



ABP Pre-Application  
Consultation Reference  
306158-19

Waterfront South Central -  
SHD Planning Application

Waterside Block 9  
Developments Ltd

December 2020

LIVING IN TALL BUILDINGS



With growing pressures on transport infrastructure, an increasingly younger population and global trends towards more ecologically conscious living, tall buildings have become a crucial part of delivering the volume of suitable, quality housing required.

Development land is becoming increasingly scarce, particularly in Dublin City, so maximising density on available land is crucial. Innovative architectural design developed and perfected across many of the world's major cities has helped develop how to deliver such density in a sensitive, sustainable and aesthetically pleasing way, whilst at the same time elevating the occupier's experience and quality of living in numerous ways.

With a need to preserve greenfield sites and prioritise the re-imagining of what are often obsolete brownfield sites, high density tall buildings allow for these sites not only to have their uses changed but to be made extraordinary and something that the local community can be proud of. As Dublin grows year on year, the increasing strain on roads becomes greater and high density buildings located close to transport hubs encourage less reliance on personal vehicles by making travel via public transport easier and more accessible.

Creating a high concentration of individuals living in a central Dublin location, also creates opportunities for employees to be able to live and work within a walking/cycling distance and therefore eliminating reliance on transport for the daily commute, thus dramatically reducing the residents' carbon footprint.

Population forecasts undertaken by the United Nations show that, not only is Dublin expected to be the fastest growing capital city in Europe between 2020 and 2035, it is expected to be the fastest growing city of any of the 162 European cities greater than 300,000 people over the period.

Overall, the city is expected to grow by 18%, three times the average expected growth rate of 6%. Of course, while this is the most expected scenario according to the UN, it is just one of a number of paths that population growth may take. Consulting the Central Statistics Office (CSO) regional population projections published in June 2019, helps give a better understanding of the range of scenarios that may unfold, as it provides six scenarios for population growth in Dublin covering the same period as the UN forecast.

The primary determinants of these forecasts are based on three net inward migration scenarios of population growth at a national level (namely 10,000, 20,000 and 30,000 per annum) and are combined with internal distribution of this population growth under 'Dublin Inflow' and 'Dublin Outflow' scenarios. The latter are likely to be influenced heavily on whether infrastructural issues in Dublin – particularly those related to housing – are addressed.

The analysis shows that the 18% forecast by the UN is in-line with the third highest CSO projection for Dublin for the period, with the range of forecasts going from just 2% at the lower end to 28% under the highest scenario. The wide range in potential outcomes highlights that, while Dublin has the greatest potential according to the UN, it must undertake the necessary infrastructural investment for this potential to be realised.

It is vital that we begin planning now for not only where this new population will live, but minimising the impact on transport infrastructure, ecological impact and future-proofing modern day homes that foster community.

Activation of neighbourhoods through sufficient critical mass of residents is critical to sustaining local Irish business in the vicinity and creation of this type of housing also promotes and acknowledges the diversity of household make-up and occupancy that exists today.

The site at Waterfront South Central SHD is a former goods and yards site, consisting of a 1.15 ha in size with little to no ecology, due to the site being demolished prior to purchase. Formally known within the SDZ as City Block 9 it is located in close proximity to the Luas Terminal and Point Square.

New public realm enhancements, including the planting of trees, are taking place within Point Square and surrounding streets, thus these street trees are providing important nesting, roosting, feeding, and commuting opportunities for many wildlife species (such as birds and bats) and are an important component of the City's Green Infrastructure Network.

As part of the overall Landscape Strategy, Cameo & Partners have demonstrated how they also aim to protect and enhance the diversity and range of habitats, species and wildlife corridors/green corridors within the SDZ area, in relationship to this development and neighbouring streets. The formal definition of biodiversity from the International Convention on Biological Diversity is "the variety of living organisms across all ecosystems, and the ecological complexes they are part of, including diversity within, and between, species and ecosystems". Conservation of biodiversity will assist in maintaining ecosystem services that are essential for human life to persist.



