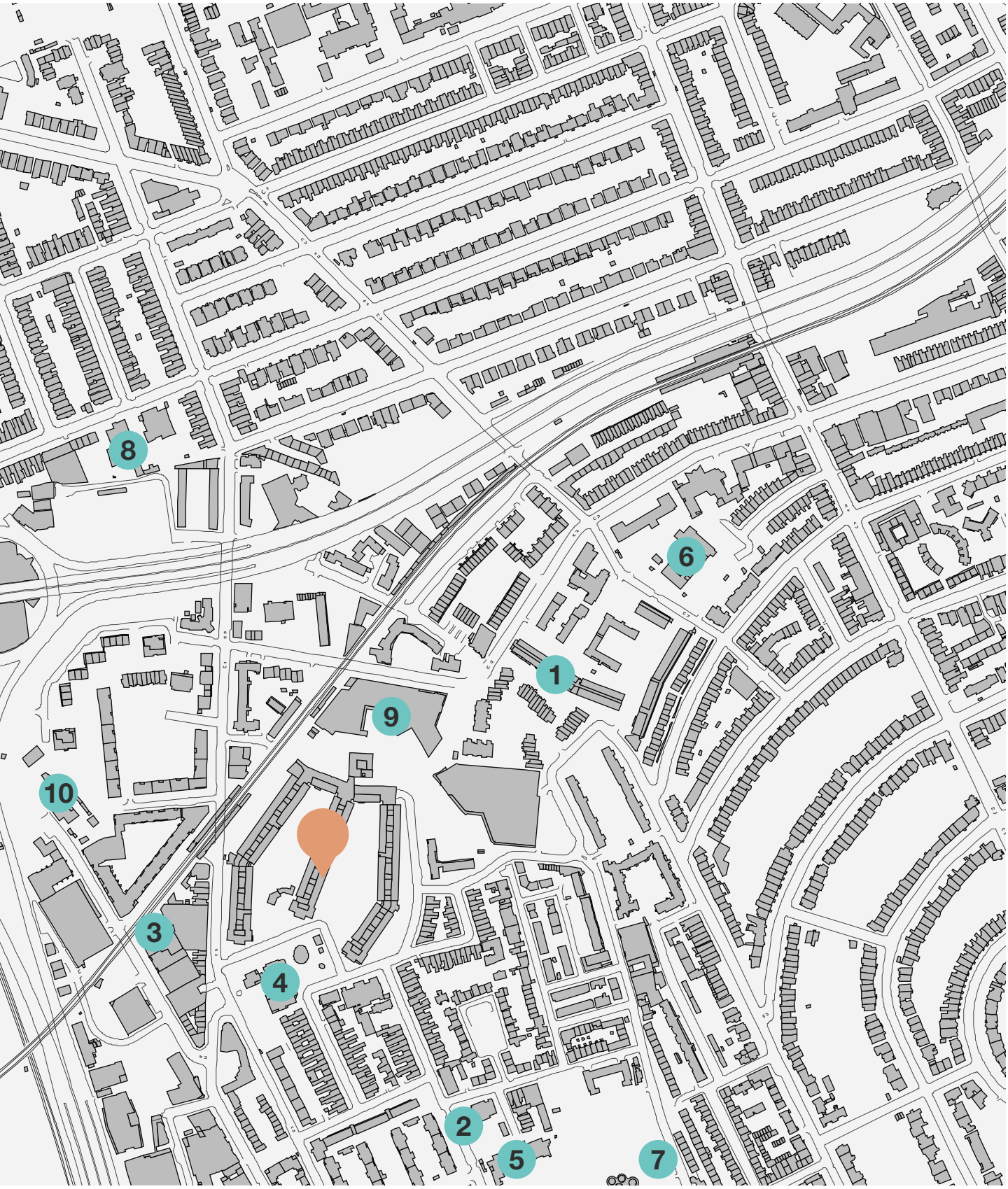
Primary

4. Saint Francis of Assisi Catholic Primary
5. Avondale Park Primary School
6. Thomas Jones Primary School
7. St Clement and St James CoE Primary
8. Oxford Gardens Primary

Secondary

9. Kensington Alridge Academy
10. Latimer Ap Academy

North


8
6
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2 EXISTING ESTATE

2.1 WIDER CONTEXT

This series of diagrams maps our understanding of the Walkways to understand what it is like to live there. The diagrams map how the Walkways connect to their surrounding context, the local facilities available to residents and how the buildings are currently serviced.

TRANSPORT LINKS

The Walkways has excellent transport links with the Latimer Road Underground Station directly to the North-West of the buildings. There is also two buses the connect to the wider area on Bramley Road.

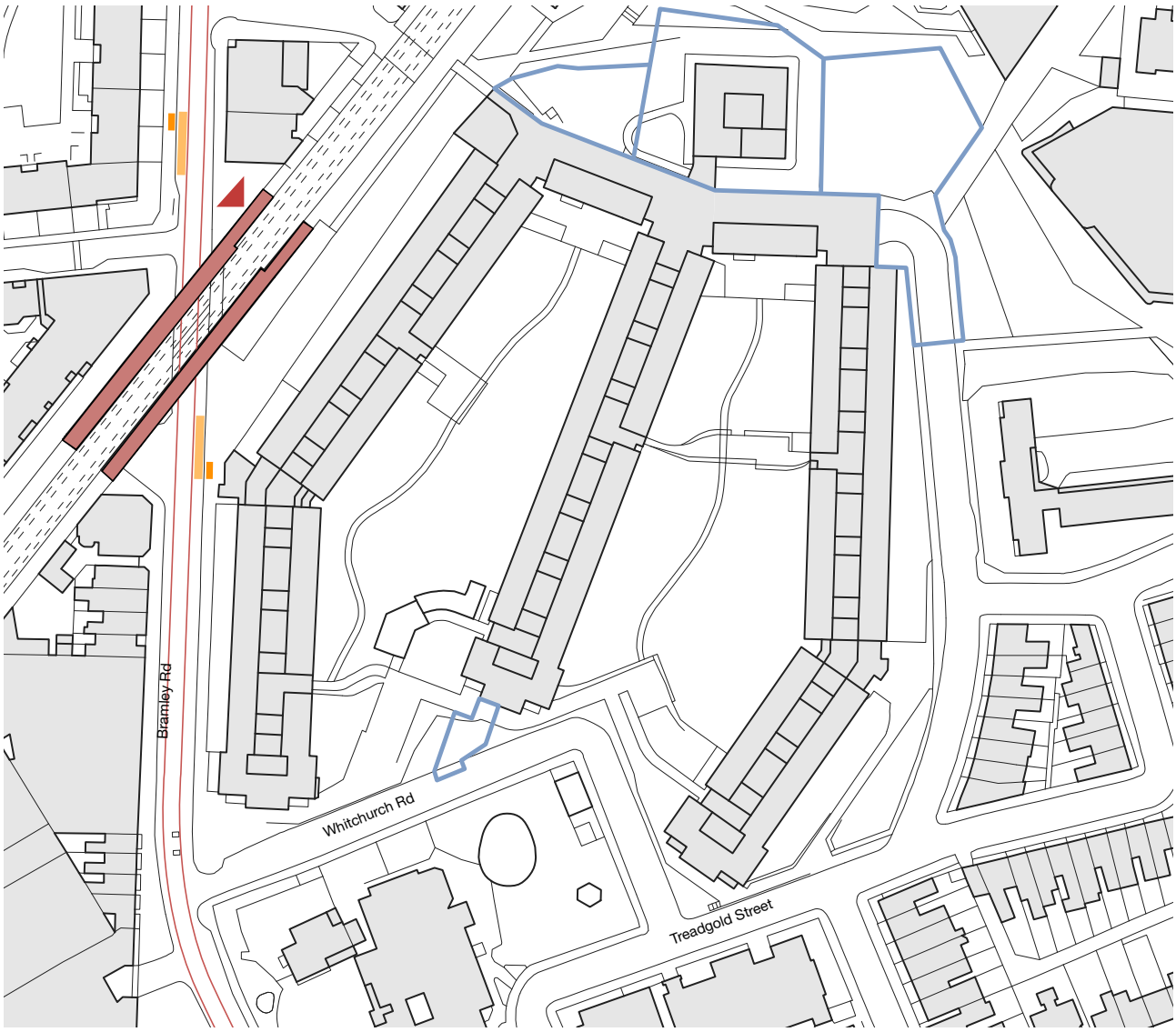
Latimer Road Tube Station
(Circle and Hammersmith & City Line)

Station Entrance

Bus Stop
Route 295
Ladbroke Grove / Clapham Junction

Route 316
White City / Cricklewood

North



ENTRANCE LOCATIONS

The diagram below maps the different ways to enter the Walkways. Generally, the accessibility to the buildings is poor with ramped or stepped access to all homes. How to enter the blocks and access individual homes is unclear which affects the delivery of services.

There are three types of existing entrances. The first are street level entrances from Bramley Road and Grenfell Road. The second are communal entrances that are accessed from a series of ramps such as the entrance at the south and north ends of the buildings. The third type are secondary communal entrances from the two central courtyards.

All private entrances to homes are accessed from the internal communal walkway area.

Communal Entrances (Ramped access from street level)

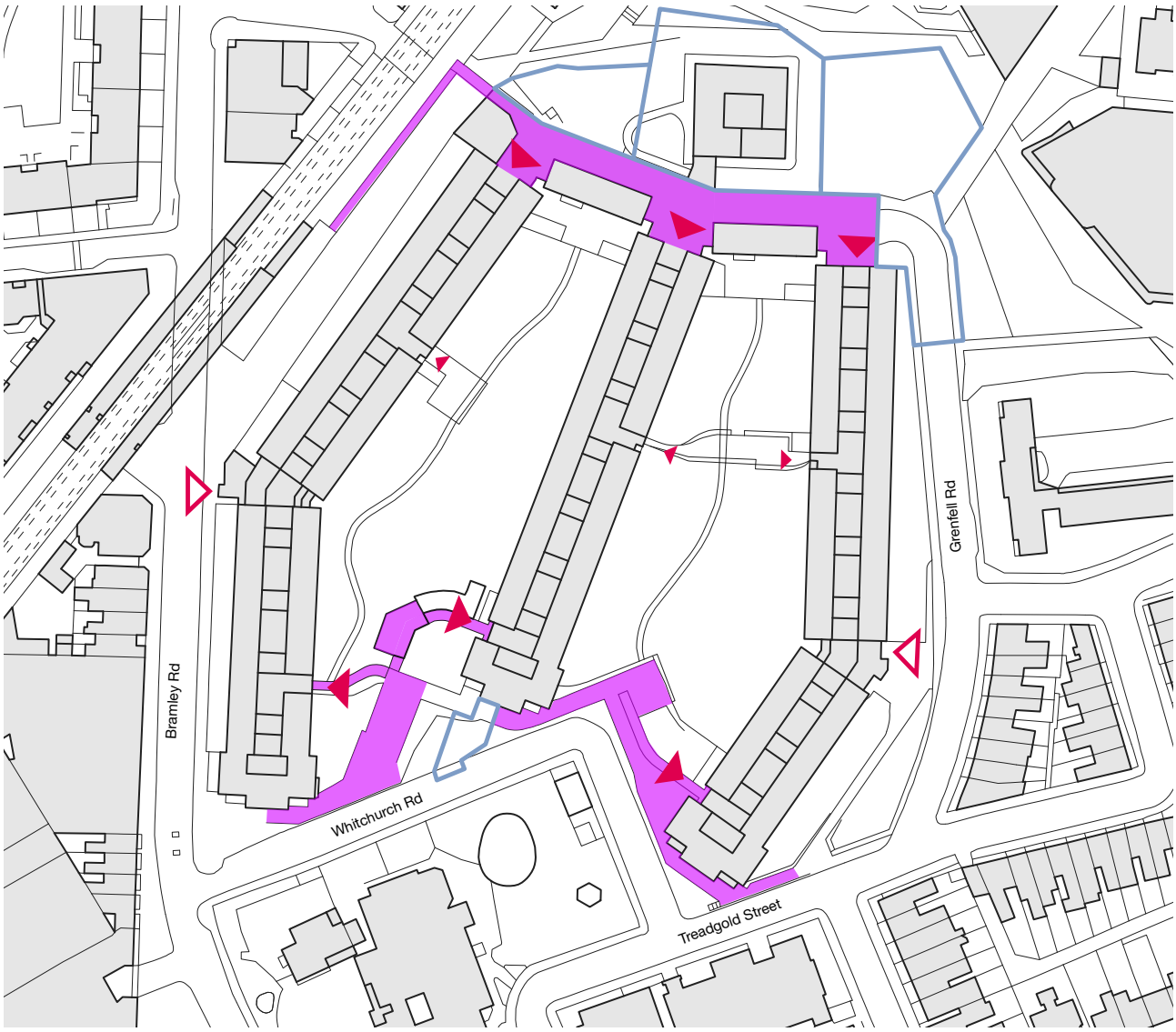
Communal Entrances (Level access from Street)

Secondary Communal Entrances (Courtyard)

External ramps or raised area

Hoarding Line (Temporary)

North



2 EXISTING ESTATE

2.1 WIDER CONTEXT

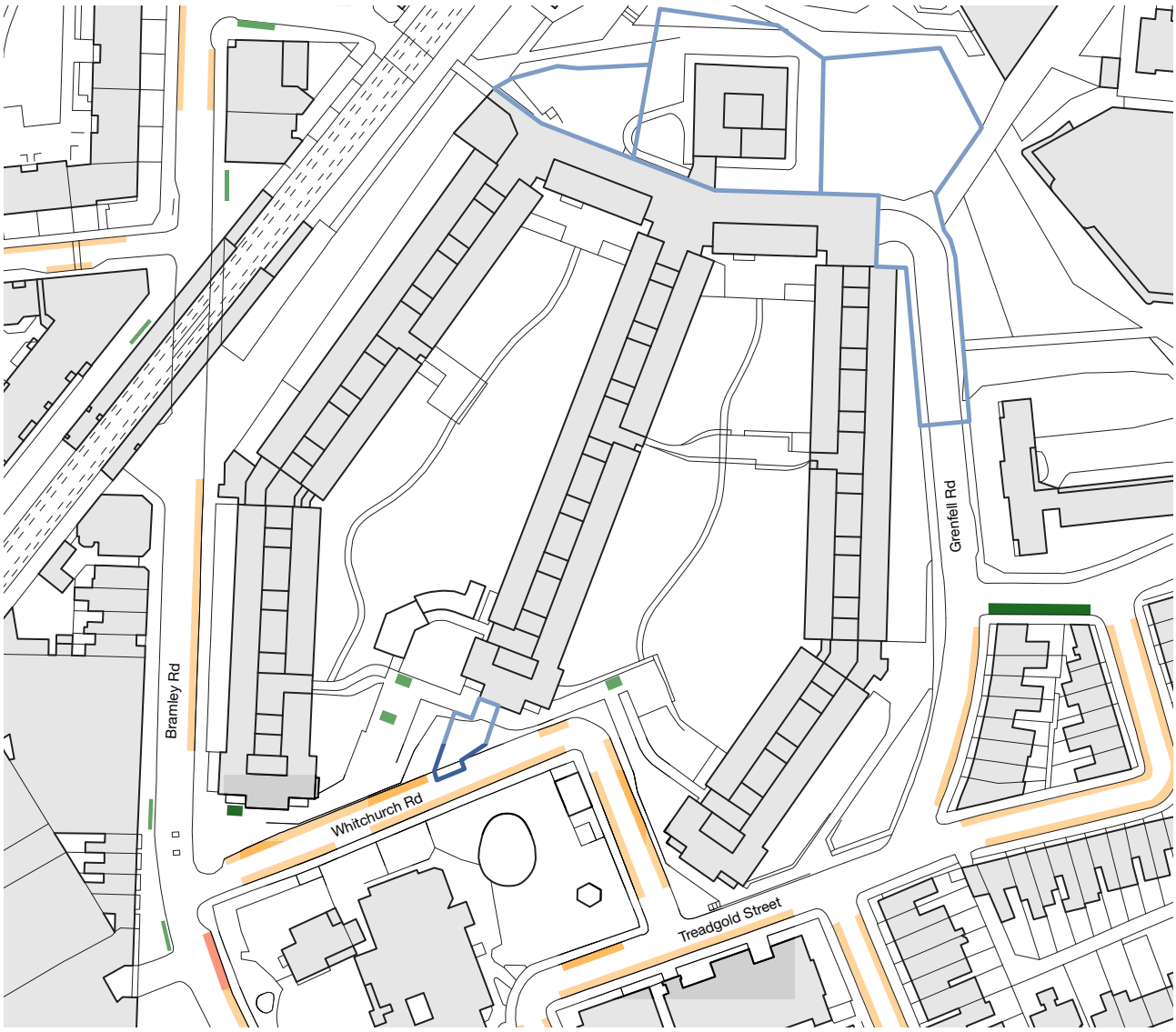
CAR AND CYCLE PARKING

The diagram below maps the location of nearby resident car parking and cycle parking facilities. There is limited parking facilities in the surrounding streets for the Walkways residents. Secure cycle parking is also limited which suggests a reason why residents store their bicycles in the communal walkway areas.

The basement garages in Hurstway and Testerton were previously used as resident car parking however in recent years this has been used as resident storage which is rented from LWNT. The secure hoarding of the Grenfell Tower site currently prevents private vehicle access to these basements.

- Resident Permit Car Parking
- Electric Car Charging Bays
- Residential Cycle Parking (Secure Locker)
- On-Street Cycle Parking (Sheffield Stand)
- TfL Cycle Hire Dock (24 Spaces)
- Hoarding Line (Temporary)

North



REFUSE SERVICING STRATEGY

Refuse stores are located in the basement (Deck level -2) of the Walkways which are connected to refuse chutes located on the upper storeys. The refuse bins are dragged to the North end of the buildings where they are collected outside the temporary hoarding line on Grenfell Road.

Recycling bins are located on the edges of the estate, along with additional refuse bins. There are no food waste facilities on site currently.

Refuse Stores
(Basement / Deck -2 Level)

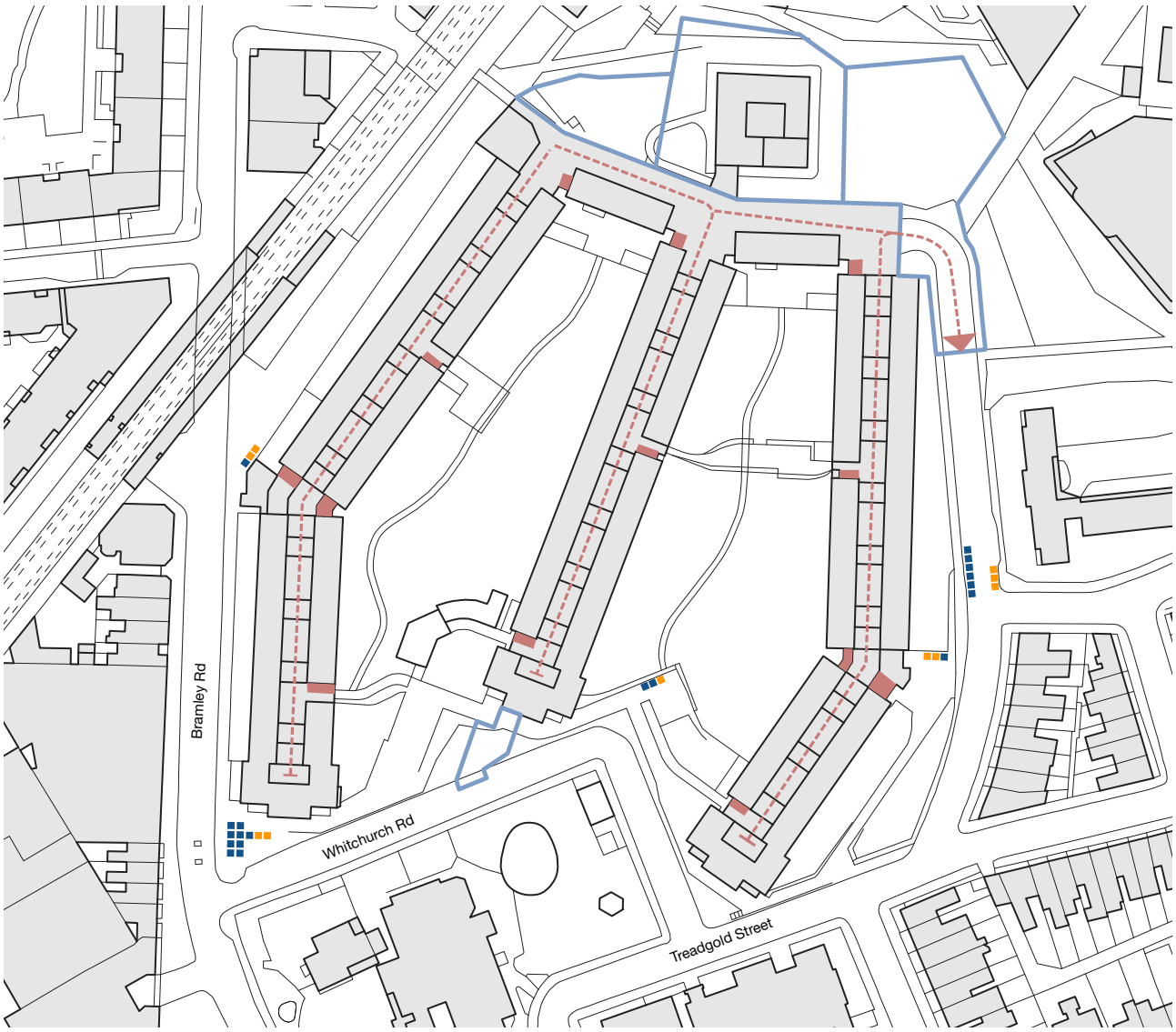
Refuse Collection Route

Recycling Bins

General Waste Bins (additional refuse bins)

Hoarding Line (Temporary)

North



2 EXISTING ESTATE

2.2 EXISTING BUILDING APPRAISAL

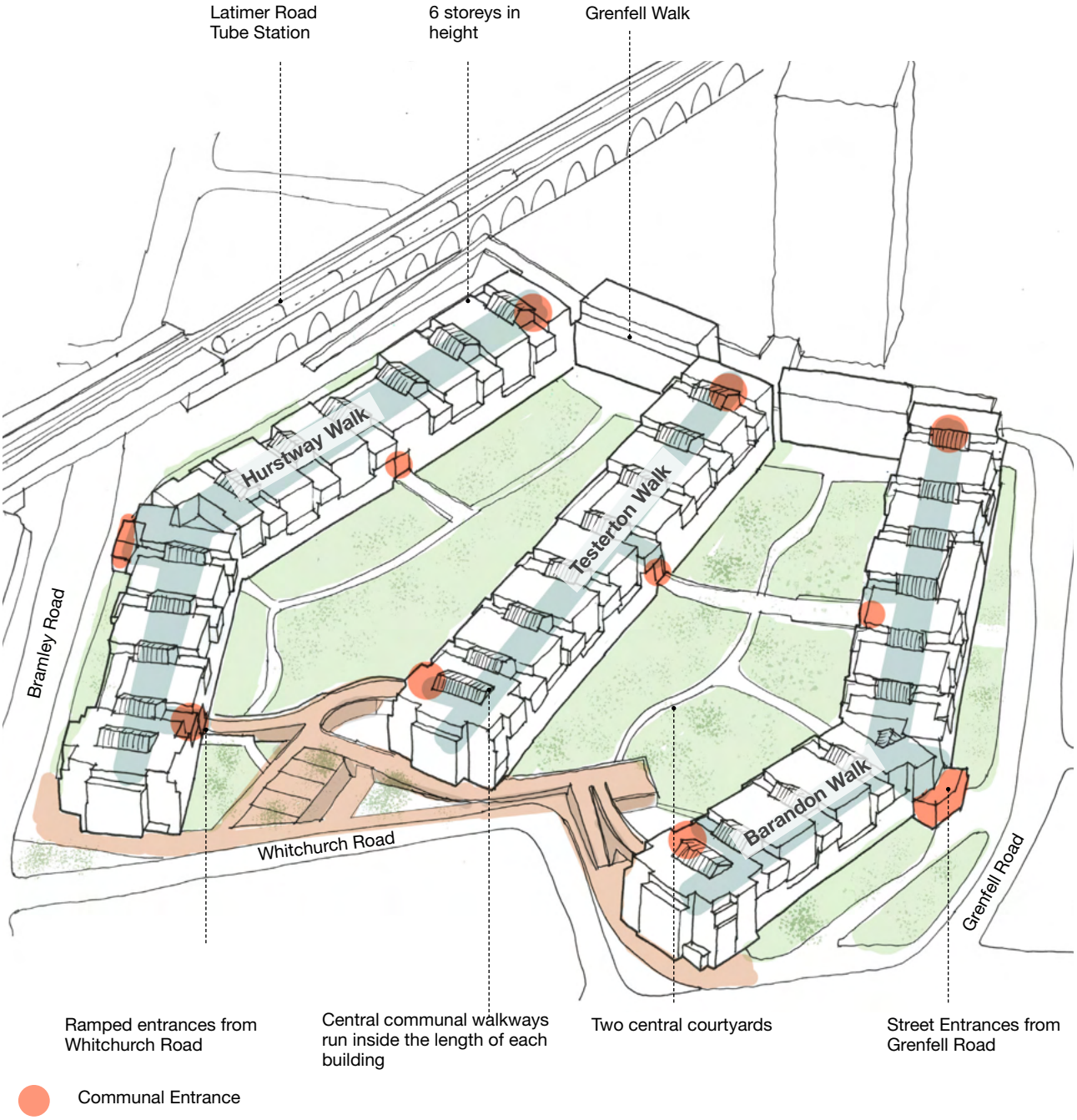
THE WALKWAYS BUILDINGS

The Walkways consist of three main 6 storey blocks named Hurstway Walk, Testerton Walk and Barandon Walk. At the north end of the site is Grenfell Walk which links the other blocks and is 6 & 5 storeys.

These building enclose two central communal courtyards. The blocks are entered from the street via Bramley Road to the West, Grenfell Road to the East, and Whitchurch Road to the South.

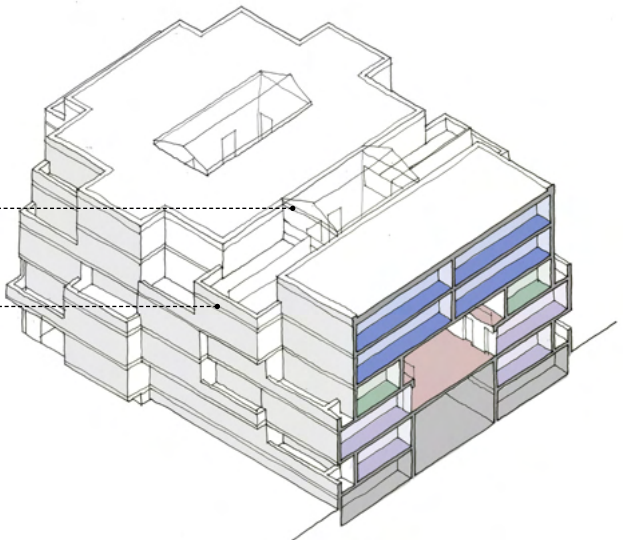
The building are characterised by their central communal walkway that run the length of each block. Glazed atriums or lightwells bring daylight down into this communal space.

The atriums were initially open to the elements, so that the walkways would function as “streets”, with weathering details such as raised thresholds and surface drainage. These were later covered over which has ”tempered” the environment and reduced rain, but which has affected the ventilation allowing odours to linger, and how smoke would be extracted in the case of a fire.



A series of glazed atriums bring light into the communal spaces below

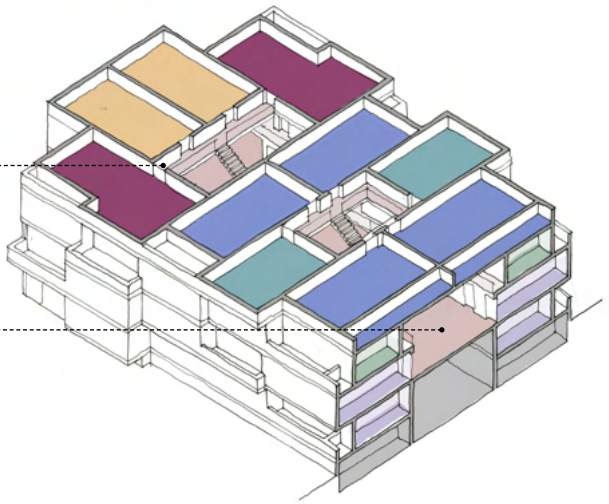
Roof terraces provide generous private amenity



Cutaway Section - Complete Block

Homes are arranged around the atriums on upper storeys

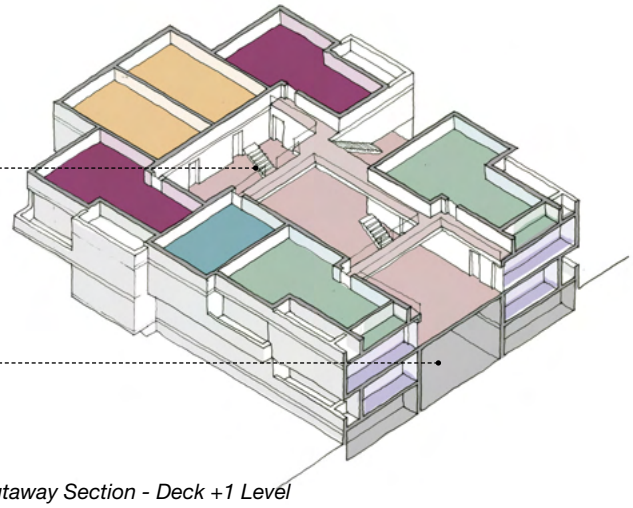
A wide communal walkway runs along the centre of each building



Cutaway Section - Deck +2 Level

Upper walkway decks are accessed via staircases at the entrance

The semi-basement is two storeys at the centre, and one storey at the edges



Cutaway Section - Deck +1 Level

Home Types Key

- A1, B1 — 1 Bed
- C2, C3 — 2Bed
- D1, D2, D3 — 3Bed

FLATS

Maisonettes

Communal Walkway Area

Garages

2 EXISTING ESTATE

2.2 EXISTING BUILDING APPRAISAL

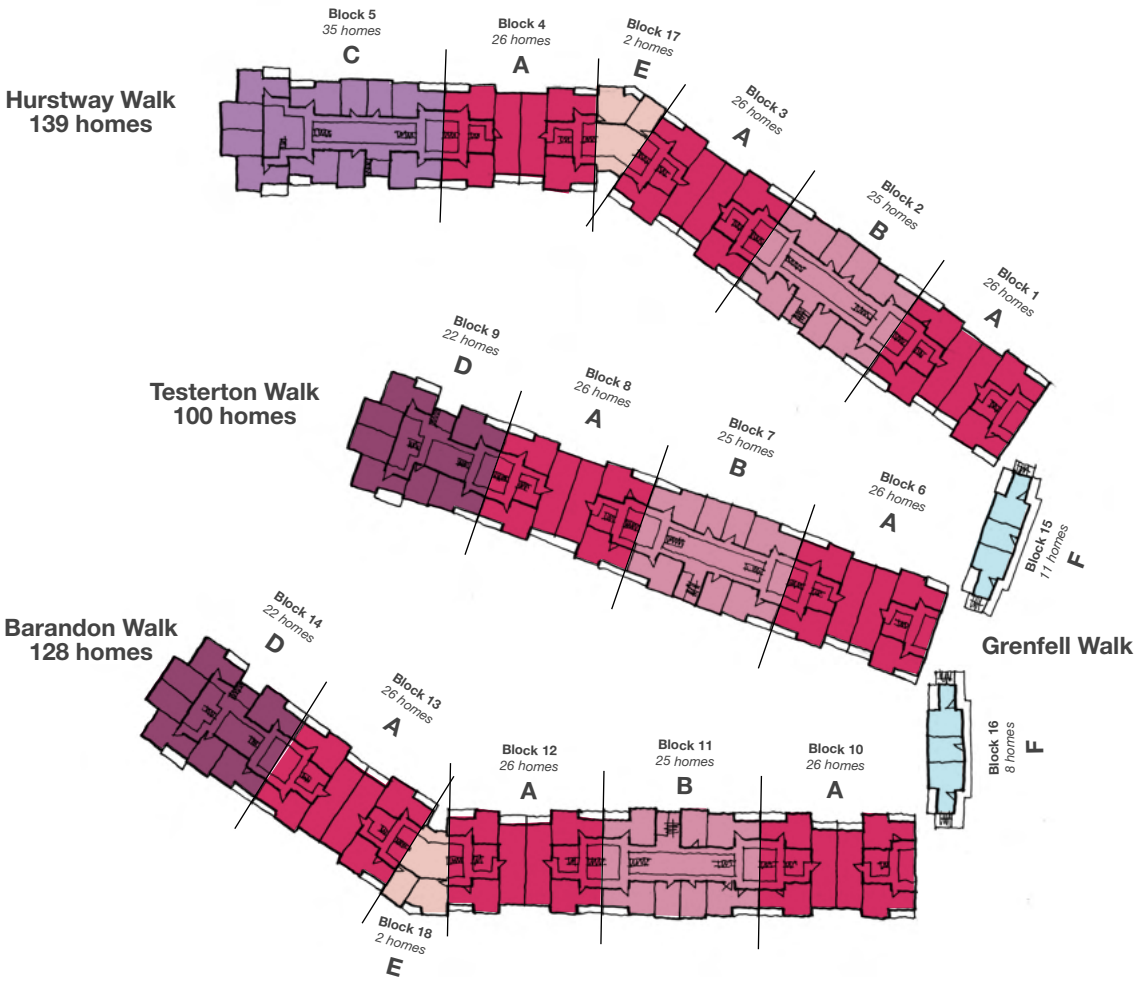
THE WALKWAYS IN PLAN

The walkways buildings, though broadly repetitive, are complex in nature with 15 different typical home typologies, which all have a different interface with the external envelope.

