

11.Homes and Buildings

11.1 Daylight, Sunlight

Daylight and Sunlight

Daylight is a combination of direct and indirect sunlight (reflected off clouds, buildings and other surfaces), referred to as diffuse lighting. This is the most prevalent form of lighting in the UK, accounting for over three times the amount of sunlight hours. BRE

Buildings are orientated to benefit from natural daylight and sunlight and provide the best views across the site. Most units are dual aspect facilitating good levels of daylight in excess of residential design standards.

The impact of daylight within the units and houses has also been considered based on past project experience / rules of thumb. The former Southwark methodology. 'All development must have acceptable natural daylight and ventilation to all habitable rooms to the following standards: An area of glazing which is equivalent to at least 10% of the internal floorspace of each habitable room must be provided. Appendix A Residential Design Standards. Based on project experience this figure is increased to 15% for living rooms. This assessment was used to size the windows for all flats and houses.

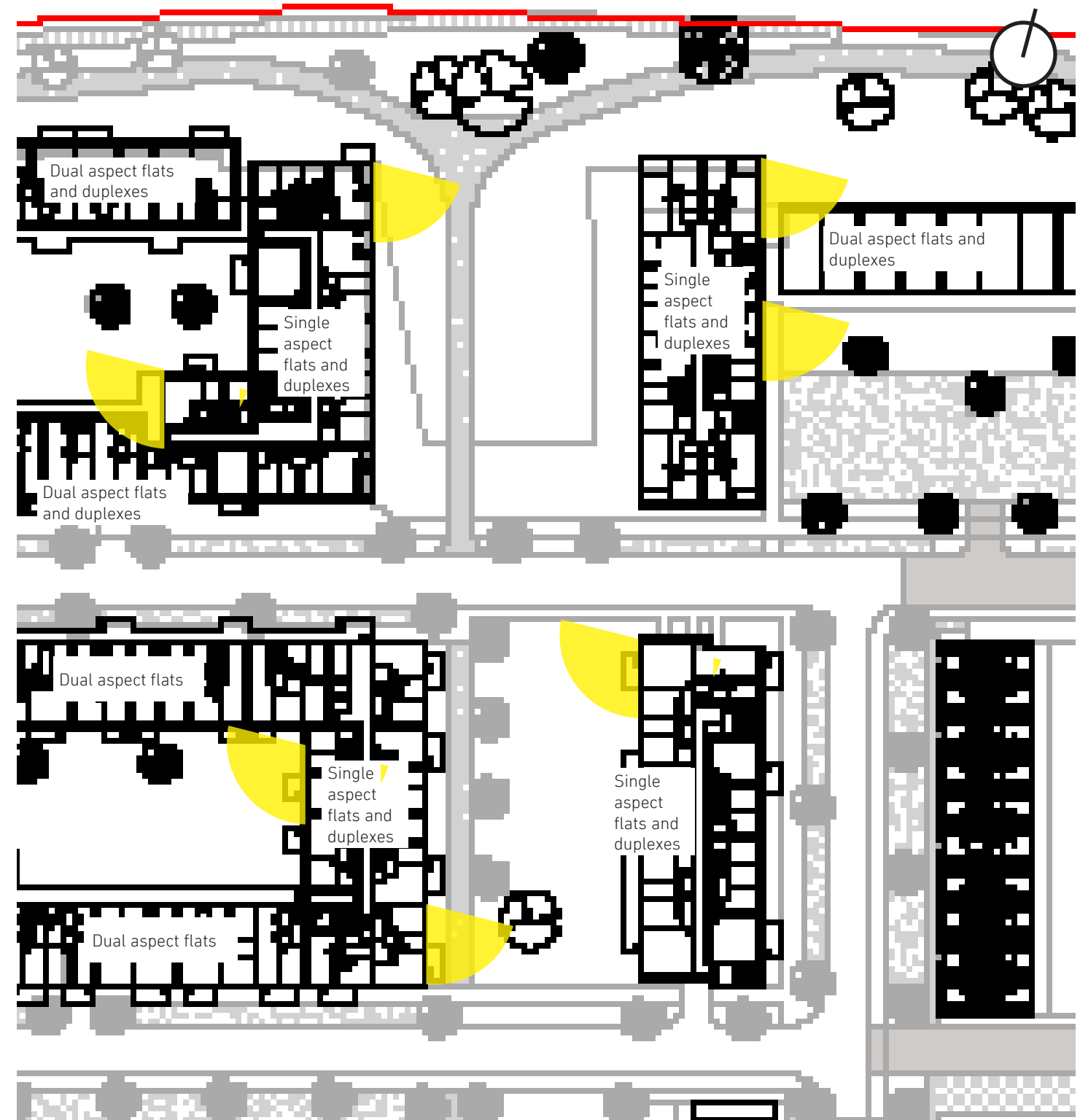
When planning the site, consideration has been given to the impact of buildings have on one another as well as adjacent spaces. This has informed the built form.

