4.2.18 Facade Design

Glass Block Facade - Level 3 and Level 4

40-41 Furnival street is currently an office building and it has no large scale ventilation opportunities on its west facade. Various perforated brick and other constructions were considered before adopting a strategy of using glass blocks to form a translucent curtain wall, with large ventilation plenums down from the roof to the plant space at L03.

This level, the plant level, will have acoustic louvres behind the glass brick wall The facade will have a large demountable portion in both the glass blocks and acoustic louvre screen for rare plant replacement operations.

The brick facade extends in front of the Level 4 staff office area, where it acts as a veil while providing natural light

On these levels, the glass blocks facade is not providing the thermal performance.

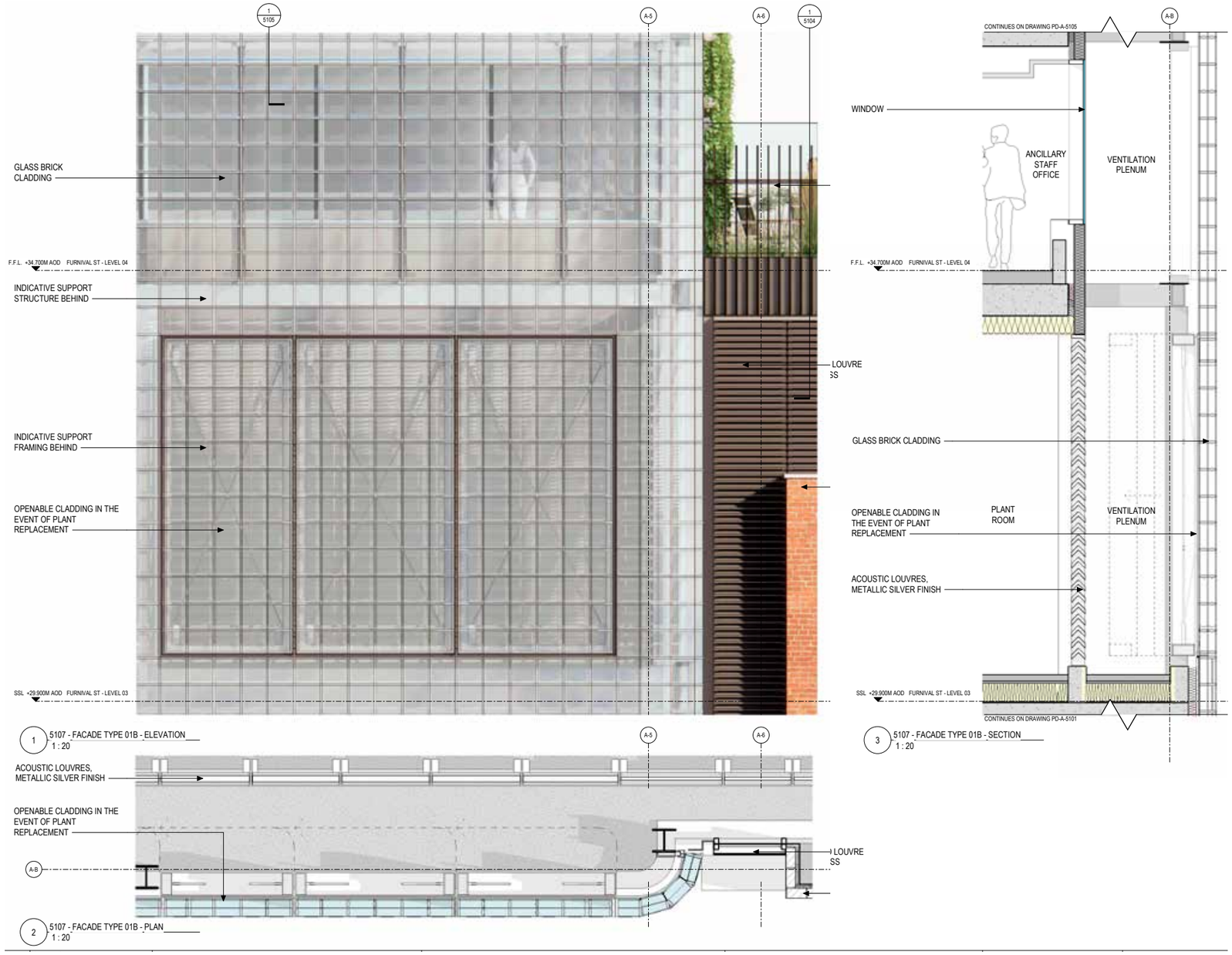


Figure 105. 40-41 Furnival Street Glass Block Facade - L3 Plant and L4 Office

Terrace South Facade

On the roof of 38-39 Furnival Street we have included a private, south facing terrace, providing amenity for staff.

For the south facing facade onto the terrace it is proposed to use brick faced cladding, extensively greened with climbing plants.

Plant Screens

The primary function of the cladding screens at the roof top level of the building is acoustic. It is proposed to deploy a propriety acoustic louvre system in a vertical orientation. The vertical orientation enables neat, integrated corner details to achieve a smart homogeneous box of louvres at the top of the building.

It has been possible to set the acoustic cladding screen back from the western elevation to reduce its impact on the primary views north and south along Furnival street. This offers the added advantage of creating a strip of landscaping behind the ventilation plenum.

Figure 106. L4 Roof Terrace Access Facade

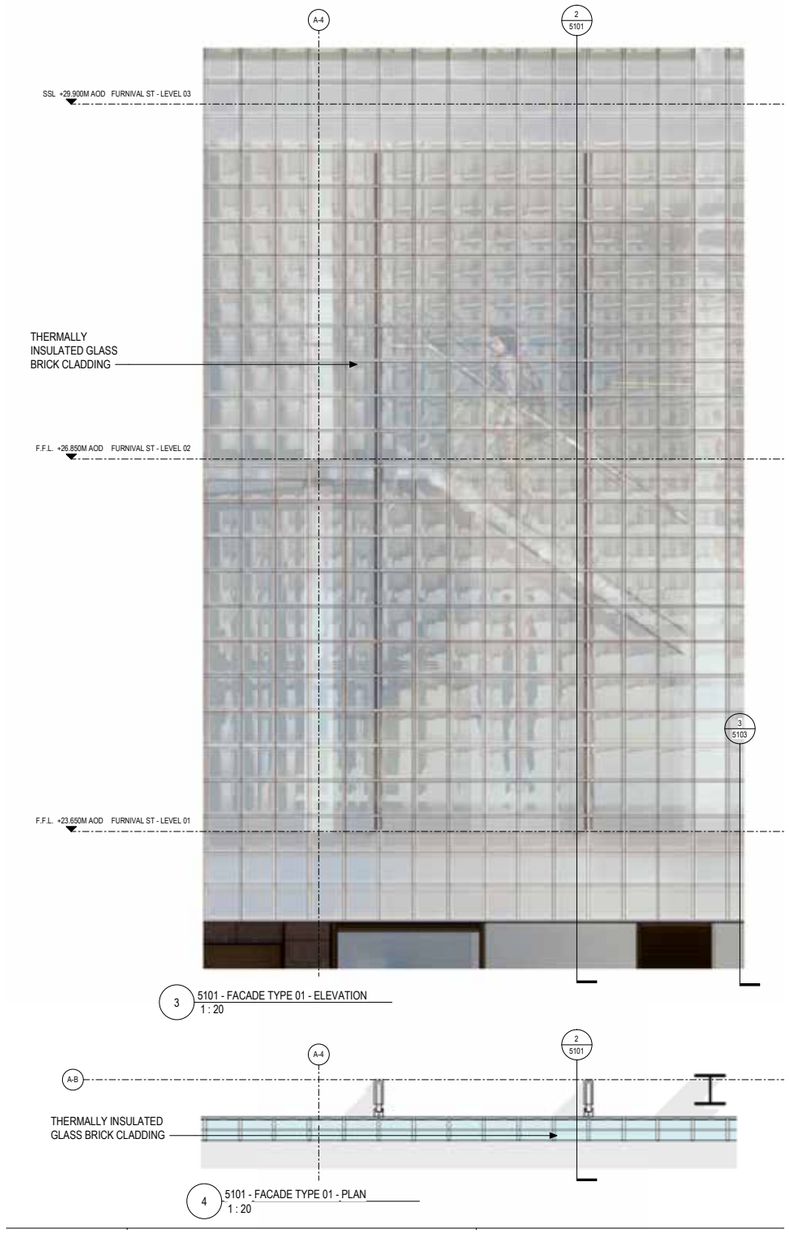
Glass Block Facade - Level 1 and Level 2

The west facade presents the only opportunity to allow daylight into the front of house spaces at Ground Floor, L01 and L02. The glass blocks allow in daylight whilst maintaining an element of privacy for the neighbours.