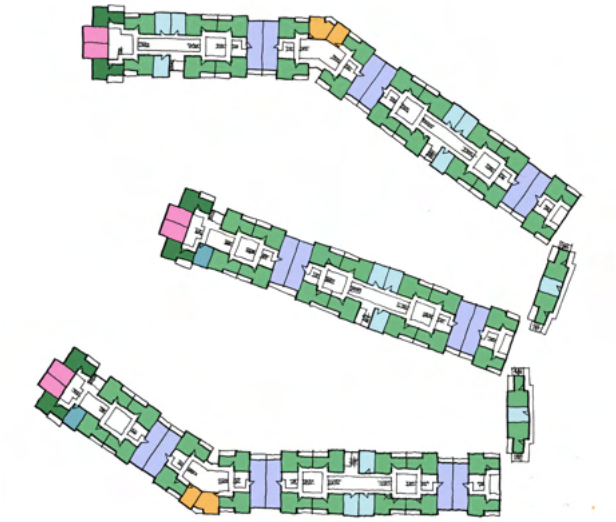
The building is made up of three blocks, Hurstway, Testerton and Barandon. Two small blocks named Grenfell Walk bridge between these to the north end of the estate.

The building is comprised of a series of typical bays that repeat. These are labelled below A-F. The largest bays contain up to 35 homes (A), whilst the smallest contain only 2 homes (E).

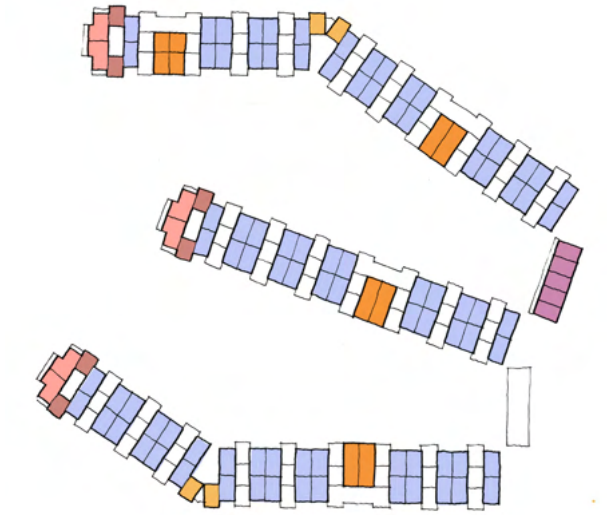
Overleaf are a series of diagrammatic plans that illustrate the different home types and how they are arranged on each level.



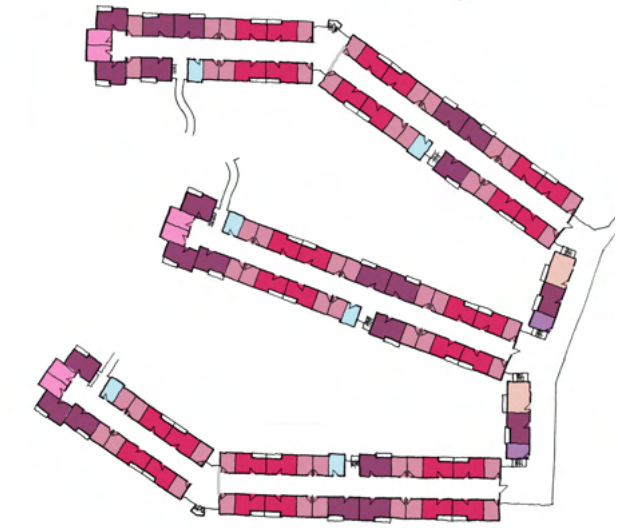
Block typologies- repetitive bays across the three blocks



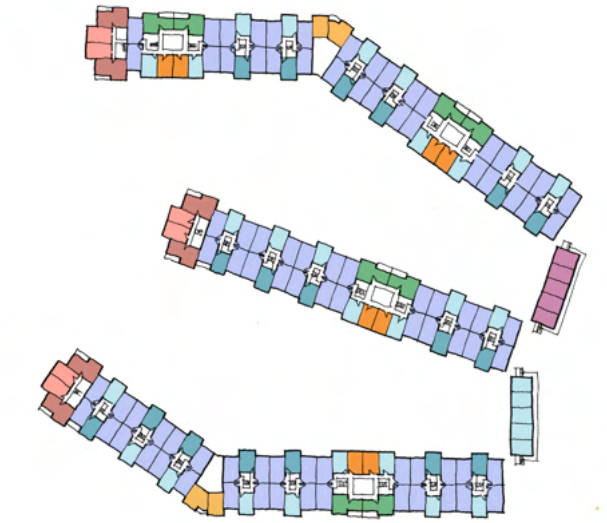
Deck Level 01 plan



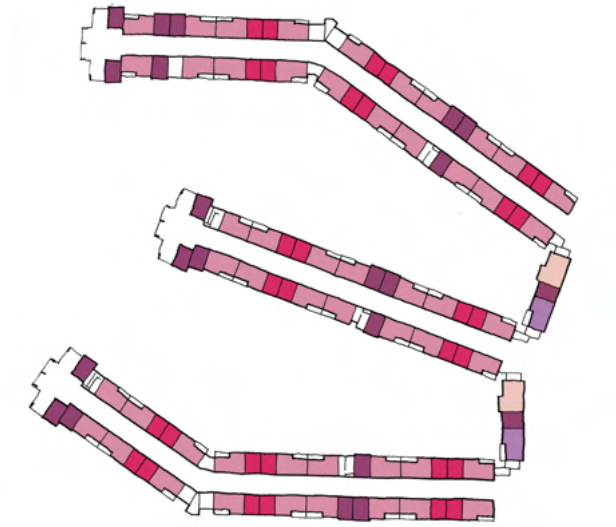
Deck Level 03 plan



Deck Level 00 plan



Deck Level 02 plan



Deck Level -01 plan

2 EXISTING ESTATE

2.2 EXISTING BUILDING APPRAISAL

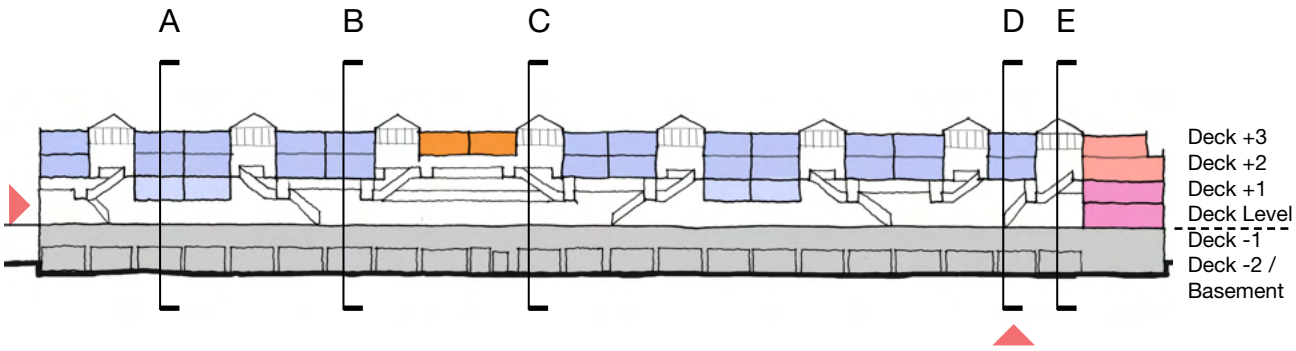
THE WALKWAYS IN SECTION

In principle, the homes are arranged around a central communal walkway area. On the upper storeys the homes are arranged to enclose and form lightwells or atriums.

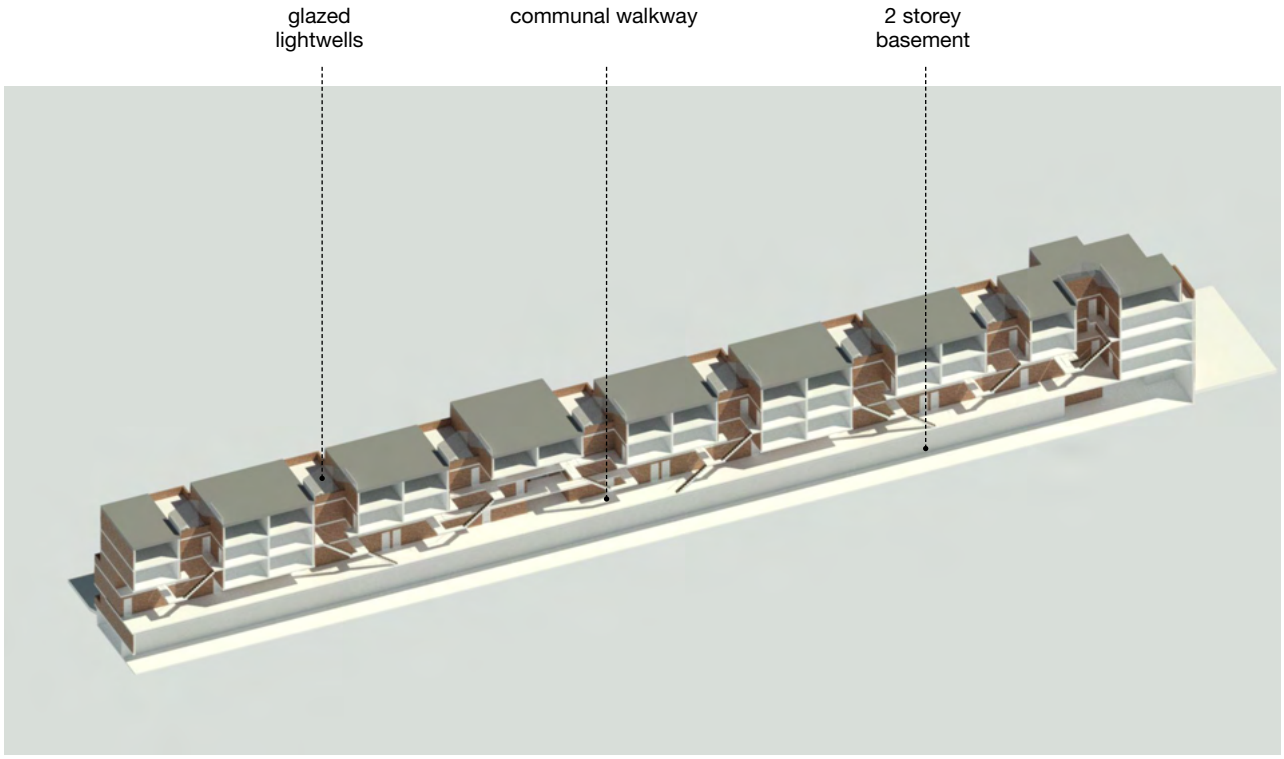
Single storey staircases connect the upper storeys to the communal walkway area. This communal walkway space sits above a basement with a two storey central aisle.

The sections show the absence of lifts and the reliance on a complex series of landings and staircases to access or egress homes. Communal entrances are far apart which lead to staircases or ramped access ways to the courtyard and streets.

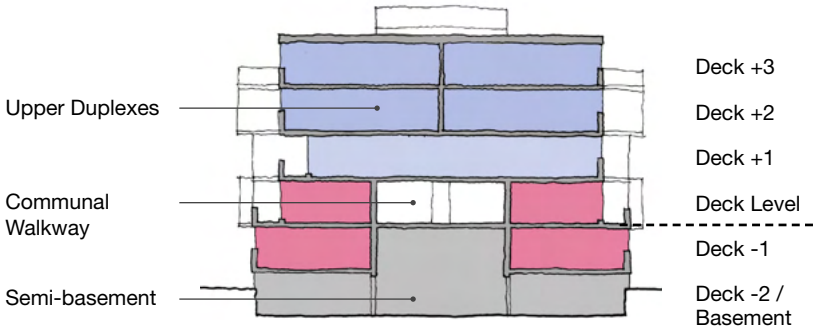
The atriums were initially open to the elements, so that the walkways would function as “streets”, with weathering details such as raised thresholds and surface drainage. These were later covered over which has ”tempered” the environment and reduced rain, but which has affected the ventilation allowing odours to linger, and how smoke would be extracted in the case of a fire.



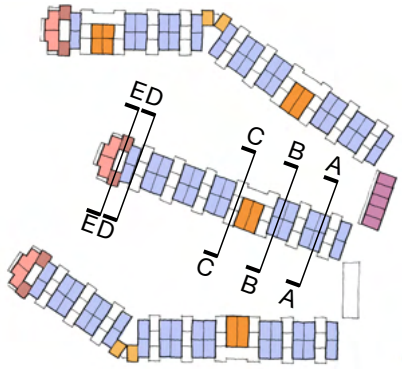
Long section of Testerton Walk



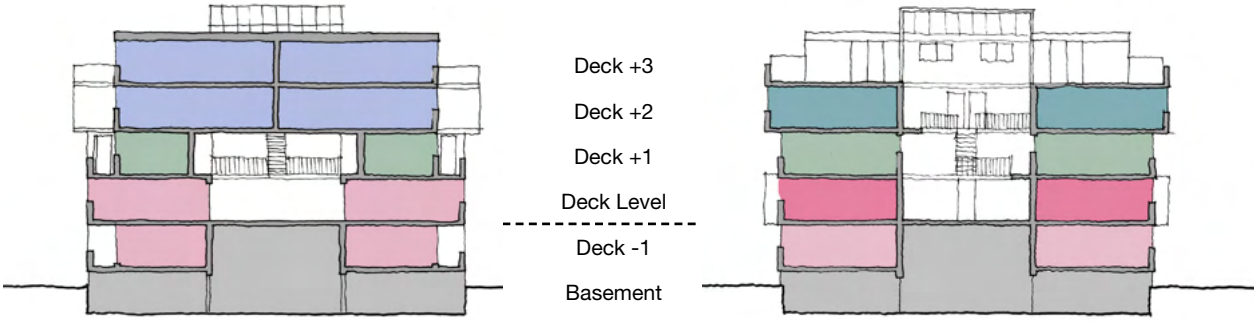
Rendered long section of Testerton Walk



Section A - typical short section



Key Plan

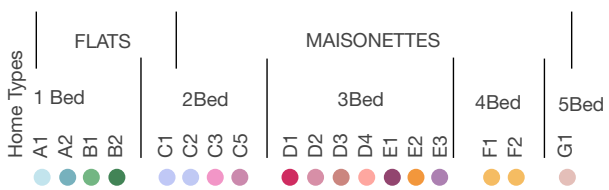


Section B - typical short section

Section C - typical short section

Section D - typical short section

Section E - typical short section



2 EXISTING ESTATE

2.2 EXISTING BUILDING APPRAISAL

EXTERNAL ENVELOPE AND BOUNDARY CONDITIONS

The external envelope consists of a dark reddish brick resting on the horizontal banding of the expressed concrete structure, both of which need minor repair work. The windows are a thin sliding aluminium system with single glazing. The building is bounded to the surrounding streets by shoulder height railings. This creates a harsh boundary that could be improved with a softer planted edge which could contribute to the public realm.

Brickwork and concrete requires repair work

Single glazed windows

Ramps from street to the communal entrances

Railings obstruct access

ENTRANCES & COMMUNAL COURTYARD

There are two communal entrance types to the Walkways. Barandon and Hurstway have street entrances with lobbies that were added in the 1990s. The second entrance type is from the two central courtyard which are ramped from street level to the second storey.
The central communal courtyards have lots of mature trees, however the homes have a poor relationship with this space in terms of access that could improve its usage.

Entrances are dated and unwelcoming

Mature landscaping

Poor relationship between homes and courtyard

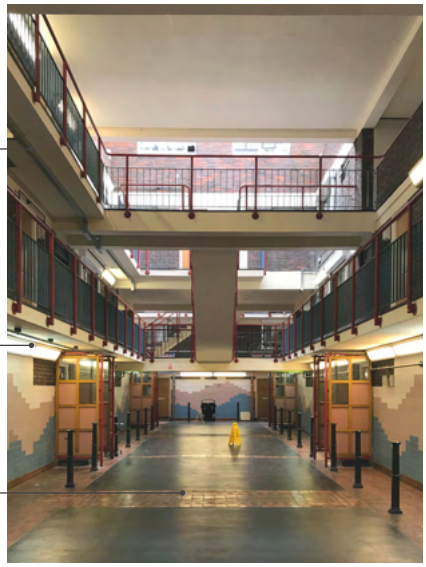
COMMUNAL WALKWAYS & ATRIUMS

The central communal walkways are generous in width with front doors opening onto this central space. However the floor and wall finishes are dated and in need of replacement. The lighting fixtures are overly robust and services conduits are exposed that creates an unwelcoming entry sequence to homes.
On the upper deck levels the walkways are narrow (between 900-1000mm) and access to front doors can be convoluted. Bathroom and kitchen windows open into this enclosed space.

Exposed Services

Poor Quality Lighting

Tired and dated finishes



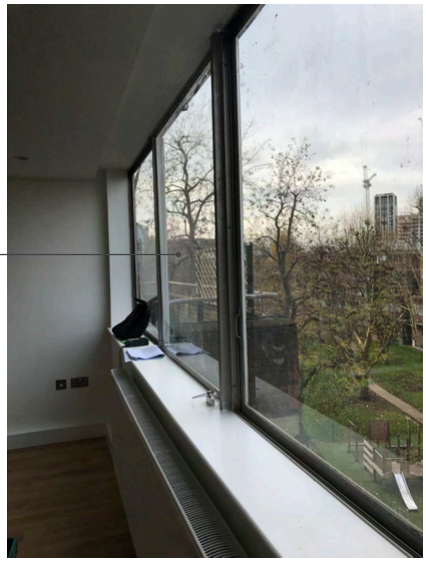
Narrow walkways

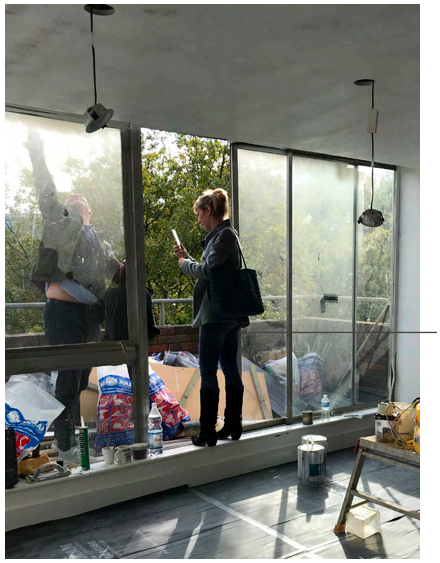
Dated & poorly maintained railings

FLATS & PRIVATE AMENITY

The large horizontal windows allow all homes to receive generous amounts of daylight and create expansive views to the outside. However the existing single glazed sliding window systems are leaky and have a poor thermal performance. Most homes apart from the smallest studio types have a private balcony or terrace, with the upper storey duplexes provided with large roof terraces.

Generous windows to all rooms





Private amenity in most homes

2 EXISTING ESTATE

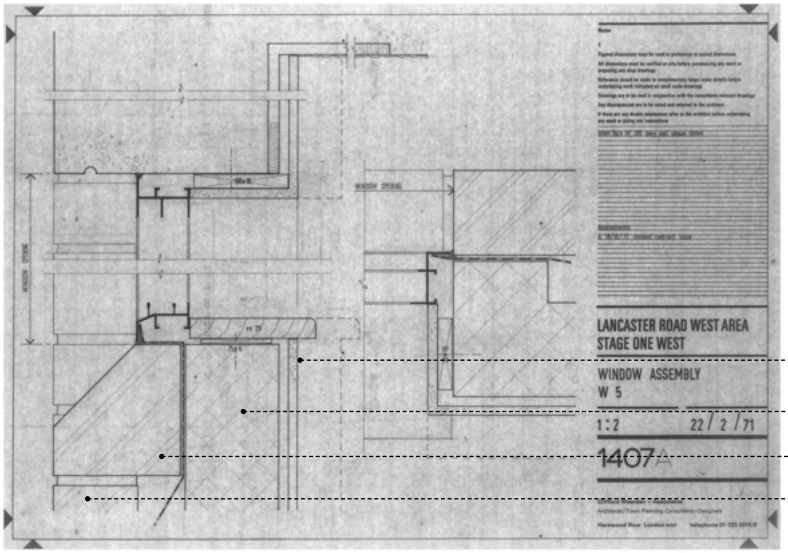
2.2 EXISTING BUILDING APPRAISAL

EXISTING ENVELOPE ANALYSIS

The Walkways were built in the early 1970s and the construction is typical for its time. These pages are a outline of the analysis we have conducted that we are using as basis to our design proposals.

To understand the building and its construction we have gathered and compiled information from the following sources:

- RBKC Archive (GA drawings and drainage information)
- Assembly drawings from the original project architect at Clifford Wearden & Associates (23 drawings)
- Existing information and surveys provided by LWNT (e.g. roof assembly)
- Site Visits (2 visits)

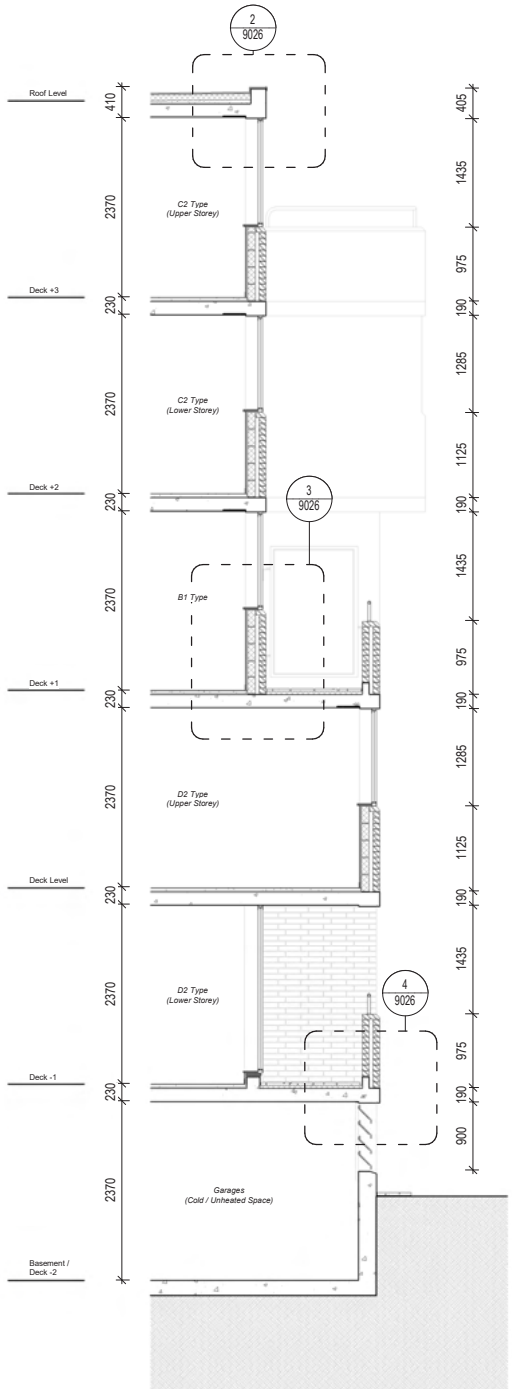


Original construction drawing of a window assembly showing the wall build up in section and plan at a scale of 1.2

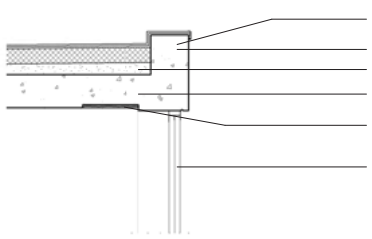
Site visit photos of a recently stripped out duplex that confirmed as built information from the archive drawings .

ROD SECTION OF THE EXISTING BUILDING

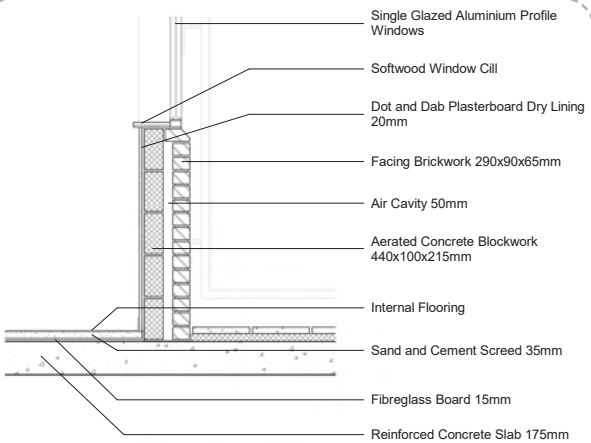
Below is a sketch drawing of a section through the external envelope of the existing building. The information has been collected from the archive drawings and observations from site visits therefore its accuracy is limited until confirmed by intrusive buildings surveys.



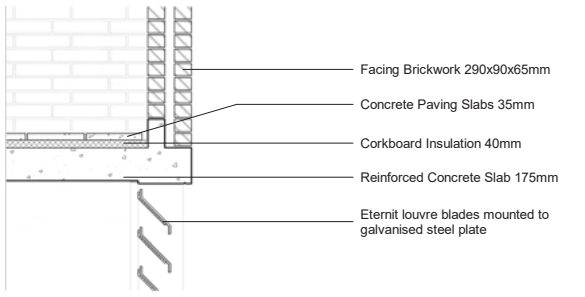
1 Typical Detailed Section
1 : 50
Ref. 9017



2 Typical Roof Detail
1 : 20
Ref. 9026



3 Typical External Wall & Balcony Detail
1 : 20
Ref. 9026



4 Typical Garage Soffit Detail
1 : 20
Ref. 9026

2 EXISTING ESTATE

2.2 EXISTING BUILDING APPRAISAL

PROPERTY ANALYSIS

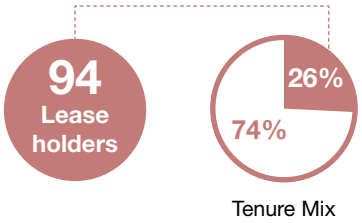
The Walkways consist of a total of 368 homes across the three main blocks. This count excludes the empty properties in Grenfell Walk.

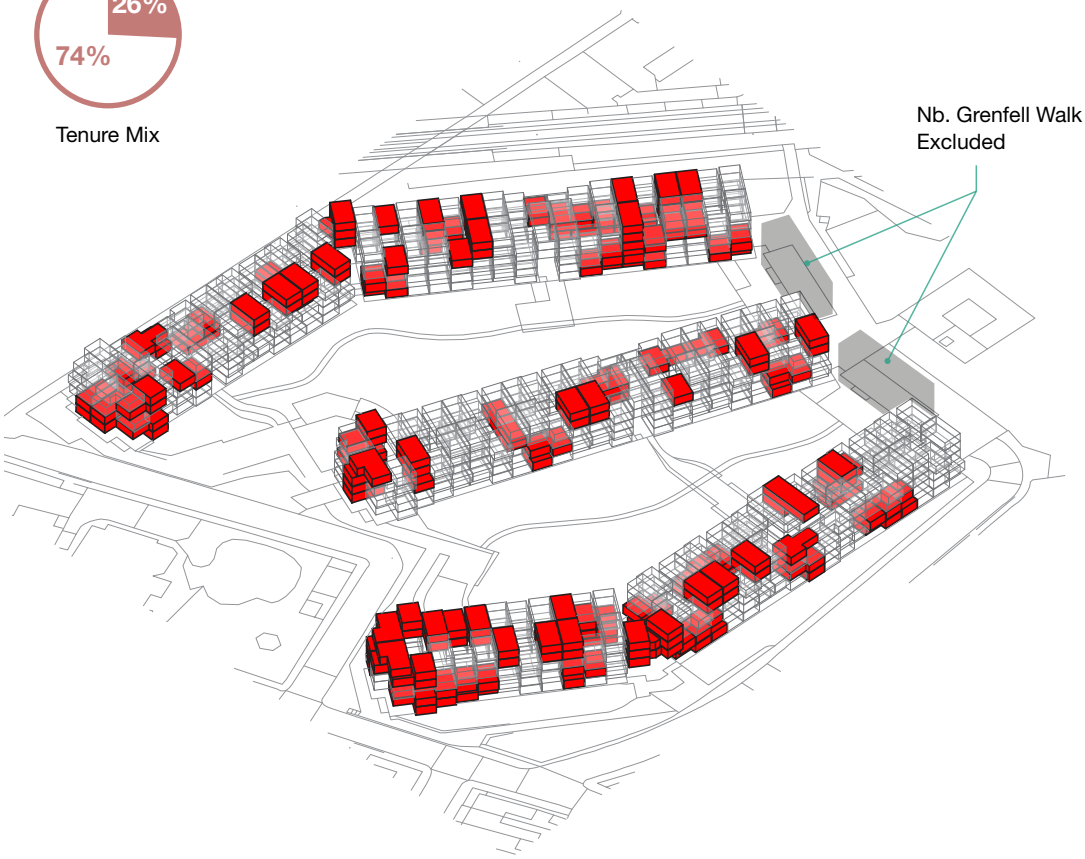
The following diagrams illustrate our analysis of the buildings to date from archive drawing material and data provided by LWNT. The illustrations have been generated from our 3D model.

