CHAPTER 3

3 THEORETICAL FRAMEWORK FOR TALL BUILDINGS

3.1 INTRODUCTION

This chapter of the report provides a conceptual framework for tall buildings. It provides a comprehensive review of the theoretical foundations, impacts and opportunities for tall buildings in reference to the NPPF and other relevant guidance and background studies. It provides a definition of a tall building, and sets out robust principles that should govern the planning and design for tall buildings.

Tall buildings are controversial typologies that divide opinions. Some people are active proponents while others are highly sceptical. Objectively, tall buildings can have beneficial and adverse impacts, which are summarised below.

3.1.1 POTENTIAL BENEFICIAL IMPACTS OF TALL BUILDINGS

Tall buildings can:

- Help to increase density to make best use of infrastructure, especially on constrained sites;
- Perform a landmark role and enhance legibility;
- Enhance the skyline and views to positively contribute to image and identity of a place;
- Support regeneration as a catalyst and by instilling confidence;
- Support viability of economically challenging schemes and deliver associated planning requirements, such as affordable housing; and
- Deliver additional regeneration and public benefits, such as:
  - i. New public spaces and enhanced public realm;
  - ii. Public viewing points;
  - iii. Desirable uses or facilities; and
  - iv. Cross-subsidisation of other benefits, such as the revitalisation of heritage assets

3.1.2 POTENTIAL ADVERSE IMPACTS OF TALL BUILDINGS

Tall buildings can:

- Impact on the character of sensitive townscapes and landscapes;
- Cause harm to heritage assets and their setting;
- Intrude and detract from views;
- Fragment the skyline and weaken the city image, if poorly managed;
- Cause adverse microclimatic and environmental impacts from wind funnelling, overshadowing, sun reflection and light pollution;
- Undermine residential amenity and privacy of existing and new residents (impacting on overlooking, day and sun lighting, quality of private and communal amenity spaces, etc.);
- Affect the definition, animation and quality of surrounding streets and spaces;
- Detract from the quality of an area through poor quality design and lack of integration; and
- Affect land values, inflate costs and make less intense forms of development unviable if there is an expectation of further tall building development.

3.2 THE NEED TO POSITIVELY PLAN FOR TALL BUILDINGS

3.2.1 INTRODUCTION

Tall buildings by virtue of their scale and height can bring significant change to a place's skyline, its townscape and character. A tall building, in the right location and of high quality, can be transformative and have a lasting positive impact on the character and identity of a place. However, if it is in the wrong location or of poor quality, it can become an eyesore, be resented by the community and detract from a place's character and identity.

In deciding the appropriateness of a tall building the beneficial and adverse impacts both individually and cumulatively will need to be carefully considered and balanced. On a strategic scale this needs to consider the characteristics and sensitivities of the place, together with wider development and planning objectives, as well as development interest and deliverability. On a local and building scale the visual and environmental impact will need to be examined together with an appropriate design response to the streets and spaces and the surrounding urban fabric.

The lack of coordination of tall buildings locations can result in the scattering of tall buildings on the skyline, leading to fragmentation and a poor image. Proactive management of tall buildings therefore will need to ensure that permitted tall buildings are meaningful and proportionate to their context, review the cumulative impact of tall buildings on the skyline and views, and where appropriate group tall buildings into confined cluster locations where they can become distinct skyline features and mark important places of special character.

This tall buildings approach is anchored in the NPPF and informed by the Historic England Advice Note 4 on tall buildings. The NPPF states that '*the planning system should be genuinely plan-led', (NPPF, para 15) with an emphasis upon plans being prepared to achieve sustainable development, being aspirational but deliverable, and have clear policies on what will or will not be permitted, in order to provide clarity for the determination of development proposals.* Historic England notes that *'in a successful plan-led system, the location and design of tall buildings will reflect the local vision for an area, and a positive, managed approach to development, rather than a reaction to speculative development applications. …Techniques such as characterisation and building height studies provide evidence to support a local height definition for tall buildings and the identification of appropriate locations in local plans.*' (Historic England Advice Note 4, para 3.1).

Figure 3.1: The Jurys Inn tall building is the result of speculative development rather than a planned approach

3.3 CONTEXT HEIGHT VERSUS EXCEPTIONAL HEIGHT

When discussing the height of development it is necessary to make a clear distinction between the 'context building height' of an area that covers the majority of buildings, and 'tall buildings', which covers exceptional buildings that are taller and outstanding.

The context height of buildings affects many attributes of urban areas including their density, character, street enclosure and quality of the public realm, and the social environment. Increasing the general height of an area by a few storeys through upward extensions and infill development can deliver a sizable uplift in the overall density and capacity of an area, increase activity levels and vitality and result in a more compact urban form. Such an increase in density will need to be supported by sufficient transport and other infrastructures as well as the provision of quality open spaces and amenities.

Tall buildings are the exceptions to the context height. They are significantly taller than the context height in an area, break the skyline and are visually prominent.

While tall buildings have a role to play in increasing densities locally, they also are important in contributing to the character and identity of places, enhancing legibility and articulating the skyline, acting as catalysts for regeneration, offering diversity of accommodation and contributing to vitality and place making.

DEFINITION OF CONTEXT HEIGHT

The context height of an area is the height that an observer would read as the typical or defining height of a particular area. In places that are consistent in height, the context height may be the most commonly occurring building height. In more varied places, the context height may be a middle point that buildings fluctuate around.

Figure 3.2: Historic parts of Derby display a clear, consistent context height

Figure 3.3: An 8 storey building appears tall in a 3 storey context

3.4 TALL BUILDINGS DEFINITION

A ‘tall building’ is a relative term. A ten-storey building might be a (very) tall building in a predominantly two-storey suburban area, yet would be considered only as a local high point in an urban five to six storey context. Thus, tall buildings must be considered in relation to their local context (Figure 3.4).

The taller a building the greater is its presence and impact, both locally as well as on the skyline.

The height relationship of a tall building with its context can be expressed as a factor of the prevailing contextual height. We call this the context height ratio (CHR). The CHR expresses the degree of ‘tallness’ of a building in relation to its context. It also provides a measure of the extent to which a building is ‘outstanding’ on the skyline considering the prevailing height and scale of development of a place. The CHR provides a means to discuss the relative relationship of a building’s height within its immediate context, as well as to discuss this within the wider place setting. It also enables the simple categorisation of tall buildings by height in respect to their context height.

Figure 3.5 and Figure 3.6 diagrammatically depicts a large or tall building within its context. It illustrates how the relationship between the taller element and its surrounding context changes as its height increases.

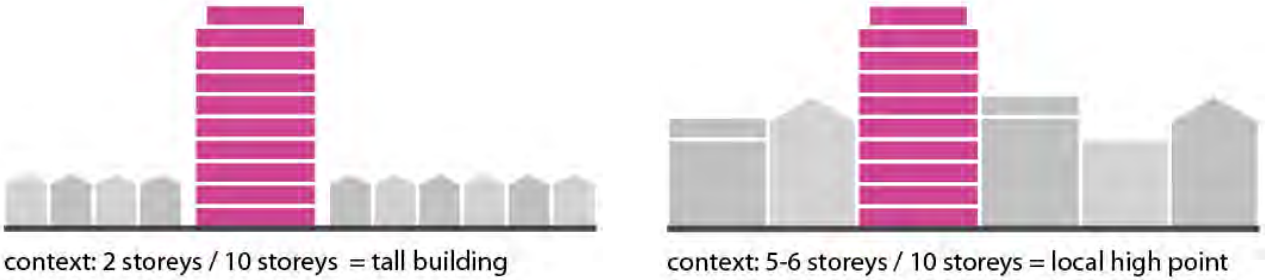

Figure 3.4: The impact of a tall building is related to its context

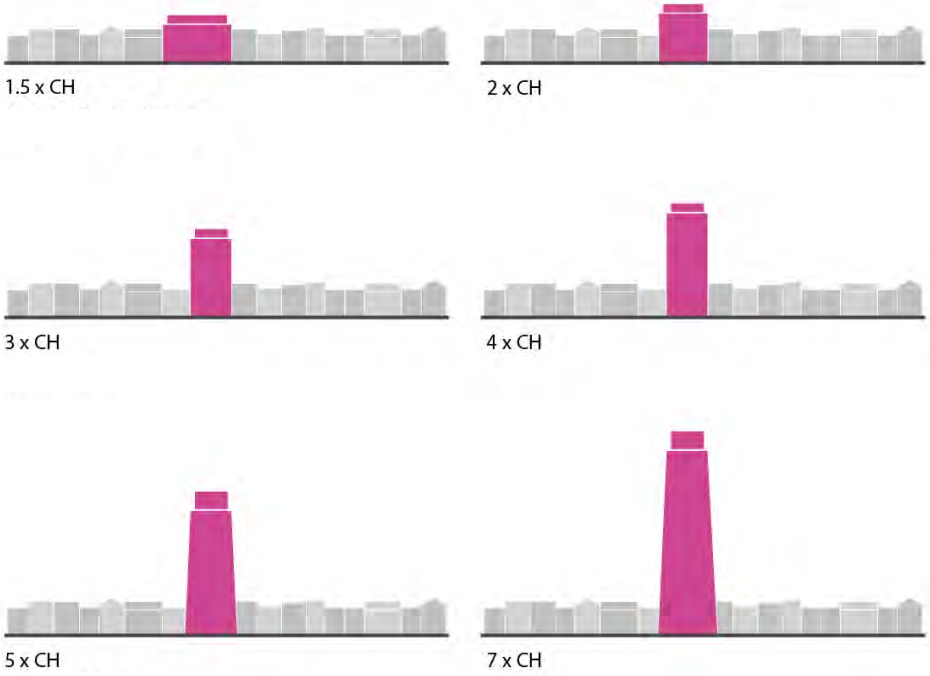

Figure 3.5: The height of buildings can be expressed as 'context height ratio'

