

Title:	The Special Nature of the European Skyscraper
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The Special Nature of the European Skyscraper

European architecture is at a crossroads. Its commercial and environmental realities are driving buildings ever-higher, but not all are convinced. In this article – contributed by various speakers at the London Conference – we ask: What is special about building tall in Europe? How can a diverse continent incorporate tall buildings into its heritage and culture, while sustainably meeting financial imperatives at scale? What can Europe learn from its history, and from the experiences of building tall elsewhere?

Name that Tower



Peter Rees, City Planning Officer, City of London

In addition to its role in international commerce, the City is the historic core of London. There has been trading in goods and services at this location since pre-Roman times,

more than 2,000 years ago. The economy of that time was just as dependent on transport links and sustainable development as it is

today. The highest navigable point on the River Thames for sea-going vessels coincided with a hill which was large enough to provide a flood-free site for a trading settlement. The Romans came and went, and were followed by the Saxons, Vikings, and Normans. Since medieval times many more of the world's cultures have visited and settled here, producing what is now the most cosmopolitan metropolis on the planet, and, at its center, a very crowded one at that.

In 1986, the City's financial services were deregulated and opened to international

ownership. As the 21st century approached, it was obvious that the City of London, just one square mile, was running out of space. If it was to continue to be the world's leading financial and business center, it needed more offices. The only way to provide them was to build tall.

So, how do you build a cluster of commercial skyscrapers in an historic city? The answer is, "carefully." We have to respect important protected views of St. Paul's Cathedral, the Tower of London, and other important historic landmarks. We also check the impact of proposed new developments upon the smaller

Heron Tower, London – the City's Tallest Building

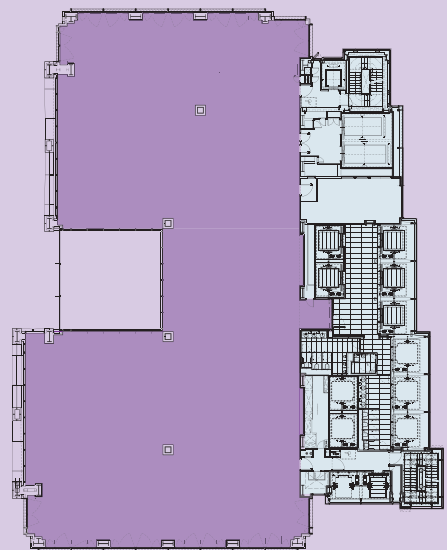
Heron Tower is the City of London's newest completed skyscraper. The developer, Heron International, aimed to create an iconic landmark building at the heart of London's financial district, offering exceptional quality in terms of sustainability, service, design, and finish. The

brief was to create a special building that gave a sense of understated quality, but that also responded to tenants' business requirements by being efficient, sustainable, and easy to work in. The developer was also keen to offer advantages to the public, by improving the areas around the building and including bars and restaurants for everyone to enjoy.

The building's design is based on a series of "villages" – ten groups of three stories and one group of six stories – each arranged around a central atrium. This affords programmatic flexibility and allows enhanced levels of natural light, creating an optimum working environment. The offset core on the south side prevents the office floors from getting hot on a sunny day, and the south façade is covered with photovoltaic cells, which generate energy to reduce the building's electricity consumption.

Stretching 230 meters into the city skyline, the 46-story Heron Tower has the distinction of being the tallest building in the Square Mile, but it is unique in many other ways. The triple-height lobby features Britain's largest privately owned aquarium, which has been used to teach children from local schools and embodies feng shui principles, which is an important consideration for some international tenants. The building also includes high-speed, fully glazed, double-deck lifts.

Just as importantly, Heron Tower strives to provide a real sense of community for people who work there. A concierge service is on hand to cater to tenants' every need, and bars and restaurants on the ground floor and at the top of the building give those working at Heron Tower – as well as members of the public – somewhere to socialize with friends, family, colleagues or clients. The bar on the ground floor has



Heron Tower – typical atrium plan. © Kohn Pedersen Fox Associates

a window enabling guests to look into the aquarium, while those at the top of the building enjoy some of the best views across London. Such amenities highlight that the Heron, and the City in general, have become much more than just a place to work.