LEASEHOLDERS PROPERTIES

There is currently 94 leaseholders (25.5%) across the Walkways.

There are 38 out of 140 properties in Hurstway Walk has (27%), Barandon Walk has 38 out of 128 properties (30%). Testerton Walk has the least with 18 leaseholders out of 100 properties (18%).





HOMES TYPES

The three blocks excluding Grenfell Walk, are made up of 15 home typologies which repeated across the scheme. The majority of these types are multi-level homes. The types and the number of instanced are listed below.

	Home Type	Instances	Approx. Area
Flats	A1	44	32 m²
	A2	19	32 m²
	B1	55	46 m²
	B1_EX	5	50 m²
	B2	6	46 m²
	C1	16	71 m²
Duplexes	C2	88	78 m²
	C3	6	78 m²
	D1	32	84 m²
	D2	52	84 m²
	D3	6	87 m²
	D4	6	96 m²
	E1	20	85 m²
	E2	8	98 m²
	F1	2	113 m²
	F2	2	113 m²
Totals		367	

222 Duplexes &
145 Flats

2.2 EXISTING BUILDING APPRAISAL

HOMES AND AREAS SUMMARIES

The two tables provide an overview of the distribution of home sizes across the three Walkways blocks that are being studied.

On the table to the right the number of 1B, 2B, 3B and 4B homes are summarized by building (Barandon, Hurstway and Testerton).

Below, the approximate total areas of homes are assessed based on the three levels of entry: Deck (building entrance level), Deck+1 and Deck+2. This enables an understanding of the distribution of residential area at the lower, mid and upper levels of the building, in addition to an approximate overall residential internal area.*

*Nb. All information on these schedules has been assembled from archive material and will require verification through on-site professional surveys. It should not be relied upon for accuracy.

Building / Beds	No.
BARANDON	
1B	43
2B	39
3B	43
4B	2
Total	127
HURSTWAY	
1B	50
2B	40
3B	48
4B	2
Total	140
TESTERTON	
1B	36
2B	30
3B	34
Total	100
Grand total	367

NB. All information on this schedule has been assembled from archive material and will require verification through on-site professional surveys. It should not be relied upon for accuracy.

Building / Entry Level	Private Residential Area (SQM)	No.	Comments
BARANDON			
Deck	3255	40	Includes duplexes (predominantly entry+down)
Deck+1	1711	32	Include 2 no. triplexes (entry+up)
Deck+2	3648	55	Includes duplexes (predominantly entry+up)
Total	8614	127	
HURSTWAY			
Deck	3593	44	Includes duplexes (predominantly entry+down)
Deck+1	1871	36	Include 2 no. triplexes (entry+up)
Deck+2	3937	60	Includes duplexes (predominantly entry+up)
Total	9401	140	
TESTERTON			
Deck	2581	32	Includes duplexes (predominantly entry+down)
Deck+1	1161	24	
Deck+2	2900	44	Includes duplexes (predominantly entry+up)
Total	6642	100	
Grand totals	24657	367	

NB. All information on this schedule has been assembled from archive material and will require verification through on-site professional surveys. It should not be relied upon for accuracy.

2 EXISTING ESTATE

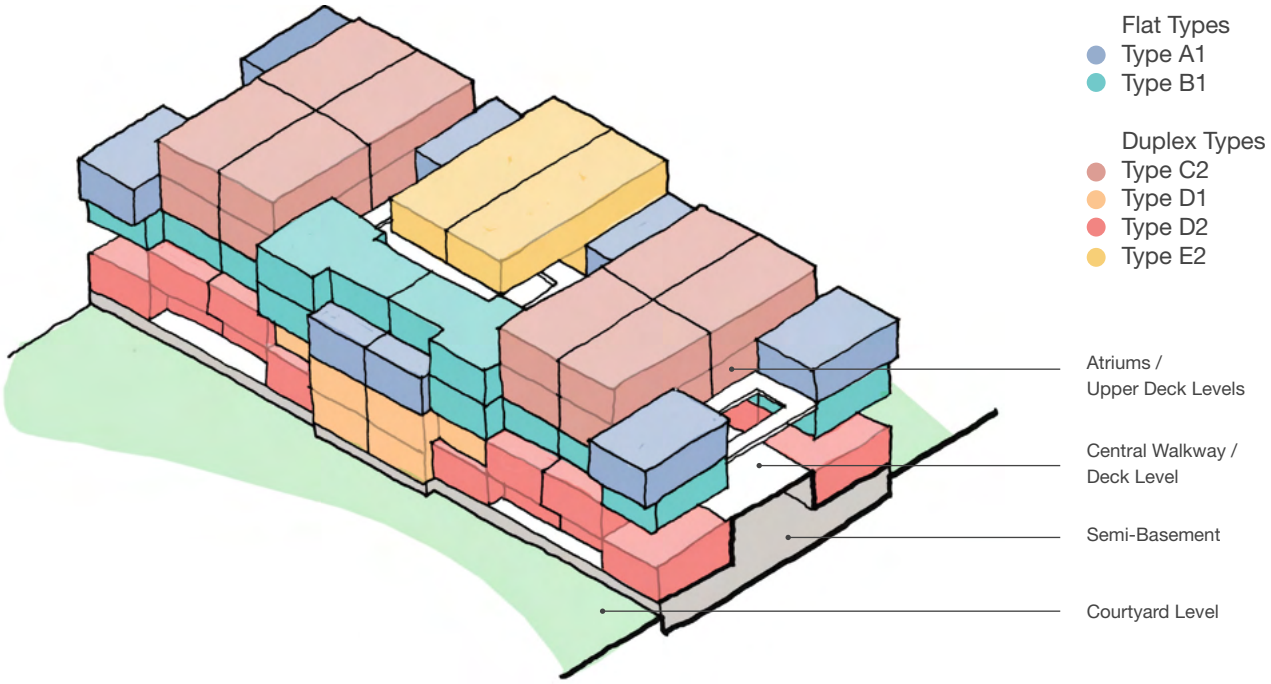
2.3 HOMES TYPES

The Walkways consists of 15 repeating home types. Four of these types make up 66% of the scheme which are illustrated overleaf.

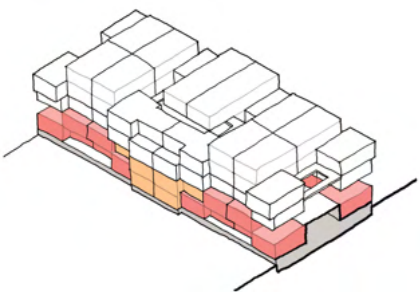
In principle, the homes are arranged around a central communal walkway area. On the upper storeys the homes are arranged to enclose and form lightwells or atriums.

As illustrated below the arrangement is made up of:
- Two storeys of interlocking duplexes on Deck-1 and Deck Level
- A storey of flats on Deck +1
- Two storeys of back-to-back duplexes and flats on Deck +2 to Deck +3

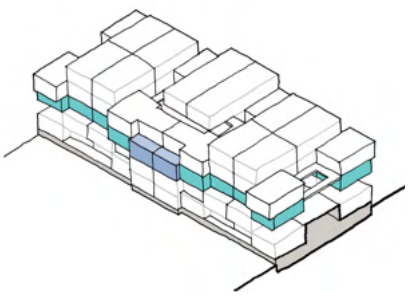
Diagram of how the various typologies interlock around a central communal walkway and set of upper lightwells



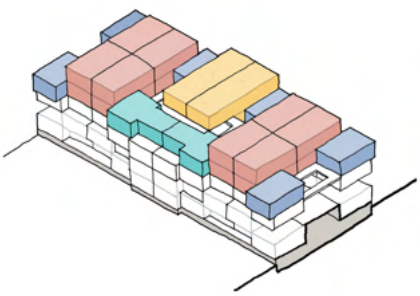
Interlocking duplexes



A storey of flats



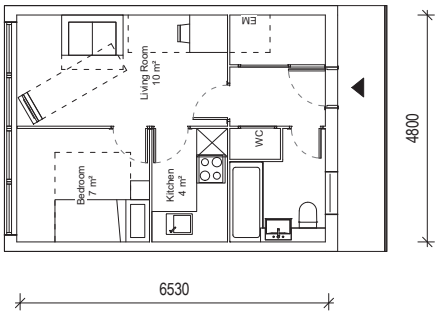
Upper flats and duplexes



2 EXISTING ESTATE

2.3 HOME TYPES

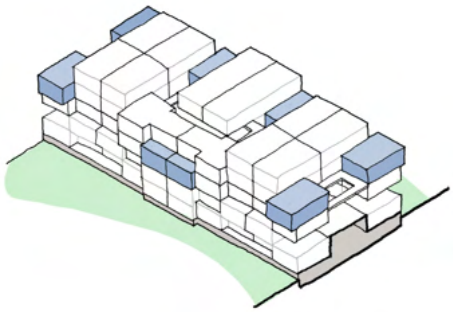
1 BED STUDIO (A1 TYPE)



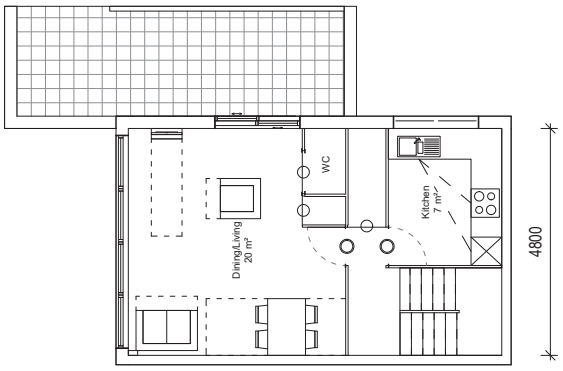
Typical A1 Home Layout

A small studio flat type for 1 person consisting of a separate living, kitchen and a 7m² bedroom. The home has generous storage but no outdoor private amenity. It is smallest home type in the Walkways.

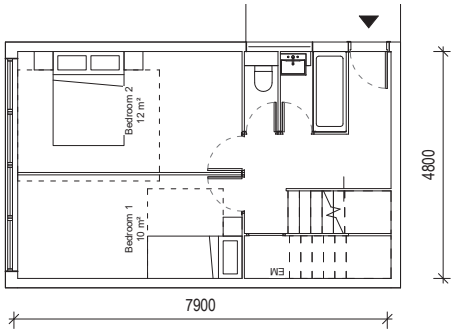
Area (approx): 31m²
Levels: Deck, Deck +1,Deck +2
Number of Homes: 44



2 BED 3 PERSON DUPLEX (C2 TYPE)



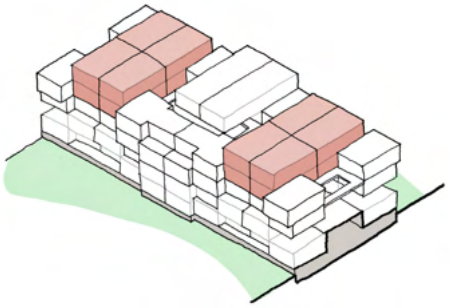
Upper Storey



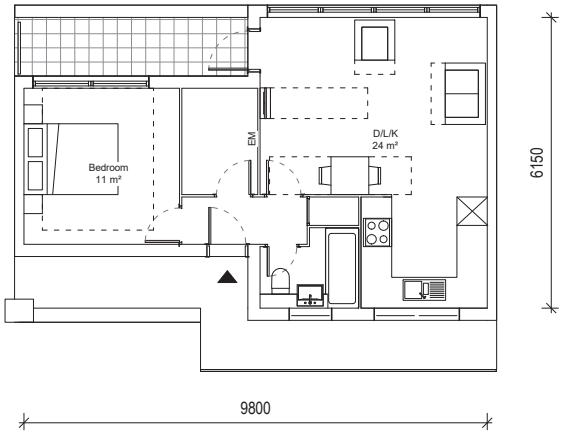
Lower Entrance Storey

A duplex typology with two bedrooms for 3 persons with a separate kitchen and living area on the upper storey. Bedrooms are located on the lower entrance storey which is accessed from Deck Level +2. Each type has a generous roof terrace. It is the most common type across the three blocks.

Area (approx): 76m²
Levels: Deck +2
Number of Homes: 88



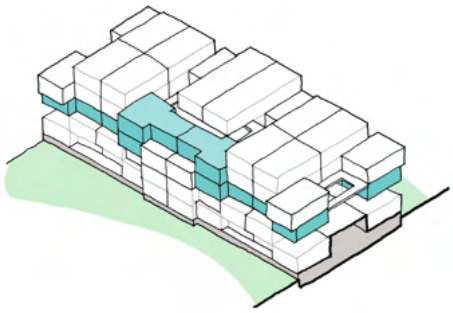
1 BED 2 PERSON FLAT (B1 TYPE)



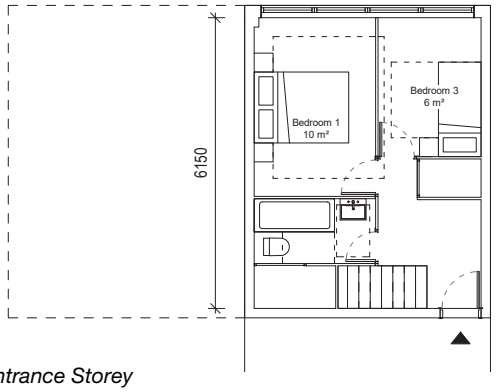
Typical B1 Home Layout

A single bedroom type for 2 persons with open plan living, kitchen and dining area and private outdoor balcony.

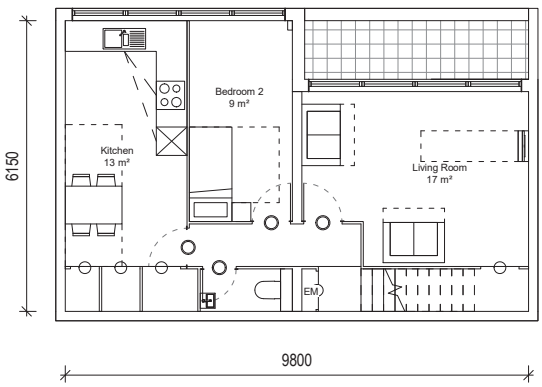
Area (approx): 46m²
Levels: Deck +1,Deck +2
Number of Homes: 60



3 BED 4 PERSON DUPLEX (D2 TYPE)



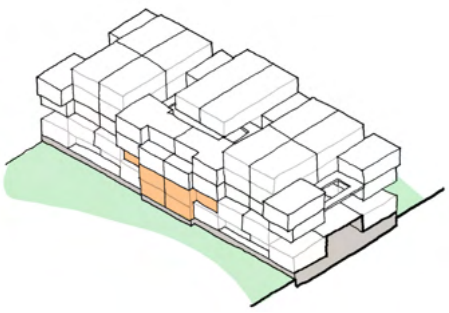
Upper Entrance Storey



Lower Storey

A family duplex typology with three bedrooms for 4 persons and separate kitchen and living area. The type consists of two storeys, the entrance is located on the upper storey which is accessed from the Deck Level. A small private balcony is accessed directly from the living room.

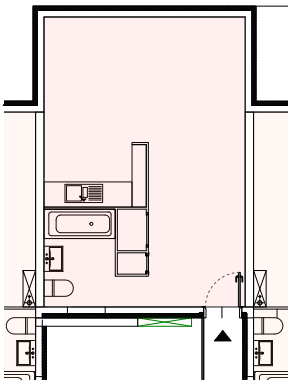
Area (approx): 84m²
Levels: Deck Level
Number of Homes: 52



2.3 HOME TYPES (CONTINUED)

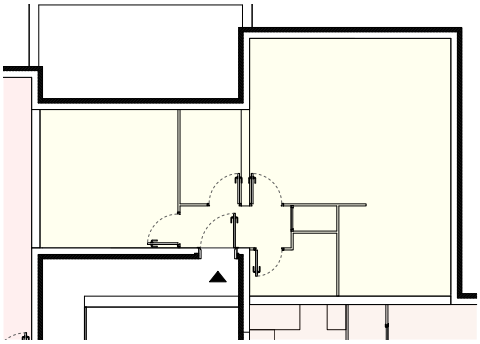
1 BED STUDIO (A2 TYPE)

Area (approx): 32m^2
Entry Levels: Deck+1, Deck+2
Number of Homes: 44



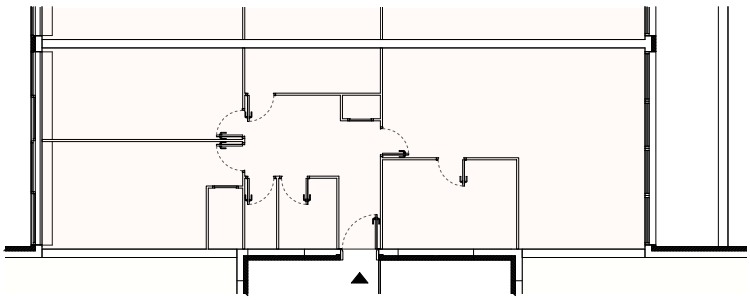
1 BED FLAT (B2 TYPE)

Area (approx): 46.3m^2
Entry Level: Deck+1
Number of Homes: 6



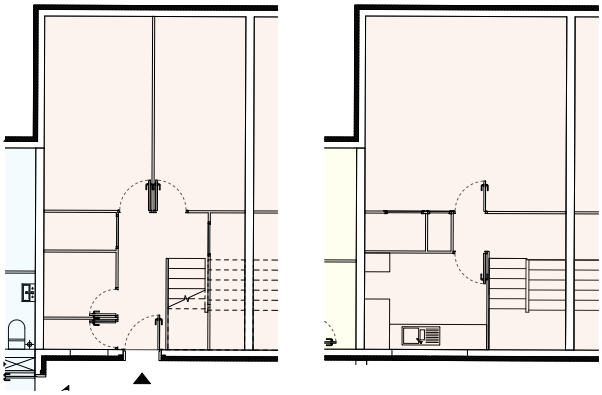
2 BED FLAT (C1 TYPE)

Area (approx): 71.4m^2
Entry Level: Deck+1
Number of Homes: 16



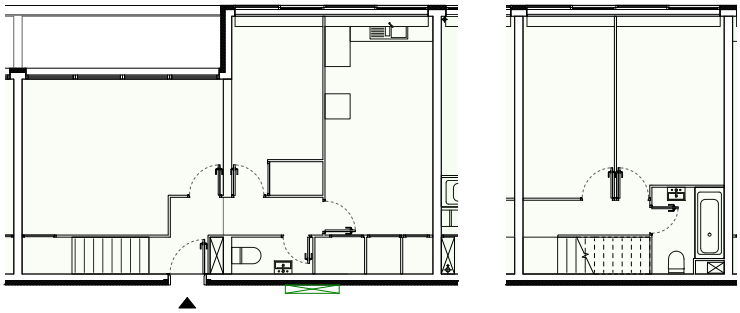
2 BED DUPLEX (C3 TYPE)

Area (approx): 78.1m^2
Entry Level: Deck
Number of Homes: 6



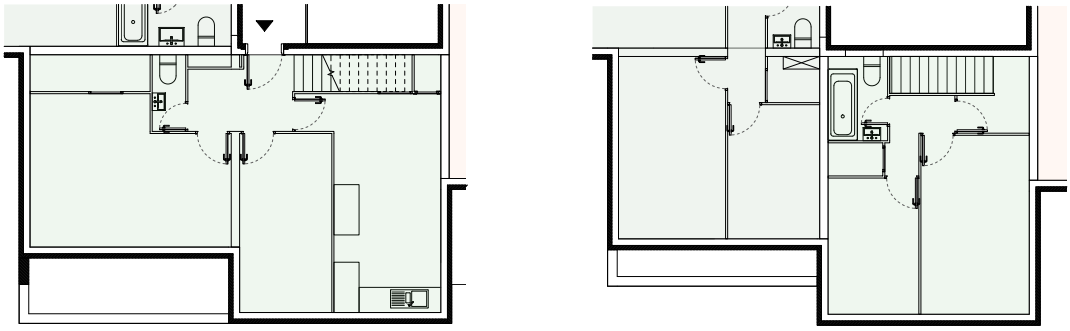
3 BED DUPLEX (D1 TYPE)

Area (approx): 84.2m^2
Entry Level: Deck
Number of Homes: 32



3 BED DUPLEX (D3 TYPE)

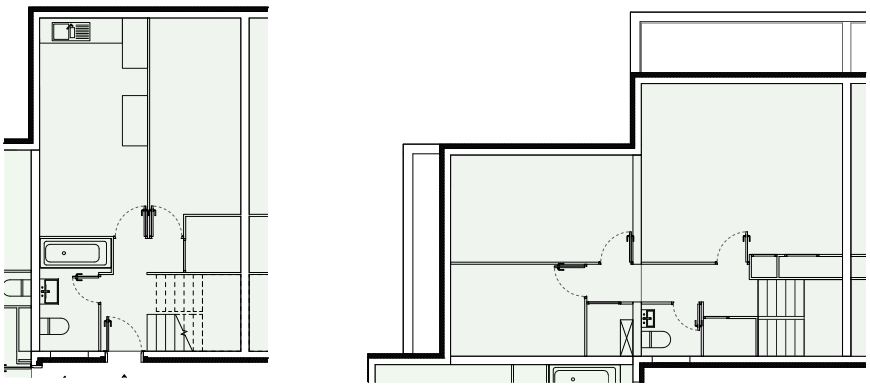
Area (approx): 86.5m^2
Entry Level: Deck+2
Number of Homes: 6



2.3 REMAINING HOME TYPES (CONTINUED)

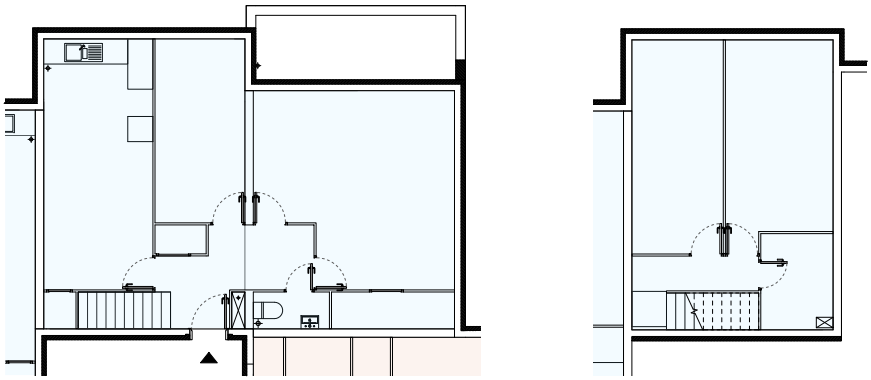
3 BED DUPLEX (D4 TYPE)

Area (approx): 95.7m²
Entry Level: Deck+2
Number of Homes: 6



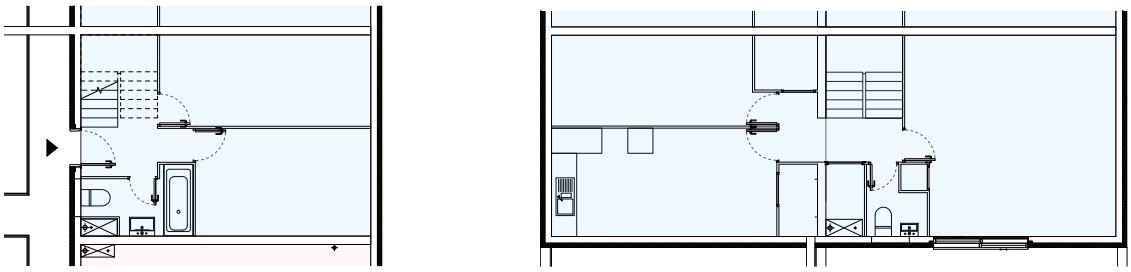
3 BED DUPLEX (E1 TYPE)

Area (approx): 84.8m²
Entry Level: Deck
Number of Homes: 20



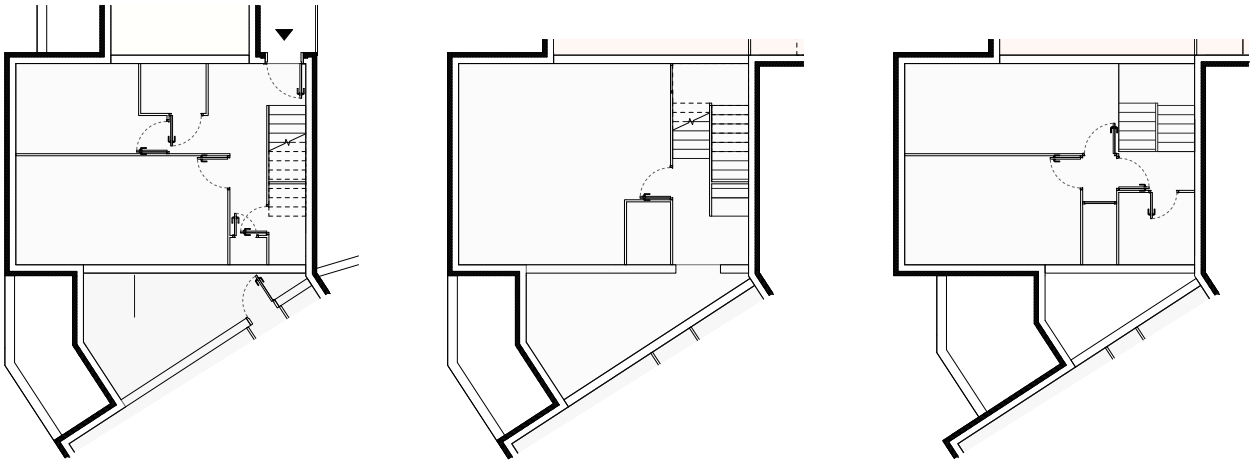
3 BED DUPLEX (E2 TYPE)

Area (approx): 98.1m²
Entry Level: Deck+2
Number of Homes: 8



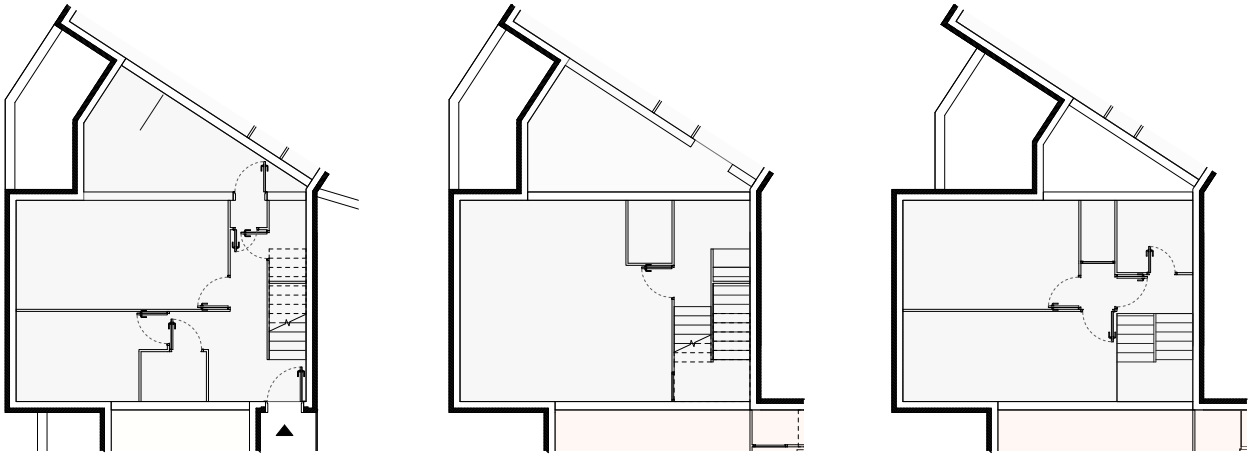
4 BED DUPLEX (F1 TYPE)

Area (approx): 112.5m²
Entry Level: Deck+1
Number of Homes: 2



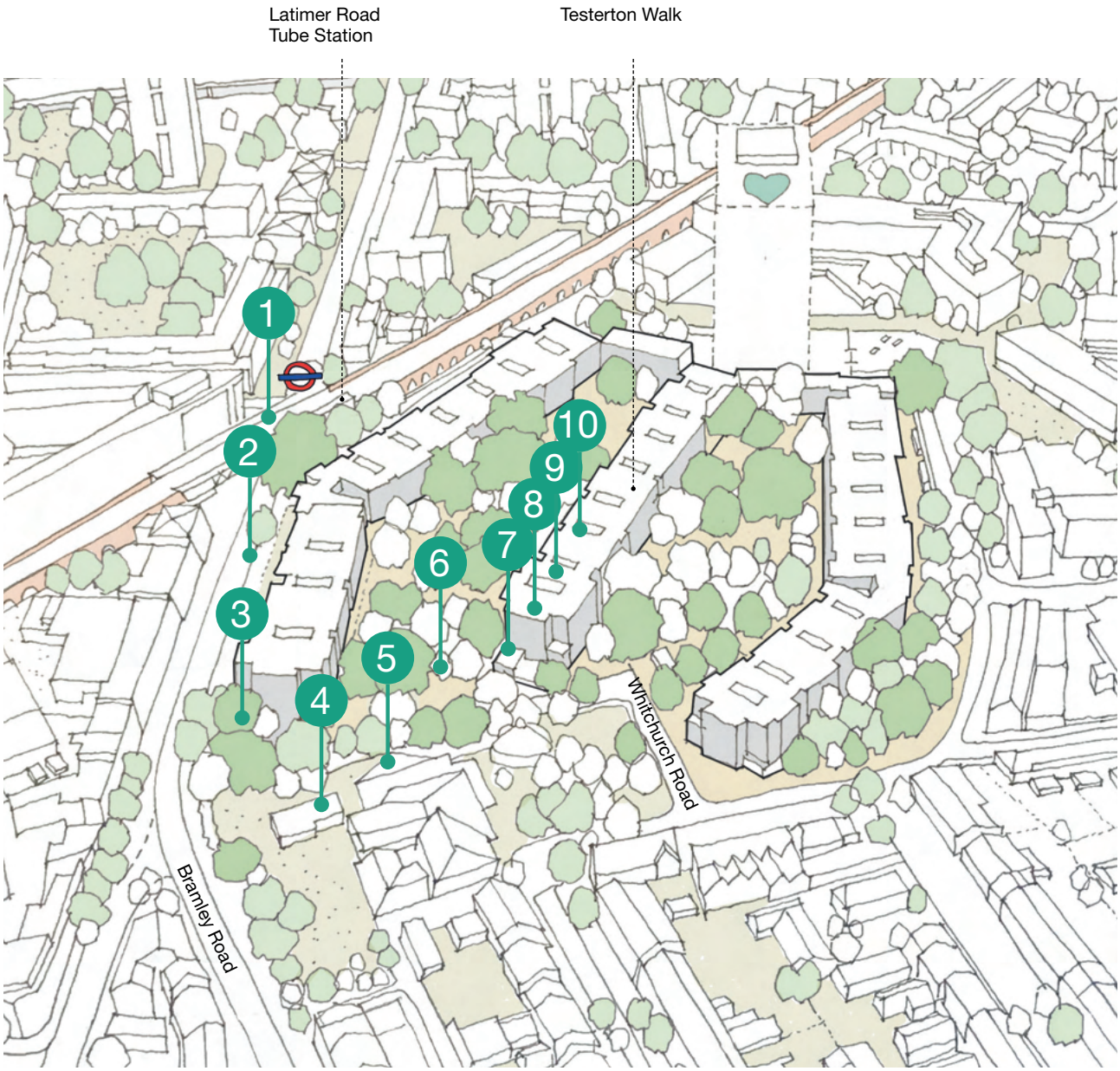
4 BED DUPLEX (F2 TYPE)

Area (approx): 112.5m²
Entry Level: Deck+1
Number of Homes: 2



2.4 JOURNEY FROM STREET TO DOOR

The following is a study of a residents journey from Latimer Road Station to their front door to understand the physical barriers and obstructions they typically face. Through the refurbishment works there is an opportunity to address many of these to greatly improve access to the estate.