Due to the double height behind this area, the glass block facade requires of a secondary structure and vertical mullions to provide the lateral stability.

These will be visible, providing a dynamic and expressive superposition of layers, allowing the activity inside to be visible but veiled from the street

On these floors, the glass blocks are providing thermal and acoustic performance,



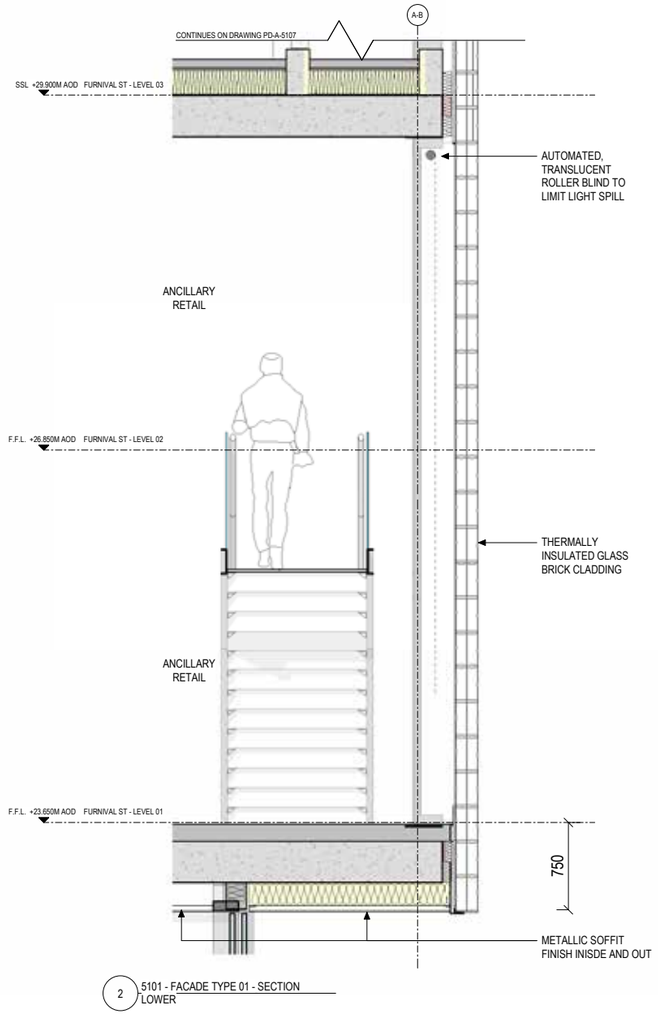


Figure 107. Glass Block facade details: Elevation and cross section

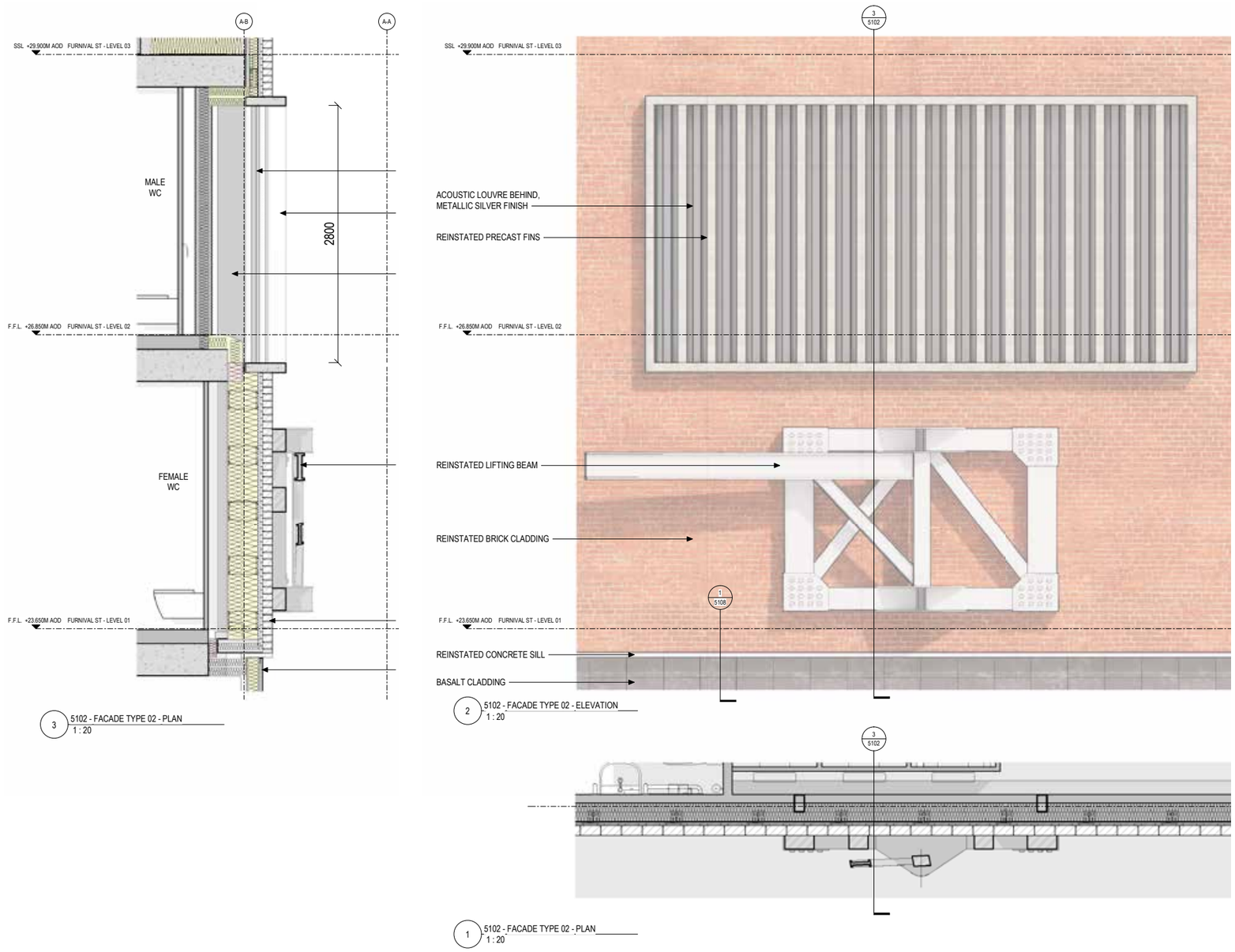


Figure 108. Brick Facade details: Elevation, Plan and Cross Section

The Reinstated Brick Facade

The existing shaft down to the tunnels is inside 38-39 Furnival Street which has an existing facade of dark toned bricks between L01 and L02 with a large pre-cast concrete vent at the centre. Although the fabric is in poor condition, we believe that the honesty of the design and the historical continuity make it worth reinstating close to the original.

The intention for the 38-39 Furnival Facade is to reuse and as much of the original material as possible, dependent on testing of the building fabric elements. This will be not limited to, but will primarily be, the bricks and the pre-cast elements that form the vent.

On the existing facade beneath the vent, there are connections for a hinged lifting beam that was taken down. This component has been scrapped, but is well documented and is proposed to be replicated and reinstated.

A key part of the MEP strategy is to reactivate the pre-cast vent as an exhaust for the proposed plant equipment on the floor above at Level 03.

Existing sundry items like the pre-cast sills and soffits will be reinstated and reused wherever possible.

Ground Floor Facade 40-41 Furnival Street

The facade at 40-41 Furnival Street is set back 1500 mm from the site boundary to provide entrance parallel to the street.

The ground floor facade will include full height glazed panels and a full height, low profile, glazed, pivot door for plant and exhibit replacement.