Steve Evans,
Development Director, Heron International



Heron Tower, London. © Kohn Pedersen Fox

scaled streets and lanes in the surrounding area. It is often the latter which house the pubs, restaurants, and shops that play an essential part in the life of the business community – as the centers of gossip. With sensitive planning and a lot of negotiation with property developers and their architects, the first few towers of our new cluster began to emerge.

There was considerable suspicion in the media over the impact of these new structures on the famous London skyline, which had been dominated for centuries by the dome of St. Paul's. Our few earlier post-war towers had not captured the public imagination. Thus, when an unusually shaped circular tower designed by Lord Foster was proposed by insurance company Swiss Re the press reacted by giving it a derogatory nickname – the "Erotic Gherkin". In spite of this, the public were captivated by this novel structure emerging on the skyline, quickly adopted it as a new icon of London and shortened its nickname to the "Gherkin" as a sign of affection.

After this, there was a general curiosity about the location, design, and nickname of the next towers to be planned. Thus Lord Rogers' building in Leadenhall Street became the "Cheese-grater" – inspired by the kitchen equipment of his restaurateur wife, Ruth. Rafael Viñoly's tower in Fenchurch Street acquired the nickname "Walkie Talkie" on account of its resemblance to a mobile communications device. Subsequently, mid- and low-rise buildings have begun to acquire nicknames such as the "Can-of-Ham" by Foggo Associates, and the "Stealth-bomber," next to St. Paul's, by Jean Nouvel.

The City of London now features on the itinerary of architectural tourists keen to see the best examples of 21st-century commercial buildings. The world's most acclaimed architects now beg to design a City office building. Whereas 25 years ago office buildings were anonymous workplaces, the latest examples are objects of public and professional admiration. It gives me the greatest pleasure to see tourists frequenting them.

CityLife, Milan

CityLife is the company engaged in the redevelopment of the historic trade fair area of Milan. It is among the biggest regeneration projects currently underway in Europe and one of the most relevant urban renewal projects in Milan.

CityLife covers an area of more than 360,000 square meters and involves an articulated and balanced mix of public and private spaces, including residential accommodation, office space, shops and services, a big public park, and other public facilities. The area is in a strategic position within Milan, close to the city center and easily accessible from airports and close to the motorways. It is already served by an excellent existing public transport network, which will be enhanced by the new Metro Line 5 with a station in its central square.

The development is unique and innovative in many aspects. First, it is driven by a strong ecological logic, beginning from the decision to create an entirely pedestrian area with zero emissions and widely covered by public greenery. CityLife will be Milan's biggest car-free area and one of the largest in Europe, thanks to the decision to move traffic and car parks underground. With the addition of 168,000 square meters of green areas, representing Milan's third largest park, the district will feature extensive cycle paths.

At the heart of CityLife is the Business & Shopping District, which encompasses the three office towers and a wide shopping area. The Business District is made up of three towers designed by Arata Isozaki, Zaha Hadid, and Daniel Libeskind respectively: three outstandingly iconic

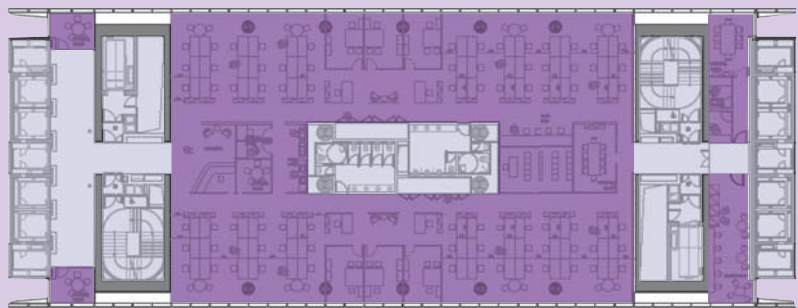


CityLife, Milan – the three towers. © CityLife

buildings that enhance the whole city skyline. They form an office district able to accommodate up to 10,000 people. Three eco-sustainable buildings confirm the "green" approach of the entire CityLife project: Torre Isozaki (202 m) and Torre Hadid (170 m) obtained the LEED Gold pre-certification. Torre Libeskind (150 m) will follow the same certification process.