“Dublin is expected to be the fastest growing capital city in Europe between 2020 and 2035, it is expected to be the fastest growing city of any of the 162 European cities greater than 300,000 people”

## PROXIMITY

The priority location for tall buildings should be in areas with excellent transport links, shopping, restaurants and leisure facilities nearby and major centres of employment within walking or cycling distance.



Historically, tall buildings in many cities created negative connotations resulting in a backlash against much of what was constructed in the 1970s.

Over the last decade, however, cities like London, Frankfurt, Amsterdam and Paris have seen a huge change in perception and desirability with innovative and sensitive design, engineering and construction increasing the recognition that well managed high density buildings have a role to play in meeting major cities' rapidly growing housing needs.

Across these cities, these new tall buildings present an excellent economic and social opportunity to accelerate the delivery of thousands of much needed new homes in central urban locations (often activating brownfield sites) and predominantly located close to major transport hubs, areas of major employment and services.

However, tall buildings have suffered from a poor reputation in many countries, particularly Ireland and the UK as a result of the mistakes of the past. Much of this is actually the legacy of poor building management of some local authority owned blocks in the 1960s and 70s.

As a result of this lack of diligence, the general public adopted the view that tall buildings are generally in disrepair, poorly planned/managed public areas, unsafe and no community interaction by their residents both within the building and the surrounding vicinity.

The tall buildings being designed and constructed today bear no resemblance to those social housing towers of the past. In many major cities they will be concentrated in areas of major employment and are often themselves mixed use and, in many cases, mixed tenure. However, still one of the most important elements of their success is the long term management strategy fostered from the initial design concept and at the heart of any successful high density tall building.

The advent of tall residential buildings with mixed tenure is a forward thinking and ground-breaking opportunity for Dublin. Whilst there are lessons to be taken from past experience, these present new and different challenges.

Ballymun Towers



Amsterdam



Frankfurt



Paris



## CHANGING EMPLOYMENT ENVIRONMENT AND HOUSING SHORTAGE

Delivery of a sufficient number of homes in close proximity to major employment hubs is a vital element of continued large scale investment in many of Dublin's major employment sectors.

The importance of the tech sector, both at a national and global level, is only going to grow. Dublin has fought hard to establish itself as a tech hub of global standing. This creates huge opportunities for home-grown businesses to create and scale global businesses from here in Dublin. These opportunities wouldn't have been possible in the absence of the tech sector.

In addition, these companies create demand for home-grown professional services firms, as well as growing consumer spending power through wages which creates opportunities for those in the retail sector.

Jos van Ommeren and Eva Guitierrez-i-Puigarnau of The Tinbergen Institute for economic research and the VU University Amsterdam undertook detailed research into employees' productivity and absenteeism related to a long commute time to work.

Analysing workers in Germany, they assessed the negative effect of the length of the commute on the worker's productivity by examining the resulting absenteeism.

Based on their findings, they estimate that, on average, absenteeism would be 16% less if workers had a negligible commute. These results were consistent with urban efficiency wage models.

In a paper published by the Office of National Statistics in the UK which examined the relationship between commuting to work and personal well-being they found that, on average,

*"commuters have a lower life satisfaction, a lower sense that their daily activities are worthwhile, lower levels of happiness and higher anxiety on average than non-commuters."*

The effect was greatest on commuters travelling more than 61 minutes where the effect was seen across all four areas, compared to those least affected with a journey time of 15 minutes or less to work.

Furthermore, research undertaken by Gabriel M. Ahlfeldt and Elizabetta Pietrostefani published by the Munich Society for the Promotion of Economic Research in November 2017 found that positive economic effects of high density development in central urban areas are many.

According to Eurostat, Ireland has one of the youngest populations in Europe - **33% of the population is aged under 25**, the highest rate in Europe - only 4.8% of people in Ireland live in apartments, the lowest in Europe.

At the heart of the housing shortage in Dublin is a mismatch between the cost of delivering housing versus the price at which people are able to afford. While no one argues that regulations ensuring safe and well-built residential stock are not worth the costs they incur, there are certainly other unnecessary costs and barriers that affect the viability of delivering new residential supply.