The soffit under the glazed brick facade will be a primary architectural feature, running from outside, into the reception. The finish will be a textured reflective stainless steel bringing light and activity into the building.

The recessed wall adjacent to the entrance will be cladded in flamed basalt, providing screen for the security process happening behind.

This wall provides an opportunity for external signage.

The escape doors are integrated in the architecture, and will be finished in a dark bronze material in line with the wider scheme material palette.

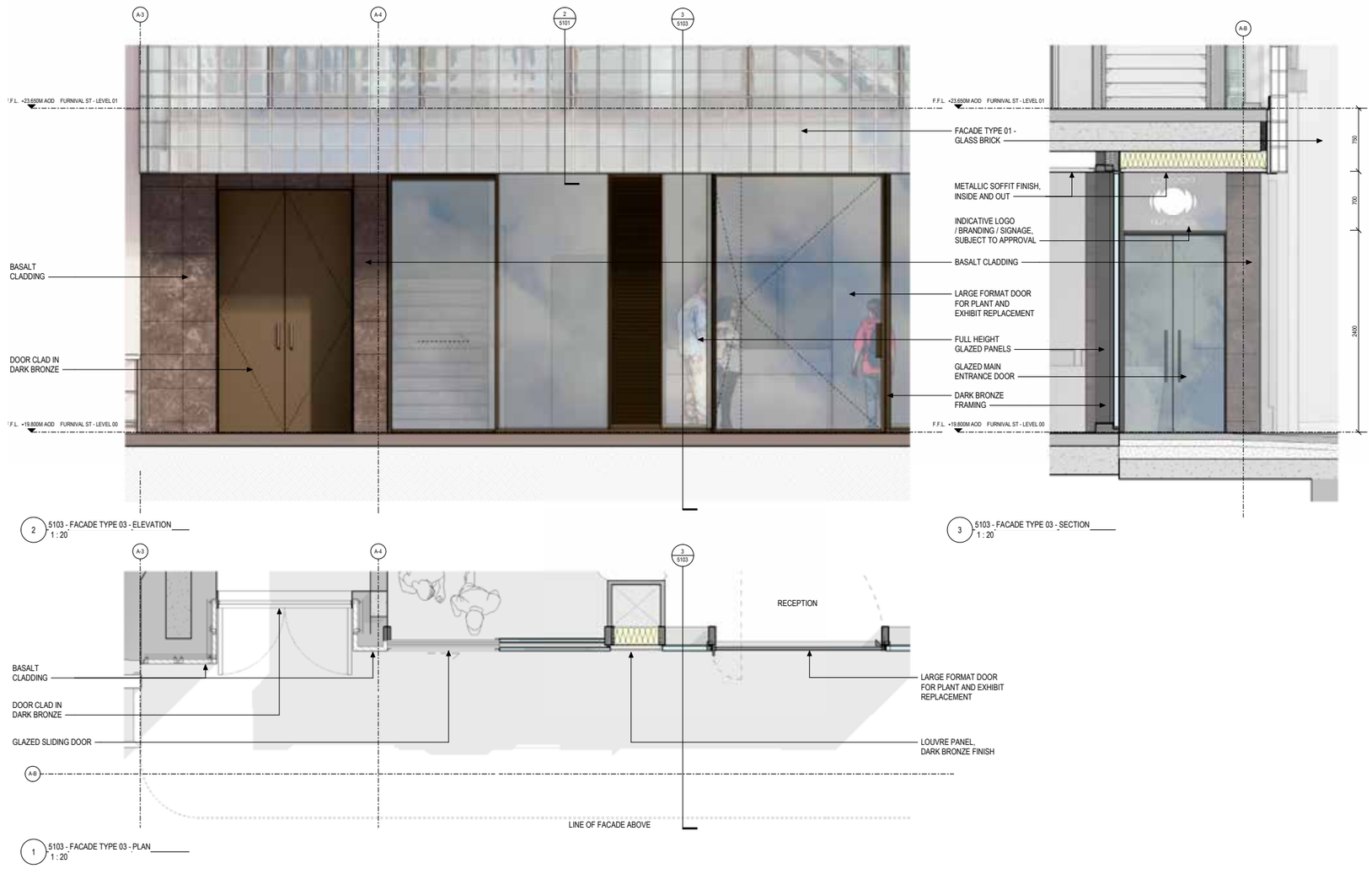
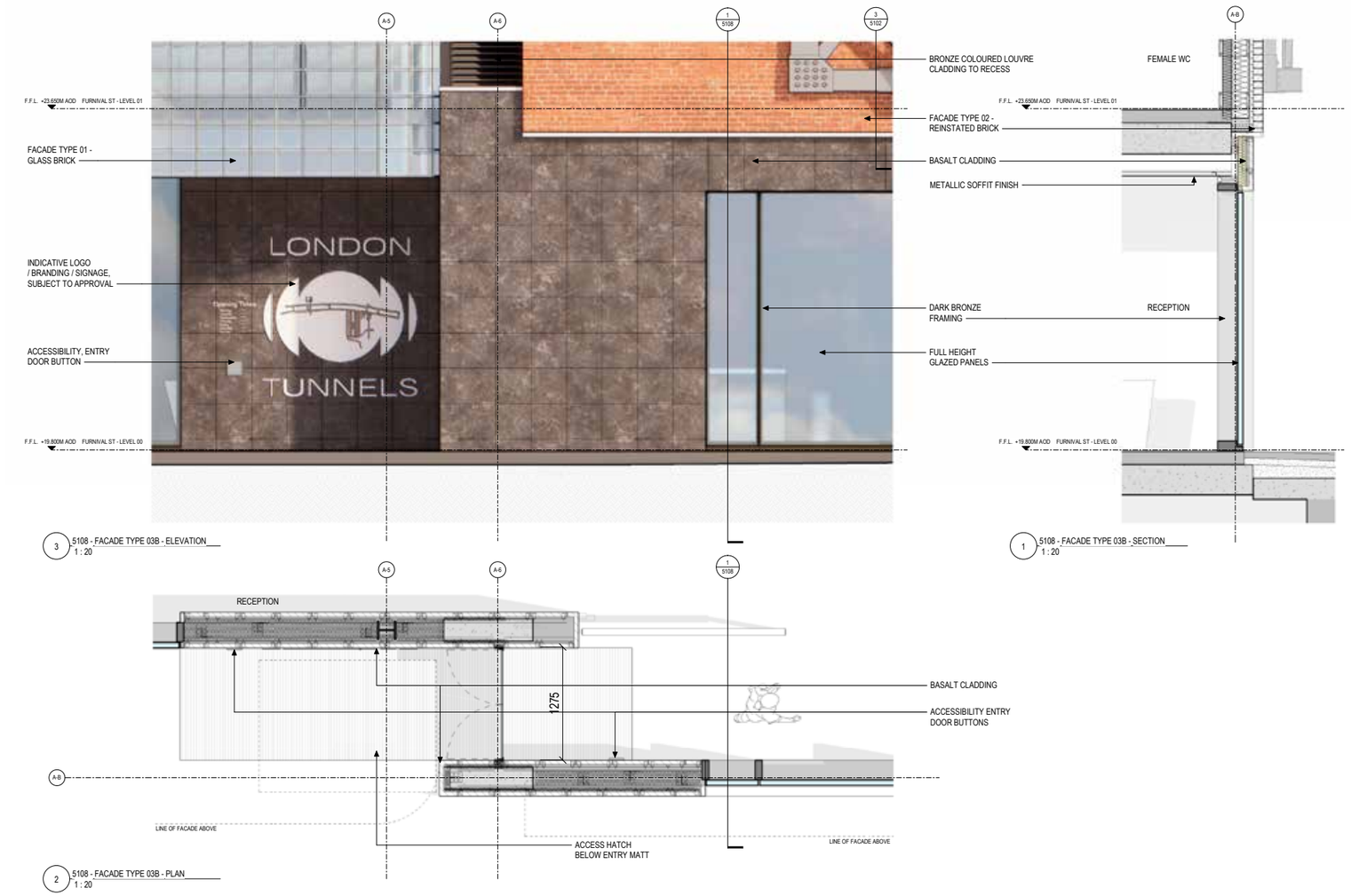


Figure 109. Ground Floor facade details: Elevation, Plan, and Cross Section



Ground Floor Facade 38-39 Furnival Street

The existing ground floor cladding of 38-39 Furnival street is a square format cementitious tile in very poor condition. To retain character it is proposed to match the modulation of the tile in a dark grey masonry material.