1 - STAIRS - Latimer Road Station Entrance

Latimer Road Station entrance from North side only

View along Station Walk and ramp access to the Estate

Narrow pedestrian passage under the railway bridge

Latimer Road Station - stair access only

Stair access only to the platform level;

North side only access to Latimer Road station;

Pedestrian passage under the railway bridge.

2 - KERB - Along Bramley Road / Local Amenities

The Walkways facade

Entrance lobby on Bramley Road

Local shops and pub along the Bramley Rd

Local amenities and shops

Local amenities along Bramley Road can be reached across the street from the Walkways via a designated pedestrian crossings.

2.4 JOURNEY FROM STREET TO DOOR

3 - KERB - Along the fenced perimeter of the Walkways and its public realm

Metal railings and brick kerbs dominate in the public realm

Start of the segregated pedestrian route

Public realm of the intersection of Bramley and Whitchurch roads

Fencing and Kerbs

The Lancaster West Estate is fenced all along Bramley Road.

The public realm of the estate is defined by kerbs and fence.

4 - FENCE - Fenced pedestrian route towards the courtyard

The route to Barandon is obstructed by the temporary boiler

Separated pedestrian route

Start of a rising pedestrian walkway along Whitchurch St

Elevated and segregated footway

The pedestrian footway is designed at a different level than the carriageway along Whitchurch road;

Its edges are secured by railings.

5 - RAMP - Elevated pedestrian route through the courtyard

View of the courtyard access from Whitchurch Street

Route defined by pedestrian ramps

Public realm in between the elevated pedestrian route

Ramp-bridge route towards Testerton Walk

Hardscaped pedestrian access to Testerton Walk is elevated above the courtyard;

The route rises from Whitchurch road to the communal entrances from the courtyard.

6 - RAMP - Bridged access to Testerton Walk

Bridged pedestrian entrance lands at the upper level

Elevated access is secured by railings

Testerton Walk building entrance from the courtyard

Bridge access to Testerton Walk

A bridged ramp ends the route from the street to the communal entrance of Testerton Walk;

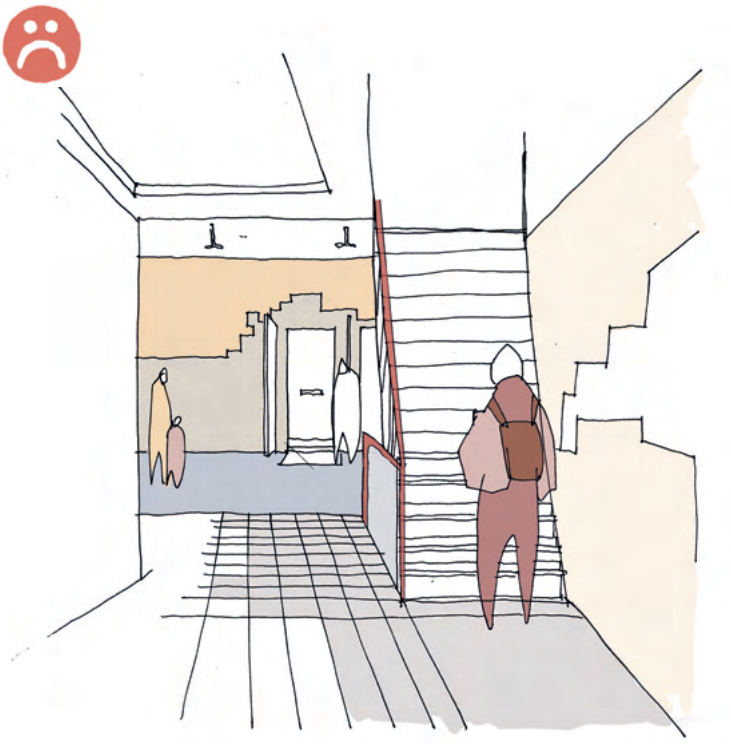
The ramps raise the entrance by two storeys from street level

2.4 JOURNEY FROM STREET TO DOOR

7 - STAIR - First flight of stairs to the upper levels

View of the lobby area in Testerton Walk

View of the lower courtyard entrance in Testerton Walk



Common area view from the entrance

Testerton Walk south west entrance

There is stair access only to the upper floors after entering the building.

8 - STAIR - Upper walkway and view of the second narrow flight of stairs

View from the upper walkway (Deck +1)

Enclosed internal spaces

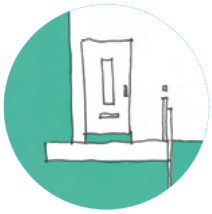
Access to the flats from the upper walkway

Upper flight of stairs towards the top level

Narrow staircases provide access to the upper levels.

Residential flats are accessed from the narrow upper walkways (1000mm).

9 - STEP - Each home has a 150mm step at the entrance door threshold



Upper level bridges

Upper level bridge access to homes

Entrances to the upper level apartments

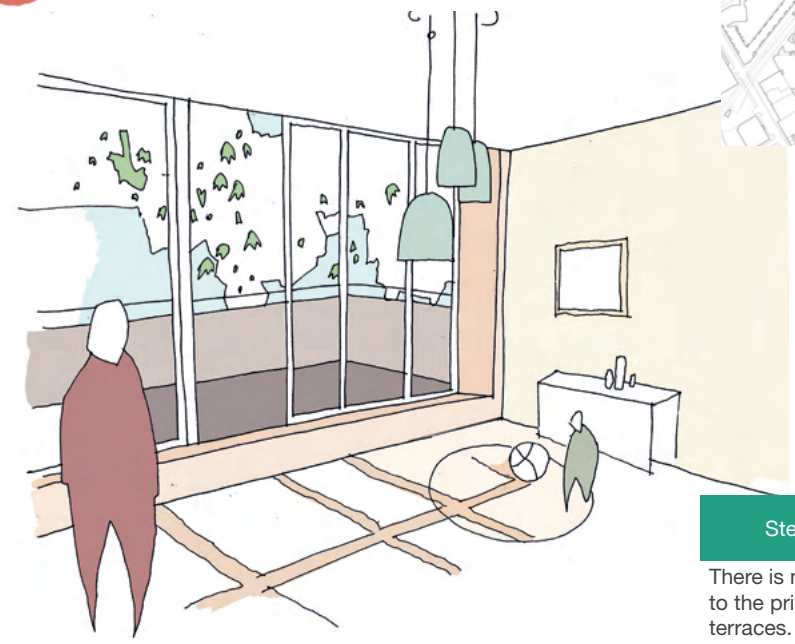
Residential entrance step

Private entrance doors have a small step of 150mm from the walkway before entering the apartment.

10 - STEP - From the living area room to the private balconies or terraces

Home with a private terrace

Home with a private terrace



Home with a private balcony

Step to the balcony

There is no step free access to the private balconies or terraces.

3 ENGAGEMENT & CO-DESIGN

3.1 OVERVIEW

The design team's work builds on previous engagement and expands on this using the residents' top 10 priorities as established in November 2019. These objectives are presented as overall summary for all three blocks as well as for individual blocks.

The design team has been developing ideas and strategies for delivering improvements to areas as identified by residents. The works can be described in two categories; the first being implemented through ongoing maintenance and the other through new design solutions such as the replacement of windows and improvements to heating and hot water disruption.

The following chapter sets out the strategy for engaging and communicating with residents. The complexities of the project and its timelines will need to be carefully communicated to residents. Below is a summary of emerging ideas that will be discussed through the co-design process with residents:

- The main areas of work will be in three categories: outside of the buildings – roof, windows and balconies, the common areas – stairs, storage, ventilation, glazing and the inside of homes – ceilings, ventilation and front doors.

- Meeting residents' top 10 priorities and other targets may require quite lengthy and sometimes disruptive work.

- Fire sprinklers and fireproof atrium glazing will be required for all homes, for safety reasons - This will necessitate new dropped ceilings and a new ventilation system to the outside walls.

- New fire alarms, detectors and dry risers, new atrium skylights with smoke extract and other changes to the common areas will also be necessary for fire safety.

- Window replacement for all homes with triple glazing is proposed and will be integrated with the new ventilation and ceilings. This also provides the opportunity to add an improved cavity and possibly other wall insulation to greatly improve energy efficiency.

- Much of the proposed works can be done at the same time to minimise disruption and speed up the process. This will need careful planning and the participation of as many residents and leaseholders as possible.

- Some activities will involve access to homes and may involve residents moving out temporarily for a period of time.

- The benefits of works such as roof insulation, upgrading the heating system and energy supply and upgrading bathrooms, kitchens and doors, should result in big savings on energy bills and improve the comfort and quality of homes.

- Fitout and envelope improvements will be tested in a void unit. This will give residents a chance to visit a developed home and see how the improvements will affect them and what the results may look like.

- This process will inevitably be made more difficult with the current COVID-19 crisis but we hope to work with residents to develop ideas so that when normal work resumes, we will be ready to work at pace.

- We are aware that many residents do not have secure tenancies or may be in arrears with bills or rent and therefore will be less willing to engage. LWNT will ensure that this does not affect a residents' ability to engage and will not let this affect the way the work is organised or affect arrangements for temporary accommodation or re-allocation if required.

3.2 RESIDENTS' TOP 10 PRIORITIES

In November 2019, residents were asked to shortlist their top 10 priorities for refurbishment and then rank them in order of importance using a points system, where the priority number one would get 10 points, second priority 9 points, third priority 8 points and so on, was used, until they got to their 10th priority, which scored 1 point. The outcome is summarised below for each block and for The Walkways as a whole.

WALKWAYS TOP 10

1. **Windows**
2. **Heating & hot water replacement**
3. **Bathrooms**
4. **Kitchens**
5. **Door Entry System**
6. **CCTV**
7. **Refuse Storage**
8. **Communal Electrics & Lighting**
9. **Roof Repairs / Renewal**
10. **Lifts**

3 ENGAGEMENT & CO-DESIGN

3.3 ENGAGEMENT AND CO-DESIGN STRATEGY

In light of the current pandemic and new lockdown restrictions which are due to be in place until mid-February, all engagement will be remote until spring. The first co-design opportunity (see timeline on following page)will take the form of a design booklet sent out to all households followed by residents' feedback sessions. These sessions may be organised by block to facilitate an open forum where all residents can contribute.

All design-related engagement material will be written and designed by Karakusevic Carson Architects (KCA) and signed off by the Lancaster West Neighbourhood Team & Communications teams. The content will be accessible to non-expert audiences and translated in to key languages where appropriate and necessary.

Consultation material will include large-scale maps and models (where feasible and appropriate), easy to read drawings and illustrations, and use clear and accessible language.

A draft of consultation materials will be sent to the Project Manager for comment/ sign off a week before printing.

LWNT will organise printing and distribution of hard copy newsletters and design booklets to residents and the wider community as appropriate.

KCA will organise printing and delivery/distribution of design booklet, feedback forms, lobby notice board updates and other materials. KCA will work with the LWNT to organise face-to-face engagement when the government guidance allows for public gatherings.

The primary online channels will be the LWNT website and email list where people can find out more about the status of the project, how they can get involved, and give feedback. The website could also host videos and links to online surveys.

Traditional media channels will be used to engage people in the project, by using post and lobby notice boards to inform and engage residents we cannot meet remotely.

The programme remains flexible and if face-to-face meetings are feasible, a public exhibition can be added.

The engagement principles set out to meeting the highest standards when communicating with, consulting and engaging with you. Here are our six principles for engagement.

Genuine & Meaningful

Seek to actively engage people in a participatory process

Accessible & Inclusive

Break down barriers to create a process that is accessible to all

Clear, Open & Honest

Communicate clearly, openly and honestly to promote dialogue

Appropriate

Use helpful and engaging methods and tools when working with you

Capacity-building

We will provide the necessary training that will help you meaningfully engage with the process

Secure

Your safety will be at the forefront of any engagement

TECHNIQUES

ONLINE MEDIA

- W11 Website
- Email List
- Virtual Workshops
- Online Survey
- Video/ Recording
- Social Media

TRADITIONAL MEDIA

- Letter
- News-letter/ Leaflet
- Notice-Board
- Booklet
- Survey
- Phone

FACE TO FACE*

- 1:1 Meet-ing
- Resi-dent-led walk
- Res-ident workshop
- Pop-up
- Drop-in
- Exhibi-tion

REMOTE

Residents' safety is important and we will work to make our co-design events COVID-19 secure. As we are not able to meet through face-to-face events until mid-February, we will use a combination of online and traditional methods combine to make a holistic remote engagement event.

- Virtual Workshops
- W11 Website
- Online Survey
- Video/ Recording
- Email List
- Social Media
- Survey
- Booklet
- Phone

3 ENGAGEMENT & CO-DESIGN

3.3 ENGAGEMENT & CO-DESIGN STRATEGY

	ACTIVITY	STAKEHOLDERS / ATTENDEES
PUBLIC EVENTS*	Engagement material to present design development and provide opportunities for formal and informal feedback	Estate residents, local organisations, schools and businesses, and the wider community
1:1/VIRTUAL MEETINGS*	In person or virtual meetings with key stakeholders and groups	Identified key stakeholders
RESIDENTS' LED WALKS	In person resident led walks with Light Follows Behaviour looking at the public realm, safety and lighting on the estate. This is subject to COVID-19 restrictions	Residents of the Walkways
DESIGN BOOKLETS	Printed engagement material to present design development and provide opportunities for formal and informal feedback	Residents of the Walkways
LETTERS	Letters posted to affected residents. Cover letters for remote engagement to give context and invite residents to the events. These will be coordinated with other project and council correspondence taking into account residents' feedback on engagement fatigue.	Affected residents and key stakeholders
NOTICE/LOBBY BOARDS	Project information and work in progress updates posted on existing notice boards can be used to keep people up to date with progress.	Walkways residents
SURVEYS	Hard copy surveys will be sent to residents alongside design booklets.	Walkways residents
PHONE	For residents who do not have digital access being able to reach a member of the team on phone to talk through the project is recommended to ensure an inclusive process.	Walkways residents
REMOTE ENGAGEMENT: ONLINE	Engagement material such as presentations, pdf documents, surveys and videos hosted online. These will	Public
W11 WEBSITE	Project and design updates	Public
EMAIL + EMAIL LIST UPDATES + LWNT E-NEWSLETTER	People who register to receive project updates - This is to be coordinated with the LWNT Communications team. Emails also to be sent to key stakeholder organisations to notify of events and updates.	Walkways residents
DIGITAL WORKSHOPS	Meetings with a set number of participants going through a particular topic in a hands-on way	Block representatives Open to all residents via sign-ups
ONLINE SURVEY	Online surveys and questionnaires to give people an opportunity to feedback on proposals	Targeted at residents and key stakeholders, publicly accessible
VIDEO /RECORDINGS	Videos or presentation recordings to present information online	Targeted at residents and key stakeholders, publicly accessible
SOCIAL MEDIA	LWNT relevant social media channels	Target audience depending on platform Facebook: 30 + Instagram: 16-35

3 ENGAGEMENT & CO-DESIGN

3.4 SOCIAL VALUE STRATEGY

Working with Beyond The Box Consultants, KCA will deliver a social value programme aimed at engaging with residents through paid roles and upskilling workshops. The table summarises the programme for the delivery of this social value strategy.

Working with LWNT, KCA and BTB Consultants have began this process, seeking applications for paid opportunities. The advert for the 'community engagement assistant' is now live and responses will be evaluated in the coming weeks.

3 ENGAGEMENT & CO-DESIGN

3.5 POST OCCUPANCY EVALUATION

To ensure our designs meet the highest standards and truly work for people, we believe it is important to ask residents about their experiences living in their homes. After all, they know best how well their home is functioning and if it is meeting their needs effectively.

Our approach to post-occupancy evaluation is two-fold; project-specific reviews undertaken by the design team throughout the design process, construction and snagging period, and a structured practice-wide programme led by our post-occupancy team.

Our internal reviews look at how the final product was shaped by factors such as programme, challenges, design decisions, value engineering and construction methods. While our studio-wide post-occupancy evaluation programme is typically structured into three parts; standardised questionnaires, in-depth interviews and technical surveys.
The questionnaire is a set of perception based questions aimed at understanding how residents perceive their home and surrounding public realm. The include qualitative and quantitative questions that can be measured, tracked over time and compared across projects.

Semi-structured interviews are undertaken with residents living in homes of all tenures to better understand how well their homes are working for them. This also allows us to observe how residents occupy and use their spaces, but also have a face to face conversation.

The strategy for collecting technical information about a building's performance is to partner with our M&E consultants to gather and analyse data. We believe that it is vital that there is minimal disturbance during the testing period and that collaborating residents are compensated appropriately for any inconvenience. This process will be critical to produce final output reports for the BEIS to meet with the funding guidelines of the SHDF.

We believe it is essential to regularly assess how our buildings are designed, delivered and aging, and the impact they have on people and communities. We believe it is important to learn from each project to understand the diverse and shifting nature of user requirements and expectations, and identify areas for improvement, both in the short- and long-term.

3.6 ENGAGEMENT & CO-DESIGN TOOLS

The model images here are taken from a 1:25 physical model. This model is intended to be a working model which will allow us to develop, explore and illustrate ideas and strategies when working with residents.

For remote engagement workshops, the model could be used to test different design options, which can then be photographed and presented to residents for discussion.

When in-person engagement can take place again, we hope that residents will be able to work directly with the model to explore and display their ideas, working with us collaboratively.

We also see the possibilities and value of this model for exhibition tool.

Interior view of central communal walkway area with the basement level services below

Sectional view of the upper duplexes showing the proposed in white and the existing in brown

Corner view of the external insulation option

Corner view of the internal insulation option (leftside)

4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

CHAPTER INTRODUCTION

This Chapter concentrates on the impact certain measures will have on the internal environment of the buildings, both in the common areas and the homes themselves. These have been collated here to provide a initial range of options for discussion and development with residents through co-design.

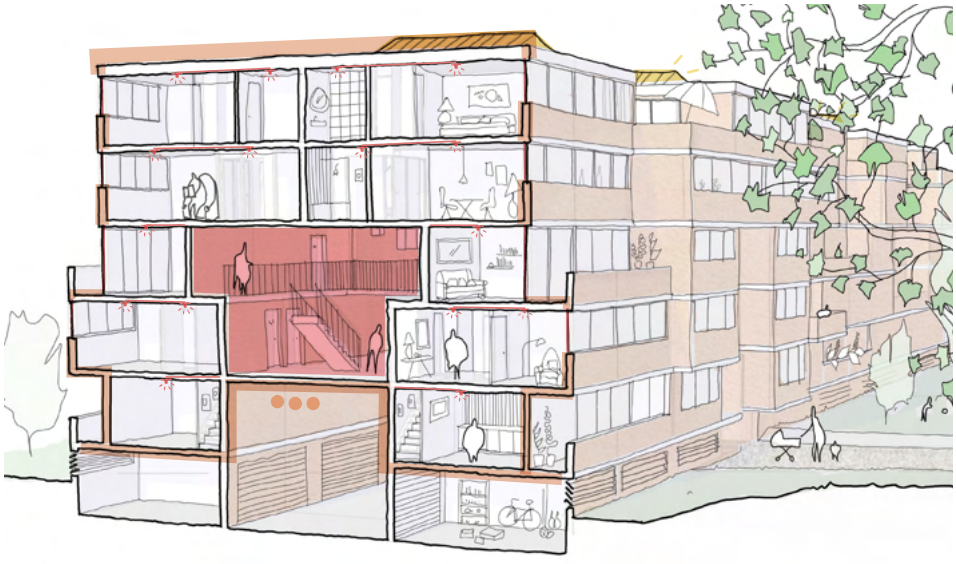
ATRIA (COMMUNAL WALKWAY) ANALYSIS
The Atria spaces or internal streets at the centre of the walkways will play a key part in the treatment of the thermal envelope and the resultant impact on the environment within the homes themselves. Moreover they offer a number of different possibilities for cross ventilation of the homes and heat recovery.

The design team have sequenced out 3 options for thermal modelling of these spaces to further understand how to best maximise the thermal opportunities this covered space provides, whilst acknowledging the knock on effects some measures may have on other design disciplines such as fire safety, services, access, and material costs and quality of life for residents.
These are as follows:

Option 1: Warm Atrium, insulating external walls only
Atria space has backup heating for the coolest months of the year to ensure atria achieve similar temperature to that of the homes. Atrium rooflights and roof insulation are upgraded to give thermally efficient envelope and soffit of lower ground garage access is thermally insulated.

Option 2: Temperate Atrium, insulating the external & internal (atrium) walls
Atria space has no backup heating but atrium rooflights, roof insulation and lower ground garage soffit are still upgraded to give thermally efficient envelope. Atria cannot be relied upon to remain at a stable temperature, this option may need to incorporate a certain amount of insulation lining to the walls between atria and the homes.

Option 3: Cold Atrium, insulating the external & internal (atrium) walls
Atria open to the elements but potentially covered. All walls between atria and homes will require same level of thermal envelope upgrades as the external façades.



Walkways
Replacing rooflights/ AOV, enhancing lighting and creating temperate spaces

Energy efficiency*
Updating/replacing outdated heating system and improving thermal envelope

Fire safety
Sprinkler systems throughout all homes

The 3 options have different implications for key aspects of the atria spaces and the homes themselves. These are scheduled out in the table below.

Reduction of ceiling height: All options require ceiling voids to accommodate necessary fire safety sprinklers as a minimum within all homes, and also the potential to accommodate ventilation ductwork. Sprinklers are not required in the communal areas.

Internal area loss: There are three methods to insulating the walls. Externally which causes no loss of internal space, cavity wall insulation which has limited performance, and internal insulation which can reduce the internal area of homes.

Communal landing extending: If option 3 is pursued as a strategy combined with external wall insulation it will require wall lining which will affect the walkway access decks resulting in their remodelling to achieve necessary access to meet current regs. This may have a potential negative impact on natural light in atria as well. If option 3 is pursued with internal insulation this will reduce the floor area of residents homes.

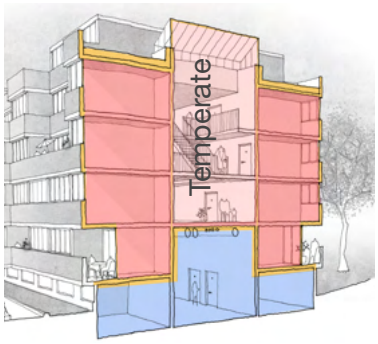
Balcony area loss: External wall insulation would reduce the area of amenity spaces, particularly affecting the accessibility of smaller home types such as 1 bedroom flats.

Fire strategy implications: Smoke ventilation of the atrium may be improved by warmer more buoyant air. This is to be tested by Trigon fire safety.

Lifetime cost factor: It must be acknowledged that there may be additional running cost of maintaining optimal temperatures in the atrium – however the passive measures and ASHP/MVHR from atmosphere may significantly limit the cost of top up heat. Costs may also be saved by avoiding capital costs of landing extensions and adding insulation. Further review required.

Option 1
Warm Atrium

Option 2
Temperate Atrium



Option 3
Cold Atrium

Atrium Strategy

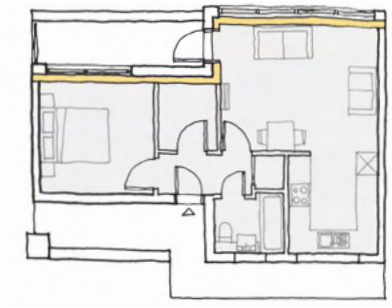
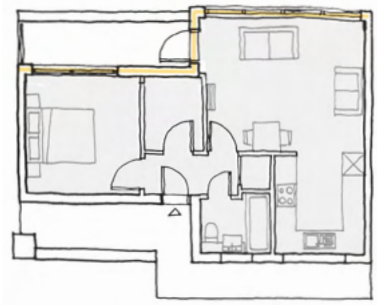
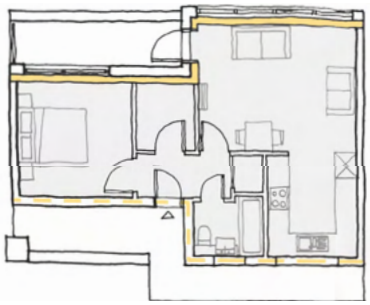
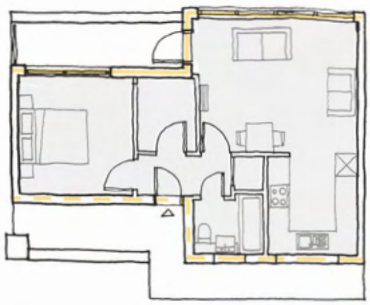
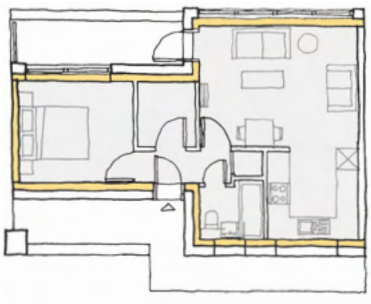
Choice 1 - determined by which is the most efficient energy strategy	Option 1: Warm Atrium	Option 2: Temperate Atrium	Option 3: Cold Atrium
Reduction of Ceiling Height within homes	105mm	105mm	105mm
Disruption to Residents	Yes	Yes	Yes
Presumed Cost factor: Capital costs	£	££	£££
Presumed lifetime cost factor	TBC	TBC	TBC

The data from these studies is captured in the external wall insulation study produced by XCo2 which is appended to this report.

4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

The series of diagrams below illustrate how the position of insulation affects a typical 1 bedroom home, its amenity space and the access deck in the communal area. In all scenarios, the insulation will be either Euroclass A1/A2 rated. The fire rated performance classification of insulation is explained in further detail in the next section (Pg 69).

	Internal Wall Insulation	Cavity Wall Insulation	External Wall Insulation
Option 1 - Warm Atrium (IWI/CWI/EWI to external walls only)	 Internal Area loss between 0.4 - 2.5m^2	 No loss of area but has a limited thermal performance	 Loss of balcony area of 1.2m^2
Option 2 - Temperate Atrium (IWI/CWI/EWI to external wall with cavity insulation to atrium walls)	 Internal Area loss between 0.4 - 2.5m^2	 No loss of area but has a limited thermal performance	 Loss of balcony area of 1.2m^2
Option 3 - Cold Atrium (IWI/CWI/EWI to external and atrium walls)	 Internal Area loss between 0.8 - 5.0m^2	 No loss of area but has a limited thermal performance	 Loss of balcony area of 1.2m^2 and requires remodelling of access decks

Insulation Strategy

Choice 2 - decided by residents	Internal Wall Insulation	Cavity Wall Insulation	External Wall Insulation
Internal Area Loss	Yes	No	No
Communal Landing Extension (Only if Op3 pursued)	No	No	Yes
Balcony Area Loss	No	No	Yes
Temporary Move	Yes	No	No
Respite Accommodation (to minimise disruption)	Yes	Yes	Yes
Achieves Thermal Performance Required	Yes	No	Yes

Conclusion

Analysis so far indicates that the atria should at the very least be covered as in OP 1 & 2. Initial studies suggest that in Option 2 the ambient temperature will be generally close to that of the apartment interiors, but further detailed work will be required to assess how well the new atrium glazing in the sky lights (AOV's) and the apartment WC's and Kitchens will bring this closer to an optimum where no additional insulation will be required as in OP1.

Furthermore results show that a combination of new triple glazing and some cavity and ceiling insulation is likely to enable us to achieve large SHDF complaint heat savings without recourse to external or even internal insulation. Further detailed work will be needed to assess this in all cases but it may well be a default solution for leaseholders or homes where access is limited. In all scenarios, the insulation will be either Euroclass A1/A2 rated.

It should be noted that in order to provide the necessary fire sprinkler solutions and fireproof glazing to the atria, new ventilation and a lowered ceilings to accommodate ventilation and sprinkler pipes will be needed.

4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

EXISTING WALL BUILD UP

The existing external wall is a cavity wall construction that is typical of 1970s construction. It consists of an outer leaf of brickwork, a 50mm cavity and an inner leaf of blockwork. This is then lined with plasterboarding.

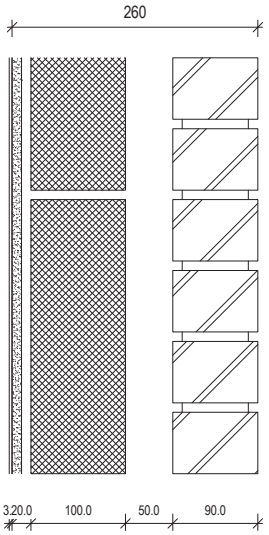
Recent information provided by LWNT suggests that the cavity was filled with EPS (Expanded Polystyrene Insulation) beads in the past 10 years. This was to improve the thermal performance of the building. We are conducting surveys with our consultants to determine the extent of this insulation and its current performance.

These will be in the form of a thermographic survey and intrusive drilling to provide core samples. This will determine if it should be removed or replaced with an A rated cavity insulation to ensure the fire performance targets for the walls as set by LWNT.

For the proposed insulation options shown overleaf, we have used the pre-2010 wall build up as as basis of our calculations until we can confirm the presence of the EPS (Expanded Polystyrene).

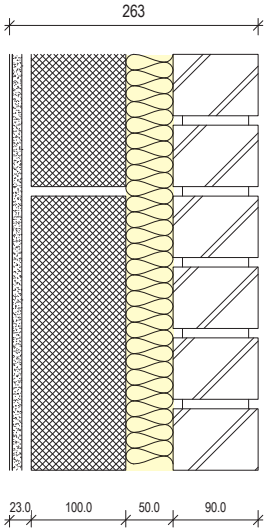
Typical Wall Buildup (before 2010)
Brick with inner leaf of blockwork

~0.82 W/m²K
260mm



Typical Wall Buildup (after 2010)
Brick with inner leaf of blockwork

~0.45 W/m²K (TBC)
260mm



This is the base assumption for the U-value calculations based on information collected to date.

INSULATION TYPES AND PERFORMANCE TARGETS

In all options presented, only A1 or A2 Euroclass rated insulation is used, with A1 used before A2 in all examples.

A1 is classed as a non-combustible material such as mineral wool or foam glass. The only A2 insulation used in the studies is Aerogel Slentex A2 / Spaceloft A2 due to its high performance which means it is very thin. This product is not available as an A1 classed material. A2 materials are classed as a material of limited combustibility. Slentex A2 / Spaceloft A2 is the highest grade within the A2 classification (S1, D0).

For the purpose of comparison, the options aim to achieve a U-Value of at least 0.26 *W/m²K.* For reference a minimum U-value of 0.30 is required under Part L1B of the Building Regulations for the thermal upgrade of existing external walls.

U-value means how much heat energy can be lost through the building envelope such as the walls of the external envelope. The lower the value the better its performance. The value is referred to as W/m2K in this report.

METHODS OF IMPROVING THE PERFORMANCE OF THE EXTERNAL WALL

The following U-value calculations are indicative only and will require further investigation with manufacturers.