Sunlight

Sunlight is the direct light from the sun. The BRE guidance recommends that main windows of residential properties (within 90° of due south) should receive at least 25% of the total annual probable sunlight hours, including at least 5% of the annual probable sunlight hours in the winter months between 21st September and 21st March. Further that 'A dwelling with no main window wall within 90° of due south is likely to be perceived as insufficiently sunlit.'

Ensuring good levels of natural lighting to habitable rooms whilst minimising the risk of overheating, provides benefits for both health and energy efficiency. Careful modulation of heights and roof scape has been used to maximise the sunlight to each unit.

The plan opposite shows the angle of sun relative to a typical floor plan for Blocks in the Wensum Edge. The yellow wedges show the angle of sun onto a main window wall. This shows that no units are entirely north facing and all units will receive some sunlight within 90° of due south.



Block 2 + Block 3 (03/flr) - Unit Arrangement

11.2 Overheating

All houses are dual aspect. All north-south oriented apartments are dual aspect to ensure adequate daylight and reduce the risk of overheating.

Houses

The design of the proposed house types has been developed in line with the guidance provided in Part O's simplified method.

The diagram opposite shows the assessment of daylight and overheating to House Type A based on different orientations. This shows that the West facing aspect is the most sensitive. Therefore in some orientations additional solar controls may be required.