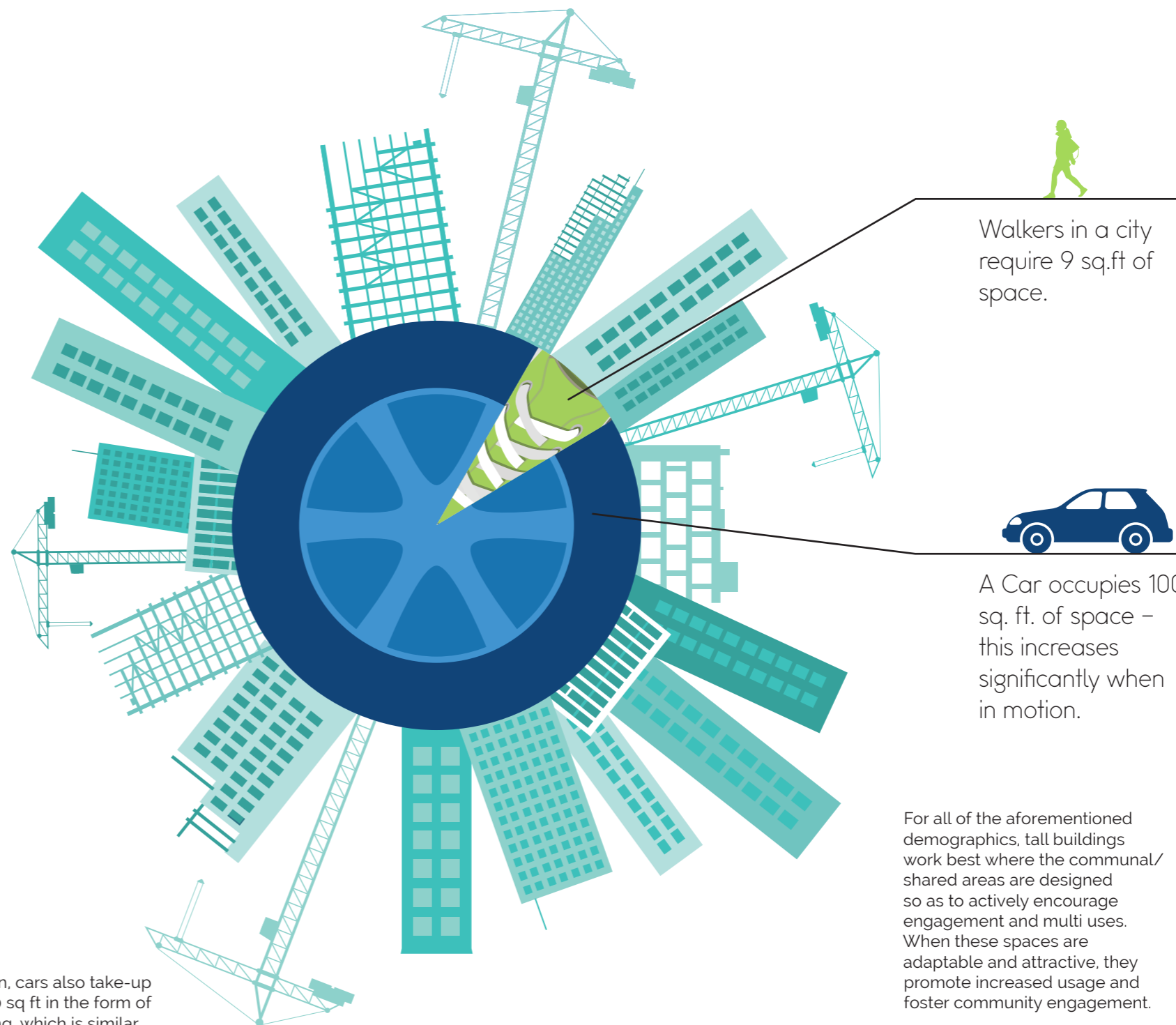
One of the biggest barriers to development has been height restrictions - they have led to a lack of density in Dublin City Centre and have further resulted in car driven urban sprawl which is not sustainable in the longer term.

Research by Edward Glaeser, Professor of Economics at Harvard and perhaps the world's pre-eminent urban economist, outlines how urban sprawl costs cities. According to Glaeser, someone walking in a city requires about 9 sq ft of space. Contrast this with someone driving a car.