This area will be clad in flamed basalt tiles, which modules are representative of the current cladding.

The fixed glass pannels provide frontage activation.

The escape doors are integrated in the architecture, and will be finished in a dark bronze material in line with the wider scheme material palette.

Figure 110. Ground Floor facade details: Elevation, Plan, and Cross Section

4.2.19 Facade Materiality

East Facade - Options

The South facade is almost all a party wall condition with almost none of the proposed development protruding above the parapet line of 36-37 Furnival Street.

To the north of the site, the massing of the proposed development is lower than the existing building and as a result the North facade is proposed to be vertical, following the site boundary. Some of the top 2 floors are visible above the parapet of 14 to 18 Holborn.

The massing to the east of the site is governed by the rights of light envelope and contains a number of set backs and inclined portions. Due to the layout of the building, the majority of the east of the building is services risers and plant spaces, so there are no windows.

After testing different options with a palette of 3 systems: Zinc Sanding Seam, Red Brick Cladding and white Glazed Bricks, we arrived at an articulated combination of the 3. Summarily to limit the red brick cladding to the south facing façades of 38-39 Furnival Street and the terrace facing facade. The Pitched portions and east facing façades of 39 furnival street are proposed in the zinc standing seam. The vertical façades to 40-41 Furnival street are proposed in a the glazed brick with zinc shadow gaps to break down the massing.

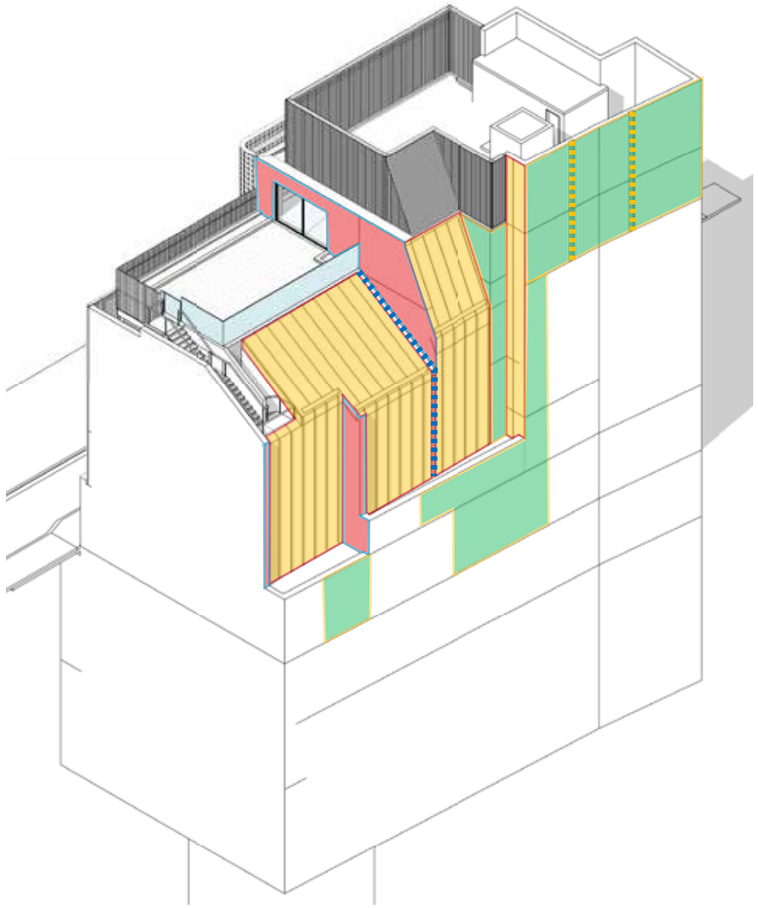


Figure 111. East facade composition - View 01

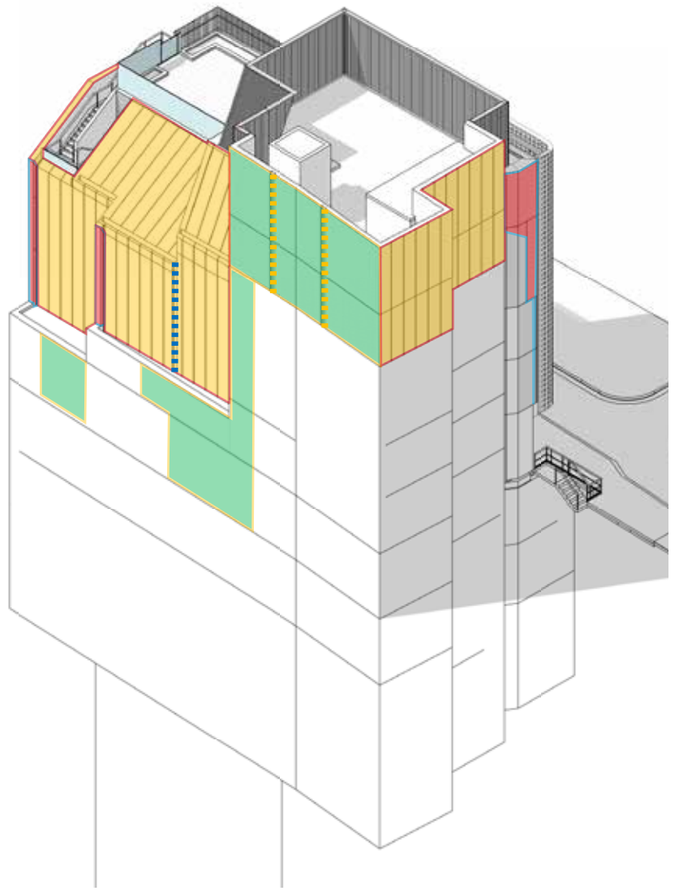
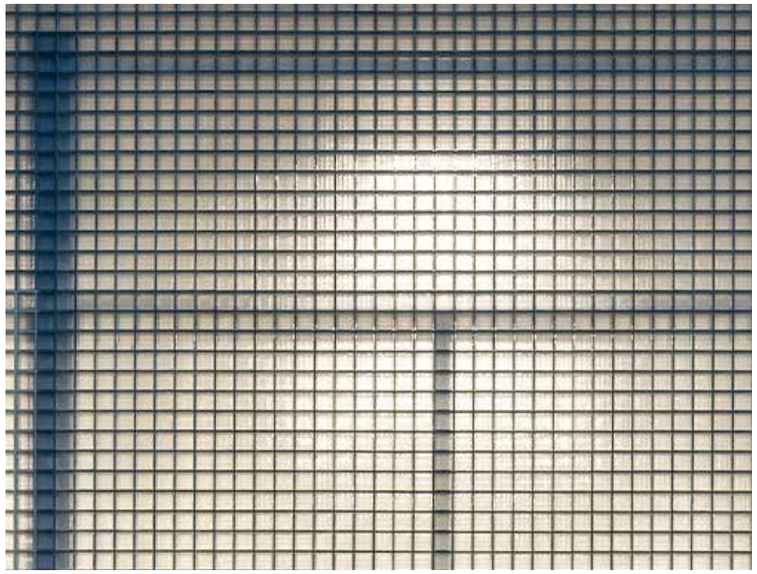