Single and dual aspect flats arranged East/West Facing. NDG

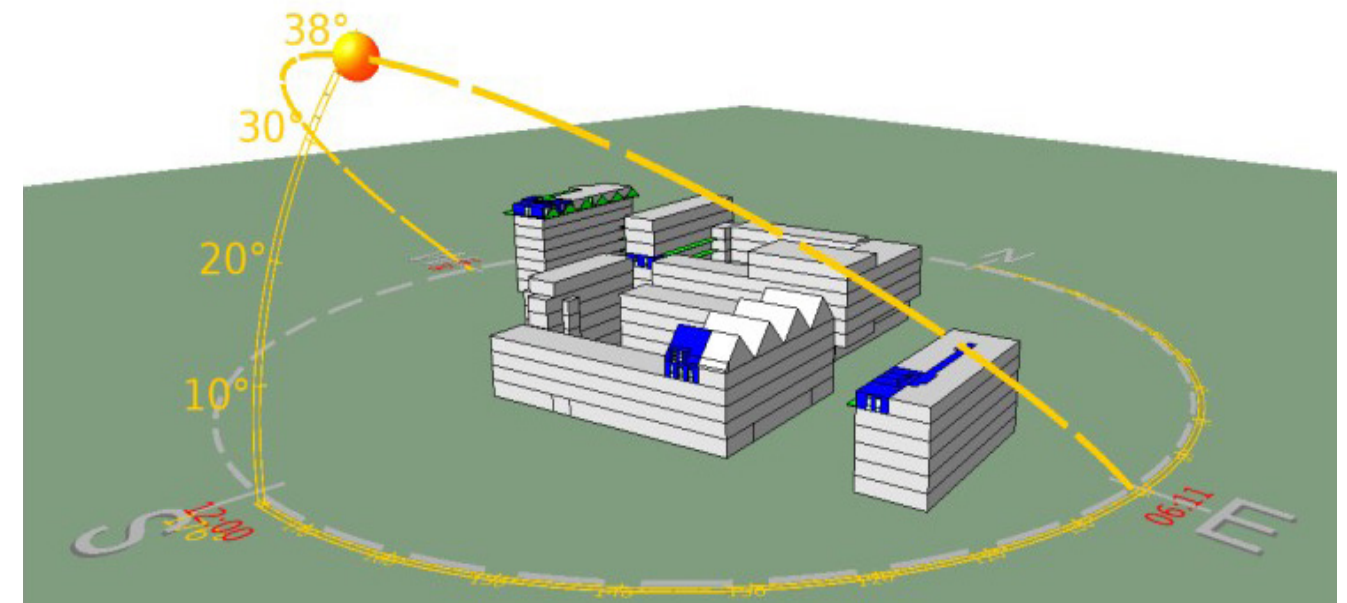
Apartments

In the blocks, external shading is provided through the use of external decks, balconies and deep window reveals. The impacts of overheating are also mitigated through the proposed use of solar control glass.

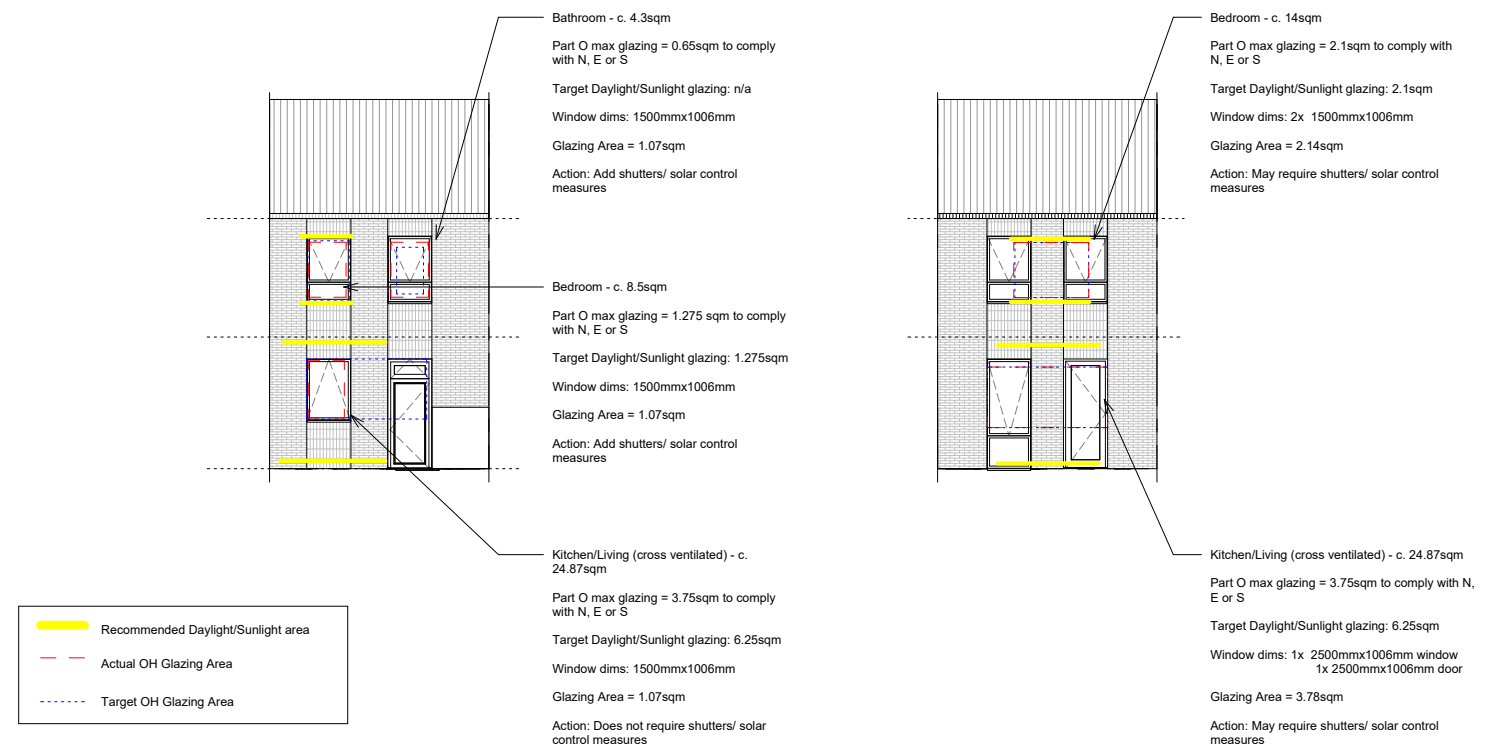
An overheating assessment has been carried out on the flat types located within The Wensum Edge by CBRE, using CIBSE TM59. This indicates that the proposed flats are compliant with Part O and during a moderately warm summer 'the risk of overheating is low'.