The CityLife Residences, designed by Zaha Hadid and Daniel Libeskind, are immersed in the park and benefit from the wide range of CityLife services: shopping, cultural and leisure facilities, restaurants and transport. The apartments are of a very high standard of quality and livability, with prestigious materials and fittings, sizes that easily meet a wide range of living requirements, and extensive terraces, affording with spectacular views of the Alps and the city.

Patrizia Repossi, CityLife Development



Torre Isozaki – typical plan. © Arata Isozaki

Do Tall Buildings Belong in European Cities?



Simon Thurley, Chief Executive, English Heritage

There is no denying the glamour and seductiveness of tall buildings. For architects at the pinnacle of their profession, the chance of producing that world class skyscraper

has to be the ultimate ambition. Prizewinning designer Will Alsop, for example, is clearly a great fan of towers. They "give a very metropolitan feeling, they give excitement," he says. For him, "London is an extraordinary city, but if it is going to maintain itself as a world city, it's got to move in that direction."

No less enthusiastic is Daniel Rochard, who argues "How dull cities would be if they had one flat roofline with no landmarks, a kind of suburbia, suburbia, suburbia."

“Whereas 25 years ago office buildings were anonymous workplaces, the latest examples are objects of public and professional admiration. It gives me the greatest pleasure to see tourists frequenting them.”

Peter Rees, City of London

Lord Rogers of Riverside, arch propagandist of tall buildings in London, once described the London skyline as “unbelievably boring,” suggesting that if our ancestors had taken the same attitude to new buildings as those who now resist the march of skyscrapers, “we would never have moved out of caves.”

He teases, of course. But there are clearly two views about tall buildings in historic European cities. By virtue of their size and prominence,

tall buildings can harm the qualities that people value about a place. Generally, where tall buildings have proved unpopular, this has been for specific, rather than abstract reasons. One of the principal failings is that many tall buildings were designed with a lack of appreciation or understanding of the context in which they were to sit – the crux of the matter in a city some thousands of years old. There have also been too many examples which have been unsuitably sited, poorly

designed, and detailed, badly built, or incompetently managed.

Yet historic cities and their skylines must continue to evolve. In the right place, tall buildings may make a positive contribution to city life. They may be notable works of architecture, as shown by the listing of several post-war examples in England. Individually, or in groups, tall buildings undoubtedly affect the image of cities as a whole. The question is whether the effect is for better or worse. In the right place they can serve as beacons of regeneration. In the wrong place, they destroy the very thing that makes a city special.

How are Tall Buildings in Europe Different to the United States?



Rafael Viñoly, Principal,
Rafael Viñoly Architects

Tall buildings in Europe are a more recent phenomenon than in the United States, and exist in a predominantly low-rise and often ancient context. This allows them to more

easily achieve a spectacular contrast that is not often experienced in US cities, where high-rise clusters are far more common. But this is a superficial comparison, and just an accident of history. In my view, the deeper difference, and the one that generally improves the outcome of the design process itself, is the divergent characters of the planning processes that govern this type of development in the United States and Europe.

In the United States, this planning process is prescriptive, efficient, and has everything to do with fulfilling well-established technical and political requirements. It has absolutely nothing to do with design excellence. By contrast, the UK system, with which we are familiar, is not as well defined or efficient, but we believe its peculiarities influence the design outcome for the better.