Figure 112. East facade composition - View 02

Figure 113. Page Opposite - Material Examples



Insulated Glass Blocks

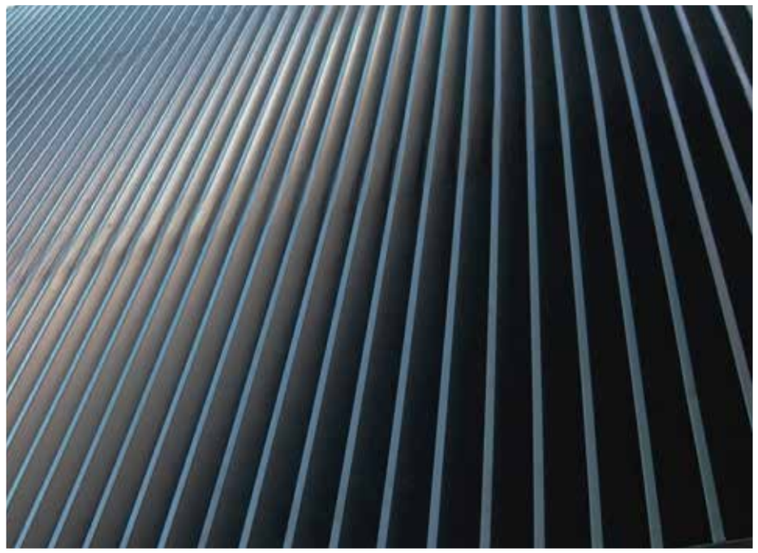
Glazed White Bricks

Zinc Standing Seam Roof / Cladding

Bronze Balustrade

Hammered Polished Stainless Steel Soffit

Flamed Basalt Tiles



Satin Reflective Acoustic Louvres

Reinstated Heritage Bricks

4.2.20 Roof Terrace and Urban Greening

Terrace Overlooking

The Level 4 terrace is designed as amenity space for the staff of the tunnels. A key feature of the terrace is a frosted glass screen on the eastern side that is designed to project the privacy of the neighbouring buildings. The height of which will be set to prevent people on the terrace being able to see into any of the neighbours windows whilst standing on the terrace.

Another key feature of the terrace is the extensive greening and provision for some larger trees / shrubs on the eastern side.

The height of balustrades is in line with Suicide prevention guidance, with an overall height of balustrades of 1400 mm.

Perimeter planters are embed in the floor build-up, with soil level flush with the terrace finish floor level.

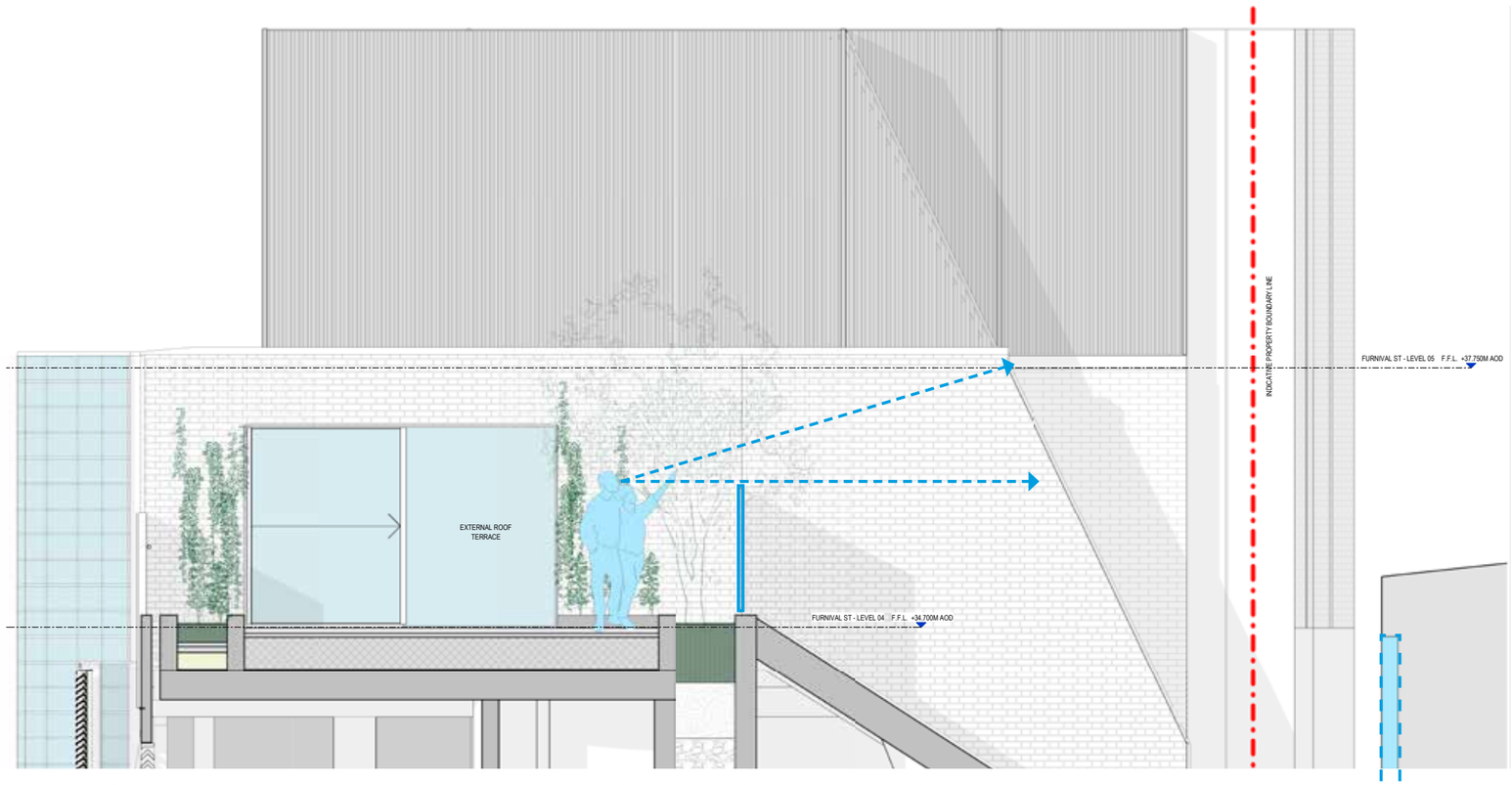


Figure 114. Diagram section showing measures taken to prevent overlooking over the neighbouring buildings.

Staircase Privacy

The External Staircase in the south east corner of the proposed development is designed as a secondary means of escape only. In order to prevent the tunnels staff accessing this area and subsequently overlooking neighbours terraces and windows, there will be an alarmed gate at the terrace level. This is to ensure that these stairs are only used in an emergency or emergency drill scenario.