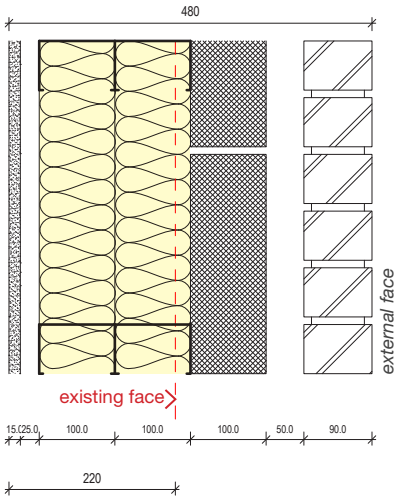
There are two primary ways of insulating the existing external wall:

INTERNAL WALL INSULATION (IWI) - OPTIONS A&B

This option attaches a layer of insulation to the inside face of the external wall. This layer is fixed used either adhesive, mechanical fixings or held within a SFS(steel frame system). The internal face is finished with a layer of plasterboard.

In the adjacent diagram, a layer of mineral wool insulation is attached to the inside face of the external wall within a SFS.

Performance
~0.26 W/m²K (U-Value)
480mm Depth

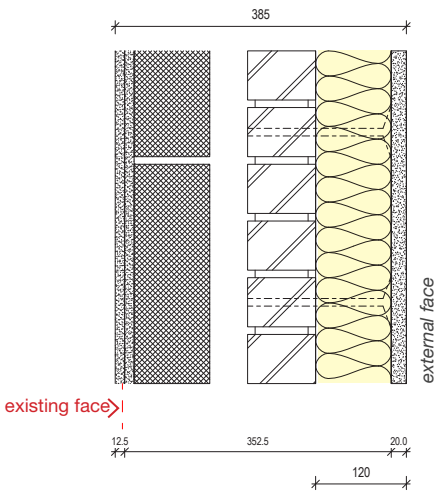


EXTERNAL WALL INSULATION (EWI) - OPTIONS C&D

This option attaches a layer of insulation to the outside face of the external wall. This layer is fixed used either adhesive or mechanical fixings. It is protected from weather by using a render or rain-screen system.

In the adjacent diagram, a layer of mineral wool insulation is attached to the outside face of the external wall and protected with a thin render system.

Performance
~0.25 W/m²K (U-Value)
385mm Depth



4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

INTERNAL INSULATION OPTIONS A&B

In these options a new leaf of A rated non-combustible insulation is attached to the inside face of the existing external wall. The options present different methods of constructing this with different insulation types. They achieve the same hs for comparison however their performance and methods of fixing determine their size and therefore impact on the rooms within each home.

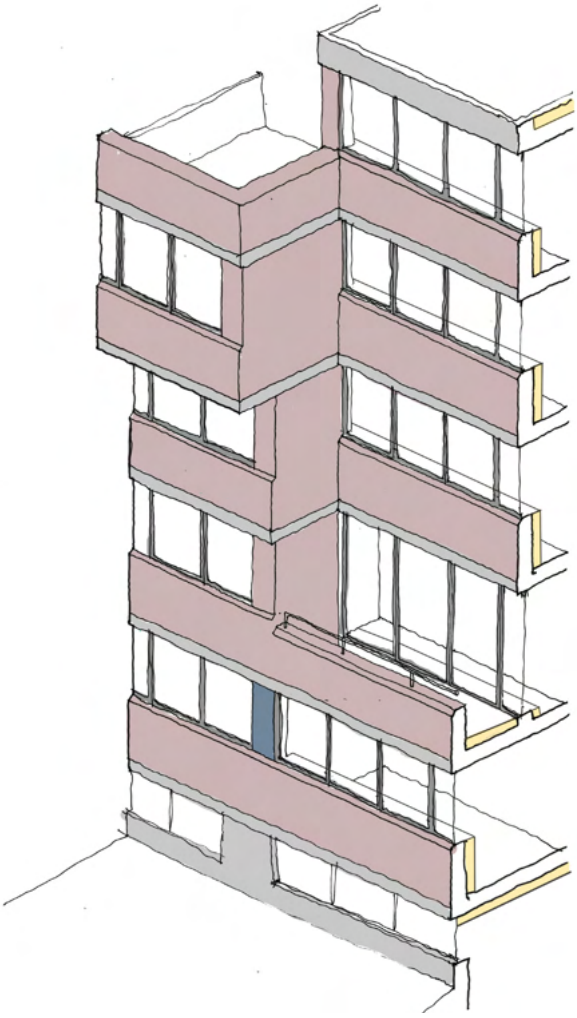
Key Considerations for Internal Wall Insulation

Pros

- This option retains the character of the existing external envelope, therefore it doesn't require a planning application.
- Lower long-term cost of maintenance. The existing external envelope is a robust assembly of brick and concrete, an external render or rainscreen system often requires regular maintenance.

Cons

- Installation involves some internal disruptive and may require temporary rehousing depending on the extent of the works required to achieve desired performance upgrades.
- Cold bridging points such as the exposed floor slabs are difficult to address and may require some localised external insulation or internal floor insulation.
- May require replanning of services (radiator plumbing and electrics), as well as kitchens in some home types.
- Existing external envelope will still require repair work.



Sketch view of the retained existing external envelope

OPTION A - IWI / INTERNAL WALL INSULATION

Option A1 uses mineral wool held within a SFS. Option A2 uses rigid cellular glass insulation that is mechanically fixed.

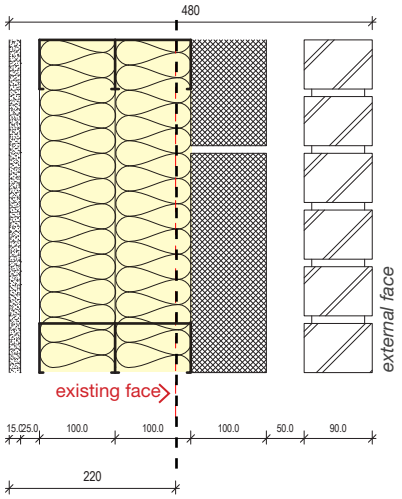
Pros
- Relatively quick installation process.
- Retains the character of the existing buildings.

Cons
- Reduces floor area of homes (smaller homes are particularly affected)
- Work can be disruptive to residents.
- Will require re-plumbing of radiators and relocating any electrics such as sockets

Disruption
- Depending on the internal insulation option there will be varying degrees of disruption. The simplest will involve temporary removal or radiators, others would involve longer term building works.

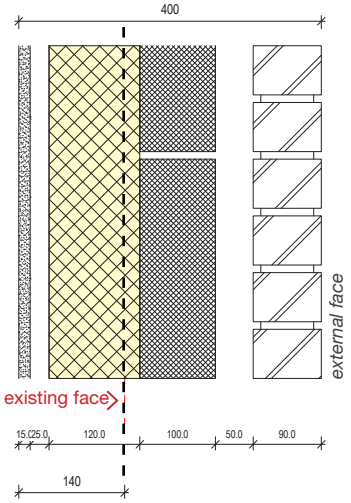
Option A1 - Internal Insulation
Mineral wool within a SFS

~0.26 W/m²K
~480mm



Option A2 - Internal Insulation
Mechanically Fixed Foamglas

~0.26 W/m²K
~400mm



OPTION B - IWI

Option B1 uses Aerogel insulation (Slentex A2/ Spaceloft A2) which is an A2 rated insulation. The product is board backed and is nail fixed to the blockwork which avoids noisy drilling. The magnesium oxide board is taped to seal the joints and painted avoiding wet plaster trades.

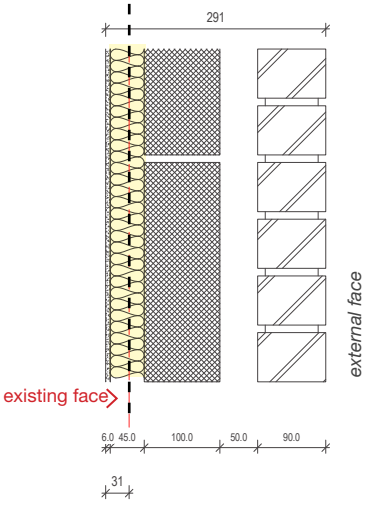
Pros
- Quick installation process.
- Retains the character of the existing buildings.

Cons
- Work can be disruptive to residents.
- Minimal reduction in floor area of homes compared to the A2 option above.
- Aerogel is an expensive product, however the reduced installation time could make it cost effective.

Disruption
- Like all IWI options, access is required to remove the existing dry lining and install the insulation. However this would be less noisy than other insulation types and methods.

Option B1 - Internal Insulation
Aerogel Slentex A2 / Spaceloft A2
attached to magnesium oxide board

~0.27 W/m²K
~291mm



4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

EXTERNAL INSULATION OPTION C & OPTION D

In these options a new leaf of A rated non-combustible insulation is attached to the outside face of the existing external wall. This is protected with a render or rain screen system.

The two options are different methods of insulating the building from the outside, one similarity is they both use mineral wool insulation. Both options aim for a performance target of 0.26 W/m^2K, however it is difficult to achieve this with a rain screen system so the highest performing value is shown.

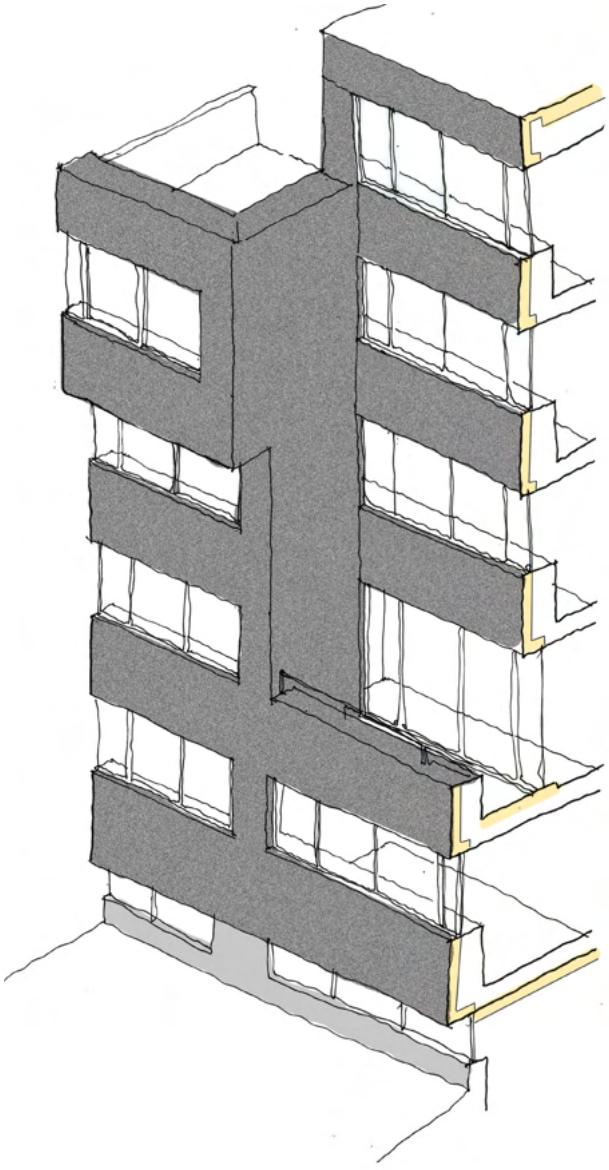
Key Considerations for External Insulation

Pros

- High thermal performance as addresses cold bridging of exposed concrete slabs.
- There is no loss of internal space as the insulation is attached to the outside of the building.

Cons

- Reduces the size of the window openings.
- Potential higher cost of annual maintenance for render systems.
- Although installation is primarily externally, the installation can still be disruptive to residents as it will require scaffolding and drilling to attach the new external skin. Some works may be still need to done internally to achieve airtightness targets.



Sketch view of the external envelope with a render finish

OPTION C - EWI/ EXTERNAL WALL INSULATION / RENDER SYSTEM

Option C1 uses mineral wool protected by a render system that is mechanically fixed to the existing external envelope.

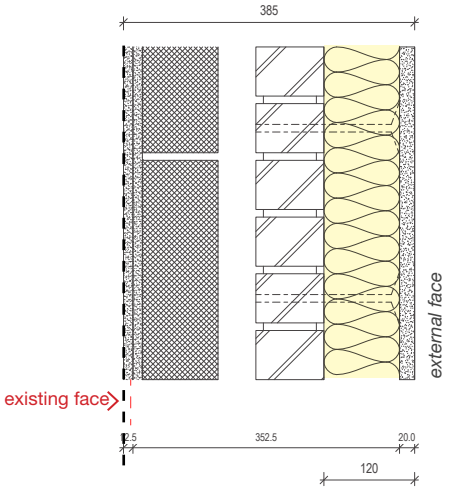
Pros
- Does not reduce floor area of homes
- Addresses cold bridging of exposed slabs

Cons
- Changes the appearance of the buildings (will require a planning application)
- Mineral render weathers badly over time without proper detailing
- Work can be disruptive to residents

Disruption
- Render system installation would require scaffolding and extensive drilling for mechanical fixings.

Option C1 - External Insulation
Render system with mineral wool

~0.25 W/m²K
~457.5mm



OPTION D - EWI / MECHANICAL BRICK SLIP / RAINSCREEN SYSTEM

Option D1 also uses mineral wool insulation and is protected by a mechanical brick slip rainscreen system with a cavity.

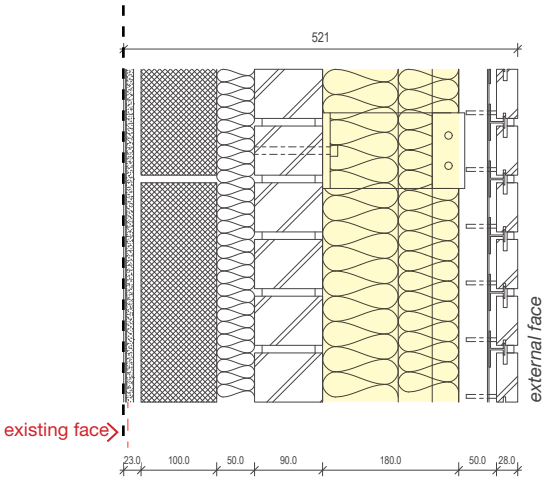
Pros
- Does not reduce floor area of homes
- Addresses cold bridging of exposed slabs
- Retains some similarity in appearance to the existing building

Cons
- Can only achieve the thermal performance required to meet the energy reduction targets (SHDF) by using thermally broken chi / support brackets.
- Will require a planning application.
- Existing building must be suitable to attach fixing brackets
- Work can be disruptive to residents.
- Additional cavity for a rainscreen system requires complex detailing with regards to fire compartmentation.

Disruption
- Requires some internal work to replace the windows to achieve airtightness levels. The installation would require scaffolding and extensive drilling to attach the mechanical fixings.

Option D1 - External Insulation
Rainscreen system with mineral wool

~0.46 W/m²K
~523mm



4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

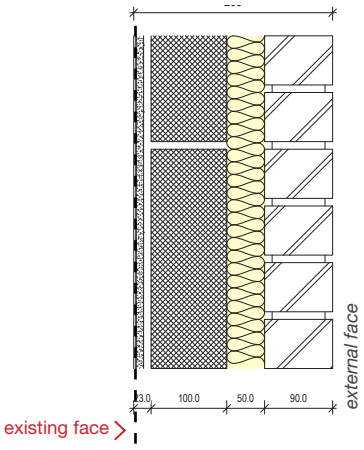
CAVITY WALL INSULATION OPTIONS E&F

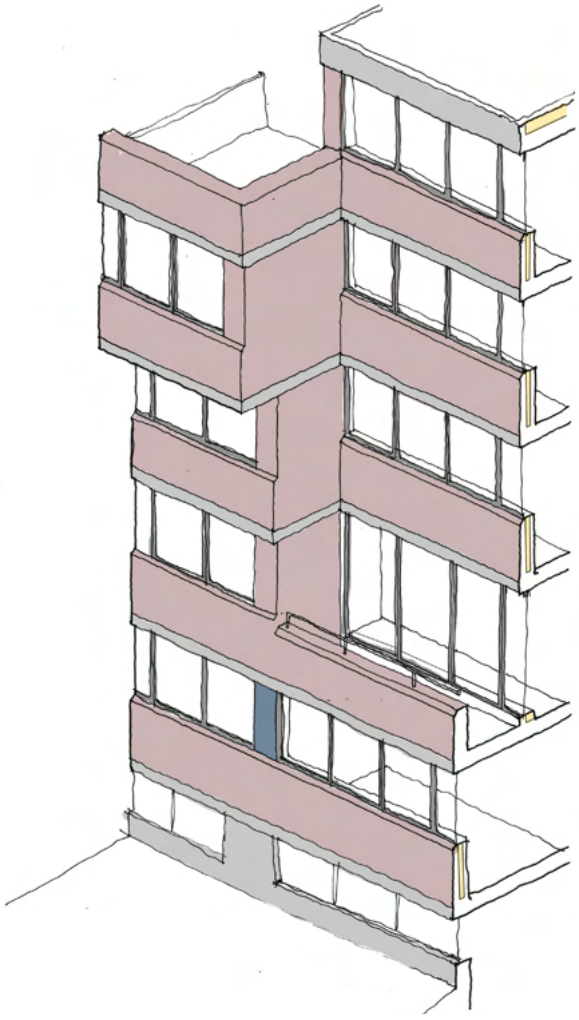
In addition to the previous options, an additional solution is to fill the existing 50mm cavity with non-combustible A-rated insulation. This solution could be combined with the build-ups presented earlier and which are shown overleaf.

It could also be used without combination with internal or external insulation however this would achieve a lower U- value than is required. This method could be used to insulate the wall between the communal walkway area and homes as a non-intrusive method of insulation for thermal and acoustic benefits.

Cavity Fill Insulation
A1 Blown Mineral Wool

~0.45 W/m²K
265mm





Sketch view of the retained existing external envelope with cavity wall insulation

OPTION E - HIGH PERFORMANCE IWI / CAVITY WALL

In Option E1 the wall is internally insulated with a thin layer of non combustible high performance insulation such as Aerogel insulation (Slentex A2 / Spaceloft A2) which has a Euroclass A2 rating. The existing 50mm cavity is also filled with A1 rated blown mineral wool insulation.

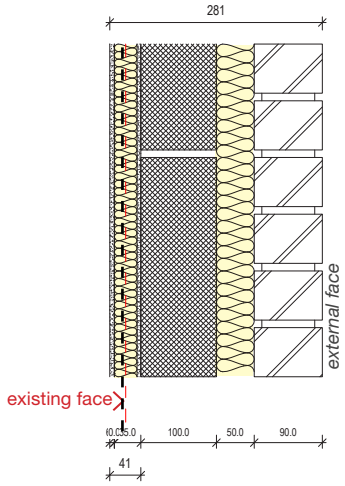
Pros
- This option minimises the loss of internal floor area of homes in comparison to Option A (+10mm rather than +200mm to inside face of external wall)
- Relatively quick installation process as uses a board backed insulation.
- Retains appearance of existing building

Cons
- Cost of using a thin high performance insulation.
- Poor installation of mineral wool may affect its performance (Sagging, voids, and/or existing obstructions)

Disruption
- Requires internal work to add insulation and replace dry lining. Cavity wall insulation would be inserted when the windows are replaced.

Option E1 - High Performance
Internal Insulation and Cavity Fill

~0.27 W/m²K
~270mm



OPTION F - EWI / CAVITY FILL / MECHANICAL BRICK SLIP RAINSCREEN SYSTEM

Option F1 also uses A1 mineral wool insulation and is protected by a rainscreen system with a cavity. The existing 50mm wall cavity is also filled with non-combustible insulation.

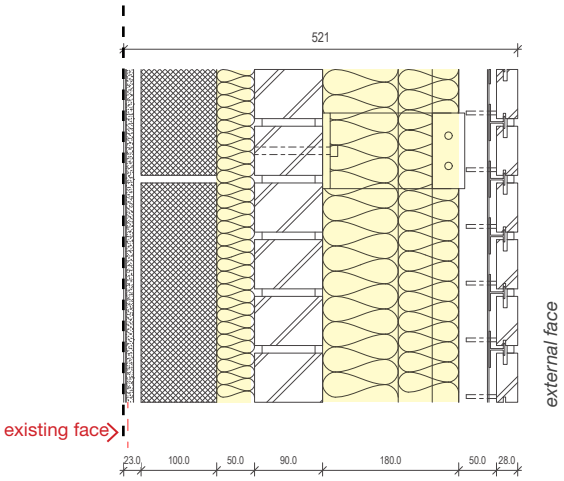
Pros
- Does not reduce floor area of homes
- Addresses cold bridging[1] of exposed slabs
- Retains some similarity in appearance to the existing building

Cons
- Can only achieve the thermal performance required to meet the energy reduction targets (SHDF) by using thermally broken chi / support brackets.
- Will require a planning application.
- Existing building must be suitable to attach fixing brackets
- Work can be disruptive to residents.
- Additional cavity for a rainscreen system requires complex detailing with regards to fire compartmentation.

Disruption
- Requires internal work to replace dry lining to achieve airtightness. Rainscreen system would require scaffolding and extensive drilling for mechanical fixings. Cavity wall insulation would be inserted when the windows are replaced.

Option F1 - External Insulation
Rainscreen system with mineral wool

~0.43 W/m²K
~523mm



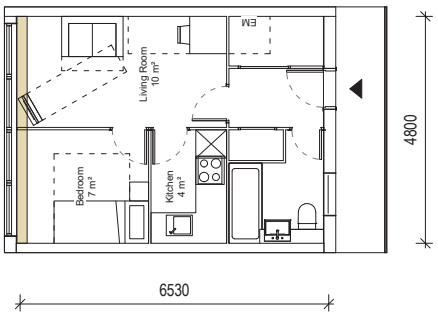
1 Cold bridging or thermal bridging is a gap in the insulated parts of the building envelope. These locations will leak heat and will be colder as a result, this can cause mould growth.

4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

Below are the most typical home types across the Walkways to illustrate how internal or external insulation reduces the internal floor area of external amenity area of each home.

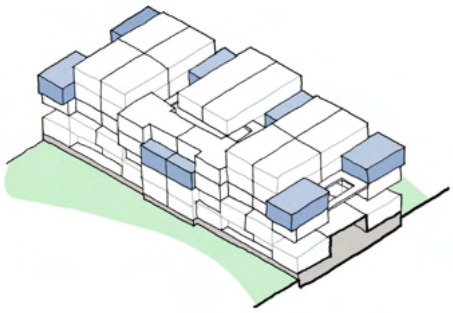
1 BED STUDIO (A1 TYPE)



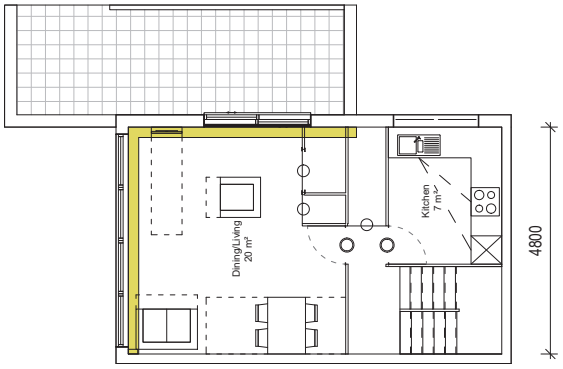
Typical A1 Home Layout

Existing Internal Area (approx): 32m²

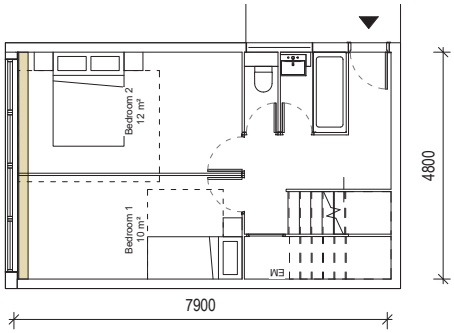
Internal Insulation Floor Area Loss:
Between 1% - 3% (0.2m² - 1m²)



2 BED 3 PERSON DUPLEX (C2 TYPE)



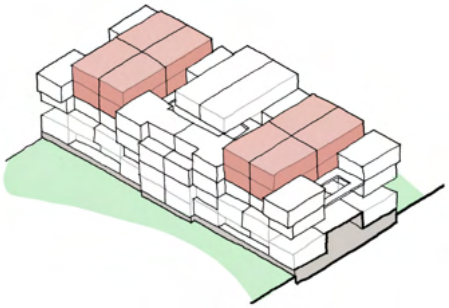
Upper Storey



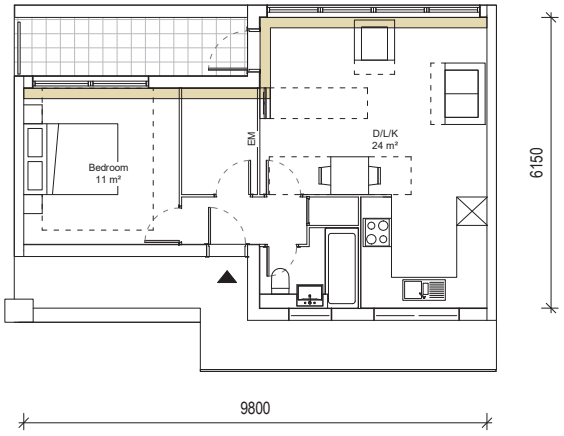
Lower Entrance Storey

Existing Internal Area (approx): 78m²

Internal Insulation Floor Area Loss:
Between 0.5% - 3% (0.5m² - 3m²)



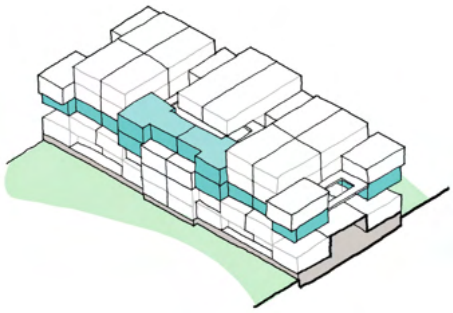
1 BED 2 PERSON FLAT (B1 TYPE)



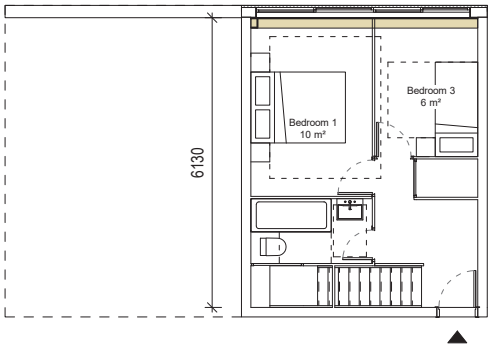
Typical B1 Home Layout

Existing Internal Area (approx): 46m²

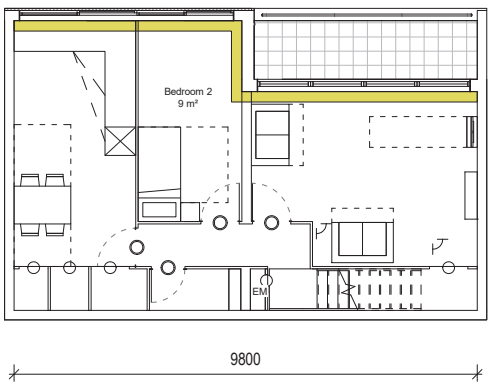
Internal Insulation Floor Area Loss:
Between 0.8% - 5% (0.4m² - 2.5m²)



3 BED 4 PERSON DUPLEX (D2 TYPE)



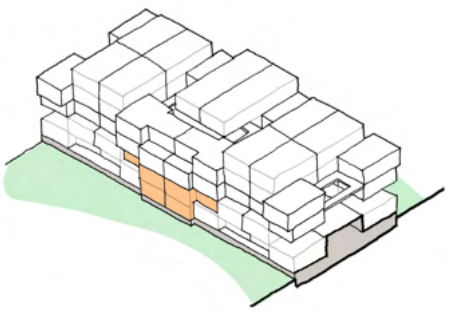
Upper Entrance Storey



Lower Storey

Existing Internal Area (approx): 84m²

Internal Insulation Floor Area Loss:
Between 0.6% - 4% (0.5m² - 3.5m²)



4 PROJECT OPPORTUNITIES

4.1 THERMAL ENHANCEMENTS

The proposals outlined aim to improve the thermal performance of the Walkways and therefore the thermal comfort of all homes to reduce the energy bills of residents.

We are developing a holistic refurbishment of the Walkways by addressing heat loss through three methods:

- Insulating the building envelope and upgrading the windows.
- Making the building airtight to reduce heat loss through escaping warm air.
- Improving the ventilation strategy to minimise heat loss.

Improving the Thermal and Energy Performance of the Walkways.

As shown on the previous pages we intend to improve the thermal performance of the envelope by insulating each element (walls, roof, balcony and terrace floors, and the basement ceiling) as well as upgrading the windows to a high performance specification.

The benefit of improving the building envelope:

- Improves the thermal comfort of all homes. This means homes will be warmer in Winter and cooler in Summer.
- It will reduce the energy bills (electric and heating) of all homes, also reducing their carbon footprint.
- Reduces the communal lighting costs for LWNT.
- Reduces chances of damp and mould within homes.
- We are aiming to archive Enerphit performance targets. Enerphit standards are building performance targets for buildings elements such as windows and walls. These high standards go beyond the requirements of the Building Regulations and are set by the PassiveHaus institute and have been adapted to suit retrofit projects.

The disadvantage of the upgrades:

- There will be a lot of disruption as the scale and complexity of the works will require years of work to install the measures outlined across the Walkways. We are trying to minimise this disruption through the design proposals. LWNT will provide respite accommodation to minimise the impact during the works, in particular the impact of noise. The level of disruption is explained further in the next section
- Loss of internal floor area. This will only occur if residents choose internal wall insulation, however external wall insulation will reduce the size of balconies and terraces.

Improving Ventilation

Currently only 3% of homes within the Walkways have cross ventilation or are properly dual aspect. The majority of homes (72%) have a window onto the central walkway and atriums however to improve the fire safety of the building, these windows will be unopenable in the future. Furthermore, 85% of family homes (3Bed+) are single aspect with no secondary means of ventilation.

Our proposed solution is to use a mechanical ventilation system to improve ventilation in all homes. There are two solutions for this: MVHR (Mechanical ventilation with Heat Recovery) or MEV (Mechanical Extract Ventilation). However to reduce the energy usage of each home to align with the SHDF funding we are proposing an MVHR based on the analysis provided by XCO2.

What are the key aspects of MVHR?