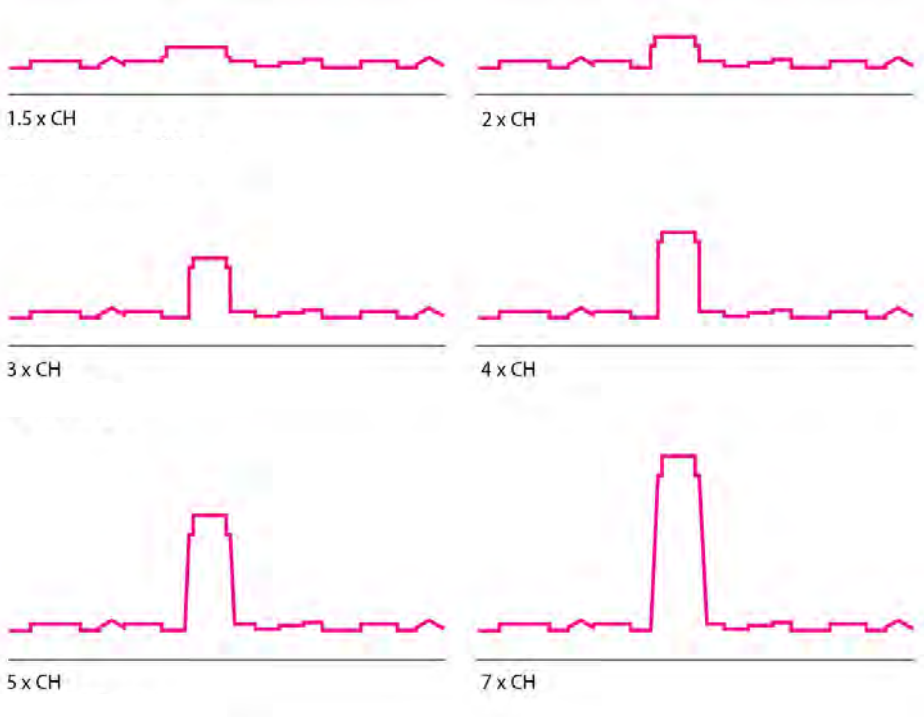

Figure 3.6: The context height expressed as an impact on the skyline

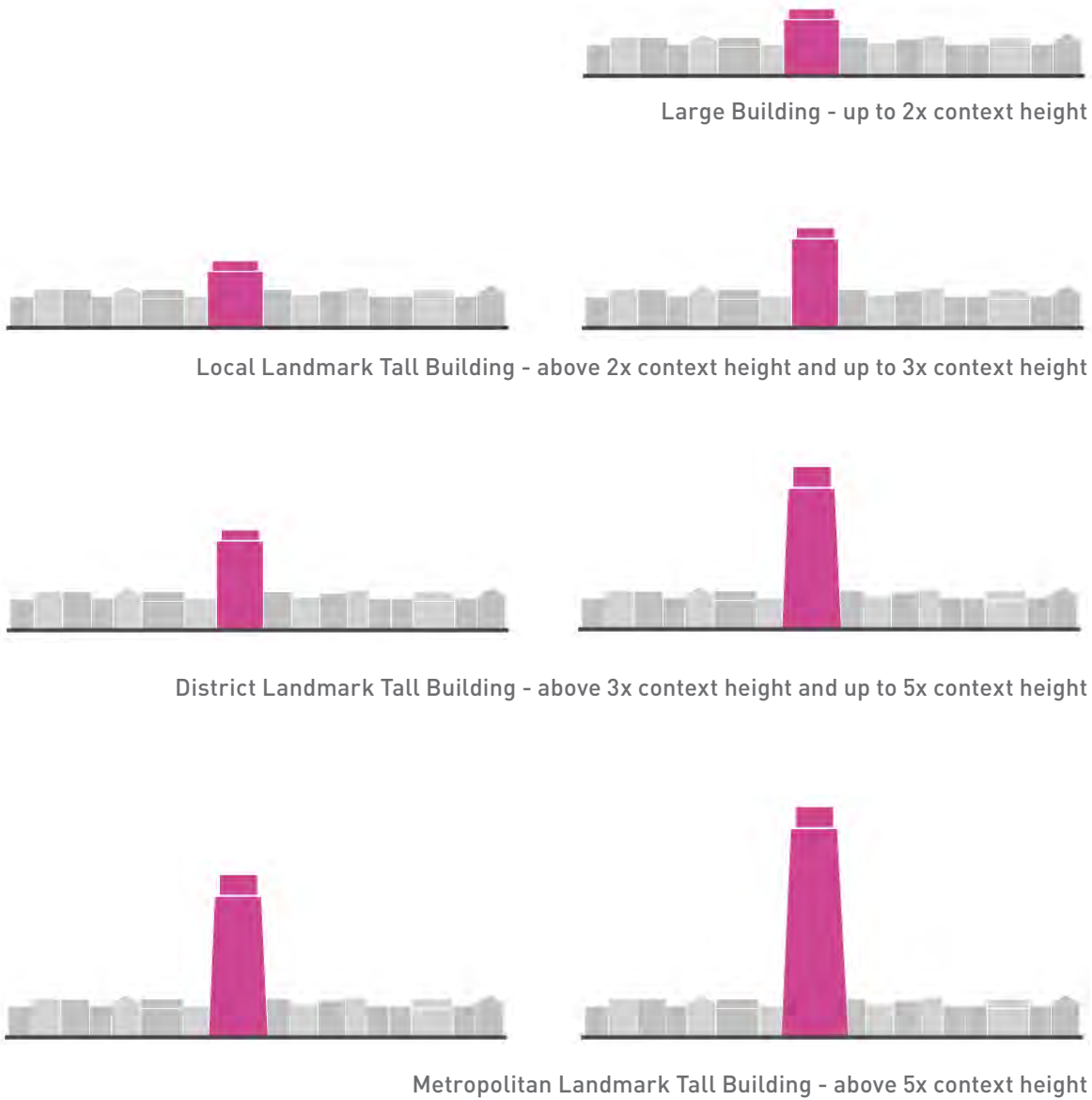

Figure 3.7: Diagram of tall building classifications relevant to context height

The following tall buildings classification is established in relation to the context height:

- Large Building – up to 2x context height;
- Local landmark – 2 to 3x context height;
- District landmark – 3 to 5x context height;
- Metropolitan landmark – 5x and above;

The area used to establish the context height and the context height ratio will need to reflect the extent of the tall building's impact. Local landmarks buildings can use the context height of their immediate local and wider surroundings, while district landmarks will need to consider heights across the wider district.

Table 3.1 sets out for each of the tall buildings classification the principal perception of a tall building in relation to its context, and its principal impact on the skyline. Figure 3.7 illustrates the classification of tall buildings in relation to context heights.

It is recognised that other contextual factors may also influence how the relationship of a taller building with its context is perceived. These include for example the local topography, the variation in the context height, the form, scale and roofscape of surrounding buildings, other tall buildings in the vicinity, the location of the tall element within the street block, the structure of the area and from where the tall building can be seen. For simplicity these factors are not included in the concept.

Generally the relationship of a tall building with its surrounding will gradually change as its height increases. It is recognised that there may be an overlap at the classification thresholds where buildings can be perceived as part of both adjoining classifications (for example as a Local Landmark as well as a District Landmark). In many cases however, it will be clearly possible to define a proposed building in one particular classification only.

Table 3.1: Table of tall building classifications relative to context height

Ratio to Context Height (CH)	Building height classification	Perception in relation to its context	Visual impact on the skyline
Up to 2 x CH	**Large building**	Contextual, accented building	Limited impact primarily from adjoining space.
Above 2x CH and up to 3x CH	**Local Landmark** Tall building of local significance	Outstanding prominent exception, proportionate relationship with context height, perceived as constituent part the urban context	Tall building is notable, yet its impact on the skyline is mainly local.
Above 3x CH up to 5x CH	**District Landmark** Tall building of district wide significance	Rising out of the fabric, markedly outstanding and pronounced contrast with prevailing urban context	Can be seen across a large part of the city.
Above 5x CH	**Metropolitan Landmark** Tall building of metropolitan significance	Jarring contrast, disconnected from the prevailing urban context height across the place, often requires increased heights in its surrounding to mediate the impact on its context	Can be seen across the city and from far away.

Figure 3.8: Example: Large Building

Figure 3.9: Example: Local Landmark

Figure 3.10: Example: District Landmark

Figure 3.11: Example: Metropolitan Landmark

3.5 TALL BUILDINGS AS LANDMARKS

The term 'landmark' in the tall building categorisation is chosen deliberately. As a taller building will have a greater visibility and a significant impact on their surrounding, it is principally considered important that they help to improve the legibility of an area, define points of townscape interest or mark public functions or facilities such as hospitals or transport hubs. Landmark buildings attract people, help orientation and contribute to local identity. Well-designed local landmarks can be a positive feature of new developments within a place if they integrate well with their context, respond appropriately to the setting of heritage assets and the landscape/townscape character, and contribute to the sense of place.

Landmark buildings offer distinctiveness to particular locations in the urban fabric. They contribute to the character of an area, enhance its distinctiveness and make it easier to recall. They can enhance the legibility of an area, by providing place markers that assist orientation and way finding. People recognise them as special features and include them in their mental map of a place.

In his seminal text *The Image of the City* (1960), urban theorist Kevin Lynch argued that a landmark's key characteristic was 'singularity': 'some aspect that is unique or memorable in the context', and that 'spatial prominence' can establish elements as landmarks by making them visible from many locations and/or creating contrast with nearby elements. Landmarks with a clear form contrasting with their background, and a prominent spatial location, are more easily identifiable and likely to be significant to the observer. Landmarks do not need to be tall but can be equally expressed through their special form, architecture, use or other features that make them stand out from their context.

Landmarks can operate on different scales. On a local scale a landmark is a notable building that makes its presence felt in the local context when experienced from within the urban fabric, primarily in views from streets and open spaces, and over rooftops. A building does not necessarily need to be tall to be a local landmark, but can stand out through other characteristics of its form, architecture and appearance that make it distinctive within its context.

Potential locations where tall buildings can act as landmarks in the urban fabric and assist legibility and orientation are:

- Nodal points where important movement corridors come together or intersect;
- Arrival and departure points in the urban fabric, such as transport interchanges and stations;
- Gateway locations at the edge or border of neighbouring urban areas; and
- Prominent focal points at the end of vistas or important streets, that can emphasise the importance of a route or mark an important destination.

As building height increases tall buildings become visible over large parts of urban areas on the scale of a district or the wider town. Besides operating locally as landmarks, they also become notable markers on the skyline, and affect panoramic views and the image of a district or settlement. If they have a distinct shape and silhouette, which is identifiable from far, then they can become iconic place symbols and integral to a place's image and identity.

Figure 3.12: Historic painting of Derby with the Cathedral acting as the singular landmark of the city by Thomas Christopher Hofland, 1805-08 (Source: Derby Skyline Study)

THE LEGIBILITY PARADIGM

Historically in cities, towns and villages tall buildings and structures were associated with a clear meaning. The landmarks that stood out were symbols of public life; they advertised civic priorities and made palpable the hierarchy of public institutions. Churches, palaces, town halls, and later industrial buildings and infrastructures signifying industrial progress, were allowed to dominate the skyline while ordinary development did not compete with these landmarks.

In the British and European context, tall buildings have remained a relatively recent phenomenon and largely an exceptional typology, and for this reason, culturally, we remain wired to associate greater height and prominence with civic importance. However this intuitive understanding of settlements and places is at risk from an uncoordinated approach to tall buildings, which lacks inherent legibility and meaning.

Prominence should be meaningful and proportionate. This is the legibility paradigm, which is a central pillar to a coordinated and strategic approach to planning for tall buildings.

Legible towns or cities are those where the prominence of tall buildings correspond to a clear meaning either by marking special places in the urban fabric or by having a particular, important function. Where a landmark is expressed through a tall building, its height should be proportionate to the relative civic importance of the place or function it marks in the wider context of the town or district. This could be by being associated with a special function such as a transport hub, civic building, infrastructure or facility, or an important place like a centre, gateway or node. The marking of a development project per se is not by itself a sufficient justification for a tall landmark building.

Generally local landmarks should be marking places or functions of local importance. District landmarks should be marking places of district wide importance, while Metropolitan landmarks should be reserved for the exceptional occasion when the building represents a significant aspect of metropolitan or city wide importance.

The scale and height of a landmark building should provide cues to the role and importance of a place in the hierarchy of the settlement or wider area. When seen from further away, a tall building in the urban fabric usually denotes a concentration of activity, a centre with a mix of uses and / or potentially a transport node.

A disjuncture between the prominence of a building and the function and role of its location undermines the legibility and common understanding of the urban fabric. It is confusing, disorientating and detracts from the ‘sense of place’.

Being a ‘landmark’ and ‘enhancing the legibility’ are common arguments for taller buildings. However, not every tall building will qualify as a landmark and enhance legibility. Despite its height, a tall building may not be recognised as a landmark due to its lack of ‘singularity’ in form, height, expression or architecture, or when situated amidst other buildings of similar height or characteristics. If the ‘landmark’ building is not located in an exposed and notable position or at an important node within the urban fabric, then it is unlikely to support the landmark argument. For example, a tall building located in the middle of a street frontage amidst other buildings will be perceived as a lesser landmark (if at all) than the same building at an important junction or terminating a particular view. Therefore proposals for ‘landmark’ buildings that are not genuine landmarks are not justified.

To help shaping places that ‘make sense’ it is important to guide the location and height of tall buildings in respect to the character, function and structure of an area. The quality of a tall building and its response to its surrounding context need to ensure that it offers sufficient distinctiveness and contrast to justify the term landmark building.

3.6 CLUSTERING OF TALL BUILDINGS

The classification of tall buildings as landmarks is focused specifically on single stand-alone tall(er) building proposals. However, if several tall buildings are co-located in a confined area, such as a city centre or a Central Business District, they will form a tall buildings cluster. In clusters a tall building will not be perceived as an exception, but as an integral aspect of an area's townscape and character. Tall building's clusters provide a positive means of grouping tall buildings together in areas that in accordance with their vision should deliver higher density development, intensification of activities and a strong sense of urbanity.

Clustering of tall buildings can create powerful and distinctive features on the skyline and contribute to the image and identity of a place. Concentrating tall buildings in small geographically defined areas can contribute to a legible skyline where tall building's clusters can be associated with specific places, which assist the spatial understanding of a settlement especially in panoramic views across the urban landscape. It also prevents the fragmentation of the skyline from the scattering of taller buildings across the wider urban landscape.