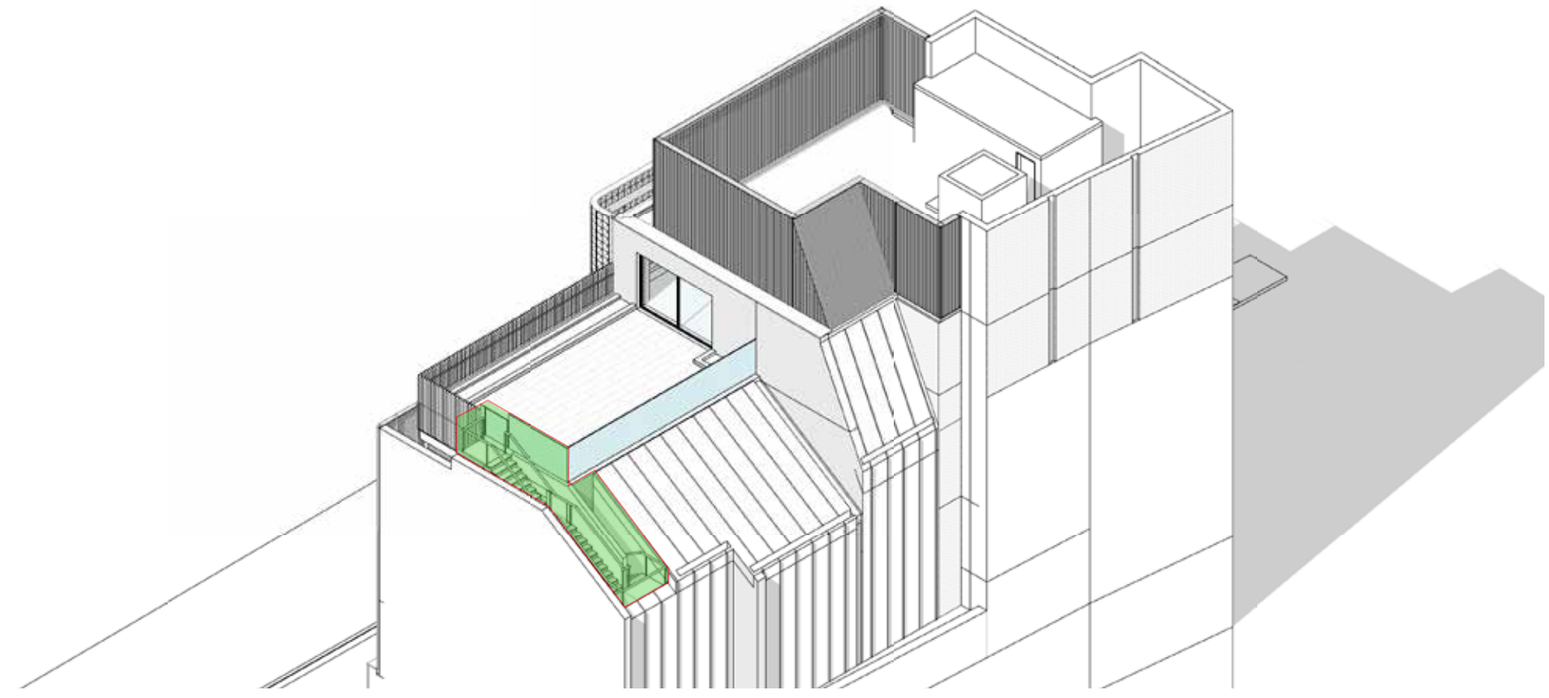


Figure 115. Stairway restricted by Alarmed Gate to prevent overlooking of Neighbours

Figure 116. Planted roof view.

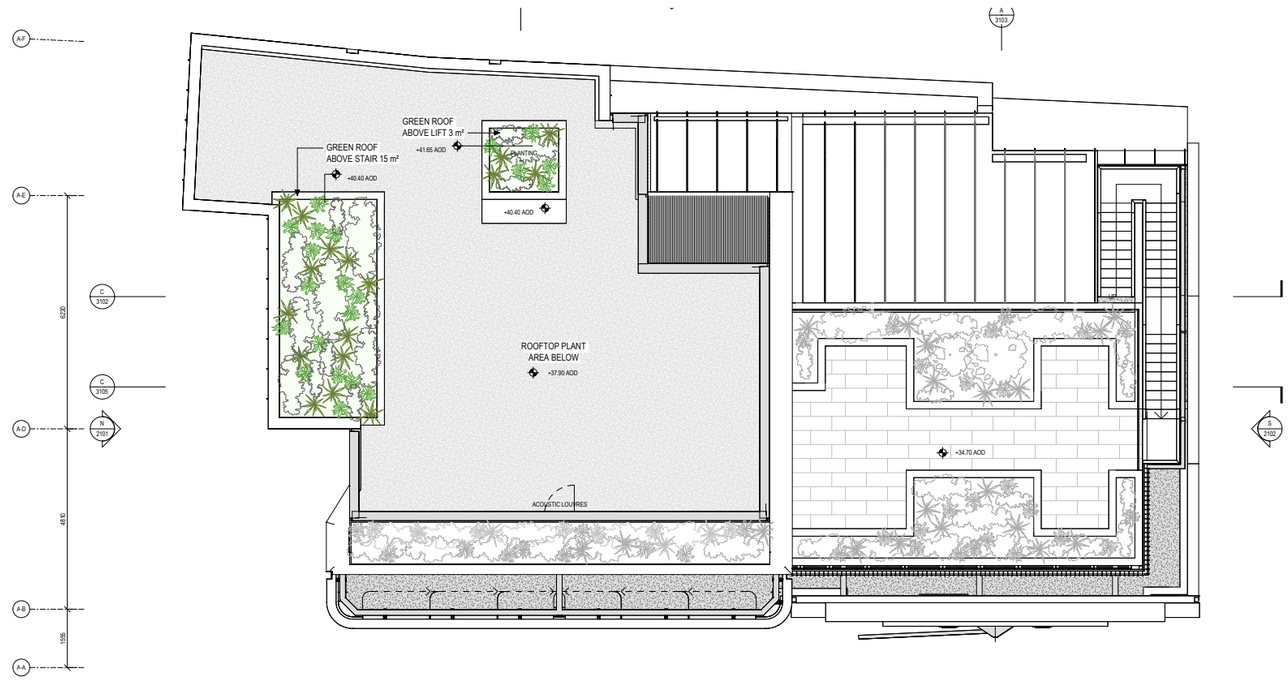


Figure 117. Roof Plan

"The City of London Biodiversity Action Plan identifies 10 Sites of Importance for Nature Conservation within the extent of the Borough. Many of these sites, such as The River Thames, The Temple Gardens, and St Paul's Cathedral Garden, are within a radius of 1.5 km from the scheme. Therefore, we understand the importance of contributing towards increasing the connectivity between these sites, and we aim to achieve this by providing a planting selection suitable for pollinator species at each identified opportunity for greening the building.

At level 4, a planting palette of flower rich perennial planting, including small trees/shrubs and climbers that will cover the south façade of the building, will provide amenities and year-round interest for the users of the terrace, and at level 5, an intensive roof sown with a wild flower seed mix with plug planting will increase the opportunities provided to wildlife."

Urban Greening Factor Calculator			
Surface Cover Type	**Factor**	**Area (m²)**	**Contribution**
Semi-natural vegetation (e.g. trees, woodland, species-rich grassland) maintained or established on site.	1		0
Wetland or open water (semi-natural; not chlorinated) maintained or	1		0
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm.	0.8	24	19.2
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature	0.8		0
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) - meets the requirements of GRO Code	0.7	31.2	21.84
Flower-rich perennial planting.	0.7		0
Rain gardens and other vegetated sustainable drainage elements.	0.7		0
Hedges (line of mature shrubs one or two shrubs wide).	0.6		0
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6		0
Green wall -modular system or climbers rooted in soil.	0.6	13.5	8.1
Groundcover planting.	0.5		0
Amenity grassland (species-poor, regularly mown lawn).	0.4		0
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014.	0.3		0
Water features (chlorinated) or unplanted detention basins.	0.2		0
Permeable paving.	0.1		0
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0		0
Total contribution			**49.14**
Total site area (m²)			
Urban Greening Factor			**0.135745856**

4.2.21 Plant Maintenance & Replacement Strategy

Principle plant replacement routes have been considered at this early stage. Most repair and maintenance operations will be carried out using the lifts, out of hours, with the minimum of disruption to the operation of the tunnels and to the neighbours.
Some plant items are either too heavy or to large for the lifts. For these limited items more complex strategies are required. These operations are very rare and will be planned out of hours and to minimise disruption to neighbouring residents and occupiers.
Plant selection and the design of these replacement features will be carried out with minimising disruption a key priority, alongside safety.

Mechanical

Water-cooled chillers- Replacement via floor hatch in slab to ground floor by means of a temporary A-frame. Pallet trucks or similar will be required to move the units horizontally into position at basement and ground level.
Cooling towers- Lifted from roof via mobile crane located on Furnival Street

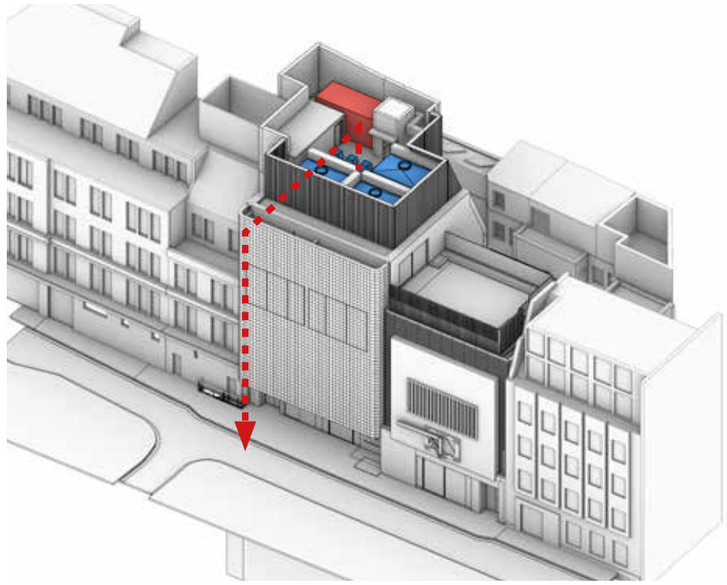
AHU- Replacement via demountable façade sections, removed along with the exhaust air plenum to expose the plant level, enabling the units to be lifted out via crane.
Downflow units at tunnel level- Replacement via passenger lifts to surface