* Note: corner flats are considered to be single aspect for overheating assessment

Figure 3: IES VE thermal model



TM59 assessment of key flats in Block 1, 2, 6 and 7



House Type A - Indicative Overheating Assessment

11.3 Outlook and Privacy

The following guidelines have been used regarding privacy distances and outlook for 1st floor windows and above.

Front - to - Front	4 storey - min 12m 3 storey - min 10m 2 storey - min 8m*
Front - to - Side**	min of 5m
Back - to - Side**	min of 7.5m
Back - to - Back	4 storey - min 18m 3 storey - min 16m* 2 storey - min 14m*

** Distances are in relation to outlook and assume that facing sides have no windows. Where facing windows are present the front - to - front or back - to - back distances should be used.

*Where front to front distances are less than 10m or where back to back distances are less than 18m special provisions such as staggered windows or baffles may be required.

The following pages show an assessment of these distances throughout the development and identify where special provisions may be required.

In most locations there is no requirement for any special provisions. There are 3 locations that require some consideration.

In the Yare Edge there are 2 situations where back - to - back distances are less than 18m. The GLA and many London boroughs have developed more detailed guidance on this situation and 16m is considered acceptable, sometimes less. It is of note that Goldsmith Street in Norwich the separation distances are 14m and there are no special provisions. From Stolon's experience this can result in

privacy issues and perceived privacy issues. Therefore baffles are proposed to these properties, as indicated. These properties are south facing and would therefore benefit from additional shading.