For clusters to establish and remain distinctive features on the skyline they require management and coordination in respect of the location and height of potential tall buildings. Competition between sites for the 'tallest' building may shift the centre of gravity around and affect the reading of a cluster on the skyline. Tall buildings proposed outside a cluster can weaken its distinctiveness and legibility on the skyline. If not carefully managed, clusters can mutate into an

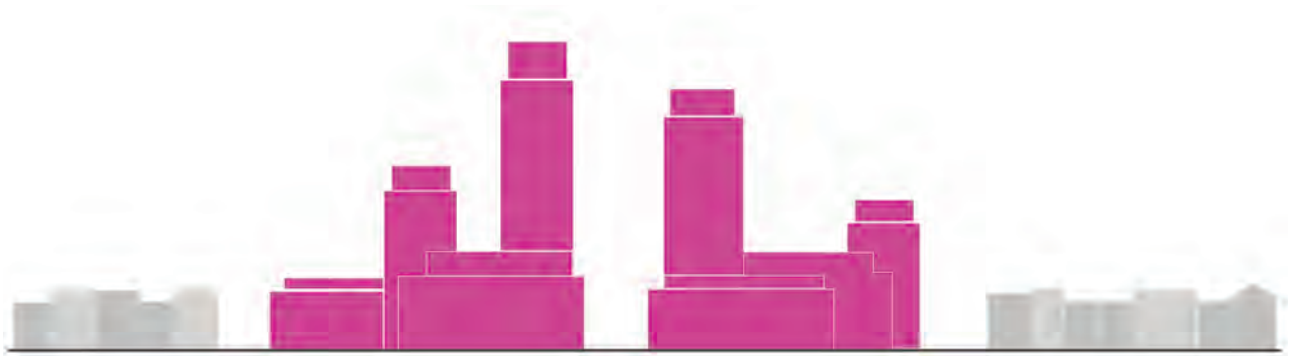

Figure 3.13: Diagram of a cluster of tall buildings - higher and taller buildings concentrated in a confined location

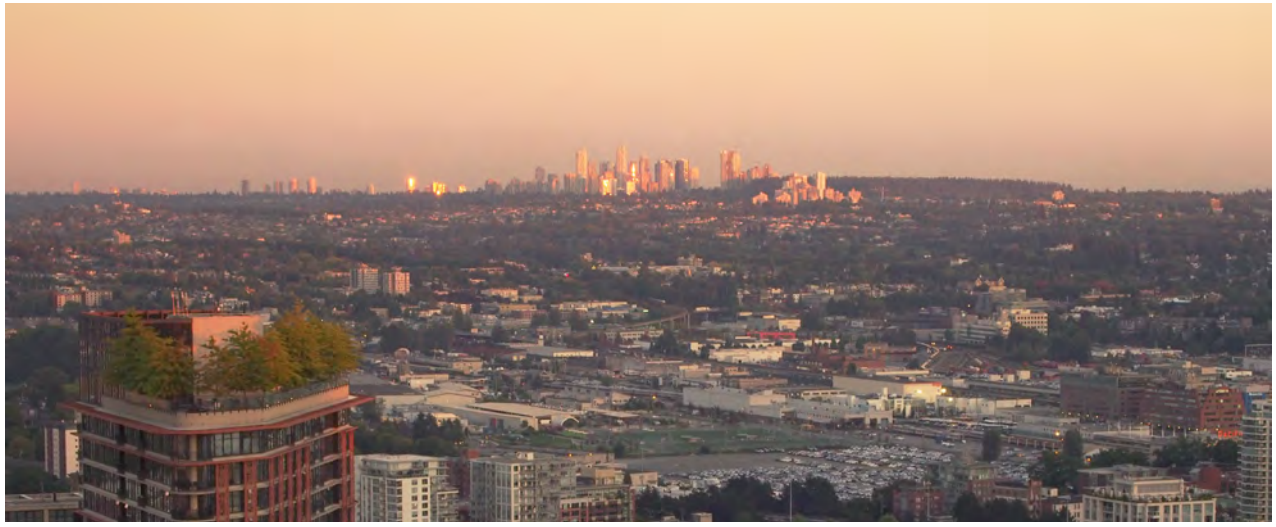

Figure 3.14: Tall building cluster defines the skyline and creates a contrast with the lower context height (view of Burnaby, British Columbia, Canada)

uncoordinated sprawl of taller buildings over time, and undermine the legibility and uniqueness of the skyline.

Ideally the tallest building is situated central to a cluster to provide a constant visual focus in the cluster from all viewing directions. The height of other taller buildings should decrease the further they are away from the centre. Tall buildings need to stand sufficiently close together to be read as part of the cluster on the skyline. A cluster should be confined to a limited geographical area and not allowed to stretch out too far in certain directions, for example along a street, to ensure its skyline appearance is similar and compact in views from all directions, and it remains clearly identifiable from wherever seen.

A related concept to a cluster is the skyline composition. This is deliberate or incidental assemblage of landmarks or taller buildings within their particular setting, that generate a striking spatial composition, for example experienced from a waterfront view. A major skyline composition often is part of the urban image and strongly valued by residents, and highly sensitive to taller buildings that undermine its defining characteristics.

The legibility paradigm extends also to clusters. Heights within a cluster should respond to the relative importance, role and function of the cluster location within the wider urban settlement. Generally only the tallest building(s) in a cluster should be of a scale associated with the relative importance of a cluster location, while other supporting buildings should clearly be stepping down and normally be of a lower category. For example, a cluster location of district wide importance in principle can have a central tall building of a height according to a district landmark, while the expectation would be that other tall buildings in this cluster would be of a local landmark height or lower. This principle takes account of the cumulative impact of taller buildings, and the relative greater impact a cluster will have on the skyline when seen in the context of single landmarks buildings.

Heights in a cluster should vary so they contribute to a lively skyline and an aesthetically pleasing form of the cluster, mediating its high point with the lower context around.

Figure 3.15: Cluster of three tall buildings visible above the lower context height

Tall building's clusters require clear guidance and consideration of the cumulative impact that results from co-locating of taller buildings in close location, including their impact on townscape, local character, micro-climate, overshadowing, and tunnel effects along corridors, in addition to aesthetic considerations of the shape and distinctiveness of a cluster on the skyline and its impact on views and the setting of heritage assets.

3.7 SKYLINE AND CITY IMAGE

As cities and towns evolve, so do their skylines. While their principal structuring features, such as topography, rivers, road corridors, streets and open spaces experience little change if at all, its quarters, neighbourhoods, buildings and structures are subject to a continuous rhythm of decay, modernisation and change. The physical spaces together with the people and activities constitute the everyday environment of the settlement. Every day, people observe and participate in this environment, and as such, perceive the settlement with all their senses, forming a collective image of the specific environments they are in and the settlement as a whole.

The city image is a generalised mental picture of the physical, social and cultural environment, and involves the recognition of its pattern and specific elements. It is the collective product of immediate sensation and memory of past experience.

The city image is used to interpret information and to guide action. As such it helps legibility, on various scales, assists orientation and give cues to help navigation through the urban environment. A clear image of a particular 'special' feature or activities may become part of the collective memory of a place, be a signifier or symbol for this place, and may instil a sense of emotional security and belonging.

"*The sense of home is strongest when home is not only familiar but distinctive as well.*" (Kevin Lynch, 1960, The Image of the City).

The city image is not only connected to the physical attributes of a place. The meaning people associate with buildings and places also plays an important role. This may include a place's historical dimension, its role as a setting for current or past activities, or the significance of a place's or building's role in society. Beyond the realm of its spatial configuration this also affects whether an environment is liked or disliked.

The city image is not static. With time, as the physical environment and pattern of activities change, the image of the city changes. New development and other interventions can enhance or weaken the image.

In an environment where cities compete on a regional, national or international scale, places strive to outperform others on many fronts, by focusing for example on the uniqueness of their heritage, the attractiveness of their urban spaces, their friendliness to business, their green credentials or a high quality of life. Places that focus on the protection and enhancement of their distinctive features and characteristic will naturally excel in projecting a distinctive image that contributes to their uniqueness as a place in this contest.

The skyline of a place often contributes significantly to the city image. Due to their prominence and height tall buildings can have a significant impact on the skyline.

Historically the urban silhouette (or 'the city portrait') was a result of a cumulative process, and its reading was calculated. The landmarks that stood out in this picture were symbols of a collective life; they advertised civic priorities, and made palpable the hierarchy of public institutions.

Up to the late 19th century taller buildings were usually public beacons, those of religion, government, or technological progress. The height of churches or palaces was often not particular useful except in the symbolic sense.

The skyscraper in contrast was the product of private enterprise, stacking up building mass for their functional payoff, with the symbolism as a bonus. From the end of 19th century this started to visually dominate cities in the new world. A city image dominated by skyscrapers, particular in the American context became symbolic of the prosperity and commercial vitality of a place.

Figure 3.16: Uncoordinated tall buildings creating a fragmented, incoherent skyline (Stratford, London)

The only other private structures that began to populate the skyline of cities were artefacts of the industrial revolution - smoke stacks, water towers and cranes.

Since the advent of the private skyscraper alternate and opposing views have emerged on who should be allowed to dominate the skyline. One side of the debate focuses on the common 'ownership' of the town skyline, and argues that in a democratic system "*a minority of private interests should not be allowed to dominate the town architecturally anymore than it should be socially*" (Thomas Sharp, 1963). The other side argues that today's settlements have their own socio-economic foundations that, with their modern practices, have set aside the traditional cities, and deserve their own skyline.

Whatever their political outlook, the shape of the skyline matters to residents. A distinctive skyline may present a fond icon of the city form, a vision to cherish and come home to, the urban advertisement to the world, and panorama one can present to visitors. Taller buildings, with their outstanding height, impact on the skyline. They also affect the perception, identity and attachment that people hold for their city. When a building is associated with a negative connotation this can be particularly harmful.

A distinctive and attractive skyline is frequently used for the presentation of a place to the outside world, and plays an important role in place marketing and branding. This can include historic church spires, natural features and modern buildings. Panoramic view points or prospect views along rivers, from where a particular skyline composition can be appreciated, often are highly popular with residents and tourists alike.

Understanding the make-up of a place's skyline with its unique and valued townscape features, and the short, medium and long distance views through which they can be experienced and appreciated will be important when planning for a distinctive skyline. The impact of proposed tall buildings on the city images will need to be tested and understood to prevent unintentional harm to valued views and compositions and to ensure new tall development integrates harmoniously and enhances the skyline.

Figure 3.17: The skyline of Derby from Rykneld Recreation Ground (Source: Derby Skyline Study)

3.8 TOWNSCAPE, CHARACTER AND PLACE MAKING

Due to their exceptional height and scale tall buildings can be transformational and bring significant, permanent and irrevocable change to the townscape, character and activities of a place (for better or worse). They will affect the everyday environment of residents, the way a place is perceived and the image people hold of it. Given the significance of this impact the acceptability of a tall building proposal on the local townscape and character will need to be rigorously tested.

The spatial characteristics of the immediate and wider area surrounding a tall building will be the context within which a tall building is perceived and its impact felt. A tall building proposal will need to consider and appropriately respond to the following contextual attributes:

- The height, scale and massing of buildings, its coherence or variation;
- The urban grain (sub-division of blocks and plots) and townscape;
- The streetscape, including the scale of streets, the alignment of buildings and the building interface and the street level experience;
- The building composition, silhouette and skyline characteristics;
- Aspects of built form and articulation of building elements, such as the base, body and roofscape;
- Architectural language, materials and detailing; and
- The spatial response to special morphological situations such as open spaces, waterways and railway lines.

The NPPF states that development should be *'sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities*)'(para. 127c) and '*establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit'* (para. 127d).

The NPPF further emphasises that while *'great weight should be given to outstanding or innovative designs which promote high levels of sustainability, or help raise the standard of design more generally in an area*', this is acceptable '*so long as they fit in with the overall form and layout of their surroundings.'* (para. 131)

This makes clear that tall buildings need to respond sympathetically to their context and should generally not be perceived to be 'out of character' with an area's prevailing (or emerging)

Figure 3.18: Making use of traditional materials can help to integrate new development into the local context

characteristics. Some areas will have a particularly coherent townscape, while others are naturally more varied and diverse. Some places are well established and have little or a slow degree of change. Other areas instead may be targeted for regeneration or are in the process of transition and change.