Electrical

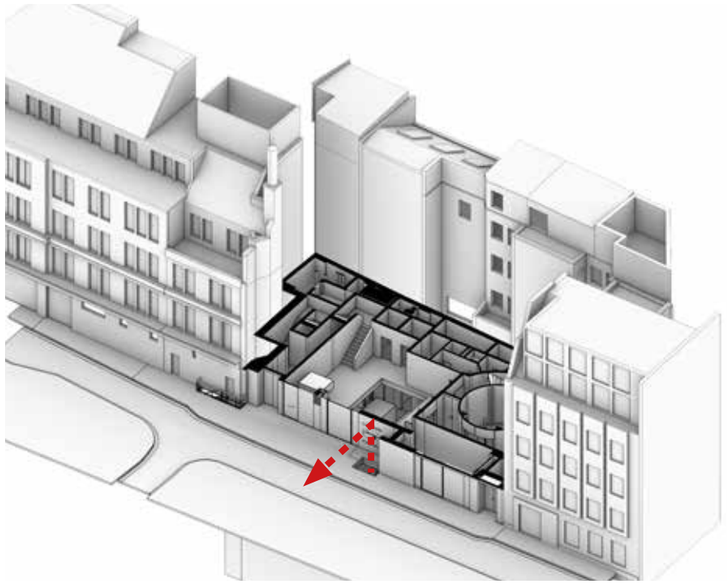
RMU at Furnival St level B1- Replaced via access hatch in ground floor slab. Lifted by means of a temporary A-frame or lorry-mounted crane. Pallet trucks or similar will be required to move the units horizontally into position at basement level.
Switchgear at Furnival Street level B2 - Replacement via Furnival Street goods lifts
Mini-substations at tunnel level - Replacement via passenger lifts to surface
Life-safety generator at Furnival Street Roof - Lifted from roof via mobile crane located on Furnival Street.

Public Health

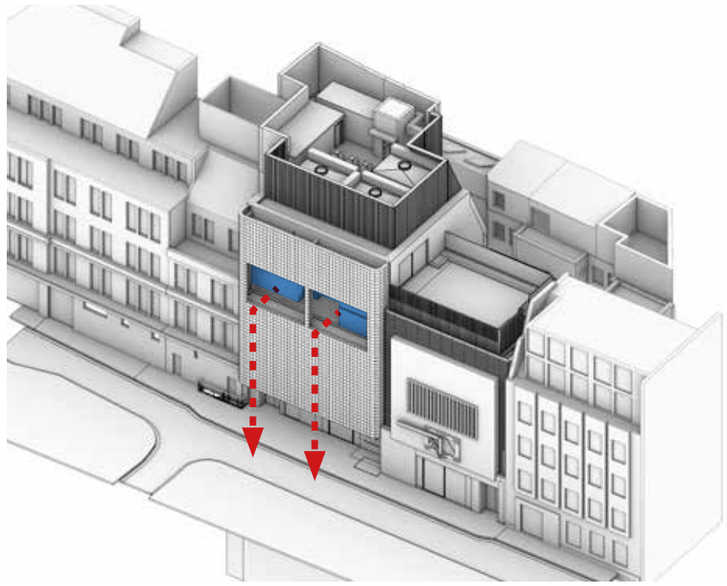
Potable water and sprinkler pumps at Furnival Street level B4
Replacement via lifts to ground floor



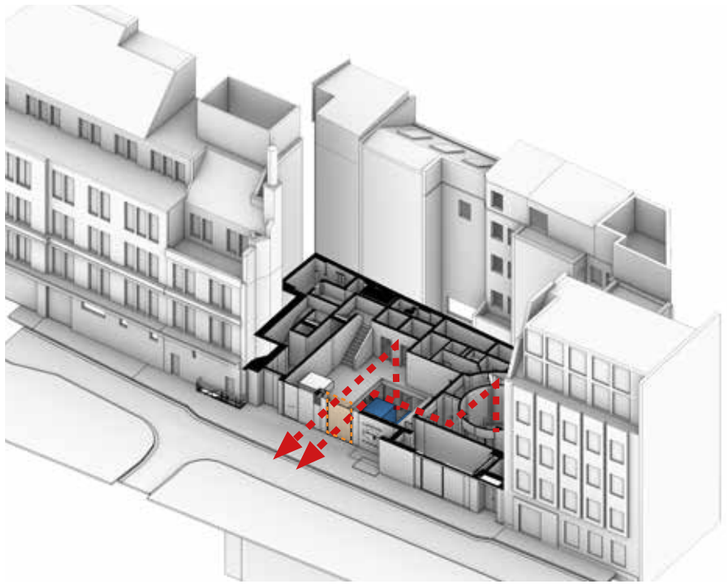
1. Large and heavy items of roof top plant (Cooling towers and Diesel Generator) will be replaced using a crane on the street



2. The UKPN have been allocated their own soft spot directly above the substations to facilitate the unrestricted access they require

