Highgate Studios

WINDOW REPLACEMENT STRATEGY 01

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Contents

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Highgate Studios Window Replacement Strategy

The project team for Highgate Studios is supported by Savills Earth through a bespoke Sustainability Charter to meet bold sustainability objectives that future proof the development.

Our approach will ensure the scheme is as environmentally and socially sustainable as possible from day one, and continues to be throughout its lifetime.

Savills Earth will continue to monitor progress, guide, and support the project team whilst building an evidence base that demonstrates the success of the design and provides a robust pathway going forward.

This document provides a summary of our work exploring how we could improve the performance of the existing windows across the Site, why it's necessary and how we might reduce the impact of their replacement.

Our strategy has been developed in line with London Plan & Camden Polices:

- Camden CC1 Climate change mitigation
- LP SI2 Minimising greenhouse gas emissions

EPC & Future MEES

Minimum Energy Efficiency Standards are changing.

These changes will set a new minimum standard and redefine what makes it unlawful for a landlord to grant a new tenancy or to extend or renew an existing tenancy.

In 2030 that minimum standard for commercial buildings is expected to be an Energy Performance Certificate rating of 'B.' It potentially places up to 900,000 buildings at risk of be 'stranded' across the UK.

Work to date

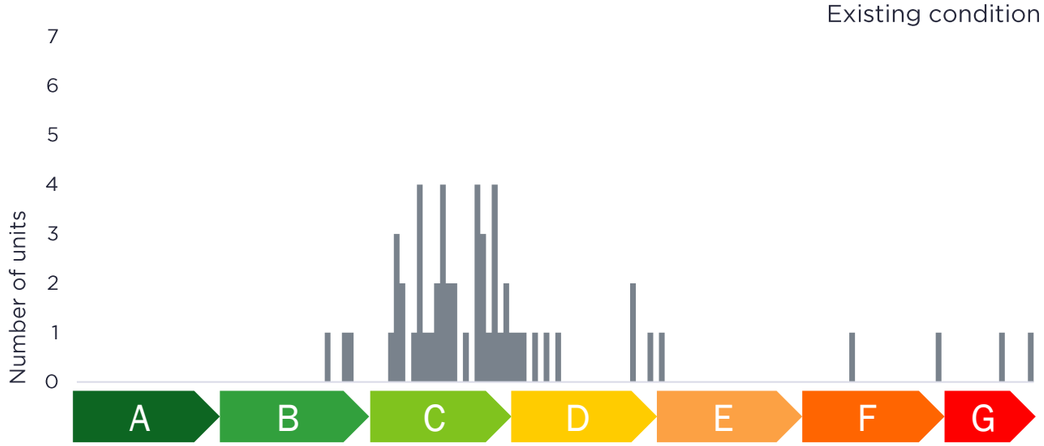
To date the design team have used the 2030 cut-off to establish a minimum standard - modelling theoretical upgrades to each existing tenanted space to establish how each could be futureproofed in relation to the current and future Minimum Energy Efficiency Standards.

The outcome of initial EPC model testing and an initial fabric specification is outlined on the following pages.

* in consultation

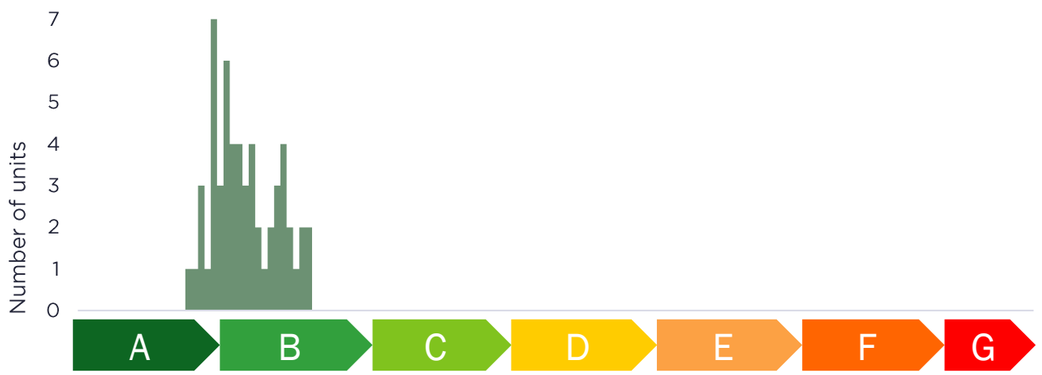
EPC & Future MEES

Existing condition



- The current EPCs for Highgate Studios

Improved energy performance



- Upgrade windows to double glazed units.
- Upgrade all lighting to LED.
- Upgrade all non-DX/VRF systems to DX splits system using Energy Label of A++.