An average sized car occupies 100 sq ft of space, a figure that increases significantly when one considers the space it requires to keep a safe distance from other cars while in motion.

In addition, cars also take-up about 120 sq ft in the form of car parking, which is similar to the amount of office space occupied by a worker in an office building. Therefore, people that drive have typically twice the space footprint of someone who walks to work.

Measures have been taken by Dublin City Council to increase efficiency of land, including converting a lane along the north quays from car use to bus use, however much more is needed and by far the best way to increase land efficiency is by building up; it allows people to live closer to where they work and eliminates the need for transport altogether.



Walkers in a city require 9 sq.ft of space.

A Car occupies 100 sq. ft. of space – this increases significantly when in motion.

For all of the aforementioned demographics, tall buildings work best where the communal/ shared areas are designed so as to actively encourage engagement and multi uses. When these spaces are adaptable and attractive, they promote increased usage and foster community engagement.

Tall buildings are fast becoming the way many Dubliners desire to live, creating housing that removes competition from much needed larger family homes.

Well designed, landmark buildings are also key to keeping Dublin on track with global housing shifts, delivering what the residents of today and tomorrow demand and need whilst at the same time reducing the ecological impact of building, increasing the deliverable volume of homes and contributing to the future architectural heritage of Dublin City.

Resident well-being is a primary factor in determining the success of any development and no-more-so than in high density tall buildings. People's day to day experience and sense of comfort and security whilst living in a building are major contributing factors to their overall quality of life.

In the design and planning of tall buildings, the lessons of the past failures and the need to overcome perceptions based on those failings are very real. Whilst there is no universal standardised method of measuring well-being, we do know that the central locality, proximity to amenities, reduced environmental impact and reduction of commute times to work are factors cited by many different occupants who already choose to live in tall buildings all over the world.

The shortage of private, rented and social accommodation in central Dublin is a major contributing factor in buyers, social and private residents having to compromise on where they are able to live and, in many cases, dramatically increasing their commute time to work which is widely acknowledged as directly affecting someone's happiness and sense of satisfaction with their quality of life.

That said, it is important to acknowledge that in many locations, whilst tall buildings provide desirable and efficient accommodation for many household types they are often viewed as less suitable for families with younger or school age children. The central location can make it harder in terms of proximity to a variety of amenities such as schooling, sports facilities and child oriented public spaces and leisure facilities. Tall buildings, however, are not only a solution for both older and younger households without children, but also helps to reduce competition for family homes by offering something more suitable, and designed with a range of households in mind.

For a number of complex and interrelated reasons, middle and higher income families tend to be more satisfied with tall buildings. What is likely to be most important, however, is not the income of families per se but the opportunities and space that residents have to leave the house and travel easily. This dictates their ability to meet and socialise with friends and neighbours or have personal time away from family members. Middle and higher income families are likely to be able to access services and opportunities to socialise outside of the home more easily, which makes higher density living more appealing.

Whilst a developer cannot affect the income of new residents, good access to public transport and access to community space to socialise cheaply outside of the home could improve the satisfaction of lower income residents in tall buildings.

As reflected in many major cities throughout Europe and beyond, Dublin is seeing an increase in the number of older residents seeking to improve their quality of life by down-sizing. Often referred to as "empty-nesters" a significant factor of residential satisfaction is the ability to control our environment and whilst larger homes with gardens may provide the opportunity for greater control during younger years, there is an increasing risk that in older age the obligations of upkeep may cause a feeling of being burdened by the home environment.

The growing trend of residents aged 50+ whose children have left home are acknowledging that they can derive significant benefits from having contracted-in maintenance and management facilities and living closely with other people who can provide a support network.

With increased life expectancy and medical science allowing much of the population to live comfortably well into their retirement without ever needing to live in a monitored community, high density tall buildings offer an opportunity to remain integrated and active within the community; mobility becomes less of an issue with buildings designed for easy, level access (eliminating stairs) and central locations providing amenities, transport and cultural venues all within a short distance.

Young single people living alone or sharing with friends and young working couples are also particularly suited to living at higher densities and in central locations. As much of their day will be spent at work or socialising outside the home, a greater emphasis is put on commute time to work, proximity to amenities and easy access to transport.