- A piece of equipment will be installed in each home that both supplies fresh air and extracts stale air throughout the home.
- It extracts the warm stale air and uses the heat recovery system to supply fresh warm air in exchange.
- A vent in the walls or above one of the windows in each home will intake fresh air.
- There are ceiling vents in every room to extract stale air.
- It will run quietly throughout all day and night

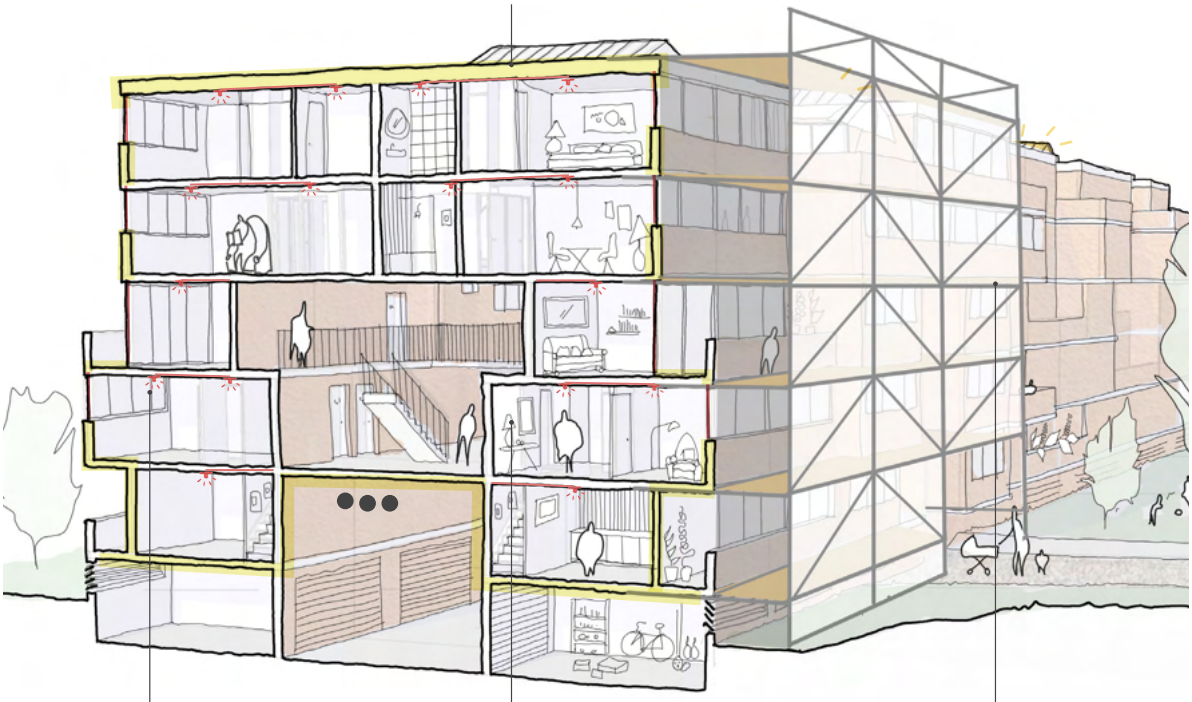
The benefits of MVHR:

- Improves air quality within homes for the health and wellbeing of residents.
- Reduces condensation and mould growth.
- Reduces energy bills as it efficiently recovers and reuses waste heat.
- Extracts kitchen and bathroom odours to the outside.
- Reduces cold draughts.
- Reduces noises from outside (as windows do not need to be opened to ventilate the home).

Disadvantages of MVHR:

- Loss of storage area (up to 0.5m^2 - XCO2 to confirm)
- Disruption from the installation. This will be combined with the installation of the new dropped ceilings for the sprinklers.
- Reduces the ceiling height of all rooms (see above).
- Requires regular changing of the filters (hoovering every 6 months, and replacement every year). Maintenance of the machine itself will need to happen every one to two years.

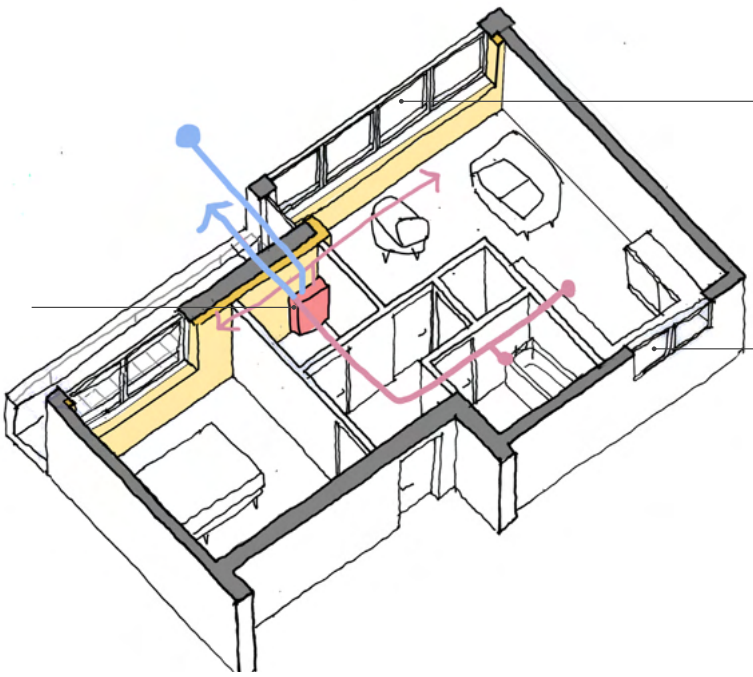
Roof and basement works will be some of the least disruptive works.



The installation of sprinklers and ceilings is an opportunity to install a new ventilation system

Bathrooms and kitchens will have an extract to the outside

Scaffold will need to be erected to install insulation, replace windows and repair the existing building



New windows and wall insulation will reduce the loss of heat and keep the building airtight

All homes will have a MVHR kit that will circulate fresh air throughout the home

Windows to the atrium will be fixed so a new method of ventilating homes is needed

4.2 ASSESSING AND MITIGATING DISRUPTION

The works to upgrade the thermal performance and general refurbishment of the building will create noise and disruption. We are aiming to minimise disruption as much as possible for the well-being of the Walkway residents, whilst taking into other considerations such as the relative performance of measures, which will be to the ultimate benefit of residents through energy savings and reduction in bills.

The refurbishment works can be considered in two parts: thermal enhancements (including wall insulation) and general refurbishment works (including interior upgrades, sprinkler installation and communal upgrades). The thermal improvements are tied to reducing the overall energy consumption of the building for each home to 50kWh. For some elements of the building there are options in how these upgrades can be achieved; at the next Stage this will be the focus of extensive conversations with residents to establish a consensus on the balance of benefits and disruption caused by construction. An important example of this will be the choice between external and internal wall insulation.

The tables on these pages summarise the design team's initial understanding of these considerations for each of the potential construction packages.

Disruption	Rating	Examples
Minimal		Quiet works but may require short access inside homes.
Low		Some noise, requires access inside homes for a few hours.
Moderate		Some intense work over several hours, or quieter work over a long period.
High		Large amounts of noise such as prolonged drilling and access inside homes over a few days. May require temporary relocation
Significant		Very noisy work over a long period. Likely to require vacant homes for the period of the works. Likely to require temp relocation.

Some works may affect the outside of the building and common parts, while others may require access into homes however the breakdown table highlights this.

Capital Cost Band	Rating
Up to £100	£
£100-£1000	££
£1000-£5000	£££
£5000-£10,000	££££
Over £10,000	£££££

Cost and carbon figures are to be updated

Carbon Cost Effectiveness (£/tCO²)	Rating
Pays for itself	☺☺☺☺☺
0-10 £/tonne CO²	☺☺☺☺
10-100 £/tonne CO²	☺☺☺
100-500 £/tonne CO²	☺☺
>500 £/tonne CO²	☺

Carbon cost effectiveness translates to fuel bill reductions

Packages / Measures	Capital Cost (TBC)	Carbon Cost Effectiveness (energy savings)	Disruption
Walls (inclusive of airtightness measures) Internal Wall Insulation (IWI) - affects interior Cavity Wall Insulation (CWI) - affects exterior External Wall Insulation (EWI)	£££ £ ££	☺☺☺☺☺ ☺☺☺☺☺ ☺☺☺☺☺	⚒⚒⚒⚒ ⚒⚒ ⚒⚒⚒⚒
Floors Internal Floor Insulation (IWI & CWI only) Garage Insulation Balcony Floor Insulation Soffit Insulation	££ £ £ £	☺☺☺☺☺ ☺☺☺☺☺ ☺☺☺☺☺ ☺☺☺☺☺	⚒⚒⚒⚒⚒ ⚒⚒ ⚒⚒⚒ ⚒⚒⚒⚒
Roofs Roof Insulation	£	☺☺☺☺☺	⚒⚒
Windows and Doors (inclusive of airtightness measures) Replacement windows & balcony doors (street/courtyard) Replacement windows (internal walkway / atria) Communal atria rooflights upgrade Communal entrance doors (internalising the atria spaces)	£ £ £ £	☺☺☺ ☺ ☺☺☺ ☺☺☺	⚒⚒⚒ ⚒⚒ ⚒⚒⚒⚒ ⚒⚒
Airtightness and ventilation (MVHR) Major air-tightness measures Installation of MVHR (combined with sprinkler installation)	£ £	☺☺☺☺☺ ☺☺	⚒⚒⚒ ⚒⚒⚒⚒
Lighting and appliances Domestic upgrade of electrical circuits and new consumer units Low energy lights (Led lighting) Low energy appliances (electric hobs, fridges, etc)	£ £ £	☺ ☺☺☺☺☺ ☺☺	⚒⚒⚒ ⚒ ⚒
Heating Upgrading heating controls (smart thermostats) Centralised Heating System Network Upgrade District Heat Network Air source heat pump (located at roof level)	£ £ £ £	☺☺☺ ☺ ☺ ☺	⚒ ⚒⚒⚒⚒ ⚒⚒⚒⚒ ⚒⚒
Renewable Energy Systems Solar hot water heating Photovoltaic panels	£ £	☺ ☺	⚒⚒ ⚒⚒
Sprinklers Sprinklers within each home (includes dropped ceilings) Mains supply installation	£ £	- -	⚒⚒⚒⚒ ⚒⚒

This table explains the choices available to the Walkway residents and LWNT to balance different priorities in terms of energy saving versus the level of disruption and the rough investment cost required. (Reference PAS2035 Table for evaluating retrofit)

4 PROJECT OPPORTUNITIES

4.3 HOMES DATA MANAGEMENT

DEVELOPING BUILDING INFORMATION MODELLING (BIM)

Building upon and extrapolating from archive drawings and Ordnance Survey outlines*, the Building Information Modelling (BIM) environment is being employed to understand and coordinate complex issues of tenure, type and the location of void properties. Each home is represented in the developing model and contains a series of data that will allow us to discuss the refurbishment of the Walkways with residents and to coordinate the complex logistics involved.

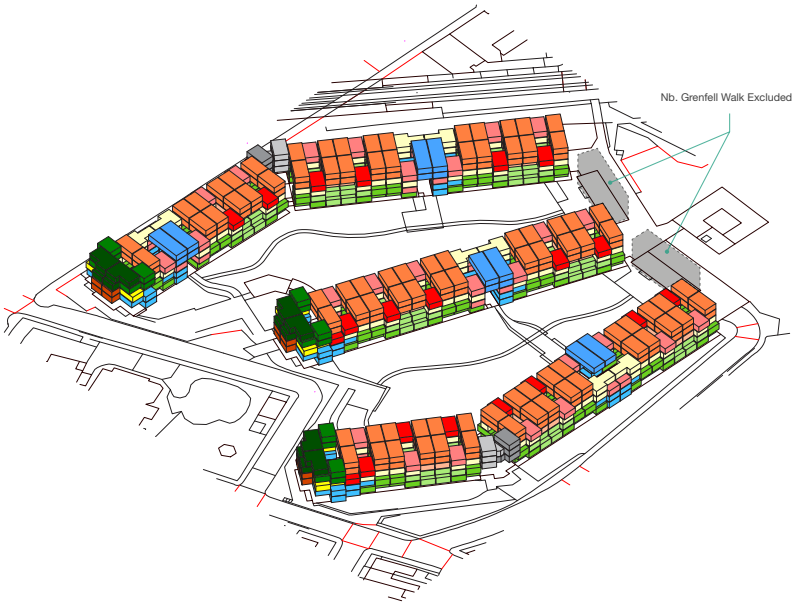
In the next Stage, we will continue to manage home data through the model and adapt it to include wall and ceiling areas and refurbishment approaches, allowing us to more accurately understand thermal performance, costing, procurement and construction logistics in order to be able to communicate this with residents as part of the co-design process.

*Nb. Accurate building information is expected to be delivered in the next Stage. Whilst we have aimed to be as accurate as practicable in interpreting archive information, a significant tolerance should be applied to measurements.

DATA EXTRACTION EXAMPLE

Building	Door No.	Type	Beds	Area	N°Storeys	Stair	Entry Level	Tenure	Void
Barandon	301	D2	3	84 m²	2	Yes	Deck		NO
Barandon	302	D1	3	84 m²	2	Yes	Deck		NO
Barandon	303	D1	3	84 m²	2	Yes	Deck	LH	NO
Barandon	304	D2	3	84 m²	2	Yes	Deck	LH	NO
Barandon	305	D2	3	84 m²	2	Yes	Deck		NO
Barandon	306	E1	3	85 m²	2	Yes	Deck		NO
Barandon	307	E1	3	85 m²	2	Yes	Deck		NO
Barandon	308	D2	3	84 m²	2	Yes	Deck		NO
Barandon	309	D2	3	84 m²	2	Yes	Deck	LH	NO
Barandon	310	D1	3	84 m²	2	Yes	Deck		NO
Barandon	311	D1	3	84 m²	2	Yes	Deck		NO
Barandon	312	D2	3	84 m²	2	Yes	Deck		NO
Barandon	313	B1	1	46 m²	1	No	Deck+1		NO
Barandon	314	B1	1	46 m²	1	No	Deck+1		NO
Barandon	315	C1	2	71 m²	1	No	Deck+1		NO
Barandon	316	C2	2	78 m²	2	Yes	Deck+2		NO

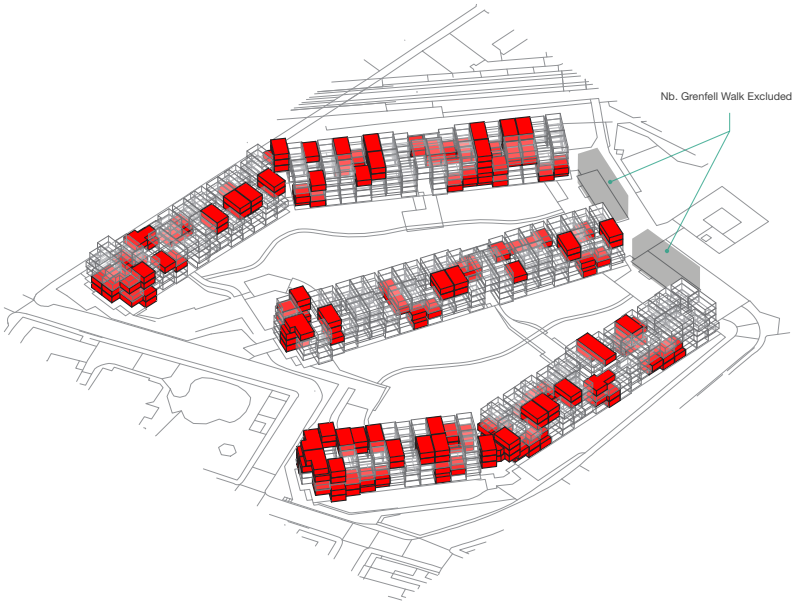
HOME TYPES



Home Type	Instances	Approx. Area
A1	44	32 m²
A2	19	32 m²
B1	55	46 m²
B1_EX	5	50 m²
B2	6	46 m²
C1	16	71 m²
C2	88	78 m²
C3	6	78 m²
D1	32	84 m²
D2	52	84 m²
D3	6	87 m²
D4	6	96 m²
E1	20	85 m²
E2	8	98 m²
F1	2	113 m²
F2	2	113 m²

Totals	367

LEASEHOLDER HOMES



4.4 EXAMPLE HOME FIT-OUT SCOPE

SUMMARY OF HOME INTERIOR REFURBISHMENT PACKAGES

This page outlines a series of potential interventions within example homes as part of the feasibility exercise, for further development and discussion with LWNT and residents of the Walkways. As these drawings focus on home interiors, an internal wall insulation (IWI) approach is shown, but alternative options for wall insulation such as EWI are discussed on other pages.

Key elements of investigation for the next Stage include:

- Assessment of the impact on all home and room sizes if IWI (Internal Wall Insulation) or EWI (External Wall Insulation) is pursued;
- Assessment of the impact on window and balcony door openings for both IWI or EWI;
- Potential reorganisation of kitchen and bathroom arrangements to aid Part M compliance and generosity;
- Additional ventilation system and its coordination, if required as a result of fire safety measures applied to the communal area / atrium-facing windows;
- Allowance for relevant MEP kit within cupboards, as required;
- Design integration of sprinkler systems, which is assumed to be applied to all properties to improve fire safety in the Walkways.

RE-PLANNING OF HOMES

A
Coordination of new interior insulation to minimise impact on rooms and openings.

B
Optimise location of kitchens and bathrooms to be Part M compliant where possible

C
New integrated ventilation which minimises the impact on the overall space (i.e. avoiding drop ceilings where possible)

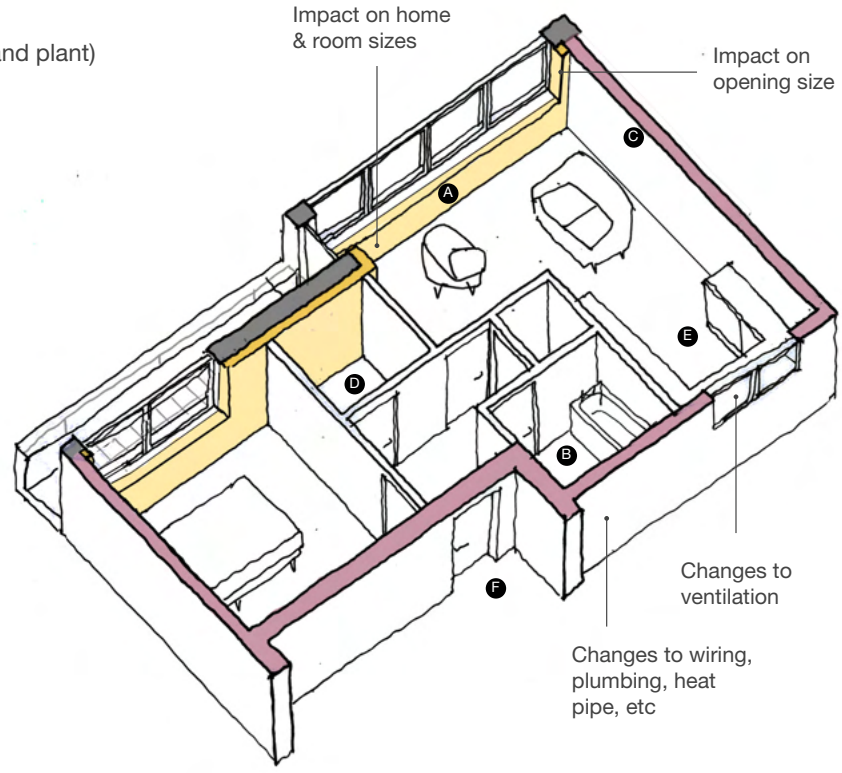
D
Plan for new MEP (Mechanical electrical and plant) cupboards for HIU, MVHR or MEV

E
Design integration of sprinklers

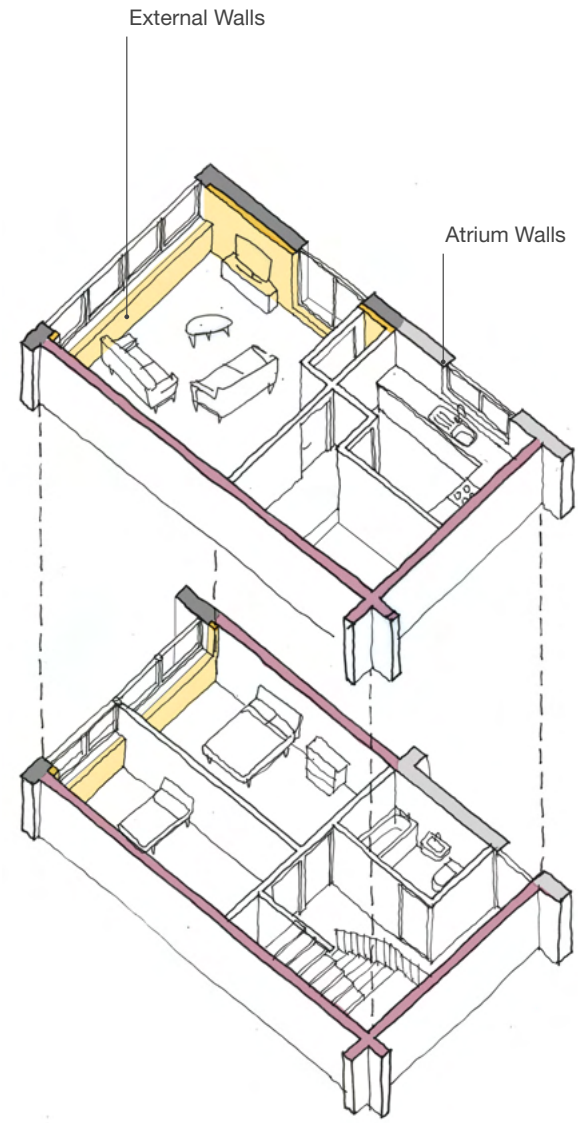
CO-ORDINATION OF SERVICES

F
Allow for new incoming services and pipework Including

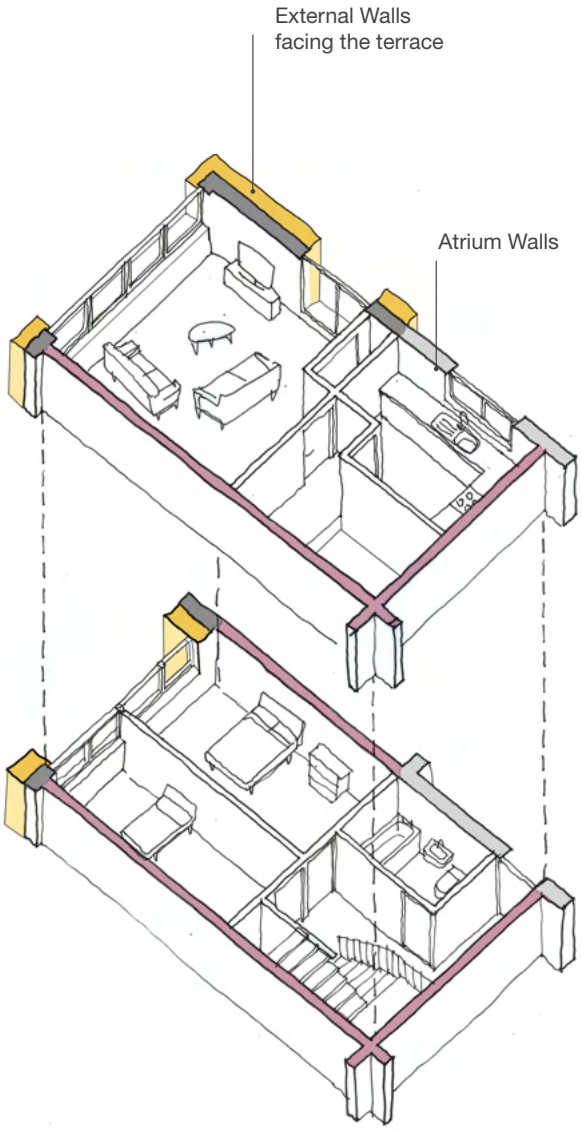
- Electric supply
- Heat network and hot water supply
- Ventilation (MVHR)
- SVP and rainwater pipes
- Intercom
- Sprinklers



Sketch 3D view of a typical 1 Bed flat (Type B1)



Sketch 3D view of a typical 2 Bed duplex home (Type C2) with IWI



Sketch 3D view of a typical 2 Bed duplex home (Type C2) with EWI

4.5 FIT-OUT PROPOSALS

A1, B1, C2 AND D2 HOME TYPE STUDIES

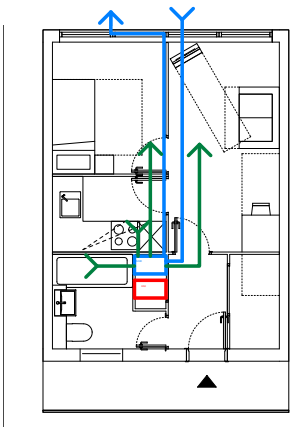
These pages show initial studies that investigate the location of sprinklers, district heating and ventilation ductwork on four key typologies that make up a large proportion of homes within the Walkways.

These services would be located in a suspended ceiling and any mechanical equipment would be located either in existing storage space within the home or within new storage located in the communal walkway space (Section 4.6).

There are several strategies that may be employed depending on the desired heating and ventilation strategy. These will be developed in coordination with Tace and XCO2 on a home by home basis for each option. Please note the HIU (Heat Intake Unit)/MVHR equipment are indicative sizes only.

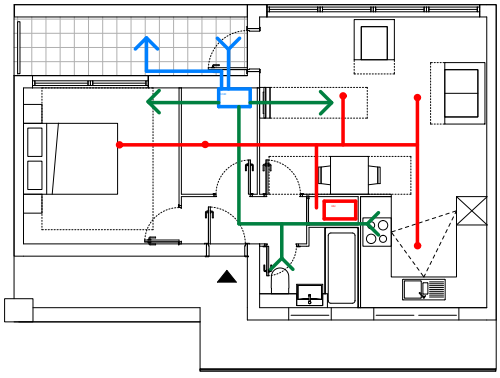
A1 TYPE - 1B1P

Sprinkler System
Air Extract and Supply



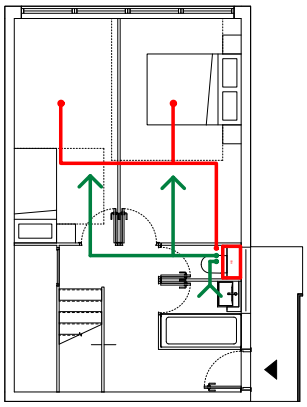
B1 TYPE - 1B2P

Sprinkler System
Air Extract and Supply

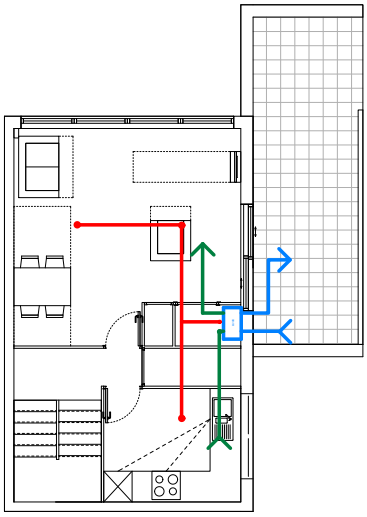


C2 TYPE - 2B3P

Sprinkler System
Air Extract and Supply



Lower Storey
(Entrance Level)



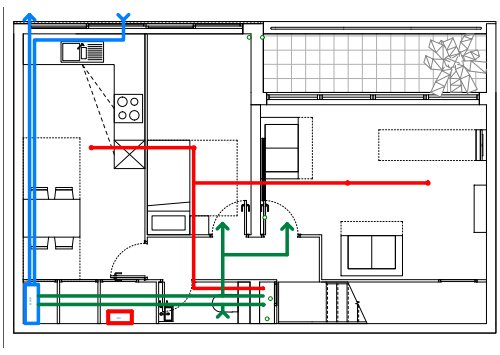
Upper Storey

D2 TYPE - 3B4P

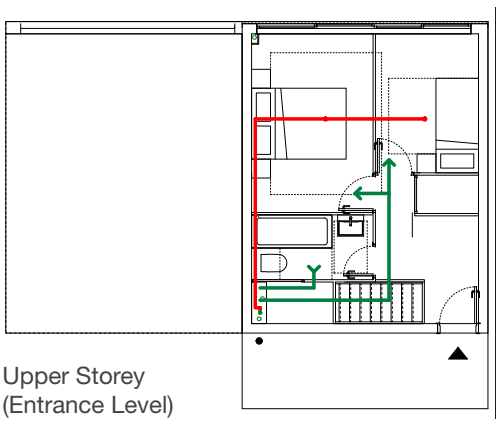
Sprinkler System
Air Extract and Supply

Internal
- Sprinklers
- HIU ready
- IWI

External
- Upgraded Windows
- Upgraded Balcony Doors



Lower Storey



Upper Storey
(Entrance Level)

4.5 FIT-OUT PROPOSALS

DRAFT FITOUT CGI IMAGES

FIT-OUT RENDER - IN PROGRESS REFURBISHMENT
Showing initial refurbishment including the fitting of sprinkler pipes and heads and ventilation intake and extract ducting.

FIT-OUT RENDER - COMPLETE REFURBISHMENT

Showing the completion of the refurbishment with the addition of a dropped ceiling to conceal additional services.

4.6 PILOT TESTING

CHAPTER INTRODUCTION

This Chapter looks at the possible testing of building packages within one of the apartment voids within the walkways. The aim is to trial construction work and envelope upgrades before the team complete the design stages.
We can then give residents a better understanding of the types of measures that might be possible within their homes, the level of disruption that would be involved and the effect of the measures on both the thermal and the physical environment of their homes. Through testing of measures within the common parts and on the exterior of the buildings these works will also help to engage with the residents the ways in which the buildings could be improved to make them brighter, cleaner, safer, more accessible and easier to manage.
Trialling these measures may also give the design team a better understanding of the building and help to reduce the cost of the works through reducing the level of construction risk the main contractor may want to insure against.

BUILDING ON ESTABLISHED FIT-OUT PROGRAMME

The LWNT internal fit-out team have already embarked on an ambitious programme to revamp a number of void properties across the walkways buildings. The team want to build on this programme to give comfort to the client and the residents that the measures we are proposing are:

- Good value for money,
- Substantially enhance the thermal envelope of the building thereby reducing running costs,
- Work well with the shared identity of the walkways buildings and their communities
- And ultimately make a real difference to the quality of life of the residents.

OVERALL PREMISE OF THE WORKS

The aim of the pilot project is to provide a strong evidence base in advance of the main construction works starting on site. Much of the design work that is currently underway is focused on design measures for retrofit and upgrade, based on a complex building with a large number of complex interfaces and unknown envelope junctions. The purpose of the pilot testing is to evaluate the existing envelope of the building and the effects of a range of measures currently being explored in order to inform and de-risk the specification and construction methodology for the main contractor delivery.

THERMAL ENVELOPE UPGRADES

The design team propose to sequentially install a number of external envelope thermal upgrade packages and use periodic building performance testing to assess the efficacy and thermal impact of each material upgrade. This will build up a strong evidence base for where retrofit measures deliver a more thermally efficient building and where materials can be discounted due to limited impact.