The planning process for our building at 20 Fenchurch involved extensive consultation

20 Fenchurch Street, London

“We designed 20 Fenchurch Street to respect London’s historic character, by following the contour of the river and the medieval streets that bound the site. But at the same time, it is meant to contribute to the evolution of the high-rise building type.”



20 Fenchurch St., London. © Rafael Viñoly Architects

The “Walkie Talkie,” as 20 Fenchurch Street has been nicknamed, was designed from the start to communicate its presence and innovative public program on the skyline of the city.

The small floor plates at the base gradually expand as they rise to the top. This not only creates more leasable space at the more valuable, higher stories, it also supports a public amenity unlike any other in the city. The large, dramatic, multi-story public sky garden that tops the building is a vertical extension of the public pocket park made possible by the building’s narrow base at street level. Connected to the street through a dedicated bank of elevators facing the Pocket Park, this free public amenity features a bio-diverse garden, cafés, and expansive, 360-degree views of London. The openness and accessibility of this spectacular place in the city engages its residents in unprecedented ways and democratizes the aerial experience of London.

The play of light created when the sun hits the vertical aluminum fins that rise along the tower’s east and west elevations communicates 20 Fenchurch’s physical presence far beyond its siting. The fins rise organically along the building’s fanning shape and wrap over the sky garden. Their structural capacity supports a glass roof over the 50-meter, column-free span, and their shade improves the building’s environmental performance. The north and south elevations feature extensive glazing that maximizes views but also communicates the life within.

Rafael Viñoly, Principal, Rafael Viñoly Architects

with stakeholders whose interrelationships and relative powers were not explicit. This required an iterative process that involved a collaborative approach to design, including engaging with a variety of expert consultants, and deeper engagement with a sophisticated public who, by the same accident of history I mentioned above, is more demanding of design excellence. There are many differences between the process we went through at 20 Fenchurch and those that governed the outcomes of other projects we've done in the United Kingdom, but they were all characterized by the same iterative exploration, both of the design and of the varied stakeholders that somehow managed to successfully contribute to their final design.

London and Manchester – A Contrasting Perspective



Ian Simpson, Director, Ian Simpson Architects

Manchester and London are separated by only 200 miles, but they are two different worlds. The two cities are separated by a chasm, which is reinforced by the experience of designing tall

buildings within each of the two cities and demonstrated by key comparative themes, in particular, process and design.

Manchester embraces change, welcomes investment and seeks to attract jobs and people. It has a politically focused ambition, derived from the need to create a sustainable future for the City.

There is access to decision makers, offering firm and direct leadership, tangible individuals who advise on the merits and drawbacks of proposals at the very earliest stage. Developers welcome clarity in response to the question, "Will this proposal gain political support?" A positive response elicits confidence and commitment in going forward, while avoiding delay and abortive costs.

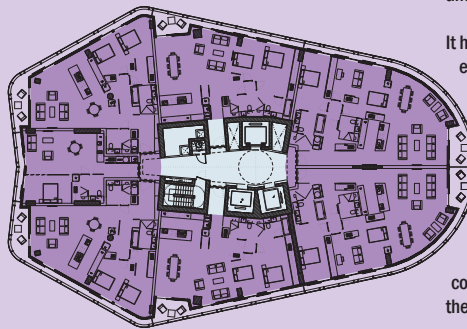
One Blackfriars, London – A Studied Urban Sculpture

In an age of austerity, following the populist criticism of the perceived gratuitous forms of many contemporary London towers, the introduction of One Blackfriars into the skyline of London might be controversial.

The designers of One Blackfriars believe, however, that the building will stand the test of time and that the design is a balance between a contextual response and a sculptural object. A tower needs to address what it is and to raise itself to the challenge that it is a large object. It must deal with scale, proportion, the repetition of elements, and with form, but it also needs to be particular to its place. One Blackfriars attempts to address all these issues. Its formal concept isn't driven by a pre-conceived idea of a certain shape, or from a given architectural stable. Rather, it is a result of the particular forces of the site, both city-wide and local; specifically, the need to respect the daylight of neighboring properties.