In areas with a well-established sense of place and strong local townscape characteristics, especially where they are unique, sensitive and valued, maintaining and enhancing an area's prevailing character will be highly desirable (see also reference NPPF para 122d). In some places the prevailing townscape, character and sense of place may be as such that it is incompatible with the height, scale and grain of a tall building, which therefore should not be permitted.

Some areas are fragmented, have a weak townscape, and lack a strong sense of place. Often these are areas in transition, situated at the fringes of established areas, and targeted for regeneration. In these areas development should contribute to the establishment of coherent and distinctive townscape characteristics and a strong sense of place. The same applies for large greenfield or brownfield lands that offer the opportunity for establishing their own character. A tall building can play a role in this process, but it is by no means the only way of achieving this, and its suitability and appropriateness will depend on local circumstances.

There are three principle means by which tall buildings can contribute to place making, enhancing an area's townscape and character, and instilling a strong(er) sense of place:

i. By performing the role of a landmark building that supports local and wider legibility and way finding, and enhances the distinctiveness of a location;

ii. By individually or as part of a group providing a distinctive skyline feature and as such contributing to a desirable image of a place; or

iii. By being part of a typological solution to deliver the vision of a place as part of plan-led and comprehensive development, and where tall buildings form an intrinsic aspect of its character and distinctiveness, and are a necessary means in supporting the function of a place. This could lead to the clustering or grouping of tall building, but establishing a tall building cluster on its own is not a sufficient argument for tall buildings.

The above means are not necessarily mutually exclusive and often will be interrelated. For example, a tall building can be a landmark locally but also be a distinctive skyline feature; while the clustering of taller buildings as a necessary character and functional aspect of an area will also result in an impact on the skyline that will need to be considered. Tall buildings proposals must consider and be justified through all of the place making principles that are relevant.

Figure 3.19: Harsh contrast in scale between the Gherkin and the historic, fine grain surroundings (City of London)

3.9 DENSITY, SUSTAINABLE DEVELOPMENT AND MAKING EFFICIENT USE OF LAND

Tall buildings due their very nature have a greater capacity to deliver floor space on a certain footprint than buildings of lower height. As such they can help to increase the density of development and intensify associated activity levels in an area. Optimising the density of urban areas especially where they are well served by existing or planned infrastructures is a national policy objective aimed at making efficient use of land and delivering sustainable development. Social benefits of higher density include that they can bring economic activity to an area, footfall to shops, vibrancy, the development of more mixed communities and the delivery of more housing in a context of constrained supply of land.

The NPPF stipulates that '*significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes'* (para 103). As such high density development and by extension tall buildings should be concentrated in central areas that already provide a wide range of facilities and that benefit from good accessibility from walking, cycling and public transport. '*Development should maximise the catchment area for bus and other public transport services … (to) encourage public transport use.*' (para 110a)

However, tall buildings are not the only way of achieving higher densities. There is a growing body of evidence that illustrates that high density residential and commercial development can also be delivered with compact low to medium rise developments and do not require tall buildings (see Figure 3.20). Studies have found that net densities of 80 to 150 units per hectare can be delivered with 3-4 storey compact urban blocks, while 5 storey compact apartments blocks can delivery up to 280 units per hectare. Recent development examples show that densities of 450 units per hectare or more can be achieved with heights of eight and less storeys (Housing Density Study, Maccreanor Lavington, 2012).

Low to medium rise developments more easily can be made to fit in with the prevailing character of an area, limit impact on heritage assets and their setting, and also are likely to have a lesser impact on the amenity of neighbouring properties in terms of overshadowing and daylighting.

This makes clear that tall buildings are not the only way to achieve high-density development, and in many places compact low and medium rise development solutions will be more appropriate forms to intensifying the urban fabric. Nevertheless, tall buildings can play a role in creating superdensities in highly accessible, central and urban locations, or delivering housing on highly constrained sites unsuitable for conventional lower rise development if appropriate.

Figure 3.20: Comparison of residential density (units per hectare) across developments of different heights (Housing Density Study, Maccreanor Lavington, 2012)

3.10 SOCIAL ASPECTS OF TALL BUILDINGS

A study by Jan Gehl (cited in his book Cities for People, 2010) on perception and building scale has shown that beyond a height of five storeys people cannot recognise facial expression any longer and there is less scope for meaningful communication and engagement of activities at street level, which are essential for social engagement and community life (Figure 3.21). As such, developments of up to five storeys offer more sociable environments with a greater relationship between dwellings and (communal and public) outdoor spaces and hence are more suitable (and a preferred choice) for family accommodation.

Research has found that occupants of higher rise development generally have a lesser sense of connection with the community in the wider neighbourhood. In turn, people living in courtyard style lower rise development reported the strongest sense of community within the wider area. The same pattern was found for the sense of connection with the community within a development, where residents in taller buildings were less likely to feel part of the community within the development than occupants of courtyard style lower blocks (Lessons from Higher Density Development, Report to GLA, 2016, para. 6.16-6.19).

This research suggests that the greater sense of community within lower courtyard style development may be explained by the greater use of communal amenity spaces, the limited number of units per core (support familiarity with the people living within a building), and the greater concentration of family accommodation, which foster a greater degree of social interaction. Conversely, units in taller buildings often are often privately rented, smaller, and targeted at a younger professional audience. Turnover in young and mobile households will be generally higher, while their network of friends and family is usually widespread and less confined to a certain locality.

Given these characteristics tall buildings are more likely to be suitable for younger professionals that have a lesser reliance on local networks than families or older residents. Furthermore, tall buildings may better be located in lively urban and central areas, rather than in residential neighbourhoods and other places where the establishment of social networks and a sense of community is highly desirable, and where lower rise courtyard style blocks may provide a better typological solution.

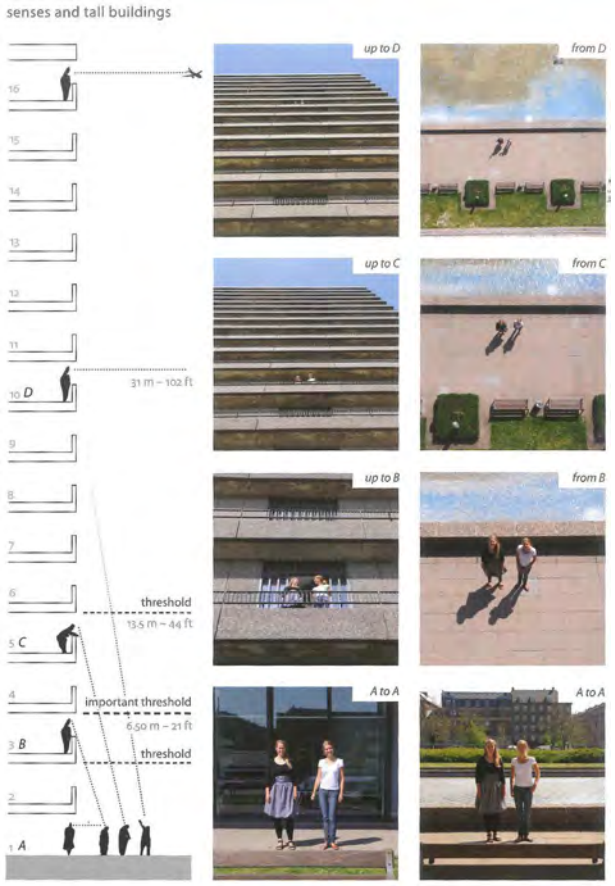

Figure 3.21: Building height effects the ability to interact with street level (Jan Gehl, 2010, Cities for People)

3.11 TALL BUILDINGS DEVELOPMENT COSTS AND VIABILITY

Generally, tall buildings are more expensive to build and cost more per square feet than low or medium rise buildings.

Tall buildings generally have a less efficient net to gross floor space ratio than lower rise buildings. This is due to additional requirements for the sub-structure and frame of the building to respond to its height, greater weight and higher windloadings. Tall buildings require larger cores to provide for vertical transportation requirements, servicing and emergency access. They also require larger capacities of plant and distribution systems and potentially need intermediate plant floors. Due to their form the wall to floor space ratio is less efficient than in compact lower rise development where buildings join up at party walls.

Tall buildings are usually 25-40% (offices) and 30-40% (residential) more expensive to build than low-rise buildings. (Barton and Watts, *Office vs. Residential: The Economics of Building Tall*, CTBUH Research Paper, 2013) Generally the form, shape and complexity of tall building projects are cost drivers in tall buildings. Aspects that drive the cost in tall buildings are:

i. Iconic architecture and more complex design
ii. Structural solutions to respond to lateral and vertical loads require additional restraints
iii. Slenderness ratios which reduces floor plate efficiencies and shape of a floor plate which affects wall to floor space ratio
iv. Quality and materiality of the façade
v. Impact of solar gain from large amounts of glazing and associated mitigation
vi. Recesses balconies and winter gardens at higher levels to maintain their amenity
vii. Servicing, especially the need to boost water supplies and pressurisation of heating and cooling solutions
viii. Sprinkler systems are generally required over a certain height
ix. Vertical transportation and emergency access requirements, which may increase the size of the core if height increase, public access to the upper floors or a mix of uses is promoted

Given the façade and structure are important cost factors in tall buildings, pressure to reduce costs may result in the provision of simpler structures, the loss of slenderness and a greater bulk, uniform buildings with a lesser articulation of the overall form and the use of cheaper materials and façade systems, affecting the appearance and longevity of the building. There is a risk that cost savings due to viability concerns in tall buildings can result in a bland and poor quality solutions that fail to bring positive change to an area and its skyline. Given the visual impact of a tall building on the cityscape, cost savings that affect the quality and appearance of tall buildings are undesirable and should be avoided.

The higher cost of tall buildings needs to be passed on to the end-user in the form of higher rental or purchase prices. Generally tall buildings can demand a premium for the views over the city and a more exclusive environment. Values tend to increase with height and top floor penthouses often demand an additional premium. Tall buildings therefore require a healthy market that is able and willing to pay the additional cost in comparison to more conventional properties in the market.

To complement the local market tall buildings promoters often are looking overseas and to the Far East to sell apartments to investors, who would buy apartments sometimes off-plan to benefit from property value uplifts, as buy to let investment, or for personal use.

Research in London found that tall buildings are only viable in higher value areas and that viability weakens where values drop. The same study finds that small high-density infill development of four storeys (that can deliver 150 units per hectares), remains viable in areas with lower values. This highlights the opportunities for intensification especially of lower value area where there is an availability of sites suitable for this type of development (Lessons from Higher Density Development, Report to GLA, 2016, para. 9.34-36). While individual small high-density infill schemes will deliver less units than a tall building on a site, cumulatively they can contribute to the significant intensification of urban areas. They are also cheaper to build, more affordable to local occupants, help to repair and modernise the urban fabric and can create more sociable environments. As such they can present a suitable development approach for the intensification of areas where tall buildings may be inappropriate or unviable,

3.12 TALL BUILDINGS AND REGENERATION

especially in historic city centres and town centre fringes.

More recently institutional investors are stepping into the Private Rental Sector (PRS) to provide managed Built to Rent (BTR) accommodation on a bigger scale. BTR provides renters with a choice of professionally managed property, that offer greater levels of security, high levels of management often supported by other lifestyle amenities such as shared facilities, social spaces and gyms. BTR have a longer time horizon and an interest in the continued performance and quality of the accommodation.

The holistic and strategic approach by BTR investors to the long term management of the buildings should better enable them to put in place strategies to undertake and pay for the significant repair and refurbishment cost that will come with the natural life span of services and façade systems in taller buildings, and thereby ensure the upkeep of quality and maintenance of the building over its lifetime. In schemes with a large amount of individual lease holders (owner occupation or small buy to let investors), sudden large costs for necessary refurbishment works or the replacement of broken parts (such as lifts or services) can be unexpected and highly challenging to individual owners, if not properly planned by the management company and covered through a sinking fund. This was recently exemplified in private towers with Grenfell type façade systems where leaseholders were faced with significant and unaffordable bills for the replacement of façade systems.