Emerging facade specification

There is potential to improve the performance of the current buildings as part of the redevelopment. In response an initial minimum fabric specification has been outlined below refurbished buildings.

Detailed modelling during detailed design will be used to refine this specification in response to both MEES and NABERS UK rating targets.

Careful consideration will also be given to avoiding interstitial condensation issues when adding insulation to existing brick walls where this is explored.

Existing						
	Thermal Element	**Part L (2021) Limiting Value for Replacement fittings***	**Part L Limiting value for Renovated elements****	**GLA London Plan Notional*****	**Improvement**	**Proposed******
U-values ($W/m^2.K$)	Ground Floor	-	0.25	0.25	-	-
	External Wall	-	0.3	0.55	15%	**0.26**
	Roof (Flat)	-	0.18	0.18	15%	**0.15**
	Roof Pitched (Insulation at ceiling)	-	0.16	0.18	15%	**0.14**
	Roof Pitched (Insulation at rafters)	-	0.18	0.18	15%	**0.15**
	Windows	1.6	-	1.8	15%	**1.4**
	Curtain Walling	1.6	-	1.8	15%	**1.4**
	Rooflights	2.2	-	1.8	-	-
g-value EN ISO 410	Glazing		-	0.40	-	**≤0.4**
Air Permeability ($m^3/h/m^2$) @50Pa	Building Envelope	-	-	25		-
* Part L 2021, Table 4.1						
*** Part L 2021, Table 4.2						
*** GLA London Plan, Appendix 4 - Notional Specification						
**** Figures apply only to elements/fittings being renovated/replaced						
***** Results issued (1/7/2022), only upgraded values shown, retained elements/fittings vary throughout site						

Window Replacement Strategy

Window upgrades are being consider in the existing buildings as part of a suite of measures that will help raise the EPC ratings across the site to a ‘B’ rating as a minimum.

To achieve the target rating, the RED EPC report recommends:

- a whole window u-value of 1.4 W/m^2.K
- g-value, 0.4

From previous experience, Design for Performance modelling is expected to produce a similar target.

The current windows are single glazed units that are approximately 100 years old with non-thermally broken steel frames. Many of the openable units are not operable due to their poor condition.

Estimates suggest that retaining the single glazed units in their current state would compromise the design and prevent the thermal performance target above being met.

Repair and refit would also compromise energy performance and could also lead to a significant number of replacements given their age and condition.

Refurbishment with additional secondary single glazing has been considered and likewise discounted as a viable option on the grounds that replacement double glazing is still approximately twice as effective as single secondary glazing in terms of heat loss.