At the end of this process we hope to have the following:

- A list of the specific measures that should be pursued for retrofit
- A clear understanding of the installation methods, ways in which we can speed up delivery on site
- Through opening up of external walls a much better risk profile in interfacing with the existing building for the main contractors to tender against

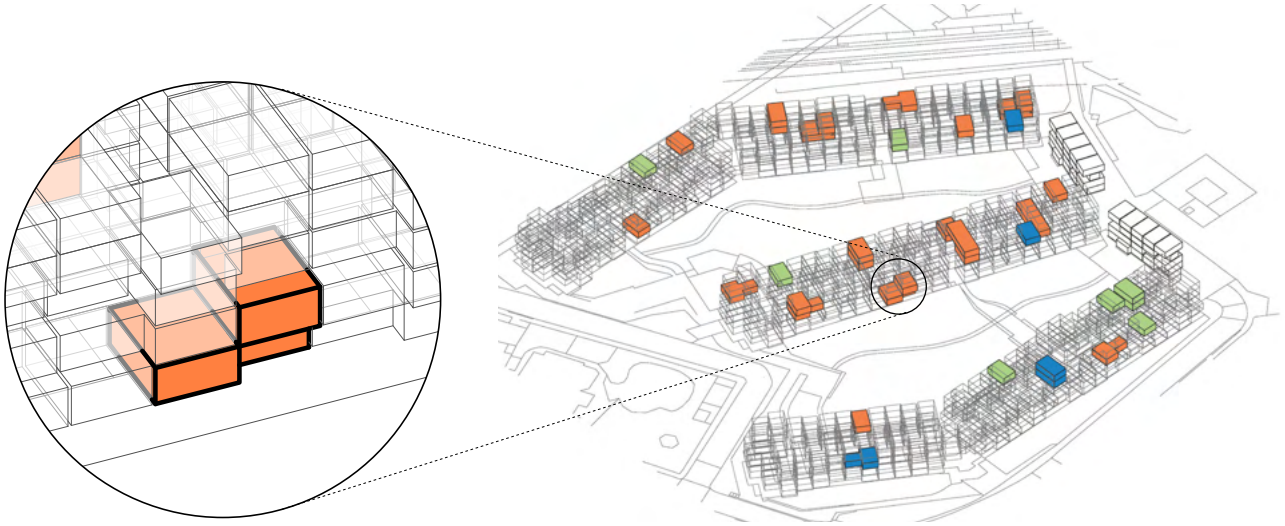
OTHER PILOT TESTING

The design team also intend to incorporate measures for testing other aspects of the building upgrade such as:

- Further enhancements to homes based around the works that the fit-out team have already delivered in void properties on the estate.
- Interventions to help improve access and circulation in the walkways: such as a pilot lift installation.
- Testing of different materials and lighting within the walkways spaces to enhance the environment at all levels, help to deal with acoustic issues and bring better natural daylight down into this space.
- There is also an opportunity to test external envelope upgrade works such as cleaning, repointing of brickwork and replacement of any tired elements.

SELECTION OF SUITABLE VOID HOME FOR TESTING

There are a series of void properties across the estate that have been earmarked as part of the wider LWNT ongoing fit out programme. KCA have collated these and plugged these into a dynamic model which cross-references the wide range of different interfaces and junctions present across the external envelope. The intention is to seek out a void property which has as many of the junctions as possible so to enable pilot testing of all retrofit measures.



411 Testerton 3 bed duplex

voids - work in progress or waiting for work

voids completed / not yet allocated / decant or held properties

contractors / fire marshall temporary welfare facilities

411 TESTERTON

This three bed duplex at lower level in the centre of the site has the following benefits:

- It is currently awaiting fit-out work: no capital will be lost in renovating this home
- It is located relatively central to the site adjacent to a courtyard rather than a street meaning it is visible to residents whilst not being located on a part of external envelop facing the street which could cause issues for surrounding context
- It is at the base of the building with a reduced number of neighbouring walls and floors limiting construction noise and impact on surrounding residents as much as possible
- It is a 3 bed property with many of the common features in many smaller and some larger homes across the estate, this will mean it will be a great test case for apartment remodelling measures that the design team are investigating.
- The fit-out contractor can section off part of the walkways for testing of material upgrades to the walkways without affecting neighbour's access. This can include cycle and pram storage measures.
- It contains the following external building interfaces and junctions:
    - Uninsulated floor above balcony soffit
    - Uninsulated ceiling below recessed balcony
    - Uninsulated wall adjacent to balcony
    - the majority of the window types found across the estate including full height glazing opening out onto a balcony
    - Uninsulated floor above garages
    - Many of the common external wall features found across the estate

4 PROJECT OPPORTUNITIES

4.6 PILOT TESTING

THERMAL MEASURES

411 Testerton captures most of the critical junctions that appear across the building and which will benefit from a physical test. The pilot fit-out also affords us the opportunity to compare and contrast different envelope improvement measures and measure their varied efficiencies, particularly in relation to EWI (External Wall Insulation) & IWI (Internal Wall Insulation) options.

Sequential installation of measures also means we can test as we progress. The design team propose to sequentially install a number of external envelope thermal upgrade packages and use periodic building performance testing to assess the efficacy and thermal impact of each material upgrade. This will build up a strong evidence base for where retrofit measures deliver a more thermally efficient building and where materials can be discounted due to limited impact.

This is the suggested sequence of installation of packages for further development with consultants main contractor & specialist subcontractors:

1. Installation of test monitors:
   (TBC with BuildTestSolutions)
   - Humidity sensors: gauging condensation risk
   - Temperature sensors: in cavity/slab edge
   - Thermographic testing
   - Airtightness testing
   - Temperature sensors to assess overheating risk

2. Wall insulation measures:
   Option A: Internal wall insulation (shown adjacent)
   Option B: External wall insulation
   Option C: Full fill cavity insulation
   (C both on its own and as a potential addition to A, & B. A&C will be trialled on the 411 Testerton pilot)

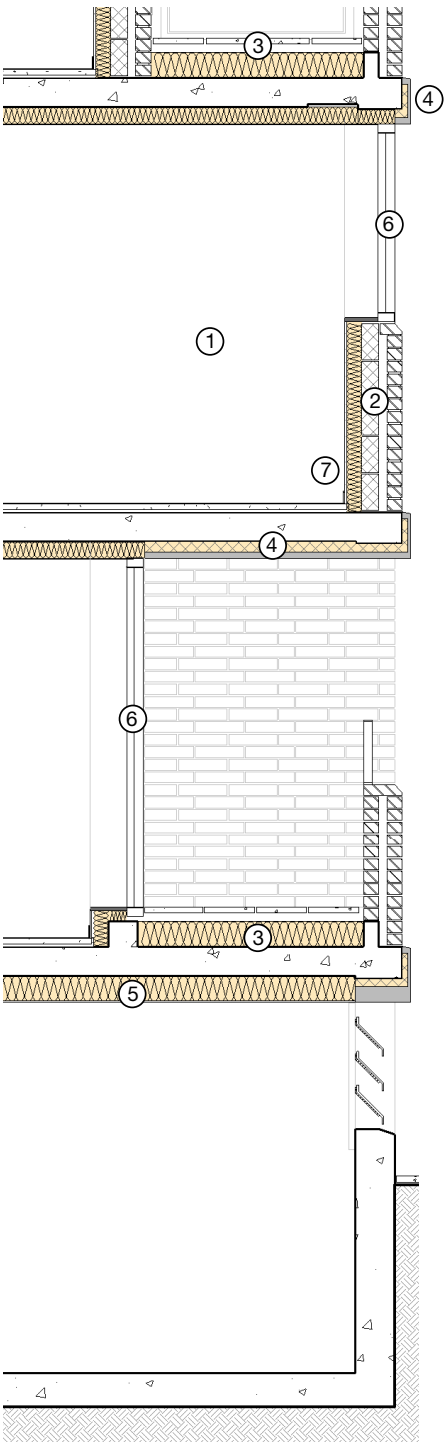
3. Balcony insulation and finishes: NB this will require access to balcony above as well as to the 411 balcony

4. Methods to avoid cold bridging in exposed slab edge:
   - Trace heating in slab edge, extents to be determined
   - Soffit and slab edge lining: foamglas and render (shown adjacent

5. Garage soffit insulation: requires access to garage space below

6. Window replacement:
   2 different manufacturer profiles to be installed, both triple glazed and highly thermally efficient

7. Drylining and finishing:
   Impact on airtightness and therefore envelope efficiency

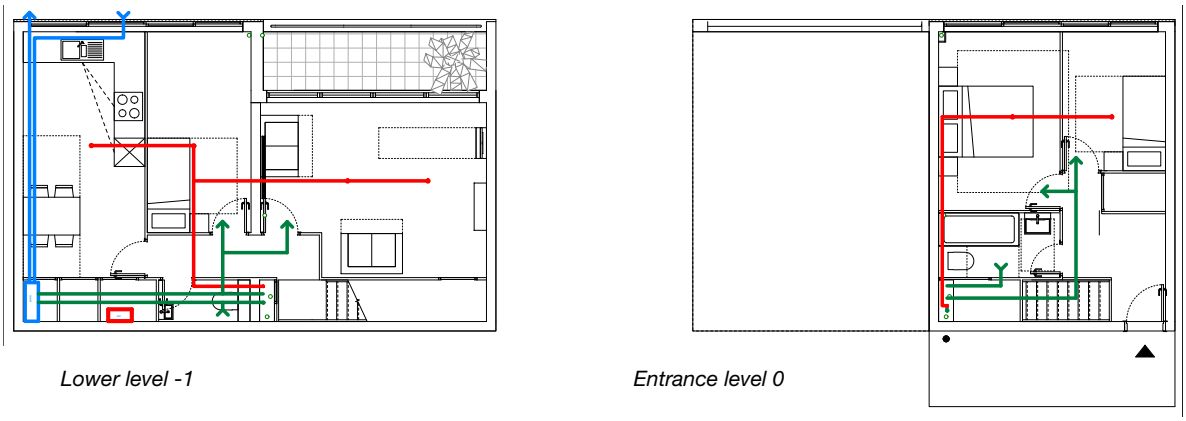


411 Testerton external wall section showing thermal envelope upgrade packages

APARTMENT FIT-OUT

Redesign of the entire 411 Testerton apartment void finding appropriate finishes and adaptions.
This work will be based around the high quality fit out work that has already been undertaken by the in house LWNT fit-out team, with opportunities for investigating more intrusive measures and incorporating a more holistic approach to ventilation and fire safety measures.

- Optimal room dimensions and apartment arrangements
- Storage opportunities
- Finishes
- Lighting
- Potential for extension of home into common areas (where suitable)
- HIU & MEP cupboard incl. meter space etc
- MVHR and ceiling ducts to outside or atrium space as deemed appropriate by thermal modelling
- Minimal partitions
- Sprinkler head allowance



Lower level -1

Entrance level 0

411 Testerton existing showing high level sprinkler and MVHR pipe run in ceiling voids.

4.6 PILOT TESTING

COMMUNAL AREA UPGRADE
Testing of a section of atrium wall, walkway and stair finishes at every level of the atria.
Interventions to consider:

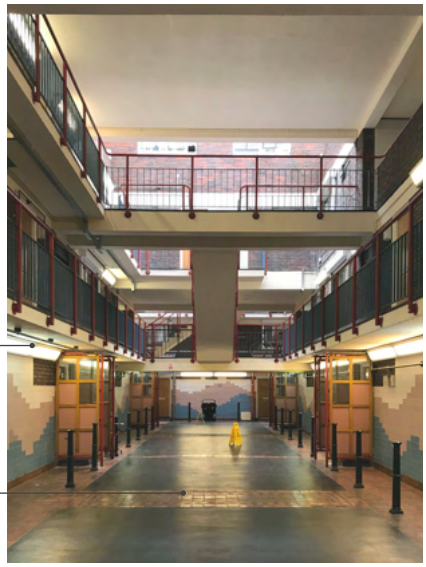
- Opportunities for testing atria rooflights
- Ways to enhance natural daylighting though materiality
- Ways to enhance acoustics
- Ways to enhance daylighting through changes to stair & walkway locations
- Ways in which artificial lighting could dramatically improve use of communal space
- Shared amenity opportunities within atria
- Resident curation of spaces: co-design
- Opportunities for integrated storage solutions: bikes/ prams etc.

EXTERNAL ENVELOPE
Envelope - Main contractor audition

- Cleaning and repointing of existing brickwork
- Cleaning and making good of exposed concrete
- New parapet formed using brickwork or concrete to match exposed slabs
- Different frame profiles and window operations tested to assess optimum arrangements for aesthetic and ease of operation.
- Increase height of brickwork balustrading in lieu of circular profile balustrade railing.
- Soffit lining testing to test best fixing methodology and aesthetic
- Removal of any decommissioned external envelope mounted containment and making good
- Foamglas introduction
- Demonstration of required measures to add value
- Opportunity to derisk the project from the contractors perspective

TEMPORARY WORKS
Areas to be considered:

- Management of all working practices from Health & Safety perspective whilst residents remain in situ
- Scaffold or mewp for installation of any externally fitted materials such as foamglas insulation, render and/or EWI and rainscreen and potentially to enable window replacement.
- Temporary works provision within atria: scaffold arrangements, hoarding etc.
- Opportunities for closing off sections of the walkways (provided this does not limit access)



Possible areas of focus for communal fit-outs

Possible areas of focus for external envelope works

OTHER CONSIDERATIONS

INTERFACE WITH SHDF REPORTING
Working with LSE research team LWNT and design team need to establish how best to interface with LSE researchers.

- Ways of assessing the data to produce transferable information for future projects.
- Using test data to populate monthly reports for the SHDF team as required by the funding.

INTERFACE WITH COMMUNITY: CO-DESIGN
Initial thoughts:

- Imperative that residents are involved in every step of the design & fit-out process
- Important that open honest and transparent communication with block representatives and feed through to all walkways residents
- Clear from outset the limitation on disturbance for residents: use of voids, nature of fit-out work and resultant noise levels and any other impacts
- Aims of initial event at the end of January to:
  - update on wider progress of fit-out team and next steps for the fit-out project
  - to create interest in the project and an opportunity for residents to provide some early input feedback
- Opportunity for residents that don't attend scheduled workshops to contribute ideas online (eg email, social media etc)
- Clear identification as to how the pilot measures meet the top 10 objectives
- LWNT to provide locations of vulnerable residents to check adjacencies with void homes

OPPORTUNITIES FOR JOB CREATION, WORK EXPERIENCE & UPSKILLING

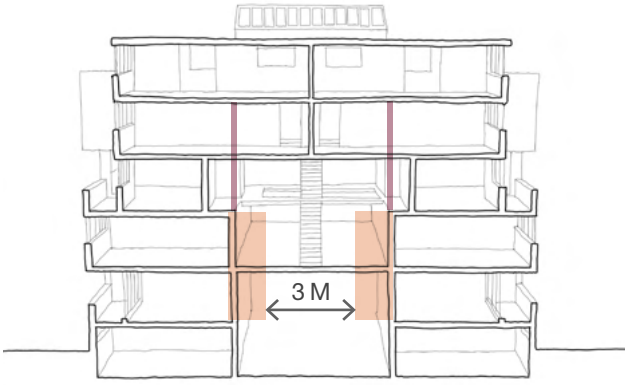
- Social value strategy to tally closely with recent fit-out works and relevant opportunities.
- Design team need to understand what LWNT systems are already set up to reach out to relevant people.
- Need to be clear that we are building on already established fit-out works, further opportunities for those individuals who have already been involved through internships and apprenticeships, as well as advertising for new roles reaching out to other individuals with an interest and/or qualifications within built environment:
- Consider how best to advertise roles across the estate, some roles may want a more specific skillset but others can be more open.
- LWNT and design team need to scope all possible roles with the design, survey and fit-out team as a priority.
- Consider how might this be implemented under cover of a main contract.

4 PROJECT OPPORTUNITIES

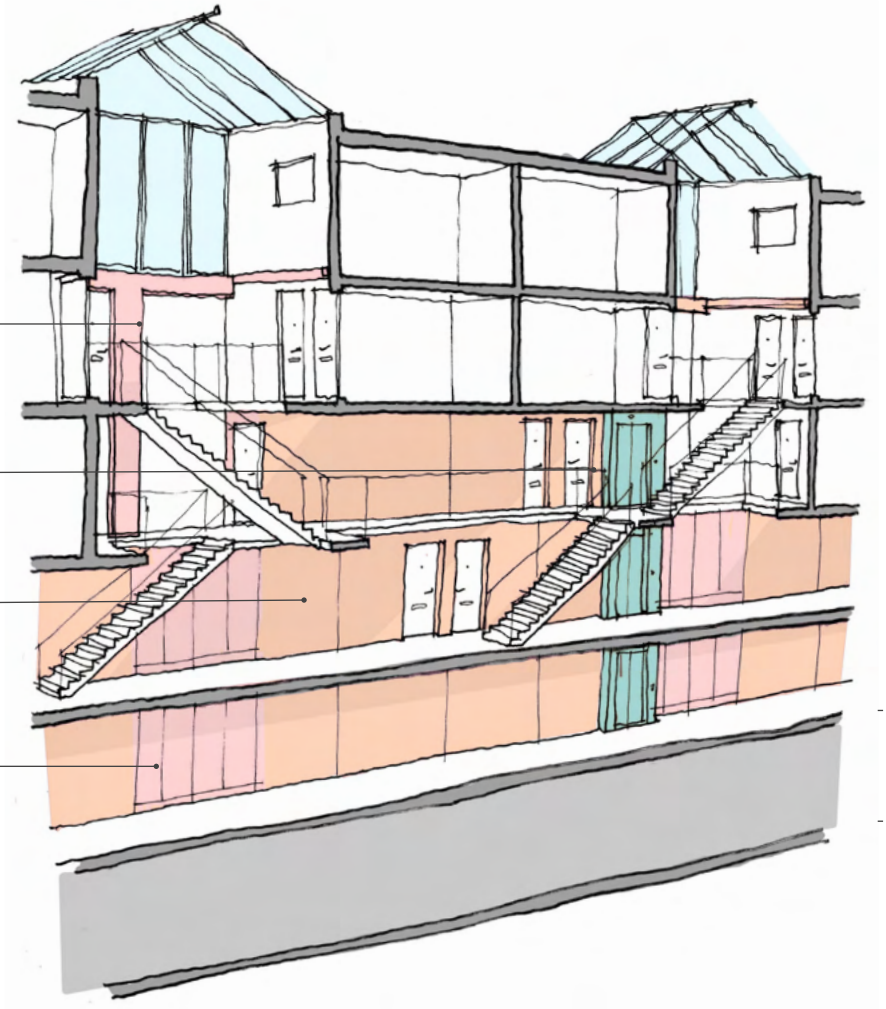
4.7 COMMUNAL AREA UPGRADE

Below is the developing design proposals for the upgrade of the communal areas. These spaces need to host a number of new incoming services such as the district heating pipes. Furthermore, there is the opportunity to provide a welcoming entry sequence for residents with new material finishes.

The study below illustrates how this could also provide an opportunity for new storage and the integration of lifts.



Sketch cross section illustrated location of storage and service cupboards



Sketch cross section illustrating new resident storage and riser cupboards to host new incoming services in the communal walkway areas

COMMUNAL LIGHTING

We will be working with our subconsultant Light Follows Behaviour to develop the communal lighting strategy with the residents as part of the co-design strategy.

1.25 STUDY MODEL OF COMMUNAL AREAS

Above: Work in progress photographs of a physical model of the communal areas. We will use this to physically test wall and floor finishes, lighting and furniture to present and engage residents with the developing design proposals.

4 PROJECT OPPORTUNITIES

4.8 WINDOWS UPGRADE

The replacement of the existing windows is an opportunity to improve the performance of the buildings, reduce resident fuel bills, and also improve the appearance of the Walkways. As the number one priority to refurbish the buildings it is important that the replacement is done to a very high standard.

The current windows are the original single glazed aluminium windows frames with thin 48mm profiles. As noted from consultation material and site observations the windows are leaky, can be difficult to open, and prone to condensation, they also are a contribute to the overheating of some homes.

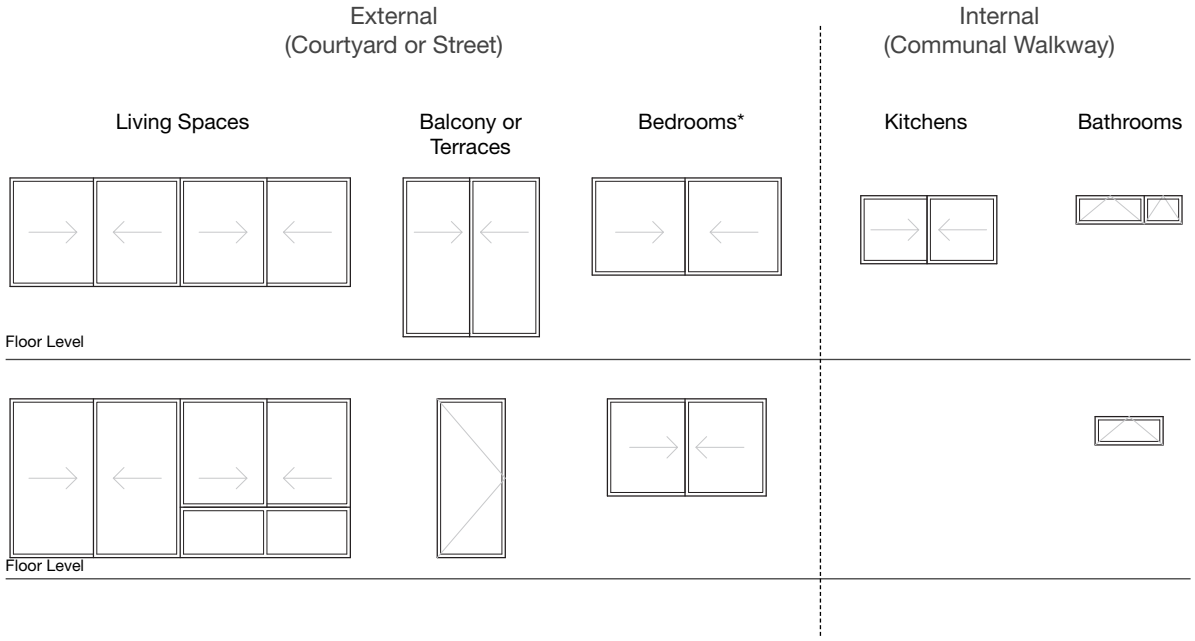
To achieve the energy reduction targets the new windows will need to be a high performance triple or double glazed specification, which will address the issues raised by residents. However this may limit certain options such as the opening mechanism. Modern windows do not achieve a high energy performance with a sliding mechanism which would match the current design, also a sliding design does not allow residents to easily clean their window. An inward opening mechanism can overcome both these issues.

As part of the co-design strategy with residents, a number of other considerations in their selection and design will need to be discussed:

- Finish & Colour: Of both the external and internal frames.
- Opening Mechanism: Options include side-guided, top guided, reversible, casement and sliding. The size (and therfore weight) of the current windows will be key in determining this to ensure ease of use and safety when open.
- Cleaning Strategy: If windows are to be cleaned by residents from inside or will the LWNT continue to clean them externally. This will determine if windows open inward or outward which will particularly affect smaller homes.
- Arrangement of glazing panels: Should the arrangement match the existing, or introduce smaller panels for advantages such as night-time ventilation.
- Overheating: Glazing with a high g-value could be specified to reduce overheating. Integrated awnings could provide solar shading in South facing homes that are particularly affected.

As part of the fire safety improvements, the kitchen and bathrooms windows facing the communal areas that have been fitted with fire curtains are to be replaced with fixed closed fire rated windows to protect the communal area from smoke and fire. These measures will be discussed with residents at upcoming fire safety engagement sessions.

EXISTING WINDOW TYPES



There are nine residential window types used across the Walkways in different arrangements per home type.
All are sliding window types apart from the single balcony door and bathrooms window types.

The external frames could be a light anodised finish to be low maintenance and match the existing appearance.

Composite windows provide an opportunity for a timber internal finish for warm softer appearance

Inward opening allows residents to clean the windows themselves but could impact smaller home types

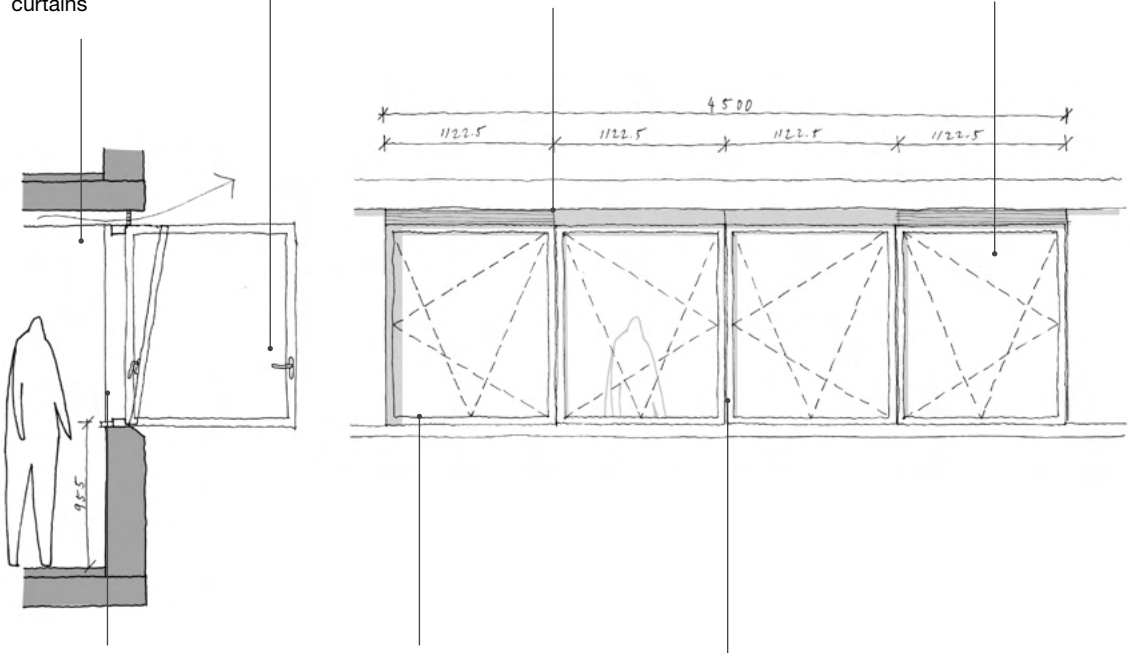
CONSIDERATIONS FOR SELECTION

Opening types affects the position of blinds and curtains

Options for opening types

Discreet Integrated vents for mechanical ventilation system to bathrooms and kitchens

Different glass types can help reduce overheating



An internal railing could create a 1100mm upstand for improved safety

Choice of finish & colour to be discussed with residents

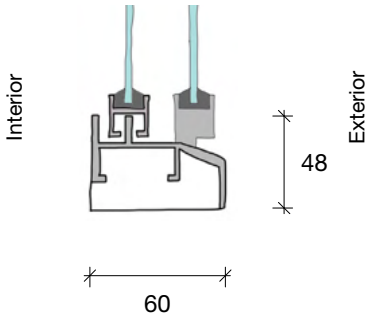
The arrangement of panels could match the existing or introduce more panels to assist night time ventilation and cooling

4 PROJECT OPPORTUNITIES

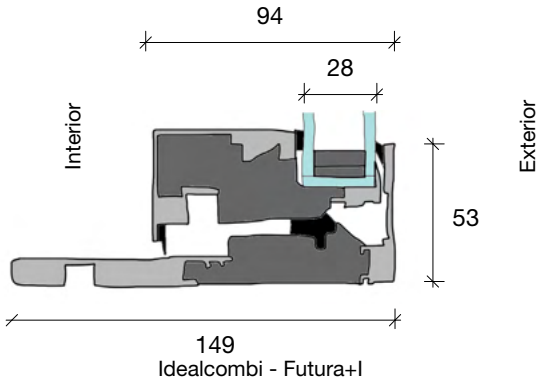
4.8 WINDOWS PROFILES AND FINISHES

We have been been talking with three window manufacturers to prepare the specification for the windows: Velfac, Idealcombi, and Raynaers. Below is an overview of the different profiles for each system, finish options and opening mechanisms to be discussed with the residents.

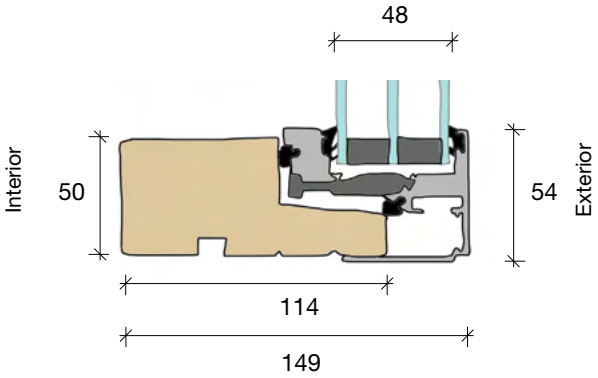
WINDOW PROFILES



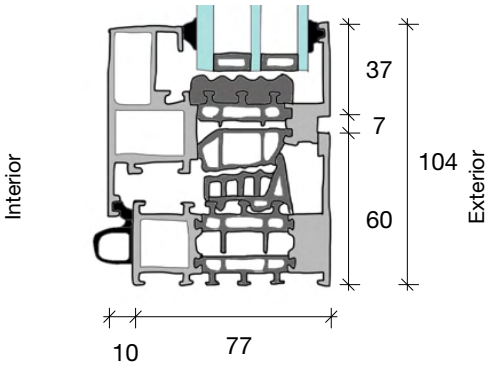
Existing System
48mm Aluminium frame with
single glazing



Idealcombi - Futura+I
53mm Aluminium frame with a
thermal polyurethane core with
triple glazing



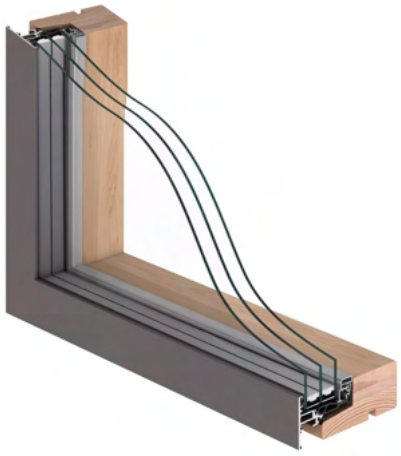
Velfac - V200 Energy
54mm Aluminium frame with
timber reveal with triple glazing



Raynaers Masterline 8
104mm Aluminium frame with
triple glazing

FINISHES

The three manufacturers we have spoken with provide frames in a PPC (Polyester Powder Coating) finish. All are able to supply the RAL 7012 colour that was previously selected by the residents as well as a range of lighter options. All three can also provide anodised frames which would be a similar finish to the existing profiles and is a hard wearing and low maintenance finish. Anodising can also come as darker finish which would be similar to RAL 7012.
For the internal frame finish, all three can have a painted finish with white (RAL 9010) as standard for Velfac and Idealcombi. As the Velfac system is a timber frame, the internal finish can be timber if preferred by the residents.



A Velfac frame with a dark PPC exterior finish and timber internal finish

Internal Frame	External Frame
Painted RAL 9010	PPC e.g. RAL 7012
Varnish Timber Finish	Analok e.g. Natural anodised finish

An Idealcombi frame with a natural anodised finish

OPENING MECHANISMS

We have investigated three opening types in response to the feedback gathered from the window pilot report that said residents would like to be able to clean their own windows.

Side Hung & Inward Opening

- Allows for maximum flexibility in opening positions.
- Cleanable from the inside by residents
- Inward opening restricts the position of blinds and curtains.

Top hung & Reversible

- Allows for maximum flexibility in opening position.
- Cleanable from the inside by residents.
- Does not restrict the position of curtains
- Some individuals may find it difficult to open fully.

Inward Tilt Opening

- Opens at the top of the window frame.
- Cleanable from the inside by residents.
- Restricted ventilation but improves the safety

4 PROJECT OPPORTUNITIES

4.8 WINDOW SYSTEMS COMPARISON

We have considered a series of window systems that can meet the residents' aspirations in terms of aesthetics, functionality and energy efficiency.

The table opposite sets out the different options available, considering the different factors that should be taken into account in the selection.