Tall buildings are often argued to have a role in regeneration projects. Regeneration is about bringing new activities to underperforming areas through changing the area's image, creating a new focus, promoting new uses and revitalising its activities. Regeneration generally brings higher densities and a greater mix of uses into an area and tall buildings could have a role in delivering these.

It is argued that tall buildings can have a catalytic role in regeneration projects, as they can provide a widely visible landmark to the area, signal change, raise the profile and generate confidence of investors. However, regeneration projects are highly place and context specific, and what works in one area may be not be desirable in another. For example, public realm and environmental improvements, the introduction of new activities or the establishing of a new connection could be more effective means to instil regeneration into a failing areas than the delivery of a tall building. While tall buildings can form a part in regeneration they will need to be complemented by other interventions as part of a coherent regeneration strategy.

A tall building promoted to landmark a regeneration area will have its biggest impact at the time when it is newly built and is seen as the beacon of change. It is important that it remains a vital and successful building once the initial effects of novelty and gloss have worn off, and that it continues to contribute positively to the area over the medium and long term.

Figure 3.22: Tall buildings form part of the regeneration of former industrial land at Porto Nuova, Milan

Tall buildings have the tendency to increase land values in their surrounding of a scheme due to speculation. The permission or even only the planning of a tall building in an area can result in other sites in the vicinity being promoted for tall buildings, often of similar or greater height. While increasing the land value expectation may stimulate development interest in a regeneration area it also can have detrimental impacts on the viability of other development projects with lesser density.

Tall building projects can fall foul of natural development cycles. Often they are being promoted when the market is on the up, but then fail to be delivered as the market contracts, viability margins shrink and funding sources dry up. Failed tall buildings sites can leave painful holes in the urban fabric where little development takes place until the market has recovered or unrealistic land value expectations have been written off. Similar impacts can be seen from 'flipping', when developers promote a tall building on a site, realise a planning permission, and then sell the site on with the permission for higher density in place, without an intention to build the scheme out. In the meantime the site sits empty, land values stifle alternative development schemes, and regeneration is stagnating.

Due to higher rental or purchase costs and increased service charges tall buildings will be less affordable than other development types and only appeal to more affluent sections of the society. This can result in gentrification as people with higher spending power move into an area. It can also mean that tall buildings do little to resolve a shortage of homes in an area if they are too expensive for local people to afford.

The impact of tall buildings on land values, the realistic prospect of being delivered, and the local socio-economic conditions will need to be carefully considered when assessing the appropriateness and desirability of a tall building proposal in an area.

Given the prominence and transformative impact a tall building will inevitably have on its surrounding context and the skyline, there is a general expectation that where they are permitted they should deliver tangible regeneration benefits, beyond mere token gestures. Thus while regeneration projects do not necessary require tall buildings, where a tall building is being brought forward there is a general expectation for it to deliver wider public benefits to its locality beyond its simple function.

Figure 3.23: Tall buildings often form a prominent part of large scale regeneration schemes - Old Gas Works, Sutton (Source: Google Street View)

Figure 3.24: North Road Estate Renewal - successful regeneration project providing street blocks of coherent height that enhance the setting of the historic clock tower (Camden, London)

3.13 HERITAGE IMPACT

3.13.1 IMPORTANCE OF HERITAGE IN POLICY

The NPPF states that "*heritage assets range from sites and buildings of local historic value to those of the highest significance, such as World Heritage Sites which are internationally recognised to be of Outstanding Universal Value. These assets are an irreplaceable resource, and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations.*" (Para 184).

"*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be).*" (Para 193).

"*Substantial harm to or loss of:*

(a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

(b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional"* (para 194).

For more detailed analysis of the role of legislation and the UK planning system in protecting World Heritage Sites, see the Derwent Valley Mills World Heritage Site Management Plan 2020-2025, Part A, Section 8.

3.13.2 TALL BUILDINGS AND HERITAGE

Tall buildings by their very nature will have a visual impact that needs to be thoroughly considered. Individually or cumulatively the visual presence or prominence of tall buildings can cause harm to the significance of heritage assets and their setting, even when located further away.

Heritage assets are sources of distinctiveness, meaning and quality of a place. As a shared cultural resource of cultural identity they need to be managed carefully and nurtured for the benefit of future generations. Positive conservation of heritage values should enable cities to respond to social, economic and technological change in a manner that allows change to sustain and reinforce these values.

The height and scale of development should respect, respond and contribute to characteristic places, building on their heritage and the values associated with them. The impact and design of a tall building, in respect of heritage assets in its immediate, and wider surrounding, will need to be assessed and guided by an experienced heritage expert.

Tall buildings must be carefully sited so as not to have an excessive intrusive impact on the historic environment and to damage historic settings. World Heritage sites and their buffer areas, registered parks and gardens and their settings, conservation areas, and listed buildings in most cases will be highly sensitive to tall buildings.

The Planning (Listed Buildings and Conservation Areas) Act 1990 states that local planning authorities should pay special attention to preserving the character, appearance and setting of heritage assets.

Figure 3.25: Modern tall buildings contrast markedly with and visually intrude on with the historic fine grain Georgian townscape in Angel, London

Recognised local views, vistas or panoramas that show a heritage asset in its setting are also particularly vulnerable to damaging intrusion by insensitive tall, or massive-scale development. Harmful impact from intrusion of a tall building for example could include an altered sense of scale, undermining the relationship of built form to the sky or landscape, or detract from the colour, materiality and form that typifies what is special about a historic place, and what essentially contributes to its heritage value.

Figure 3.26: Tall building development visually intruding on a key view in St James Park, Grade I Registered Park and Garden

3.13.3 TESTING AND MODELLING

The height of tall buildings should be tested and calibrated to avoid an aggressive domineering effect that tall new structures can have on heritage assets. Modelling of tall buildings should aim to soften their profile and reduce their monumental impact. Choice of facing materials is important to assist in visually weaving the new building into its established surroundings.

A heritage impact statement will need to be produced that identifies the heritage assets that the proposal has taken into account. This should demonstrate how the tall building proposal has responded to these heritage assets and their respective significance, and how the proposal has mitigated its potential adverse impact to avoid or minimise harm to the heritage asset and its setting. This should be supported by a visual impact assessment that illustrate and evaluate the impact of the tall building proposal on heritage assets and their setting where this is relevant. The scope of the heritage impact statement and supporting Visual Impact Assessment (VIA) should be discussed and agreed with the Planning Authority.

This should include a computer-generated zone of visual influence and the impact on local, medium and long distant views which should be carried out through accurate visual modelling of proposals represented in photomontages that show the ‘before’ and ‘after’ view. Relevant views should be defined by the Council and may include views from outside the city when appropriate.

It is recommended that Planning Authority utilises a fully interactive 3D computer model of the wider city area in order to test and evaluate the potential impact of tall building proposals. Proposals for tall buildings as part of pre-application discussions and the planning application should be required to provide massing (for the former) and accurate architecturally detailed 3d inset models (for the latter) to be assessed and evaluated within this model.

A tall building proposal will need to take account of and avoid harm to the significance of heritage assets and their settings. The preservation and enhancement of heritage assets and their settings should be given significant weight. Proposals resulting in harm will require clear and convincing justification, demonstrating that alternatives have been explored and there are clear public benefits that outweigh that harm, in line with the NPPF.

Figure 3.27: Example of a 3d model used to test building massing

3.14 VISUAL IMPACT

Due to their massing and height, tall buildings can have a positive or a negative impact on important views, prospects and panoramas, and the wider visual experience of a place, its character and skyline. Relevant views may include views of iconic buildings and landmarks, distinct townscapes, topographical features, waterfronts, and more broadly the skyline, especially where they are prominent, accessible and highly valued.

Local Plans and conservation area statements make reference to protected strategic vistas and local views that will need to be protected. There will be many more undesignated views on a local, as well town or city wide scale, that are cherished by people and important for the collective understanding of a place, and to 'make sense' of a building in its setting. Views from rivers are especially significant because of the openness of the water space that allows for panoramic or prospect views and enable the recognition of the wider settlement characteristics in its setting. The same applies to large parks and open spaces, especially where they comprise of open grass lands or are elevated and allow the unrestricted views over the cityscape. Viewpoints may be within or outside the administrative boundary.

To evaluate the impact of a tall building on the skyline one needs to understand the aesthetic characteristics of the skyline and their relevance for the image and identity of a place. This should consider strategic landmarks, the roofscape and other skyline features, the visible setting and backdrop, and relevant viewing points from where wider skyline characteristics and compositions can be appreciated. Highly distinctive skyline aspects that are intrinsically linked to the identity of a place should be protected. Tall buildings should only be permitted where they do not undermine the essence of highly valued skyline characteristics or genuinely enhance a place's skyline image in a meaningful and considered way. Where specific skyline characteristics can be appreciated from key views, they should be identified as test views in which the impact of a tall building proposal should be modelled and assessed.

Any tall building proposal will need to establish its zone of visual influence that shows from where it potentially can be visible from. This should assist in the identification of sensitive areas or viewing location where the building could have a visual impact. A visual impact assessment (VIA) will needs to test and assess the impact of its tall building proposals on designated and non-designated short, medium and long distance views, including panoramic or prospect views, linear views to landmarks, approach road views, wider townscape or landscape views, local and other views as relevant. The VIA should visualise, describe and assess the impact of the tall building on views, and demonstrate how it has considered its findings and mitigated adverse impacts or enhanced the distinctiveness of the skyline. VIAs should follow the latest guidance on visual impact assessments of the Landscape Institute. This should make use of 3d modelling and representation techniques discussed earlier. Views should be discussed and agreed with the Planning Authority.

Figure 3.28: Tall building in Eastbourne highly visible from the South Downs National Park

3.15 SITING, LAYOUT AND URBAN FORM

Tall buildings due to their greater height and contrasting scale, organisation and design can have a significant impact on the form of an urban area, the sense of scale and the quality of the spaces around the building. The way a tall building is designed, sited and orientated will have an important impact on the integration and quality of a proposals response in relation to its context and if it contributes or detracts from local character.

3.15.1 LOCATION AND ROLE AS LANDMARKS

Where a tall building is proposed to perform a landmark role (as discussed in section 3.5), it should be carefully sited to magnify its visibility. This could mean a location in the focus at the end of a street, at a prominent street corner or in an exposed location along an approach route or other vista.

The siting and orientation of a landmark building within its context should consider the specific views from where it is expected to be seen, and maximise on its distinctiveness in these views. Responding to a particular linear view however should not undermine the wider legibility principle that tall buildings when seen on the skyline should clearly be recognisable as one and the same building from what ever direction its is observed.

To ensure its presence and singularity, the landmark building should not be obscured or detracted from by other (tall) buildings, for example in the background, and its silhouette should be clearly visible and contrasting before the sky.

3.15.2 TALL BUILDINGS AND TOPOGRAPHY

The topography of a place can have an important impact on the perceived prominance of a tall building. A tall building located on elevated position will be more prominent and striking because they will appear as a silhouette against the sky.

Conversely tall buildings located on lower lying land will be less prominent as they more often will be seen against the backdrop of the urban fabric or landscape beyond. Tall buildings on higher ground will gain extra height in relation to lower lying areas and so will have a greater risk of affecting sensitive townscape or landscape characters.

When discussing tall buildings, their height above ordnance datum (AOD) must be understood as it is a measure of their true height, including the underlying topography. They can then be compared to the AOD height of other buildings to ensure that the most important parts of the skyline are most prominent and to avoid lower buildings on higher ground appearing more prominent than is appropriate.

Generally, unless there is a specific reason for the landmarking of a hill top location, tall buildings on elevated land should be avoided due to their increased affect on the skyline and surrounding character.

Figure 3.29: This tall building acts as a landmark for the wider development and creates a clear sense of a destination

Figure 3.30: The Parkinson Building's location on higher ground enhances its prominence and role as a landmark for the University of Leeds

3.15.3 INTEGRATION OF TALL BUILDINGS WITHIN LARGER DEVELOPMENT SCHEMES

Tall buildings have significant access, servicing and (often) car parking requirements, which require a resolution at the base of the building at street level. While the front of the building with its entrance and lobby, and potential commercial spaces is usually well designed, the sides and backs can fail to establish a positive and active interface with the public realm, especially where sites are relatively small. Entrances to car parks and exposed parking areas, loading and service bays, emergency exits, technical facilities, blank walls and left-over spaces can compromise the quality, passive supervision and animation of the adjoining street space.

