7.1 Technical strategies

7.1.1 Sunlight, daylight & overshadowing

GIA have worked alongside the design team to make the most of daylight and sunlight availability, whilst balancing other compelling design factors such as the risk of overheating and privacy. This was achieved through an iterative review of the massing, internal layouts and façade details throughout the design process.

A detailed internal assessment was carried out on all proposed habitable rooms once the interim internal arrangements were set out, and advice was provided to optimise daylight and sunlight.

In light of the above, the strategies implemented to optimise the daylight and sunlight performance of the scheme included:

- Prioritising daylight in living areas where it is typically most valued by occupants, for example by providing dual aspect where possible, or by locating them in the most daylit areas of the façades;
- A reduction in height for the link blocks to allow greater light penetration to the courtyard;
- Adopting a lighter floor finish to improve the diffusion of light within all rooms.

The results presented within this report therefore represent a scheme which has been optimised for daylight and sunlight to respond to the inherent constraints of the courtyard configuration, and the external obstructions typical of an urban location.

Daylight

In order to ascertain the levels of daylight and sunlight within the Proposed Development, technical assessments have been undertaken within all proposed habitable rooms. For daylight, all proposed habitable rooms have been tested for spatial Daylight Autonomy (sDA) according to the targets set out in the UK National Annex of the BS EN 17037:2018, which sets illuminance targets (measured in lux) to be achieved for over 50% of the space for more than half of the daylight hours in the year.

The results detailed in GIA's report show that of the 636 proposed habitable rooms, 536 (84%) see levels of SDA that either meet or exceed the BRE recommendation for their room use and is considered an excellent result. Overall good design practices have been implemented within these rooms to mitigate the lower levels of light available on the facade.

Sunlight

For sunlight, all rooms within the proposed units have been tested for solar exposure and orientation. The BRE guidelines recommend at least one main window facing within 90° of due south per-unit, and 1.5 hours of sunlight on 21st March for at least one room in each unit. As such, once the assessments have been carried out per room the results have been interrogated per unit. 154 (61%) out of all 254 dwellings within the proposed development will have at least one main south-facing window and 130 (51%) of them will achieve at least 1.5 hours of sunlight at the equinox.

The occurrence of sunlight levels lower than recommendation in some of the units is typical of a courtyard configuration open to the north, especially for rooms on the lowest floors, for which sunlight exposure depends primarily on orientation and the external levels of the surrounding context.

The daylight and sunlight levels proposed are considered acceptable for the context and in line with expectation for a urban location. This is in accordance with the NPPF and Policy CC8 of the Reading Borough Local Plan (2019), all whilst balancing the need to deliver a viable scheme that makes optimum use of land and balances other policy objectives.

Overshadowing

Sun Hours on Ground assessments have been undertaken for the proposed public realm, first floor courtyard and eighth floor roof terrace. These are all designed to offer residents and visitors access to different sunlit spaces to enjoy during the year.

The BRE states that, in order for an outdoor space to be considered adequately sunlit throughout the year, at least half of its area should receive direct sunlight for two hours or more on the spring equinox (21st March). Overall, 56% of the total open space provided sees two or more hours of direct sunlight on 21st March, exceeding the BRE recommendation of 50%.

Overall, GIA consider the proposed development to offer future residents and visitors good access to a variety of well sunlit communal open spaces to enjoy throughout the year.

7.1.2 Rights to light

GIA have undertaken detailed technical assessments to understand the potential daylight and sunlight changes that the proposed redevelopment of Waterfront Square, Reading, will have upon the surrounding residential properties.

The surrounding daylight and sunlight review within this report considers residential properties only as they are recognised by the Building Research Establishment (BRE 2022) as having the highest expectation for natural light when compared to other uses, such as commercial. The criteria suggested within the BRE have been used to understand and compare the existing levels of light, and the light achieved subsequent to the construction of the Proposed Development.

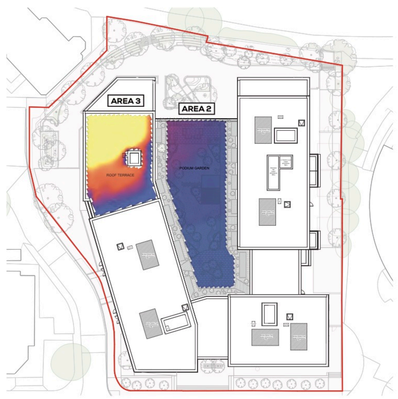
The analysis results show that the construction of the Proposed Development, either in isolation or in combination with the proximate committed developments, will result in either BRE compliant or minor changes in daylight and BRE compliant changes in sunlight amenity to the surrounding residential sensitive receptors. The daylight and sunlight effect of the Proposed Development is therefore considered by GIA to be no greater than minor and, therefore, reasonable in context.

For further details please refer to the full report.

Overshadowing Assessment - Public Realm
(Sun hours on ground - BRE test)
Combined areas 56%

Overshadowing Assessment - Public Realm
(Sun hours on ground - BRE test)
Combined areas 56%

Overshadowing Assessment - Public Realm
(Sun exposure on ground)
March 21st (Spring Equinox)



Overshadowing Assessment - Public Realm
(Sun exposure on ground)
March 21st (Spring Equinox)

Overshadowing Assessment - Public Realm
(Sun exposure on ground)
June 21st

Overshadowing Assessment - Public Realm
(Sun exposure on ground)
June 21st