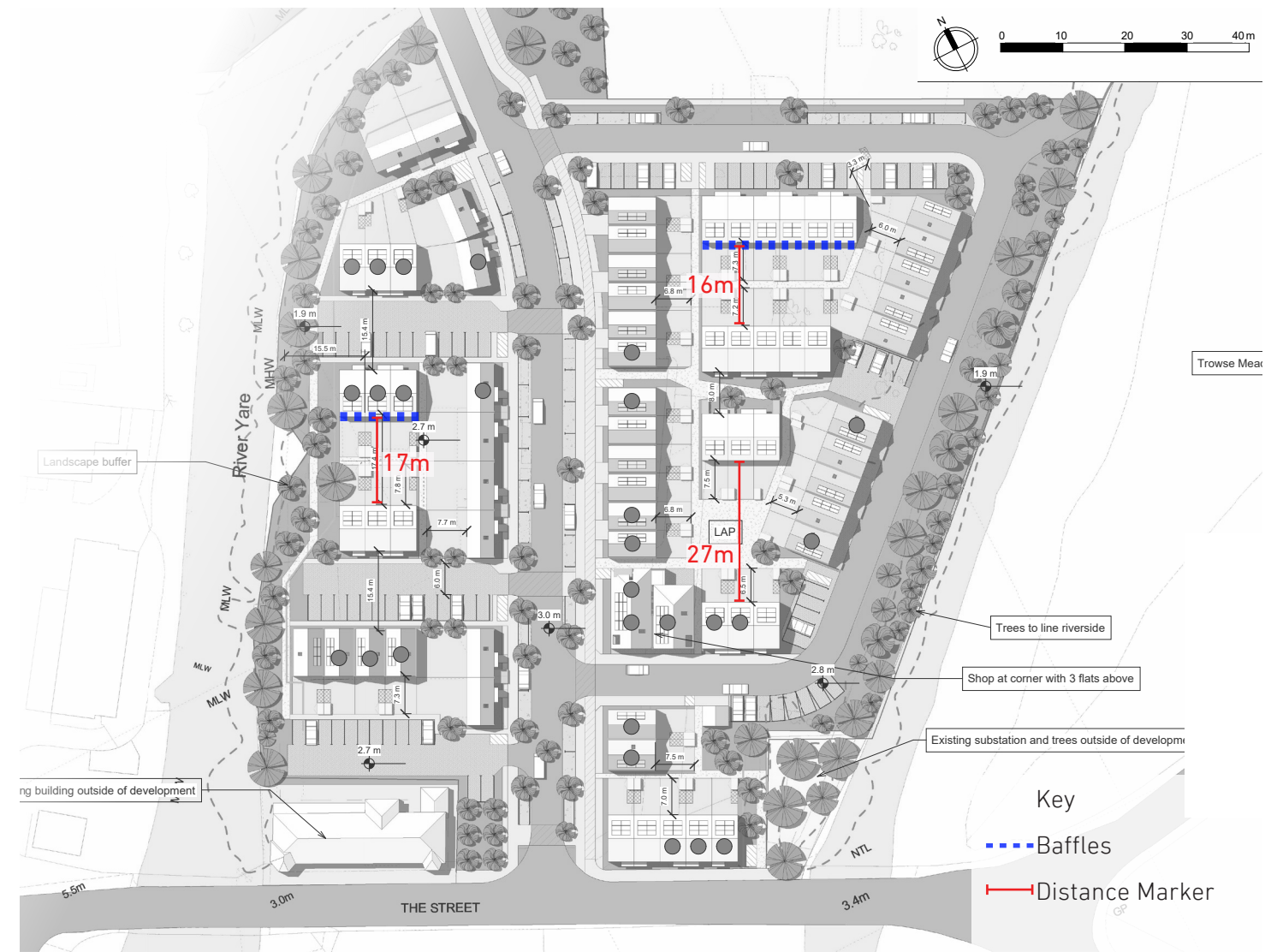
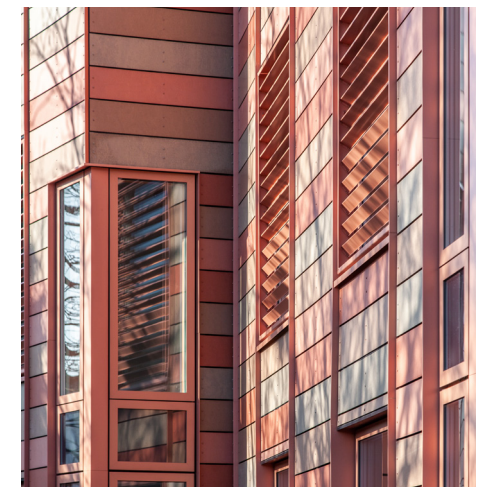
Baffles can fulfil a dual role of guiding views away from neighbouring properties and reducing overheating. In the project examples above the horizontal baffles were designed to provide an upwards outlook but reduce views forwards / downwards for privacy. In the other example vertical baffles were used to reduce views sideways. Both provide solar shading.