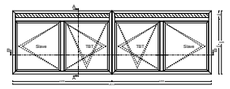
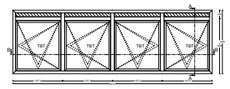
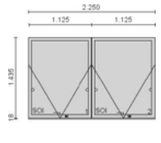
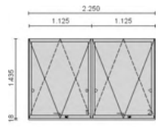
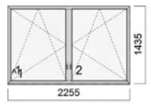
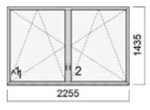
Dimensions
This is an important consideration as it affects the functionality and ease of use for residents. The size also has an effect on the U-value.

Open Functionality
This refers to how the window operates and its functionality. The systems shown here are inward opening, allowing residents to easily clean the windows from the inside of their homes.

U-Value
The U-value provides a measure of how effective the window is an insulator, keeping the cold out and the internal space warm. The current target U-value is 0.74 W/m^2K.

Rainscreen Panel
The design of the window will include a rainscreen panel /louvre above the window head. This will be to accommodate the extract of the MVHR system. There are technical considerations such as size and ease of integration to be taken into account.

Glazing
This considers the amount of glass within the window system. It also considers the specification of this element and how this affects the energy efficiency of the window system, including measures to prevent overheating of homes.

Manufacturer/ Position on Quote	Element	No. of Units	Dimension	Window Style / Opening Function	U Value	Rainscreen Panel	Glazing/ Panel details	Notes	Price £ approx unit price
Reynaers P05		**2**	Size (WxH): 2255 mm X 1245 mm Outer width frame: 104mm Individual Central mullion: 161mm Central mullion at wall junction: 208mm Two windows Connected, accommodates 2 hinges	French Casement- TiltTurn + Side Hung (Open-In)	1.08 W/ m²K	Yes - in 2 sections	Area: 3.987 m²		TBC
Reynaers P06		**1**	Size (WxH): 1127.5 mm X 1245 mm Outer width frame: 104mm Individual Central mullion: 168mm Central mullion at wall junction: 168mm Any individual windows alternatively Side Hung or Fixed	4no. TiltTurn	1.08 W/ m²K	Yes - in 4 sections	Area: 4.014 m²		TBC
Velfac 20 (paired)		**2**	Size (WxH): 2250 mm X 1435 mm Element depth: 149 mm Mullion/transom depth 114mm	Top-guided window	0,64 W/ m2K	No	8,8-12-4-15-8,8 Energy Std Lam Safe Sound/Clear/ Energy Std Lam SafeSound WE Grey		2,135.46
Velfac 50 (paired)		**2**	Size (WxH) 2250 mm X 1435 mm Element depth: 149 mm Mullion/transom depth 114mm	Tophung reversible no oversail	Windows: 0.64w/m²k	Yes	4-18-4-16-6 Energy Std/Clear/Energy Std WE Grey		1,693.33
IdealCombi 1 (paired)		**2**	Frame: 54 x 149 mm Mullion: 116x149mm Size: 1435 x 2255	Tilt before turn window, left hand inward opening handle (1) Tilt before turn window, right hand inward opening (2)	0,91 W/ m2K	No - separate product can be integrated	Triple glazing, Low Etough Float	G value: 0,48 Acoustics: 43db rw	2.126,88
IdealCombi 2 (paired)		**2**	Frame: 54 x 149 mm Mullion: 116x149mm Size: 1435 x 2255	Tilt before turn window, right hand inward opening (2) Tilt before turn window, left hand inward opening (1)	0,82 W/ m2K	No - separate product can be integrated	Triple glazing, Low Etough Float	G value: 0,50 Acoustics: 40db rw	2.054,75

4 PROJECT OPPORTUNITIES

4.9 ROOF UPGRADE

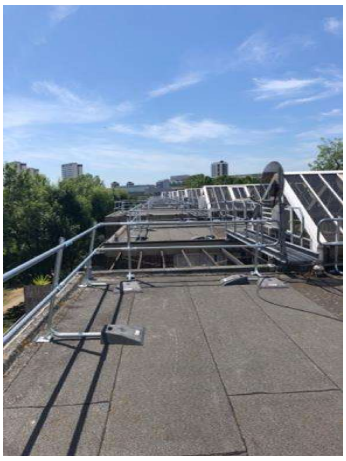
A key part of improving the building's thermal performance will be in upgrading the roof system. This work provides additional opportunities to improve other aspects of the building's performance and maintenance such as safe access, building appearance and improvement to biodiversity and renewable energy sources.

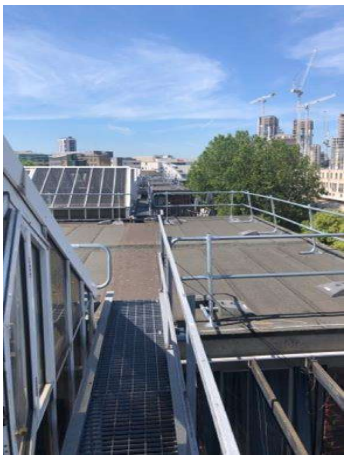
One method of roof upgrade is the replacement of the current bitumen felt roof system with a green roof system. The benefits of this would be lower costs of maintenance and repair and improvement to local biodiversity and air quality. It can also be designed to act as a water attenuation area to reduce pressure on local sewer infrastructure during heavy rainfall. This strategy will depend heavily on the structural load capacity of the existing concrete structure, which is currently under investigation.

To address the cold-bridging of the roof slab a new parapet is likely to be required to provide sufficient depth for insulation installation. This would also improve the safety of maintenance access by replacing the current free-standing guarding and could make a significant improvement to the appearance of the buildings . A new parapet could also hide any new roof top plant, such as ASHP equipment and reduce the noise impact of this kit to nearby private rooftop terraces.

Any insulation used on the roof would take into account fire safety as a key consideration, with A1 or A2 rated insulation specified. Materials such as mineral wool or foam glass will be considered in order to align this specification approach with other elements of the proposals, such as wall build-ups.

Initial investigations by the structural engineer Elliott Wood has indicated the roof has a limited load capacity, this will determine any proposed roof buildup and may limit the opportunity for a green roof or mechanical equipment such as PVs or ASHP. However if a solution is developed to allow this, the roof may be a source of energy for communal power or heat. The amount of energy this could generate will be developed at the next stage.

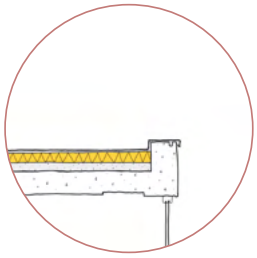




The current roof is a bitumen roof felt with a layer of PIR insulation on top of a concrete slab structure. Free standing guarding provides protection from falling for maintenance. (Photos from the Langley Roof Survey).

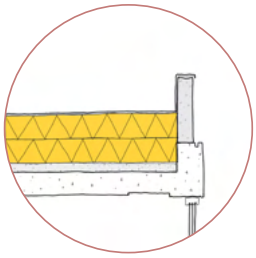
A green roof could have a long lifespan and reduce costs of regular maintenance as well as contributing to local biodiversity.

Initial investigations by the structural engineer Elliott Wood has indicated the roof has a limited load capacity, this will determine any proposed roof buildup and may limit the opportunity for a green roof or mechanical equipment such as PVs.



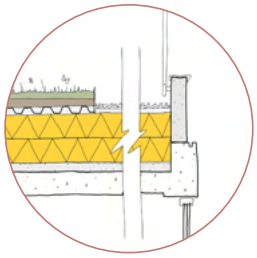
Existing Roof

The current roof system is a warm roof with a thin layer of insulation



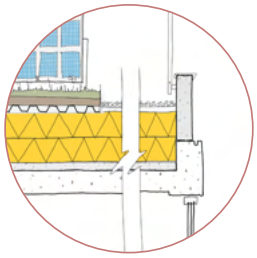
Option 1 - Warm Roof

Improving the thermal performance with a new layer of non-combustible insulation and waterproofing.



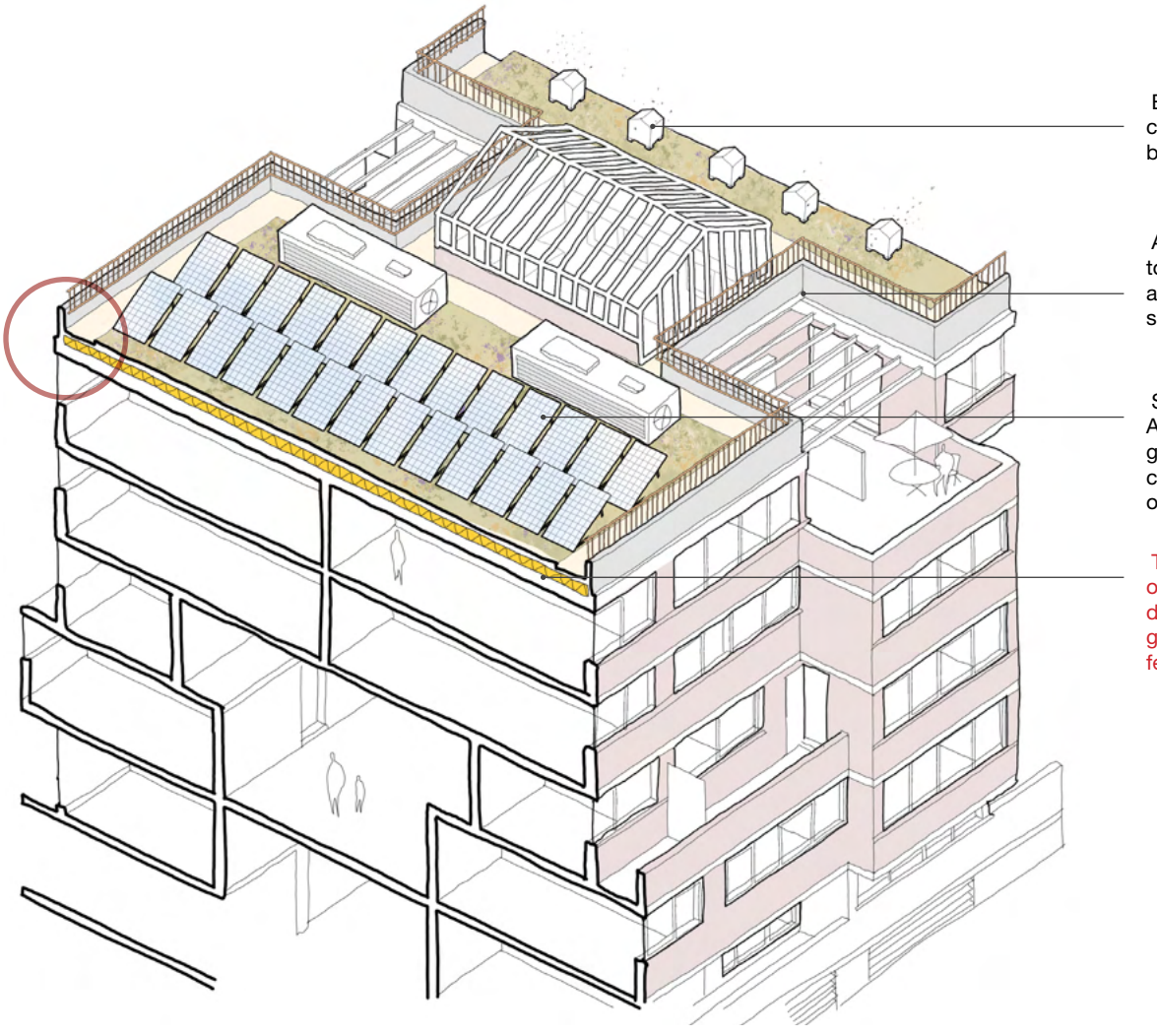
Option 2 - Green Roof

A new green or sedum roof could be laid on top of a new layer of insulation and waterproofing



Option 3 - Green Roof with PVs or ASHP

PVs could be used to generate energy for communal or residential use, to reduce energy bills



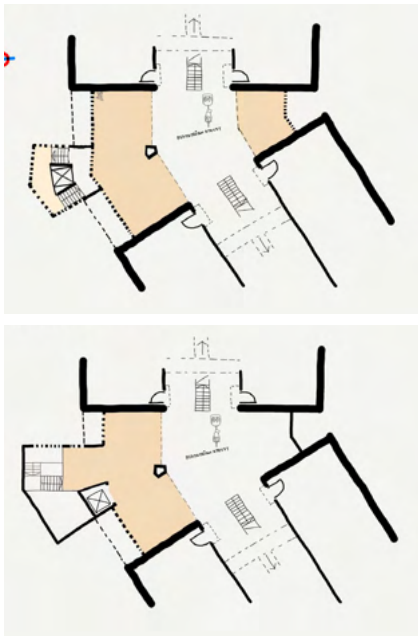
Sketch illustrating the potential upgrade of the roof to a green roof system with PVs and ASHP (Air Source Heat Pumps). A new parapet could improve maintenance access safety, hide rooftop equipment and improve the appearance of the building.

4.10 ARCHITECTURAL TEAM IDEAS PAGES

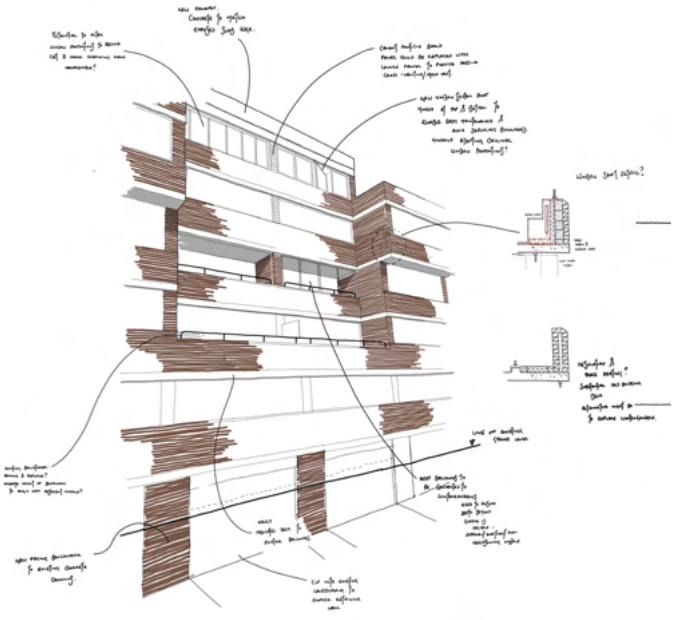
BUILDING CHARACTER AND QUALITY

Another area of focus within the design charrettes has been the enhancement of building envelope, entrance sequence (through material lining, lighting and signage) and the consideration of individual character in the building detail. It was identified that the existing buildings can be difficult to navigate for visitors due to the repetitive appearance and the sketches below are ideas of to improve wayfinding using coloured insertions and upgrades to entrance and balconies. Resident engagement will challenge and develop these ideas at the next Stage.

Sketch studies considering the thermal improvement and lining of entrances and individual balconies to provide entrance legibility (Gbolade Design Studio)



Bramley Road entrance study considering character and access (Gbolade Design Studio)

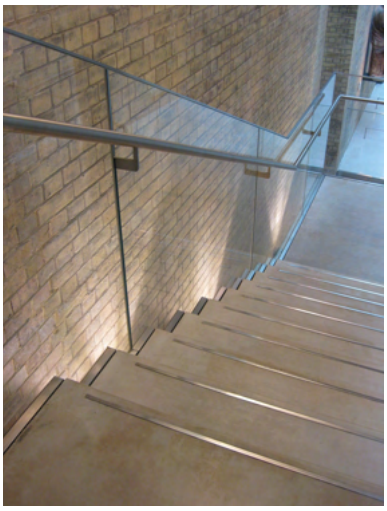


Existing envelope analysis and assessment of opportunities for thermal and aesthetic upgrade (Karakusevic Carson Architects)

THE WALKWAYS COMMUNAL SPACES

Having been originally constructed as external spaces and later converted through the covering of the atria with glazed rooflight, the atria spaces have a complex set of technical and aesthetic issues. Design charrettes have considered technical issues such as the integration of future services and improved fire safety to character, daylight and materiality. Architecture Doing Place have particularly focused on the quality and finish of these spaces.

Development model exploring and understanding the Walkways atria spaces (Karakusevic Carson Architects)



Material and architectural references from left: improving natural light levels through painted or tiled finishes; generous, fabric-like wall materials; glazed balustrades to aid fire strategy and natural lighting (Architecture Doing Place)

5 PROCUREMENT & DELIVERY

5.1 BUILDING CONTROL

We have commenced discussions with Building Control and will continue this process as design options emerge. We have agreed to undertake a series of workshops and meetings to explain developing options and identify where new Building Regulations may be applicable and what sort of material may be needed to support proposals such as structural analysis, fire tests or CFD (computational fluid dynamics) smoke modelling etc.

In many cases demonstrating improvements from the existing performance may be all that is strictly needed, from a Building Control point of view, however in other cases achievement of new Regulations may be required or surpassed. Dedicated officers will be assigned to the Walkways and certain specialist areas such as Fire or structure.

Regulations are subject to constant evolution and it has been agreed that compliance will need to relate to that relevant at the time of the 'registration'. We will need to include consideration of the implication of future packages of work - such as new district heating, installing new skylights or changes of use - so that any relevant compliance measures are made or facilitated in the initial application.

Some aspects of the Walkways such as the communal atrium area do not easily fit a standard new build regulation approach and may need solutions that are developed for this specific 1970s building typology. In these cases discussion will be needed to agree an acceptable approach. This will require robust documentation e.g. We should maintain a dedicated Fire measures log, to record options, risks and lead to an agreed strategy.

6 CDM

6.1 CDM (CONSTRUCTION DESIGN MANAGEMENT)

The site-wide Principle Designer for the project is Derisk. In line with our responsibilities as a Designer Karakusevic Carson Architects have met with Derisk multiple times during the course of the Stage - including site visits - to ensure a coordinated process and to discuss and eliminate risks. An Issues Log (included in this report as Appendix 8.3) that contains regular updates to briefing, building information and specialist consultant items has been employed throughout the Stage to ensure coordination of the brief and act as a way to highlight potential project risks within the team. A draft CDM Risk Register is included in this report as Appendix 8.4.

The refurbishment of the Walkways is a highly specific and complex project due to the following key points:

- The project deals with a complex existing building, information for which is still limited and being developed through survey.
- It is anticipated that residents will be in-situ during construction works. It is therefore critical that all construction works and safety strategies be carefully planned, communicated to residents and executed.
- There is a complex set of workstreams that include replacement of building envelope elements, services, improvement of strategies (including fire and access) and finishes, some of which are being separately procured and are already underway. It is critical that all packages of work are coordinated across disciplines, estate Plots and with all relevant representatives of the client.
- The programme for the project is being necessarily driven by funding deadlines. This creates a risk in the ability of the design team to fully coordinate design and construction and this must be dealt with in the next design Stages.

STATEMENT FROM DERISK

Below is a Stage 2 CDM report on the Walkways from Derisk received on the 15th of January.

Much of the design work at this stage comprises the gathering of existing information and arranging surveys to identify gaps in information and provide clarity on the current status of the buildings. At this stage in the design process construction materials and processes are yet to be firmed up, though initial discussions are taking place with all consultants and tentative proposals are being reviewed from a health and safety perspective.

Currently there are minimal health and safety hazards impacting upon residents that need to be controlled. These are limited to the surveyors undertaking investigation works, with the potential for the transmission of coronavirus during this pandemic a concern. Prior to their appointment all surveying companies confirm that their operatives are 'Covid Secure' and this extends to site works for the protection of residents, visitors, and staff working on the estate. The number of persons attending the Walkways is kept strictly to a minimum, with the mandatory wearing of face coverings and ID badges enforced alongside other construction industry control measures.

There may be noise and vibration transmitted to residents during intrusive investigation works. Tasks which generate these are tightly controlled with employers providing risk assessments and method statements to KCA and the Lancaster West Team where required. Residents will be informed well in advance of such works taking place to ensure disruption is kept to a minimum. There are anticipated to be temporary restrictions placed within the Walkways with work areas barriered off to ensure the investigation works can be undertaken safely, however again residents will be consulted during the planning stages of this to reduce any impact.

CDM 2015 requirements (the Construction Design & Management Regulations) are being monitored by the Principal Designer (Derisk) and the Lot 1 works are considered by Derisk to be in full compliance with the Regulations at present. KCA are legally required to communicate design risk information to the Project Team and all persons affected by the refurbishment works, this is being demonstrated partly in the form of written CDM Risk Registers. These are developed with Derisk and are reviewed frequently, with revised versions issued at a minimum of each RIBA work stage. The draft Stage 2 CDM Risk Register is appended to this report.

The refurbishment works planned are significant and complex, and all construction works will present health and safety hazards to the residents of the Walkways. It is the utmost priority of the Project Team to identify what these hazards are at the earliest possible stage and work with the team, the contractors, and of course the residents to reduce the associated risks to as low as reasonably possible to ensure the safety of all persons within the Walkways. As stated, the design proposals and construction methodology are still at a very early stage, however Derisk and KCA anticipate the following hazards to be addressed as a minimum.

- *Fire Safety – is at the foremost of all works on the Estate. Separate Fire Engineers are appointed (BB7 and Trigon) to review the existing buildings and are embedded within the design team. Of significant risk is the need for a collaborative approach between respective organisations, as several separate packages of work are being planned that must all tie in together to ensure fire safety not only meets but exceeds current standards. Several dedicated Fire Design*

meetings have taken place over the last few weeks and with the recent issue of General Arrangement drawings Trigon are now beginning fire design works in earnest. Regular Fire Safety meetings are diarized, and this is an agenda item on all team meetings. Fire Safety during construction is also a priority and the Fire Engineers will support the contractors to develop fire plans that keep all persons within the Walkways safe during the refurbishment works.

- *There are expected to be several contractors undertaking works concurrently once refurbishment works begin. KCA will work closely with the LWE Team to ensure that they (a) cooperate with one another; (b) coordinate their work; and (c) take account of any shared interfaces between the activities of each project (e.g. shared traffic routes). It is of key importance that where there are shared interfaces (as there will be within the Walkways) that one contractor is responsible for retaining control over these areas.*

- *Interface with other projects (particularly the Internal refurbishment and void works) – all planned works that may impact upon these works (such as the refurbishment of voids within the Walkways) are closely managed to prevent any clashes or interference. Derisk are involved with the separate Internal refurbishment programme and will assist the LWE Team to develop programmes and specifications that cause minimum disruption to the Lot 1 works and ultimately to the residents.*

- *Residents remaining in their homes during the works. All works where possible will be carried out without requiring residents to leave their homes. These will be planned so that hazardous works are undertaken at a time during the day when fewer residents are in the buildings. There are expected to be isolated communal areas that may be temporarily closed to residents but this will kept to as short a period as possible. Works to the services systems will include localised isolations so that residents retain power, water, lighting etc. as much as possible. Inevitably though there will be some aspects of the works carried out that are simply not safe enough to be undertaken with residents remaining in their homes, such as asbestos removals for example. The temporary relocation of residents is being discussed with the Estate team, with proposals developed over the coming weeks in full consultation with residents.*

- *Asbestos containing materials are noted to be present within the building. Though currently being managed by the Estate team these are proposed to be removed during the refurbishment works. Asbestos is an extremely hazardous material and for the safety of all persons on the estate all works will be carried out in strict accordance with the Control of Asbestos Regulations 2012. Further surveys are likely to be required to identify gaps in asbestos information over the coming weeks.*

- *All works where possible will be undertaken without the need for site operatives to work at height to reduce the risk of falling materials and tools around residents. However there are many elements of the works that cannot be undertaken from ground level and so suitable access platforms will be used. These are likely to include scaffold and tower scaffold systems, mobile elevated work platforms, hoists, and traditional ladders and step ladders. All present different risks to residents and site staff, however construction methodologies will be considered during the design phases to ensure that the hazards and risks are outlined and controlled. Derisk have proposed the undertaking of Construction Hazard workshops with KCA over the coming weeks to review work at height and general construction requirements for all proposed designs.*

- *LWNT as the Client (for the purposes of CDM 2015) are required to ensure that the contractors put in place suitable welfare (toilets, hand washing facilities, changing areas, water supply, etc.) during their works. Due to the numbers of persons proposed to be undertaking these works it is unlikely that use of void properties will be suitable, and defined welfare areas or cabins will be required. These will need to be sited close to the Walkways and so parking spaces or small areas of the landscape may need to be temporarily closed to accommodate these. All proposals will be considered by the Project Team and developed in consultation with residents.*

- *Larger construction works will require an area or compound to house offices, cabins, material storage, tools and plant etc. Due to the limited space available around the estate this may impact upon existing parking areas or the landscaping as discussed above.*

- *Security – contractors are required to ensure that their sites are kept separated and secure from persons other than their own staff. This will require physical and electrical security measures to be installed around the Walkways which may impact upon residents free movement around the estate. All proposals for alarm systems, Heras fencing, hoarding, etc. will be reviewed by Derisk and the wider Project Team.*

- *Logistics and waste removal. The works will increase vehicle traffic around the estate and the carrying of waste and other materials to the work areas will present a hazard to residents. Derisk and the Project Team will support contractors to develop their waste management and logistics plans to ensure that they impact upon residents as little as possible.*

6.2 FIRE SAFETY STRATEGY

The team have to date have been reviewing the recent FRA reports commissioned by the LWNT and have met with the RBKC Fire Safety Team to more fully understand the desired approach to fire safety management within the walkways.

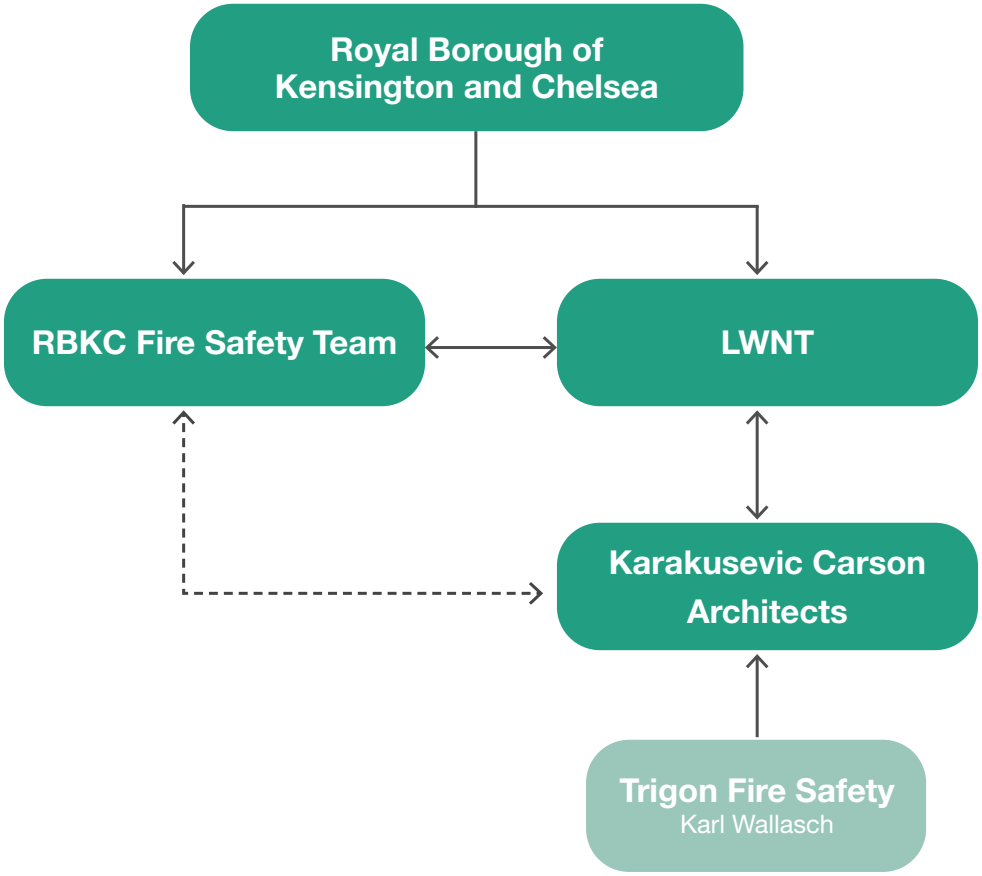
We have also been briefed by the LWNT on the available funding stream for implementation of fire packages within the walkways.

At this stage of the design process these are the headline items within the fire strategy approach (these are likely to be adapted over the next stage of design development with Building control, London Fire Brigade and through discussion with residents):

- All homes on the Walkways will be sprinklered
- The rooflights in the common parts atria spaces will be replaced to accommodate more substantial automatic opening vents
- Windows and doors between the common parts and the homes will be replaced with the required fire doors and windows and the windows will be fixed non-opening casements
- The fire strategy will adhere, where possible, to the current Part B building regulations for buildings over 18 metres (this requires further analysis to identify which measures will be relevant to these buildings at the next stage of design)
- All materials or systems adopted and installed as part of the refurbishment works with be A1/A2 fire resistance rated.
- The baseline studios will need to adhere to fire regulations as required for commercial space.

The reports and drawings on the facing page are all current documents that the team are using as the basis for developing design measures in relation to fire safety.

Moving into the next stage of design we will be coordinating more closely with Trigon fire consultants who are part of our multi-disciplinary design team. We will be reviewing the current strategies with them and looking at ways in which the fire strategy can frame more holistic design measures in both the common parts and the homes themselves.



Relationship between the design team, client and the various fire consultants on the Walkways Lot 1

7 NEXT STEPS

7.1 NEXT STEPS AND FUTURE WORK

CHAPTER INTRODUCTION

As the design team progress into RIBA Stage 3 design it is critical that the team are able to work through the project opportunities that have been identified to date with the residents. We want to develop a clear mandate for the delivery of the works with the residents, the block representatives, primary stakeholders, statutory authorities and LWNT.

The development of the scope for the pilot work will be one primary area of focus as will be the further development of the fire and services strategies. These areas of design will need close collaboration with the TACE team and the RBKC Fire Safety Team amongst others.

We also want to focus in more detail with residents on the design options and the delivery of the common shared spaces across the walkways and the wider estate:

- Walkways atria, walkways stairs and upper decks
- Adjacent staircores
- Roof terraces
- Residential entrances
- Lower ground levels and opportunities for additional support/dedicated storage space
- Shared courtyard gardens
- Public realm and the relationship with the surrounding streets and neighbourhoods

We will want to address issues of accessibility and services with the residents to help the buildings to function better on a day to day basis: issues such as:

- Drainage
- Waste management
- Inclusive access and security
- Wayfinding to help people orientate themselves around the estate
- Lighting
- General services

as well as reviewing the current heating network, looking at sources for green energy and renewables and developing ventilation strategies further to deal with overheating and condensation issues.

RESIDENTS BRIEF TRACKER

To aid this process we will be developing a residents brief tracker. This will set out the terms of the brief starting with the residents top ten. We will work with the residents to shape their brief identifying key feedback and outputs from each and every engagement and co-design session

PILOT WORKS

We are currently collating a proposed schedule of works and costs and will be sending these out for review by the LWNT fit-out team shortly.
We need to review these packages with the residents at the earliest opportunity to ensure they reflect residents priority before we use them as the test basis for fit out. This needs to be accommodated within any forthcoming programme for delivery.
Soft-market testing with the relevant contractors will also help to more clearly define this schedule of works and help us to commit to timeframes for the pilot works with residents.

PROCUREMENT AND DELIVERY

Further review of different procurement routes also needs to be presented to residents to enable ongoing discussion about how the works might be delivered on site and how this might impact each and every household across the duration of the works.
Working with LWNT we plan to collate and clearly present different approaches, using the content of this report and developing this with the procurement team.