Appropriately mitigating these impacts on the street space can require expensive technical solutions such as locating the technical, servicing and parking facilities underground, especially in case of freestanding towers. In many places this solution will be financially prohibitive. An alternative and more realistic solution is to integrate tall buildings within a larger development scheme. Providing parking, servicing and technical spaces within the envelop of a larger development will release the pressure at the foot of the tower and make for a better street environment. Integrating taller buildings with a courtyard type street block can have further benefits, as it can help to mediate the scale of the taller building with lower buildings in the surrounding. Associated lower rise development may also more suitable for family accommodation to complement smaller units in the tower and to provide a balanced housing mix. Equally they could accommodate affordable housing where they could more easily be managed separately by a registered provider.

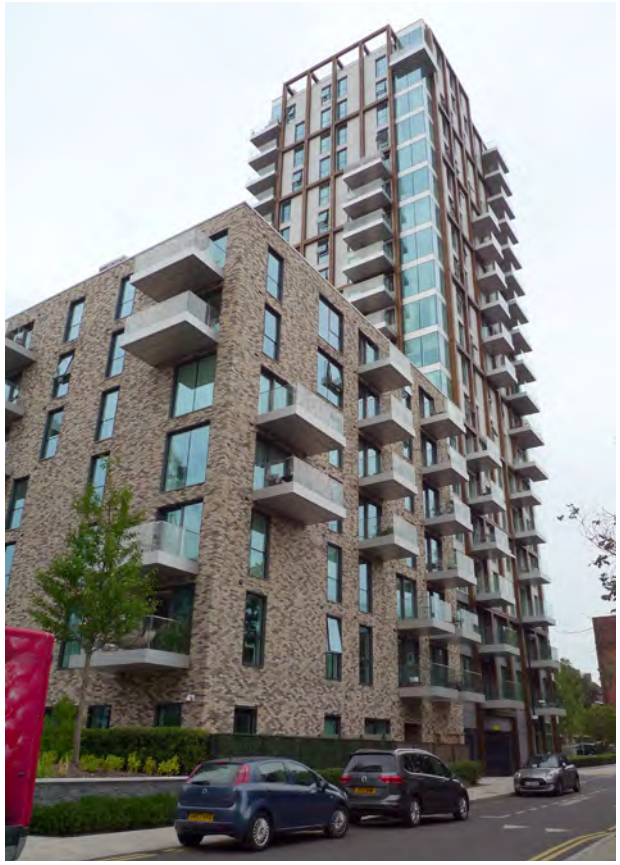

Figure 3.31: Example of a tall building integrated into a larger development block

3.16 STREETS, PUBLIC SPACES AND INTERFACE

3.16.1 TALL BUILDINGS AND PUBLIC SPACES

The argument has been made that one of the benefits of tall buildings is that they stack up floor space to greater height and thereby make room at street level for the establishment of public spaces, especially in dense street based urban settings where there are little public spaces amenities. Tall buildings bring a greater concentration of activities and therefore increase the need for the provision of breathing, breakout and meeting spaces in the urban fabric. To be successful public spaces need to be in the right place and located where they can benefit from footfall. While it would not be useful or practical to require every tall building to deliver a new public space, generally tall buildings should contribute to the provision of quality public spaces in their wider vicinity.

Tall buildings cast shadows and can reduce daylight reaching public spaces. Their impact on natural lighting levels in public spaces will therefore need to be carefully considered when deciding on the layout of a development and the location of a tall building in relation to public spaces. People enjoy sun exposed public spaces and overshadowed and gloomy environments are less popular.

Tall buildings should avoid creating significant overshadowing of a public space especially during times of the day when they are more intensively used. Public spaces are often more used from lunch time onwards, during the afternoon and early evening, although some spaces that for example are used by schools may see more

intensive use before midday. A tall building located to the north of a public space would cause no impact in terms of overshadowing, while a tall building located to the south would have its shadow travelling over the spaces as the day passes by and possibly affect significant parts of the space. A tall building located to the east of a public space would affect it during the early parts of a day, while when located to the west it may cast long shadows over a space as the sun is setting. Generally locating tall buildings to the south or the west of public spaces should be avoided.

Tall buildings, especially where they are stand-alone or rise straight up from the street space will benefit from a greater sense of space around their base to provide an appropriate setting of this height and mass. The space at the base of tall buildings should feel proportionate to their height and prominence and normally should be greater than around lower rise buildings. Setting a tall building back from the footway behind a plaza, a wider footway or landscaped areas, or the creation of dedicated public spaces are means by which designers can create establish an appropriate setting for a tall building.

Figure 3.32: Example of a positive active frontage of a tall building

Figure 3.33: Example of a high quality public space integrated into a larger development

3.16.2 HUMAN SCALE AND THE SENSE OF STREET ENCLOSURE

Jan Gehl's research explores human senses in city environments. It finds that narrow streets and small spaces convey a corresponding experience of warm and intense city environments, while environments where distances, urban space and buildings are huge generally signal an impersonal, formal and cool environment. As such the distance and height of a building will have an impact on the character of a place and how personal, friendly and welcoming it is perceived. This can explain the popularity of historic town centres that offer intricate environments, a small scale and a rich experience.

"Our horizontal field of visions means that when we are walking along a buildings façade only the ground floors can offer us interest and intensity. If ground floor facades are rich in variation and detail, our city walks will be equally rich in experience…From the street, we can only experience with difficulty events that take place higher up in buildings. The higher up the more difficult to see … Connection between street plane and tall buildings is effectively lost after the fifth floor" (Gehl, 2010, Cities for People, p.41).

An important way by which people experience cities is by moving through its streets and spaces. Perspective views along streets and onto the foreshortened rhythm of buildings and facades provide an understanding of the scale of buildings, the sense of enclosure, and the pattern, materiality and colours that characterise the environment.

Sideway views help appreciate the articulation and detailing of facades and activities within buildings. Only buildings at the end of streets, at junctions or visible from a greater distance for example across a public space are observed in their entirety.

Considering the human perspective in the design of places is important. For designers this means to create spaces and buildings with proportions and details that reflect a human scale and respond to people's sensorial facilities. This is particularly relevant when designing tall buildings, which are naturally larger than the typical surrounding. The detailing of the lower floors will be of particular importance as well the siting, integration and articulation of tall building elements. Tall buildings integrated with their lower rise context will be more successful in establishing a human scale response than standalone buildings that are separate from their context.

The sense of enclosure, level of coherence in heights and relation of heights across the street are important attributes that determine the character and feel of a street, if it feels balanced and harmonious or fragmented and uncoordinated. More enclosed streets feel intense and urban, while lesser enclosed streets can feel spacious and grand.

Tall buildings can have an adverse effect on street enclosure and the sense of human scale. A tall building in a street frontage can create a significant imbalance in a street scene. Tall buildings located on opposite sides of a street can create excessive enclosure and an undesirable 'canyon' effect. The impact of tall buildings on the enclosure and balance of street scenes should be mitigated by situating the tall building element on top of an urban block and away from the street frontage, to effectively limit the visual impact of greater height on the street space, or alternatively by moving the tall building significantly back from the building line.

Tall buildings, with their large grain, substantial bulk, clean lines and modern materials can represent a jarring contrast when next to smaller scale housing, and indeed can have the effect of visually demeaning the surrounding area. Tall buildings are often impersonal and therefore weaken the sense of ownership of an area by its people. The domineering impact of tall buildings can be avoided by reducing the height of a tall building, locating it further away from finer grain townscapes or by introducing buildings of intermediate heights that visually help to mediate between the smaller and larger scale.

Figure 3.34: Tall buildings failing to create a human-scaled street environment

3.16.3 INTERFACE WITH THE STREET SPACE

In the past many taller buildings have failed to establish a positive relationship with the public realm. Many towers in post-war housing estate developments provide infamous examples for this, often exhibiting large windswept and underused green spaces around the tower base, blank walls and inactive ground floors, poorly marked entrances and over dominant servicing arrangements.

To ensure a tall building sits comfortably within an urban environment it needs to establish a positive relationship and interface with the street space. The building interface with the public realm should generally provide well-defined edges and activated frontages with transparent facades. Leftover spaces and set-backs that create hidden or unsupervised corners in the street space should be avoided. The design will need to contribute to the safety, diversity, vitality, social engagement and 'sense of place' of the building's surroundings, and maximise access for people of all abilities.

Entrances and lobbies should be clearly recognisable, be proportionate to the size and use of the building, while also reinforcing the fine grain of activity at street level. Usually the ground floor of towers should also provide retail or commercial uses that are active, outward looking and help to animate the street space. Blank frontages should be avoided. These spaces together with internal circulation areas within a building should be designed to encourage interaction and foster social cohesion and increase liveability.

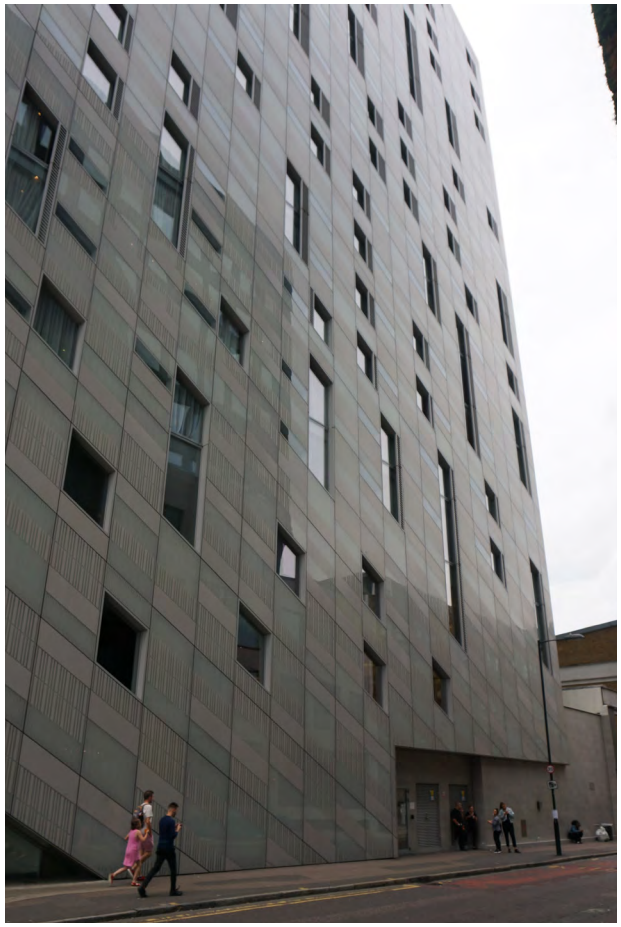

Figure 3.35: Example of a tall building with a negative frontage and poor relationship with the street (Old Street, London)

3.16.4 QUALITY OF THE PUBLIC REALM

The public realm outside the entrance of a tall building should be generous and provide appropriately for the increased pedestrian activity of the building as well as for waiting and mingling of people. Adequate gathering space must be provided around the building to facilitate the evacuation of the building in case of an emergency.

The vehicular drop off for the building should be at the back of the carriageway or otherwise away from the main entrance to avoid conflicts with pedestrian activity. Access to servicing should be realised at the side or rear of the building away from pedestrian activity. The width of driveways and vehicular entrances should be consolidated and minimised, and routes should not create barriers at street level.

Figure 3.36: Example of a high quality public realm at the base of a building

3.16.5 PARKING

In areas where there is an expectation of car ownership, the provision of parking alongside tall buildings can be an issue. Tall buildings, particularly residential buildings, can result in a high demand for parking in a relatively small area. The way this parking is designed with the scheme is important.

Surface car parking surrounding a tall building results in a poor pedestrian experience and is an inefficient use of land. Undercroft parking, where cars are essentially parked at ground floor level underneath the building are unsightly and sever the buildings connection to the street, affecting the quality and animation at ground level.