These contextual responsibilities, together with the functional pragmatics of its original program, have been fashioned into an object whose unabashed aim is, simply, to be beautiful from every aspect.

The site at One Blackfriars is significant; it is at the heart of the map of central London, marking the northernmost bend in the sinuous route of the Thames through the city. It also marks the southern bridgehead of Blackfriars Bridge and the axial route of Blackfriars Road, and as such is a gateway to Southwark. At the local scale, it needed to be thin at its base, so as not to obstruct



One Blackfriars – Level 19 floor plan. © Ian Simpson Architects

Manchester does have a "Tall Buildings Policy": It consists of two questions: "Is it appropriate?" and "Is it well designed?" It is not a document that seeks to restrict development, create clusters, or gather buildings on the City edge. Land ownership and scale prevent such grandiose strategies; a City core such as Manchester's will fit seven times within the London congestion zone.

The justification process is detailed and comprehensive, but can be undertaken with the confidence that if statutory support is



One Blackfriars, London. © Ian Simpson Architects

daylight into neighboring properties and to create a new public space on the site.

While the main generators of the form are contextual, for example, its direction toward the city; or its thin elevation to the axis of the north and south vistas, the refinement of the form is driven by the desire to improve the proportion and appearance of the building, to make it beautiful.

It has human references, with "shoulder blades" on the east and west elevations, which reduce its apparent width while creating an elegant and distinctive blade-like profile. The flaring of its form in plan, together with its distinctive head, generates a statuesque presence with human proportions. Standing with the imposing poise of a cobra, it is visually appealing and comfortable to the eye. It is a highly studied and articulated form, unapologetically beautiful, that is highly appropriate and specific to its context. One Blackfriars will become a natural addition to the skyline of London that just could not be anywhere else.

Christian Male,
Associate Director, Ian Simpson Architects

forthcoming and an appropriate case can be made, the City will embrace the proposal.

The key constraint to developing tall buildings within regional cities is not process nor design, it is "value." Cost is a fundamental component of value. A regional tall building will inevitably be residential in program, have a small floor plate, support multi-occupancy, and have a simple but hopefully elegant form, wrapped in a cost-effective envelope system.

In London, it is the complete reverse, where the key constraint is “process.” The process is beset by opacity, inherent suspicion, and a default answer of “No!” Values, however, are 10 times regional values with a currently insatiable demand. Construction costs are significantly higher, but need to reflect the price of creating a beautiful, elegant form that, on its merits, garners support through the “process” and establishes value.

There is always demand for a bespoke and unique creation. Contrasting London and the regions is like comparing *couture* with *prêt à porter*, both aspirational but appealing to a different market: a global demand against a regional one.

Each tall building, wherever it is located, is (and should be) unique to place and a direct product of process, program, context, and

demand. As architects, we can only hope to sustain a vision of elegance and beauty, and ensure that any tall building contributes positively to the city skyline, supports the city’s political ambition and inspires its citizens.

What Distinguishes High-rise Living in the European Context?



Harry Handelsman, CEO, Manhattan Loft Corp.

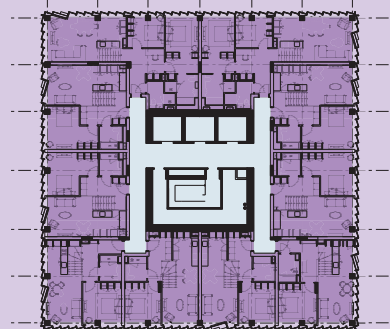
For most of the modern history of tall buildings, residential high-rise has been stigmatized in Europe. This is due to the fact that high-rise residential buildings have mostly been a government response

in the form of housing schemes to accommodate increasing post-war populations and displaced communities. For example, when London’s Barbican was created in the 1960s and 1970s it was intended to provide homes in an area once devastated by World War II bombings, but the wider public have failed to take its design to their hearts, and its towers receive descriptions such as “savage assertions over the city.” (David Sexton, London Evening Standard).