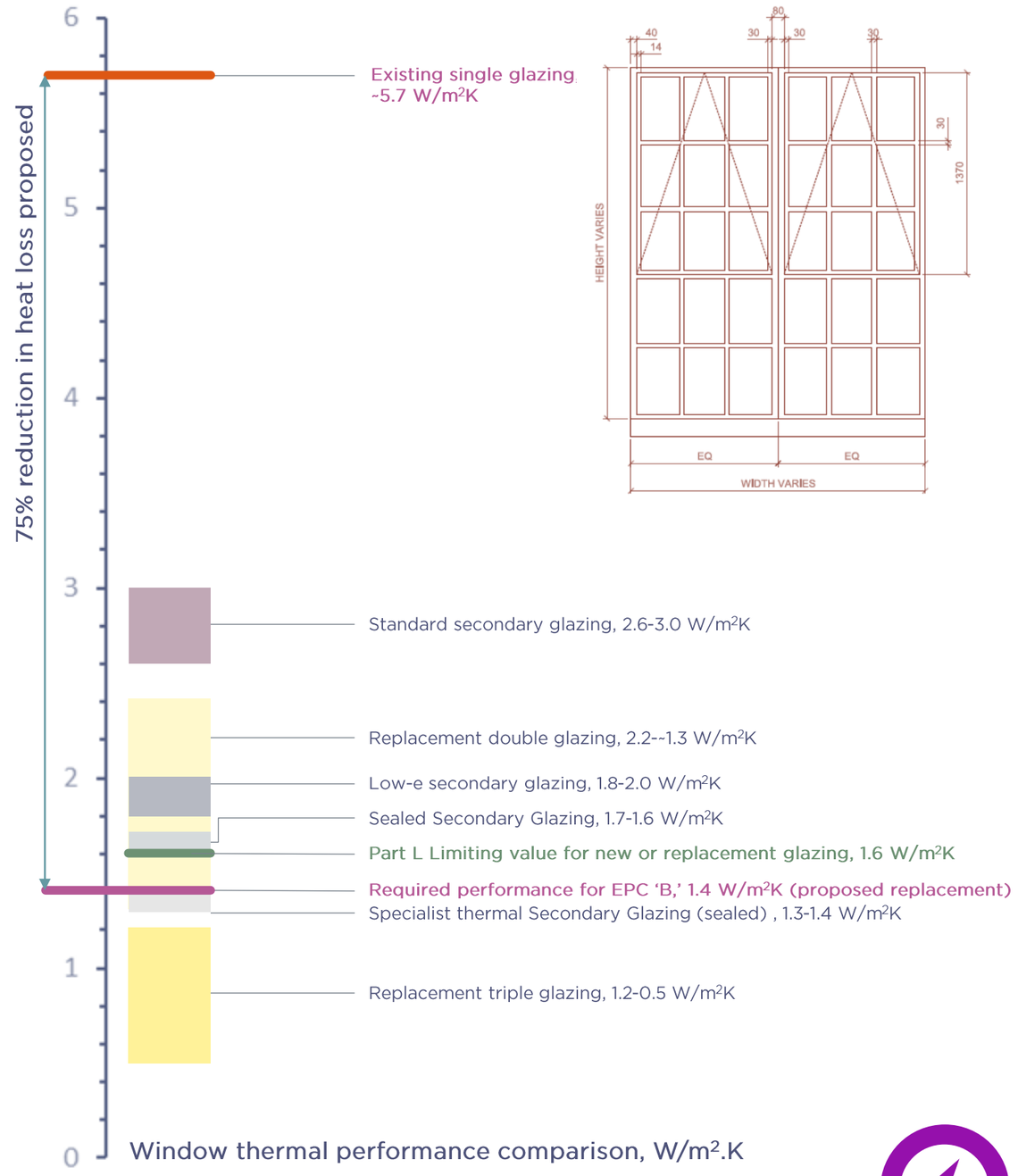
Secondary glazing would also incur a penalty in embodied carbon generation, but with significantly decreased thermal performance.

Those secondary single glazing systems that might achieve performance within our target range would require sealed permanent secondary systems which would compromise any future window opening or mixed mode ventilation strategy.

Consideration was also given to double secondary glazing, however this is likely to incur a similar embodied carbon penalty to a replacement strategy with all the compromises of a secondary system.

The conclusion was that window replacement presented an opportunity to improve the thermal performance of the windows to a ‘futureproofed’ thermal performance, whilst providing a simplified thermal line that provided longevity and reduced façade maintenance/replacement in future.

Doing so will also allow for improved natural ventilation opportunities, as all intended openable window areas can be utilised which is not currently the case.



Window thermal performance comparison, W/m^2.K

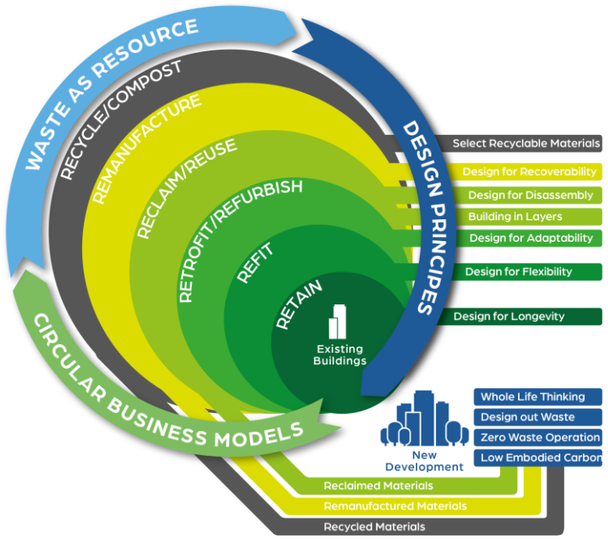
Window re-use & recycling

The circular economy hierarchy is based on the idea that we need to retain the value of existing materials as much as possible, with retention being the first priority option, followed by refit, refurbishment, reclamation/reuse, remanufacture, recycling, and then disposal.