In the European context, underground parking garages in tall buildings are common place. These are a good solution as they are largely hidden, have a smaller impact on the streetscene and free up the ground floor for other uses. However, they are expensive to construct and so may be resisted in contexts of lower viability.

In North America, many large tall buildings integrate parking into the lower floors of the structure, above the ground floor, which is usually used for active commercial uses.

A potential solution for larger sites is to locate parking central to a development block, with a communal open space on top. This retains active frontages on the perimeter and makes good use of the parking structure itself. An area-wide solution for larger sites is to centralise parking in a multi-storey car park. This is better value and is future proof as automated vehicles and car sharing may reduce the need for individual car ownership in the near future. In this case, standalone multi-storey car parks are easier to redevelop or convert than parking solutions integrated into a tall building.

Tall buildings should also integrate cycle parking. An issue faced by apartment buildings with no communal cycle parking is that cyclists have to carry their bikes up stairs or in lifts, potentially creating a increased need for cleaning and maintenance of communal spaces. Without formal parking facilities, it is common for residents to lock bikes to handrails in communal hallways, creating a fire risk. The provision of secure, well-lit communal cycle parking that is easily accessible from the street solves these issues and encourages active travel.

3.16.6 HIGH QUALITY URBAN DESIGN

Tall building proposals need to demonstrate their understanding of the urban design and movement issues within the wider and immediate site context and establish how the proposal contributes to the enhancement of the connectivity, function, amenity and character of the surrounding area.

As with any other development, the authority's design policies apply in guiding an appropriate and high quality design response. However, given their prominence and size, tall building developments should bring forward an exceptionally well considered and exemplar urban design response including, but not limited to, the following aspects:

- A tall building development should appropriately address the connectivity of the site and the permeability of the wider area;
- Through the location of height and expression of the built form a scheme should contribute to the legibility of the townscape, for example by opening up or terminating views or by articulating a point of significance;
- The height and massing of the development needs to consider how it integrates the tall building element and prevent it from feeling 'overbearing' onto surrounding streets, and existing and new developments;
- The distance between buildings, which must demonstrate the quality of accommodation and residential experience;
- A development proposal should demonstrate how it has considered the scale of surrounding streets and spaces, their sense of enclosure and the quality of the ground floor experience;
- Parking and servicing provision should be integrated within the development and avoid dominating the public realm or detract from the animation of the street space, and
- Excessive enclosure or the creation of a 'canyon' effect should be avoided, for example by applying set-backs to effectively limit the visual impact of greater height on the street space.

3.17 MICROCLIMATIC IMPACT

Tall buildings, due to their size and their significant extension above the typical height in an area, will have significantly greater impacts on the local microclimate than other ordinary building types. The following micro-climatic impacts will need particular attention:

3.17.1 WIND IMPACT

Tall buildings, as they reach above the general height of an area, disturb wind patterns. They can create downdraughts, turbulence, as well as higher wind speeds, especially around building corners. Proximity between tall buildings can create a wind canyon effect with intense wind acceleration. These wind features can have a significant impact on the quality and safety of the public realm around the building. Airflows can also create noise when interacting with a buildings form or detailing, which can be annoying and detract from the amenity of spaces and building uses.

Buildings with a height of 1.5x the surrounding context height are likely to deflect wind downwards, which could result in discomfort or unsafe conditions for pedestrians. Tall building proposals should be tested and refined with the aid of physical wind tunnel testing or computational fluid dynamics modelling. This should consider all wind directions (not only prevailing winds) and be carried out at concept design stage.

Following testing, the design of tall buildings and the positioning, orientation and form of height on the buildings base should consider and aim to mitigate the impact of redirected wind, especially where it directly affects people. Setting back of the taller building element on the base or the provision of low-level canopies can help to reduce the impact of wind on the public realm. The design of the building and detailing of the façade should consider and mitigate against wind noise.

Figure 3.37: Pedestrians shielding themselves against the wind beneath a tall building

3.17.2 OVERSHADOWING AND DAY LIGHTING

As the sun moves throughout the day tall buildings create a wandering shadow pattern that can significantly affect the quality and amenity of surrounding areas and uses. It can block sunshine from reaching neighbouring uses and overshadow public spaces, courtyards or gardens.

Direct sunlight has a clear amenity value and is important for the enjoyment particularly of balconies, private outdoor spaces, communal courtyards as well as public spaces. As part of the design phase the massing and siting of a development and its elements should be tested to minimise impact of shadowing, on it surrounding spaces and buildings.

Placing more floor space in lower parts of the building and moving the tall building element back from the open space or other sensitive area where shadowing is pronounced, can help to alleviate the problem.

Development should also consider daylighting, that is the amount of skyview visible, not only from indoors (within development and affected neighbouring developments), but also from open spaces, courtyards and the street space. Adequate skyview can make an area feel more pleasant. The skyview can be enhanced through the setting back of taller building elements from the building front or the modulation of its shape and form.

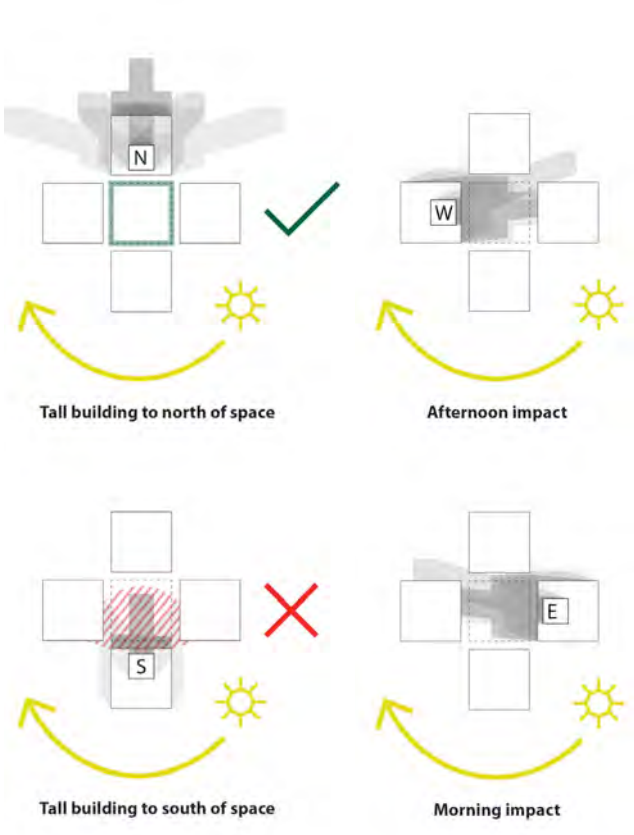

Figure 3.38: The orientation of tall buildings in relation to open space will effect levels of overshadowing and daylighting

3.17.3 LIGHT POLLUTION AND GLARE

Tall buildings, particularly if they are designed with large amounts of glazing can cause light pollution at night and glare from the sun during the day.

Excessive light pollution can be caused by light from within the building shining out of windows, which is particularly the case with office buildings that keep internal lights on at night. It can also be caused by feature lighting to the building or illuminated signs. In either case, there can be a negative impact on neighbouring residential amenity. Light pollution also has effects on wildlife, disrupting bats and migrating birds.

The design of tall buildings must consider light pollution and demonstrate that measures have been taken to reduce its effects, which may include a reduction in the amount of glazing.

Glare is caused by the sun reflecting off a building's facade and disturbing nearby residents and motorists. Glare is largely determined by the type of materials used (their finish and reflectivity) and the form of the building. Certain facade designs can concentrate the reflection of sunlight and in some cases can pose a safety risk by dazzling motorists. The design of tall buildings must demonstrate that they will not cause excessive levels of glare.

3.18 RESIDENTIAL AMENITY

Tall building design needs to pay particular attention in residential environments, to privacy, amenity and overshadowing. Inappropriately planned, designed and located tall buildings can detract seriously from the quality of a residential environment. Tall buildings may overshadow, overlook and dominate their immediate surroundings and have harmful effects on living conditions, private gardens, patios and public spaces.

Tall buildings can represent a jarring contrast when built in low-rise housing areas, and have the effect of visually demeaning the surrounding area. Tall buildings are often impersonal and therefore weaken the sense of ownership of an area by its people.

They may also undermine residential amenity and privacy of existing and future residents through loss of day and sun-lighting and overlooking.

3.18.1 SUN AND DAYLIGHTING

Central core in higher and tall developments make provision of dual aspect dwelling difficult often leading to a prevalence of single aspect units. Single aspect units can cause issues of insufficient levels of ventilation and overheating from sun exposure. Overheating can be a particular problem in taller buildings as they are generally more exposed to the sunlight and less able to benefit from contextual shading. Furthermore, tall buildings often have a greater level of glassing to maximise on views from the building, which without effective level's of (external) shading may create sun-traps. Overheating of homes in tall buildings may be exacerbated where the ability to open window is restricted for safety reasons.

North facing single aspect units are problematic as they do receive little or no direct sun-light, and in taller buildings are less likely to benefit from reflected secondary light. As a general principle north facing units should be avoided. Single aspect units, especially where they are set back behind or underneath balconies may also suffer from lack of daylight, especially in the inner parts of the accommodation, where they may require artificial lighting even during day-time.

Figure 3.39: Tall buildings, if improperly sited and designed, can block daylight and result in dark spaces in residences and public realm

3.18.2 OVERLOOKING, PRIVACY AND OUTLOOK

High density development that includes tall buildings on compact sites can result in overlooking between dwellings and lack of privacy. This is largely to do with an overdevelopment of sites where dwellings are facing one another without adequate separation. In this scenario, residents can feel like their homes are on show and exposed. It may result in curtains and blinds being constantly closed to avoid real or perceived overlooking, which further reduces daylighting and the quality of life of residents. Other impacts of too-close development is that the outlook from dwellings, particularly those on lower floors, can be dominated by other buildings, creating a claustrophobic and dark outlook, a lack of sky view, and reduced daylight reaching the interior of buildings.

To combat this, many authorities stipulate a minimum separation distance between buildings, which may be different for tall buildings compared to lower rise development. For instance, the City of Toronto stipulates a minimum separation distance of 25m between tall buildings and this distance is expected to increase as buildings become taller. This approach is usable as the city is organised on a grid with standard road widths and development blocks. However, in more complex environments where each tall building proposal will have unique circumstances, a minimum separation distance may be restrictive or arbitrary.

However, local authorities can be proactive in setting preferred separation distances on a site by site basis. Promoters of tall buildings should demonstrate that adequate separation has been incorporated into their scheme. Sites where adequate separation cannot be maintained may be inappropriate for multiple tall buildings. Proposals near to existing tall buildings, especially in clusters, must demonstrate that they will be appropriately separated. Privacy should also be safeguarded through the design of the building and aspect of dwellings and private open spaces, for instance through orientation, articulation and setbacks.

Figure 3.41: This development makes use of a central open space to provide a wide separation distance between residential units (Sluseholmen, Sweden)

3.18.3 COMMUNAL AND PRIVATE AMENITY SPACES

Living in a tall building, particularly in the upper floors, can result in a sense of separation from the outside world. Local authority planning policy usually stipulates minimum outdoor private amenity space. This may be in the form of communal courtyards and gardens, private gardens at ground floor level, balconies, terraces or communal rooftop open space. These spaces are important within tall buildings to reduce any feeling of isolation or claustrophobia.

Where communal open space is provided, it should typically be at the centre of the development with substantial overlooking. These spaces should be accessible for those who require level access, such as wheelchair users, and should be orientated to maximise sunlight and daylight. An appropriate separation and buffer between private open space (such as ground floor gardens and patios), residential windows and communal open space should be created, to maintain privacy and make clear what areas can be used by anyone.

On upper floors, typically balconies will be the main outdoor amenity space for residents. Balconies should be large enough so residents can make effective use of them, for instance for a table and chairs. Tall buildings with dual aspect dwellings should explore the potential of having more than one balcony on different sides of the building to maximise use throughout the day. However, excessive or poorly designed balconies can add considerable bulk to a building and result in overshadowing of windows, and so should be designed carefully.

Developments that feature family housing units should provide outdoor play space for children based on an assessment of estimated child occupancy. Play spaces should be accessible for children who require level access. The internal arrangement of the building should be designed so family sized units overlook children's play areas.