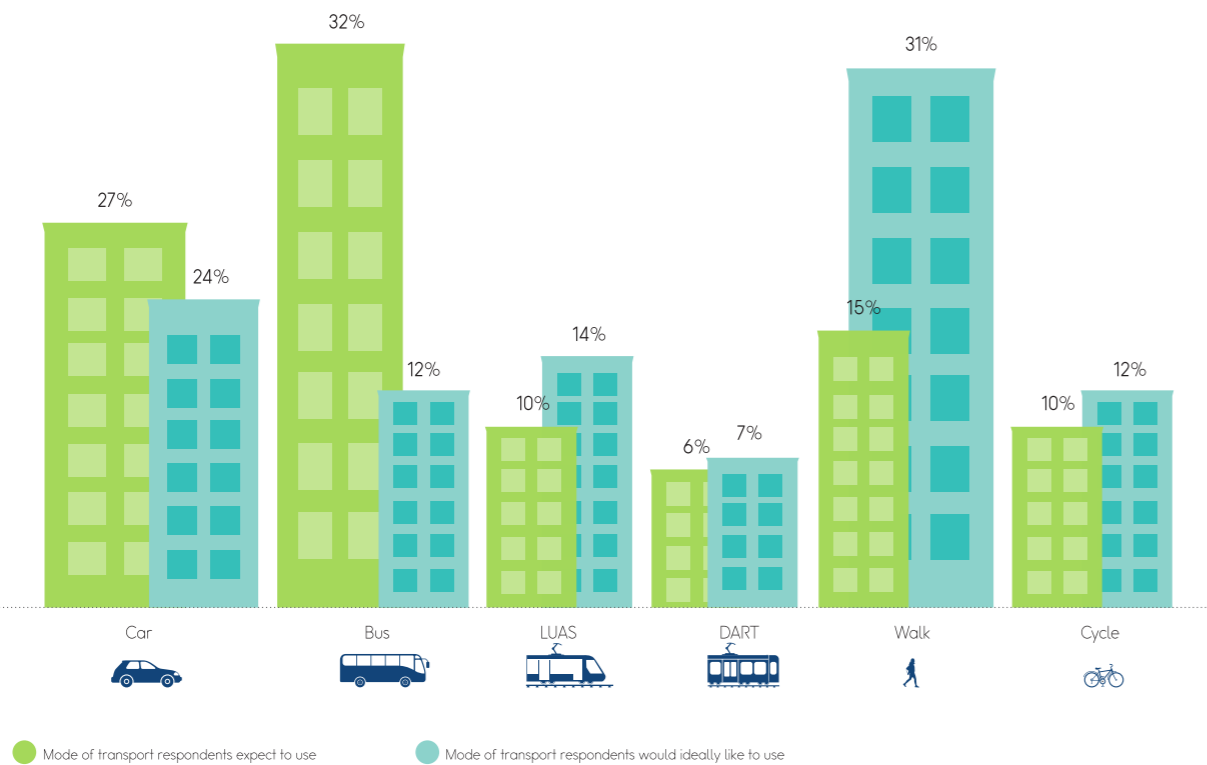
Benefit is also derived from the ease of being able to rely on a trustworthy building management structure which allows them both peace of mind and the ability to budget easily.

Developers (and their partners, the Council and social housing providers) should consider what types of household are likely to benefit most from, and be most satisfied in, tall buildings, and consider policies for housing allocations based on this.

Writing in Architectural Science Review, Robert Gifford highlighted that choice in living at high density is also important: residents are much more likely to consider tall buildings to be appropriate for their lifestyle and be more satisfied if they have chosen to live there.

"Architecture is really about well-being. I think that people want to feel good in a space... On the one hand it's about shelter, but it's also about pleasure." – Zaha Hadid





REDUCING OUR FOOTPRINT

We know that walking to work is also the preferred option for commuters in Dublin thanks to recent research undertaken by Knight Frank. In a recent survey of over 1,200 people currently looking for rental accommodation in Dublin, walking was given as the ideal way of getting to work (31%). However, due to the lack of availability of suitable accommodation close to work, just half of that number (15%) envisaged finding a place that would allow them to do so.