However, following investigation, retaining them or refitting them in their current state would compromise the design and prevent us being able to meet our operational energy targets and future minimum energy efficiency standard target of EPC 'B.'

We have begun to explore reclamation/reuse, remanufacture & recycling and will continue to contact community groups who may be able to find a use for the windows. Some ideas raised by the design team were for re-use as greenhouses or within artist communities who may have a use for them as well.

As we continue to explore opportunities our baseline strategy is our intention to recycle both the glass and steel.



	Opportunity	Feedback to date
Reuse – on Site	Designate a storage area for the reclaimed windows that would then be offered to potential tenants office partitioning on site	Glazed units would not be the best performing acoustically as single glazing tends to conduct sound very well. Use would therefore be more of an aesthetic barrier and this might present a design limitation. Optimo have tried this approach on two previous construction sites with limited success before eventual recycling 2 years later. We continue to explore this opportunity.
Reuse – on Site	Re-use as part of Pavilion design or landscaping.	Design development continues.
Reuse	YourSpace Sutton - Create greenhouses from reclaimed windows.	YourSpace Sutton are interested in the opportunity, but they want the greenhouses to be constructed for them and don't have the space to store all 900 windows while they were waiting to be constructed. We continue to explore this opportunity.
Reuse	Savills Retail Team	Savills' specialist garden centre retail team are seeking opportunities to re-use windows in retail areas.
Reclaim / Reuse	Zero Waste Merton	Zero Waste Merton have expressed an interest, but may not have the resources to harvest, gather and store this quantity of windows for reclamation or reuse. We continue to explore this opportunity.
Reuse	Assemble a network of allotment sites across London and distribute the window material to them	We continue to explore this opportunity, but we will need to carefully consider the coordination required to make this possible.
Remanufacture	Takeback for remanufacture by the original manufacturer (Crittall Windows)	Crittall Windows do not provide a takeback scheme due to the bespoke nature of their work.
Recycle	URM	URM can only recycle the glass so they would have to be removed from the frames.
Recycle	May Glass Recycling	May Glass have provided a quote and confirmed they would take the materials to their Rainham (suburb in East London) facility and separate the glass from the frames. The glass will be transported to their reprocessing facility and turned in to fiberglass insulation. The steel frames are then sent to a metal recycler for further reprocessing. Skips would be provided for on-site collection. This is our baseline position.
Recycle	Enva	We are waiting to receive feedback .
Recycle	Bottleman Recycling Services	We are waiting to receive feedback .

Window re-use & recycling

1. Squire and Partners' offices case study for the reuse of Crittall windows
2. Further example of Crittall window re-use in fit-out
3. Further example of Crittall window re-use in fit-out
4. Window re-use as a green house at King Cross Central.
5. Further example of window re-use as a greenhouse.
6. Glass recycling as fibreglass insulation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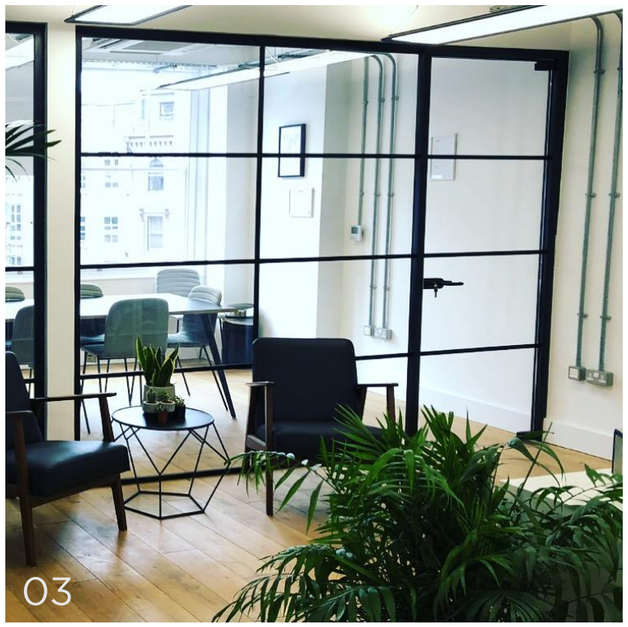
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