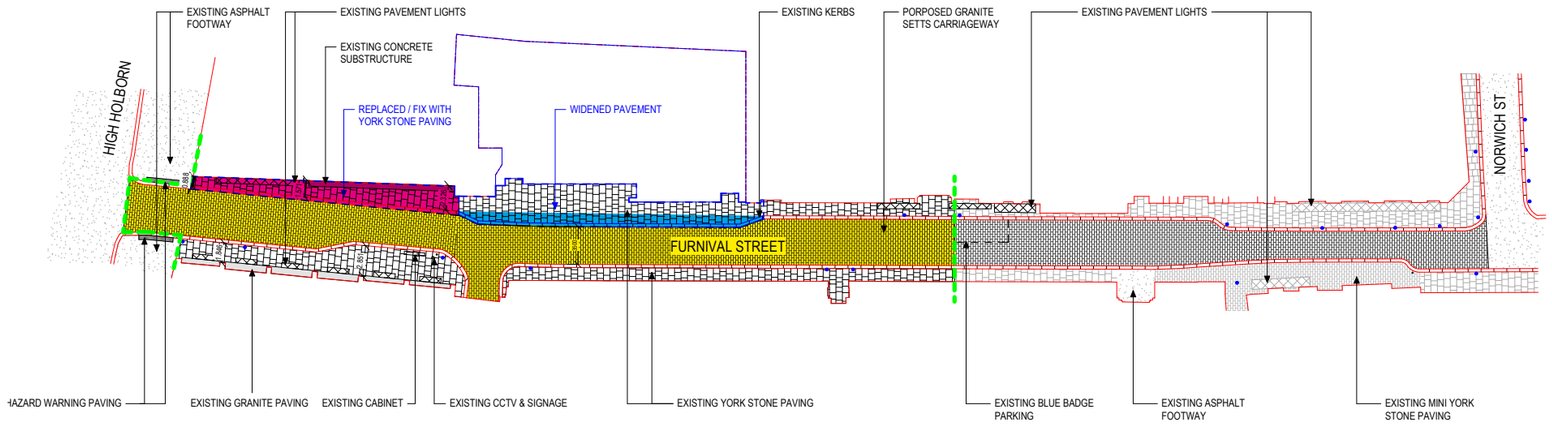


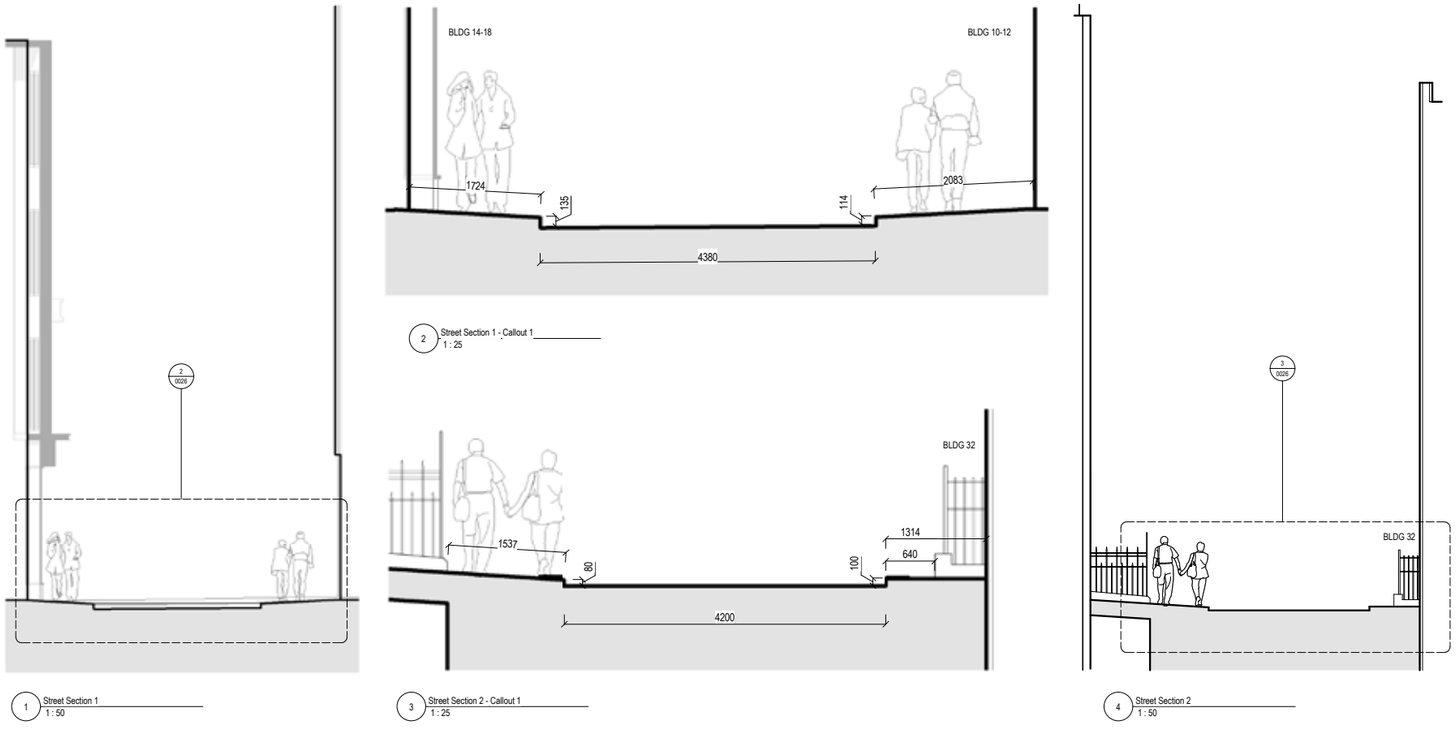
3. The large items that are either to big or to heavy to be taken in the lifts will be replaced through moveable / demountable panels in the west facade. These operations are rare



4. Large and heavy items of basement plant will be replaced via a series of soft spots in the basement and ground floors. These operations are again, rare

4.2.22 Streetscape Enhancement Strategy





Furnival street current configuration includes a pinch point at each end, where the road narrows to 4.40 meters on the North and 3.50m on the South.

The Scheme proposes a localised refurbishment of the current street, with a local narrowing of the road in front of 38-41 Furnival Street in favour of an extension in pavement.

The proposal also suggests a repaving of the road from High Holborn to the blue badge parking at Furnival Street.

The scheme also proposes repaving of the North West area of Furnival Street, which is currently not consistent with the rest street pavement.

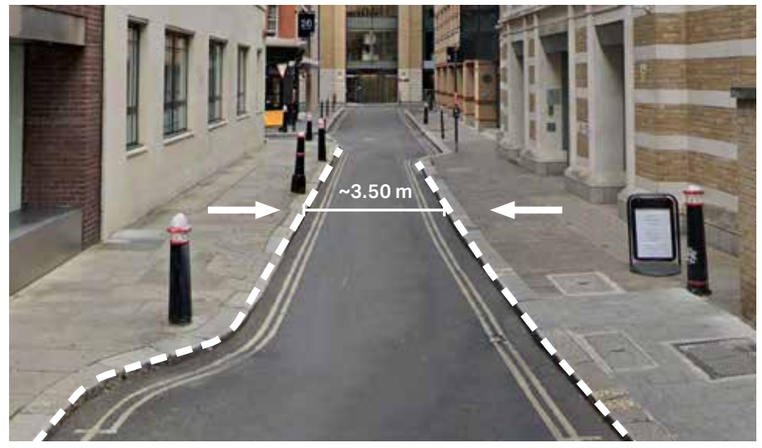


Figure 118. Furnival Street carriageway widths towards Norwich Street

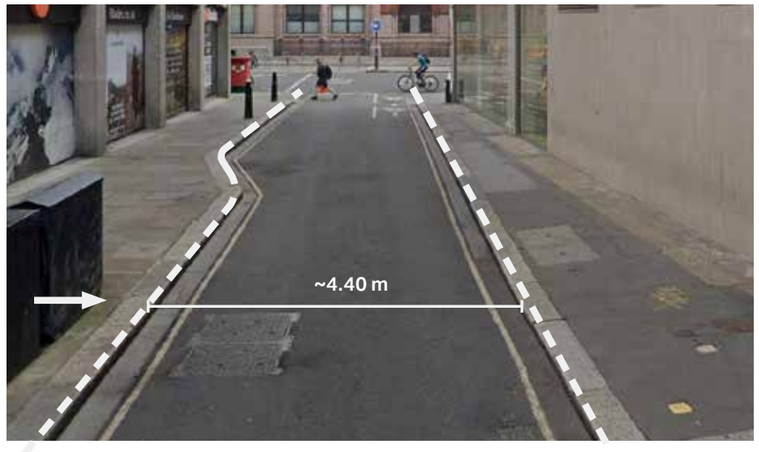


Figure 119. Furnival Street carriageway widths towards High Holborn

4.2.21 Lighting Strategy

Lighting Criteria

All Stage 2 lighting will be designed following guidelines developed by the British Standards Institute (BSI), the Institution of Lighting Professionals (ILP), the Society of Light and Lighting (SLL/CIBSE) and follow any relevant supporting local planning policies, including the London Plan 2021 and City of London Local Plan 2015.

It is recommended that local planning authorities specify the environmental zones and curfew times for exterior lighting within their development plans. Curfew time is defined in ILP GN01-21 Guidance Note on Obtrusive Lighting as the time after which stricter requirements will apply, often a condition of the use of lighting applied by the local planning authority. If not otherwise stated - 23:00hrs is advisable.

Furnival Street

All internal downlighting to the ground floor reception areas, upper retail units and staff areas should be designed to be set back at a minimum measurement of 1.5 meters from the glazing line and luminaires will require appropriate beam angles to control the light distribution and avoid light spill through the glazed facade.

Any exterior façade lighting to the glazed façade and entrance at 40-41 Furnival Street and the brick façade on 38-39 Furnival Street will follow ILP GN01-21 Guidance Note on Obtrusive Lighting and be carefully positioned and angled below the horizontal with shielding accessories where required to avoid unnecessary light trespass onto adjacent buildings.

The external staff terrace on level 04 of 38-39 Furnival Street provides an opportunity for low level feature and way finding lighting. Lighting will be designed to avoid any upward light spill into the sky or light intrusion into neighbouring properties. Lighting should only be operational when the terrace is occupied and should follow an agreed curfew with the local planning authority.

Figure 120. Artistic impression of view of 38-41 Furnival Street building from Holborn

Figure 121. Artistic impression of entrance at 38-41 Furnival Street

Lighting Control Strategy

All lighting should be dimmable and controllable. The lighting control system will be designed to optimise light levels required between sunset and late at night. The control system should consider energy savings when appropriate but also provide enough light for visual comfort and safety.

A lighting control strategy should be adopted where interior lighting is only on when the building is in use or dimmed/switched off in areas that may be unoccupied. Any exterior architectural facade lighting should be switched off or dimmed at an agreed curfew time. Daylight linking should be considered for the units behind the glass façade at 40-41 Furnival Street.