In addition, opposing greater heights from a preservation point of view is misguided. According to Edward Glaeser, 'Smarter preservation would push new buildings to be taller, not shorter. Building taller, new structures would reduce the pressure to tear down other, older monuments.' A survey commissioned by RGRE showed that the majority of Dubliners are in favour of greater heights.

Edward Glaeser also cites research relating to Massachusetts that shows every rule that imposes a land-use restriction on development is associated with a 10 per cent drop in construction. Ultimately he says, 'if you require more land per home, you get fewer homes and high prices.'

The final consideration in favour of greater heights are its green credentials. Building upwards rather than outwards is much greener as it reduces the distance people travel to work, by car in particular.

It also ensures a more efficient use of living space per capita as apartments are smaller than houses and allows efficiency in the provision of services such as water.

Those who stop development in the city centre ensure development in the suburbs with negative environmental consequences.

To summarise Glaeser:

"Cities are green. Living at high densities and walking is more environmentally friendly than living in a low density suburb and driving everywhere".



The priority location for tall buildings should be in areas with excellent transport links, shopping, restaurants and leisure facilities nearby and major centres of employment within walking or cycling distance. The streetscape should be designed to allow for a substantial increase in footfall arising from the high density of occupants.

The streets should be safe and, where possible, have pedestrian and cyclist priority areas. Streets should be designed to account for the fact that the public realm will provide a valuable leisure asset for residents seeking to socialise outside the home. The ground floor public spaces of the building should be designed to assist in flow of footfall and improved access to both public transport links and pedestrian routes avoiding vehicular traffic.

The ecological credentials of a tall building are further improved when located within short walking distance of public transport hubs. This is a key element of successful high density buildings where the convenience and ease of easily accessible public transport encourages, and in many cases eliminates, reliance on private vehicles in favour of public transport, cycling and walking.

Furthermore, when careful consideration is given to the immediate surrounding area, high density tall buildings can actually improve the location.

A successful example of this is the recently completed Centre Point building in London.

Originally designed in the late 1960s as a commercial office building with a connecting low-rise residential building, the original design isolated the building with high volume vehicular traffic on all sides and through the centre of the site.

The reimagined design which has completed this year delivered much needed high quality private and social housing units in Central London but also reimagined the ground level space effectively providing a pedestrian piazza with retail spaces which created a community space for the residential and surrounding commercial buildings; but also a safe, efficient and direct link between the areas of Soho, Covent Garden and Bloomsbury.

The result of this redevelopment has entirely transformed not just the building itself but also how pedestrians interact and traverse from one neighbourhood to the next.

Promoting not only use by the building's residents but also other local area residents is essential. This can be achieved in many ways, for example:

- Ensuring that streetscapes and pathways through the development either maintain existing routes between the surrounding streets or provide more effective links for the general public
- Improve the feeling of safety within these spaces through design, lighting, visibility and estate management
- Open ground level areas for the use of both residents and the local area community
- Clear signage, lines of sight and improved links between surrounding buildings, transport and streets.

Tall building design must foster strong connections and integration with their surrounding community, enhancing the living experience for everyone, not just the building's residents.



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Intelligent and sympathetic landscaping is key to successful, high density tall buildings.

Not only in terms of environmental impact, but tall buildings are generally located on former brownfield sites and in central urban areas, so the construction of the building with a successful landscaping design and implementation has the ability to actually improve the environment.

Landscaping is predominantly carried out on horizontal planes, on the outside of the building, in gardens or on roof top gardens. It is possible for tall buildings to further explore this solution through planting vertically. It is possible to improve the ecological credentials of a tall building by planting vegetation in no more than 600mm of soil, meaning the loads imposed on the building aren't excessive and can be accommodated within the design.

Credited by Professor Udo Kulterman of Washington University as the inventor of the "bioclimatic skyscraper", Malaysian architect Ken Yeang has devoted much of his career to designing ecologically conscious tall buildings in urban areas.

Yeang believes that tall buildings with ecologically conscious landscaping have the ability to dramatically change the environmental impact in a similar way low-medium rise buildings do through the use of roof planting, green roofs, planter boxes etc.