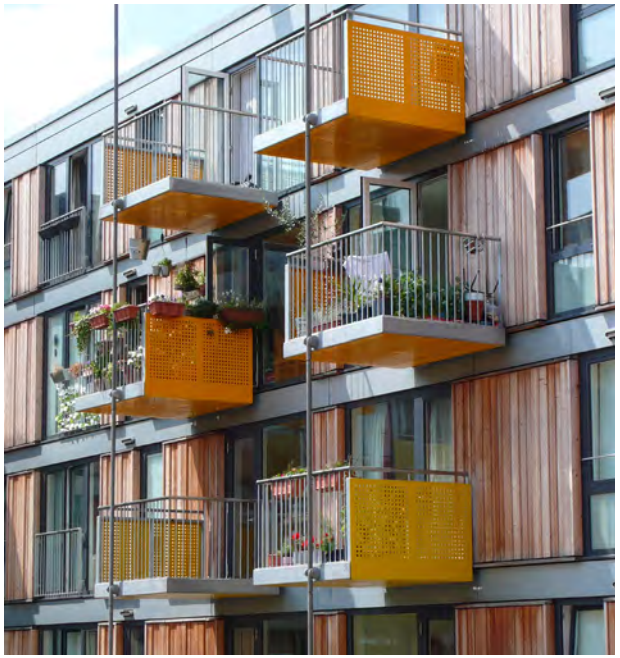

Figure 3.40: Large, high quality balconies can provide valued outdoor space to tall building residents (Hackney, London)

3.18.4 ACCESS AND SERVICING

Tall buildings by their nature require space for services such as utilities, central rubbish disposal, deliveries, loading and maintenance. In standalone tall buildings, these “back of house” activities can take up significant amounts of the ground floor frontage, creating a poor pedestrian environment and unattractive facades. Generally, in tall buildings that are incorporated above a podium or larger development block, back of house activities can be incorporated with less impact on the streetscene.

Servicing should be concealed behind and within buildings, and access should be provided at the rear of the building via a separate lane, away from the public realm. The extent of the site dedicated to these activities can be minimised through shared access, a comprehensive design approach and efficient layouts. If servicing must face the public realm, due to site constraints, it should be designed in such as way as to minimise its visual impact.

Service entrances should use high quality materials and can become a design feature of the building, incorporating artwork or interesting architectural detailing. Entrances should be recessed to reduce their prominence in the streetscene, and can be screened with landscaping or architectural elements.

3.19 INFRASTRUCTURE REQUIREMENTS FOR TALL BUILDINGS

Tall buildings can place a greater demand on infrastructure as a consequence of a large number of people locating to an area in a comparatively short period of time. This can have a number of consequences:

3.19.1 UTILITIES AND WASTE

Tall buildings tend to use more energy due to the requirements for lifts, servicing, water, mechanical ventilation, cooling and lighting. This places a particular strain on utilities providers to respond quickly and effectively to meet the residential or commercial requirements. Utilities planning needs take place as early in the development cycle as possible to avoid problem later on relating to utilities provision. Waste management and disposal can also be challenging with sufficient space required for storage and additional strain placed on the waste collections and the local road network.

3.19.2 COMMUNITY FACILITIES

Tall buildings, particularly those with family sized residential units can lead to significant additional pressure and demand for community facilities including schools places and on social and health care. This need must be planned early with educational, social and health care providers. Where possible these requirements should be planned into schemes as sites that can accommodate such provision may not be available.

3.19.3 TRANSPORT AND CONNECTIVITY

Planning for tall buildings close to existing stations and public transport provision is essential. However, assessment of capacity is required and a multi modal approach should be taken that considers the potential to enhance connectivity through new bridges, cross river access and enhanced public realm to overcome infrastructure barriers. The location, design and facilities of tall buildings, as well as the design of the surrounding street network should encourage walking and cycling over private car use.

Figure 3.42: Tall building at Holloway Tube Station, London

3.20 TALL BUILDINGS AND SUSTAINABILITY

3.20.1 SUSTAINABILITY

Tall buildings are less sustainable than medium rise buildings of similar floor space. Due to greater structural and servicing requirements, tall buildings are more resource and carbon intensive to construct per unit of floor area than low or medium rise buildings.

The operation of tall buildings is also more energy intensive and expensive, due to the vertical travel and servicing needs, the high façade to floor area ratio, the need for mechanical ventilation and cooling, as well as the challenges of maintaining and replacing cladding and other building components at height. Due to the prevalence of glass and other light façade materials tall buildings are susceptible to solar gain and overheating, often requiring intensive mechanical ventilation and hence greater amounts of carbon energy. Shadows from towers may result in the loss of daylight and solar gain in neighbouring developments, resulting in greater reliance on artificial light in affected properties.

The greater its height *"the more inefficient the building becomes in terms of the net area measured against carbon emissions from operation, construction and maintenance."* (Simon Sturgis, Sturgis Associates).

Tall buildings are highly specialised structures. They are also typically less adaptable to changing economic circumstances and use requirements, and often need resource intensive and expensive refurbishment, or even complete re-development, when they become dated in layout, performance or appearance. The life expectancy of glazed cladding systems is only 40 to 50 years before replacement is required (Simon Sturgis, Sturgis Associates).

Tall buildings should aim to enhance their energy efficiency through the use of latest sustainable design and construction practices and technologies, with detailed consideration given to the built form configuration and orientation, energy sources and conservation, material source and lifecycle, internal temperature control and use of natural ventilation, water use and conservation and mitigation of water run-off, waste management and on-site ecology. Consideration should also be given to how to reduce the embodied energy in the building and enhance the long-term energy and resource efficiency by designing for flexibility and building adaptation. Renewable energy generation and the installation or future proofing for Photo Voltaics (PVs) should also be considered.

Figure 3.43: External shading can help to control indoor air temperature, reducing the need for air conditioning during hot weather (Millenium Village, Greenwich)

3.20.2 CLIMATE RESILIENCE

Tall buildings, particularly upper floors, are typically exposed to direct sunlight much more than lower rise development. This is particularly true when they are designed with large amounts of glazing and floor to ceiling windows. Whilst this may be welcomed during cooler parts of the year, during the summer it can lead to overheating.

Summers in Britain are projected to become hotter with more frequently occurring heat waves as a result of climate change. The design of tall buildings should take into account how the local climate will change so residents are protected from extreme weather. In the instance of heat waves, this may include external shading structures and the ability for residents to control the amount of shading, for instance through shutters.

Instances of flooding are also expected to increase in Britain and this must be taken into account when locating tall buildings. In certain instances, it may be inappropriate to include residences on ground floor if these would be at risk of flooding.

Innovative solution to urban greening, green and blue infrastructure should be explored in the design of tall buildings. This may include vertical greening, green walls and green or blue roofs.

Figure 3.44: Bosco Verticale (“Vertical Forest”) In Milan is a pioneering example of vertical greening on a tall building

3.21 APPEARANCE, DESIGN AND MATERIALITY

Due to its wider visibility and prominence the architectural quality of a tall building needs specific attention. This should cover the following aspects:

3.21.1 ARCHITECTURAL FORM

Depending on its width and depth a building might appear very different from various angles. Generally it can be distinguished between a point block, where the width and depths are similar, and a slab block where the width sometimes significantly exceeds the depth of the building. The impact of tall slab blocks on their immediate surrounding is usually more severe, particularly in terms of overshadowing and wind funnelling. They also can appear very different from different directions, slender from one angle and bulky from the other, which might affect their distinctiveness and legibility.

3.21.2 SLENDERNESS

A slender tower with a strong sense of verticality, 'reaching to the sky', is commonly considered more attractive and elegant, while a large and bulky tall building can be found intrusive and out of scale in the skyline. The slenderness of a tower can be expressed through the height to width ratio - the greater the ratio - the more slender the building. The slenderness of a building typically is appreciated only from further away, along a vista, across a water body or across the rooftops of the surrounding buildings.

Figure 3.45: The skyline of Vancouver is characterised by slender towers

Floor plan efficiencies that require a certain footprint size within the tower element can make designing a slender tall building challenging, especially in areas where heights are limited to local landmarks only. Here the modulation of the building form and other design measures can help achieve a sense of verticality. For example, the bulk of a building can be subdivided to visually appear composed of a number of vertical elements rather than a single form.

3.21.3 COMPOSITION AND SUB-DIVISION

A tall building can benefit from its form, or architecture, changing with its height. As the eye wanders up and down the shaft of the tower and its supporting base, subdivision and other modulation of form and the façade will make the building more interesting and distinctive. Amenity spaces may be used as dividers within a tall building.

Stepping floors back with increasing height can also make a building appear more slender. A tower that is a simple extrusion of a typical floor plan with a repetitive façade may appear monotonous and unexciting.

A tall building has three compositional elements that should be expressed: the base, the shaft and the top. The top part of a tall building, as it ends the vertical mass of the body, needs careful articulation. A tower that lacks an expressed top usually appears incomplete and unfinished. The top is normally seen in views from further away and its shape and impact on the skyline will need to be considered.

Some feature towers apply a sculptural approach to the entire building, where the shaft and top of the building flow into each other and are expressed more subtlety through the modulation of the form of the building. In more traditional tall buildings the distinction between the shaft and top should be more clearly expressed. The base of the tall building is where it meets the ground, which determines how it is experienced from the street and how well it integrates with and responds to the townscape.

In relation to their base two principal types of tall buildings can be distinguished, the stand-alone tower, and the tower that sits on top of a podium or develops out of an urban block.

Stand-alone towers can be more iconic sculptural features. However, due to the concentration of functions at the bottom of the tower and limited footprint, they often establish a poor relationship with the public realm around the base. Towers that develop out of an urban block or podium can usually better internalise their servicing requirements and establish an active relationship to the street space all around the block. The more the tower element sits back from the building line of the street block the lesser will its impact be on the scale and enclosure of the street space and the character of an area.

Setting back the tower can also improve the micro climatic condition in the street space around the building. Towers developing out of urban blocks relate better to the human scale perception of the street space, and are generally the preferable type of tall buildings in an urban context.

Figure 3.46: Tall building in Barcelona that makes use of a novel sculptural form

3.21.4 ORIENTATION

As a tall building will be visible from many places it must have an outlook to all sides. In some instances a tall building may benefit from a principal orientation towards a particular side or direction, for example to address an important view or to orientate toward river, waterfront or open space. However, buildings that are recognisable as a single coherent sculptural object from all around are easier to recognise than buildings that appear different from different angles. While a tall building may assume a special response towards a particular side or direction, all facades should have openings or windows and provide an active frontage. No blank frontages should be permitted.

3.21.5 MATERIALITY AND DETAILING

The materiality, detail and texture of façade, its colour in relation to its back-drop, such as the sky or other tall buildings, its night time impression, feature and aircraft warning lighting, are all important aspects that affect the appearance and impact of a tall building in views both from afar as well as close up.

The choice of facing materials is often important to assist in visually weaving the new building into its established surroundings, or where appropriately provide a contrast.

At design stage they need to be carefully tested through three-dimensional modelling and visualisations to fully understand their impact.

Consideration should be given to how design detailing is perceived both from close up and in long distance views. Materials should be durable and offer longevity, and should be fully justified in relation to the typical palette of materials and colours in its location.

All aspects of the design should be represented in accurate visualisations including façade details to allow a detailed three dimensional understanding of the tall building proposals from all sides and from important views and to allow an assessment of its landmark qualities.

Figure 3.47: Many contemporary tall buildings have a two-dimensional and artificial appearance

3.21.6 LIGHTING

As previously discussed, the lighting of buildings can have negative impacts on residential amenity and wildlife. However, the careful design of architectural lighting can enhance the night time appearance of a building and contribute to an interesting skyline.

In the case of special, district landmark scale tall buildings, it may be encouraged to light the facade of the building to celebrate the building and enhance its appearance at night. However, it must be carefully designed to avoid excessive light pollution and nuisance to residents of the building and surrounding homes. Lighting should always be energy efficient and designed in consultation with an ecologist to minimise impact on biodiversity, if relevant.

However, tall buildings should avoid excessive illuminated signs and advertisements that do not contribute to the architecture of the building or its place within the skyline.