Vertical baffles used within The Parks, Stolon Studio



Baffles utilised within Stables Yard, Stolon Studio



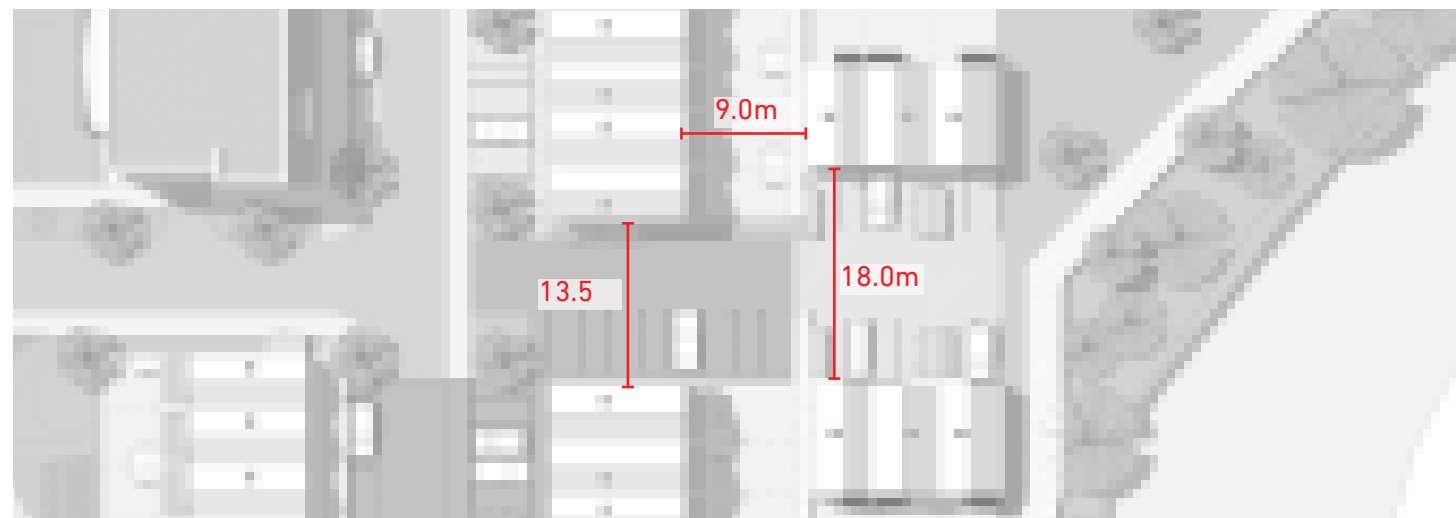
Baffle provision where Back - to - Back distances do not comply with Design Code minimums

11.4 Outlook and Privacy - Typical Housing Arrangements

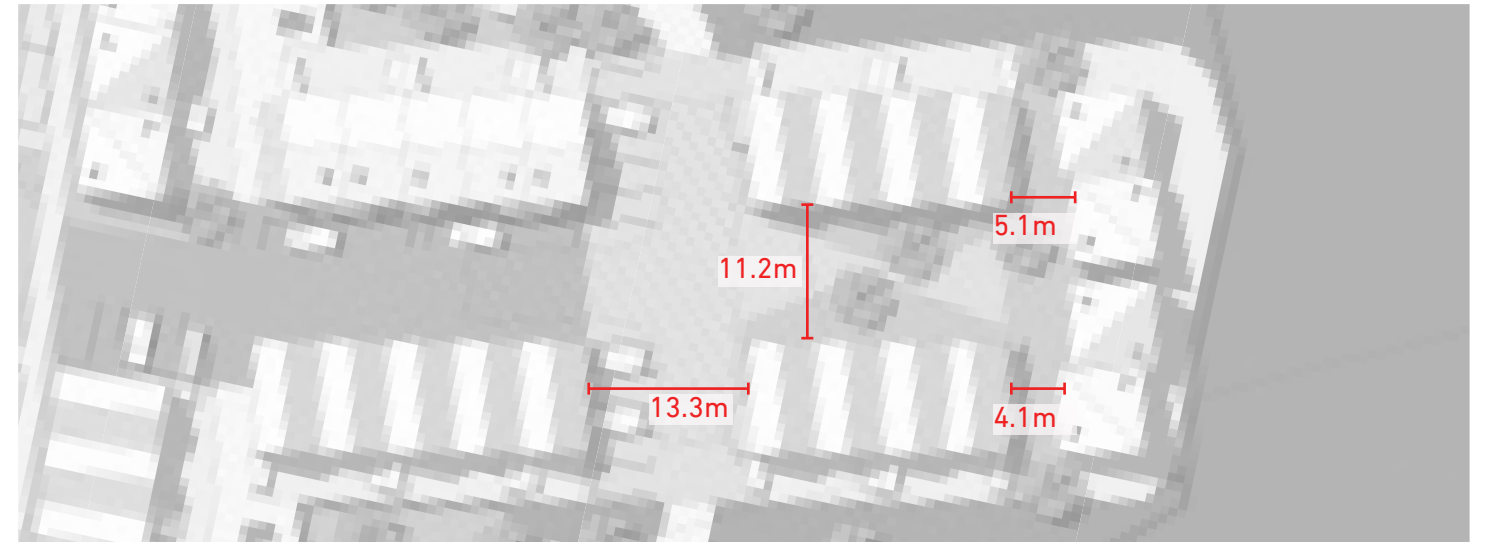
The Wensum and Views distance assessments are set out below. This shows that all of the layouts achieve the standards set.