The benefits of vertical landscaping a tall building are many including:

- The improvement of the ecology of the area by counteracting the building's mass, therefore contributing to the site's ecological approach.
- Enhancing the aesthetics of the structure's visual impact

- Minimising heat reflection and glare off /into the building
- Soft landscaping has the ability to form a sound barrier, serve as a windbreaker and reduce pollution onsite by absorbing carbon dioxide and carbon monoxide.



Ken Yeang  
architecture,  
Interior view

Ken Yeang's  
EDITT Tower,  
Singapore





## WATERFRONT SOUTH CENTRAL – FUTURE VISIONS OF BIODIVERSITY

### BIODIVERSITY STATEMENT CAMEO & PARTNER LANDSCAPE ARCHITECTS

Our landscape strategy will identify in the following sections how we aim to protect and improve the biodiversity within our development.

#### Community engagement, integration and wellbeing

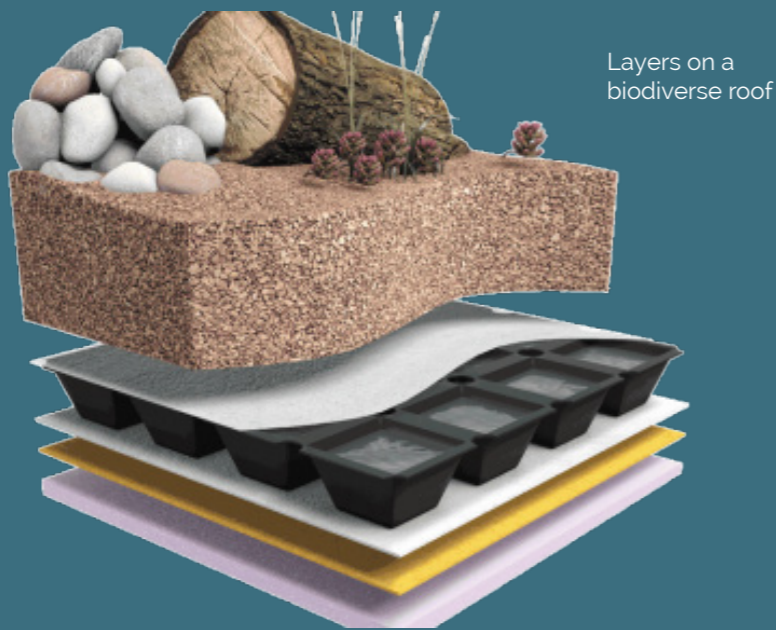
- Engaging residents and encouraging the active participation of residential events. This is being addressed by the introduction of two private allotments within Block A and Block B. The development's biodiversity strategy is planning to engage with local food growing networks to initiate the community schemes and the support provided for resident-led micro enterprises, allowing local citizens to generate income from their produce, increasing the local sustainable food supply.
- Raise awareness of biodiversity whilst providing informal education opportunities for residents to learn about their local environment. As part of the design we have proposed a key garden terrace designated just to biodiversity and the educational value of the design within Block B, to promote community cohesion and improved community relations.
- Recent research has highlighted the significant benefits that urban green space can deliver for mental wellbeing, recording lower levels of mental distress and significantly higher wellbeing. The Faculty of Public Health, in association with Natural England, has also emphasised that increasing contact with green spaces can reduce symptoms of poor mental health and stress, whilst improving mental wellbeing across all age groups.

#### Green infrastructure

- Our design will include coherent sustainable drainage systems (SUD's) through permeable paving, natural run-off into rain gardens within the public realm and water attenuation at roof level to allow slow release of rain water back through the vertical gardens and landscaped terraces.
- In addition, street trees will be naturally watered through road surface water run-off. This has already been implemented in one of our previous developments at Windmill Lane.

#### Urban Farming

- Urban farms, allotments and rooftop permaculture farms, provide a refuge for wildlife and sustainable communities. Urban farming techniques, can provide multi-functional habitats for wildlife within the built environment. For example; our proposals wish to promote the concept of vertical farming which will benefit biodiversity in much the same way as green walls. As well as increasing green corridors and connectivity throughout the urban environment, these 'edible walls' can offer an essential food source for pollinator species such as bees, butterflies and hoverflies within a city. They can provide habitats for invertebrate species which in turn can attract birds and bats into the urban environment.



Layers on a biodiverse roof

### Climate Change Resilience

A site wide strategy of utilising biodiverse roofs, which are proposed to be partially or completely covered with substrate formed of local soil & spoil and self-seeding vegetation, will be implemented wherever it is possible.

The roofscape shares its space with plant equipment, solar collection arrays and other roof infrastructures. Where space is available, the proposals will see a mix of both lightweight and extensive brown roof material which will serve several purposes for the buildings, such as absorbing rainwater, providing insulation, creating habitats for wildlife, helping to lower urban air temperatures and locally mitigating the urban heat island effect.

For example:



1. BirdTrack, using web-based platform for recording bird sightings



2. Leaf Watch, allowing the collection of geolocated photographs for tracking horse chestnut disease



3. Bud Burst which collects plant observations throughout the seasons

These technology promotes of "citizen science" often gives participants a sense of involvement and opportunity to influence the outcome of the project, hence encouraging participation.

### Smart biodiversity

Smart phone apps are creating a new era in the world of data collection, especially with the addition of GPS which has accurate locating abilities. The ease at which members of the public can submit geolocated photographs, has made the validation and verification of species, habitats and diseases a fast and feasible process.



### Summary

The design concept is to start from the sky and work back to ground level through a series of known ecosystems. This will allow us to see where we can improve, promote and sustain existing systems through our design.

Our proposed green roofs will reduce energy consumption and therefore CO2 emissions, of a building helping to reduce the urban heat island effect, and filtering airborne particles and pollutants from the atmosphere, thus improving air quality.

These green roof systems will also be designed to encourage migrating birds, such as swallows (which are on the decline within Dublin City), by helping with their natural migration pattern. On a number of buildings, PV cells will be incorporated above the brown roof finished levels, providing a renewable energy source.

Rain water will be collected on rooftops and terraces; this water will be directed into the landscape through a series of engineered solutions, which retain and slow down this natural process. This rainwater will intern be lead through a series of living green walls, and vertical farming will create not only visual attraction, but provide important habitats for wildlife in these urban areas.

Harvested rain water will also be designed into 'collection features' within the gardens and terraces, allowing a visual connection for the residents and helping strengthen their re-connection with nature.

To the sides of Blocks B & C, living green walls are being introduced; thermal properties of vegetated walls and roofs have been shown to positively impact on the energy consumption of a building. In turn, improving the insulating qualities can help reduce heating requirements during Winter months, while also reducing the need for air conditioning in Summer, hence contributing to lower CO2 emissions.

Following the rainwaters' journey down through each terrace, our goal is to use this natural resource as much as possible. Once the rain water reaches the 'Heart' of the development our design really celebrates this journey as part of a natural rainwater gathering point. The proposed water feature will be self-filling and adaptable to all weather conditions.

Our vision is for residents, workers and visitors to truly connect with the natural cycle of nature at this point. At street level a synchronised landscape layout will create a 'green spine' (lane) running both South to North and East to West, through the development.

To the perimeter of the development our street trees will be chosen for their anti-pollution quality. This approach will be taken throughout all our entire planting selection, regarding species and quality.



Whilst tall residential buildings would be a new addition to the Dublin skyline, they are a proven and successful method of delivering high density, good quality housing that meet the needs and wants of many modern households throughout the world's major urban centres.

We have an opportunity not only to learn from the failures of the tall buildings of the 60s and 70s but, perhaps more importantly, to learn from the successes and triumphs of some of the most iconic residential developments ever built. Right now in Dublin we have a chance to take this wealth of 50 years of knowledge to deliver housing that not only meets the needs of today's resident but also protects and ensures the continued investment, development and success of our communities and economy.

As environmental concerns grow deeper over the world, tall buildings can create sustainable and ecologically sensitive housing which reduces energy consumption and reliance of natural energy resources both in our homes and how we travel.

High density urban housing presents the ideal opportunity to do just that whilst, at the same time, improving the day to day quality of life for not only their inhabitants but also those living in the local area as well as local businesses.

CONCLUSION



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