Mews 5 of The Views (opposite) shows two instances of front - to - side distances less than the 5m. These are considered acceptable because the 2 houses are corner designs and have another primary outlook. Therefore these can be assessed as a side to side situation,

requiring a minimum of 3m. These corner contexts are an exception to the rule and have been ameliorated through the provision of three aspects. Furthermore this was done to increase the space and outlook to the east.



Housing arrangement Wensum Edge showing worst cases



Housing arrangement in The Views showing worst cases

11.5 Internal Space Standards

Floor areas

All units have been designed to meet the Technical housing standards - nationally described space standard, shown opposite. This is demonstrated in the application drawings, which includes detailed layouts of all units. All Gross Floor area is based on the RICS measuring standards.

There are a few 1b/1p units. These are designed to be in excess of 40sqm.

Ceiling heights

The technical standards require the 'minimum floor to ceiling height is 2.3m for at least 75% of the Gross Internal Area.'

Houses

The ceiling heights in the houses are typically :

- 2.6m on the ground floor
- 2.4m on the upper floors

This helps to good high levels of natural daylight and

Where the roof is inhabited the internal area has been designed to ensure that a ceiling height of 2.3m is achieved for at least 75% of the Gross Internal Area.

Apartments

The floor to floor height in the flats is typically 2.925m (39 bricks). This should achieve an internal ceiling height of approximately 2.5m.

Number of bedrooms(b)	Number of bed spaces (persons)	1 storey dwellings	2 storey dwellings	3 storey dwellings	Built-in storage
1b	1p	39 (37) ²			1.0
	2p	50	58		1.5
2b	3p	61	70		2.0
	4p	70	79		
3b	4p	74	84	90	2.5
	5p	86	93	99	
	6p	95	102	108	
4b	5p	90	97	103	3.0
	6p	99	106	112	
	7p	108	115	121	
	8p	117	124	130	
5b	6p	103	110	116	3.5
	7p	112	119	125	
	8p	121	128	134	
6b	7p	116	123	129	4.0
	8p	125	132	138	

Technical housing standards - nationally described space standard

11.6 Lifetime Homes/Part M4(2)

Norwich City Council will replace Lifetime Homes with part M4(2). 10% of the homes should be Part M4(2). If approved government legislation will make Part M4(2) mandatory for all new dwellings. All dwellings would ideally be designed in accordance with Part M4(2) to future-proof them for this potential legislation.

Part M4(2) compliance

To achieve Part M4(2) compliance the following measures have been applied as shown opposite.

- Level access to all properties or via compliant ramp
- Access all entrances via the communal circulation core which has both a lift and staircase
- Parking is preferably level with FFL
- Accessible WC and bathroom adapted to provide necessary clear zones
- Potential for entrance level bed-space
- Living on principle floor
- Min 900mm wide corridors, 1050 if not head on access. 826mm doors

Note: there are a small number of flats on the 1st floor that are only accessible via a stair. These are compliant with M4(1)



Part M4(2) compliant 3 bedroom house, Stolon Studio