However, in North America high-rise buildings were readily embraced and celebrated as symbols of success and financial accomplishment. Across the United States, major cities such as New York and Chicago offered residents sensational apartments in multistory high-rise buildings, which have now become common place. In Manhattan,

Manhattan Loft Gardens, London

At the outset of the design process, Manhattan Loft Gardens sought to re-define the future of high-rise living. The object of the process was to create a diverse community through the unique interweaving of single-floor and multi-level loft apartments that maximize volumetric space, natural light, and views, integrated with a communal lobby and three sky gardens. In doing so, Manhattan Loft Gardens questions the norms of high-rise living in the United Kingdom and Europe. Historically in



Manhattan Loft Gardens – typical floor plan. © Manhattan Loft Corp.

the United Kingdom, residential towers have been negatively associated with low-quality housing. Manhattan Loft Gardens aims to turn that perception around and reverse that trend.

The sculptured sky gardens represent an unprecedented feature of Manhattan Loft Gardens. Expressed through the striking cantilevered superstructure, the three elevated gardens allow panoramic views over London and overlay an inspiring silhouette onto the city skyline. The gardens are knitted into the design, so that residents are never more than nine stories away from a shared outdoor space, each with its distinctive character. The building’s volume is sculpted by the triangular triple-height openings, which create a variety of dramatic sky gardens designed as spatial catalysts for social interaction and a shared sense of community. These spaces offer different experiences at each level, ranging from more active and landscaped at the lower levels, to more tranquil and

green toward the top of the building. The extraction of these spaces from the building’s volume creates a double-cantilevered structure that endows the building with its unique silhouette.

The unique blend of uses, combining hotel and residential with the triple-height lobby, restaurant, and leisure facilities, as well as the shared roof gardens overlooking the Olympic Park, encourages social interaction and a shared sense of community. This unique mix offers the residents a different journey through the building every day.

High-rise buildings can offer what most other types of residences cannot. Manhattan Loft Gardens reinterprets and exceeds the minimum statutory London housing standards and provides a fresh take on housing legislation. This is achieved through a focus on providing generous volume in addition to floor area as the main ingredient in creating the loft apartment.

The loft units have been configured into three-story bundles, which take a conventional stack of single-story floors and convert them into an interlocking arrangement of 1.5-story apartments. The introduction of these units into the building provides a rich mix of single-story and loft apartments. Large communal roof terraces, spaced throughout the building, replace small private balconies. This design move—along with a mix of amenities, restaurants, cafés, fitness facilities and a diversity of user groups—allows a continually recursive experience that promotes social interaction. In combining these unique design elements, Manhattan Loft Gardens offers a new residential paradigm.

Harry Handelsman, CEO, Manhattan Loft Corp.



Manhattan Loft Gardens, London. © Manhattan Loft Corp.

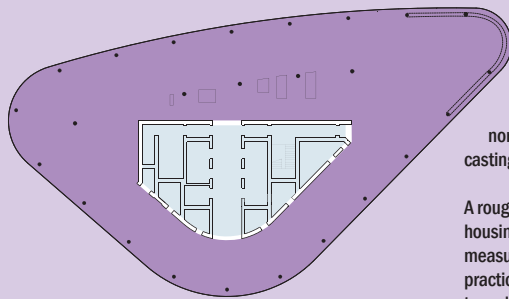
ADAC Headquarters, Munich

The new headquarters of the German Automobile Club (ADAC) was designed by Berlin architects Louisa Hutton and Matthias Sauerbruch. The Werner Sobek engineering and design office based in Stuttgart, Germany, was responsible for planning the structure and façade, in close cooperation with the master planner.

Featuring a dynamic design and finely harmonized color concept, the ADAC headquarters represent an important enrichment to the Munich skyline. With 75,000 square meters usable space above ground, and 50,000 square

meters of usable space below ground, ADAC headquarters offers all 2,400 ADAC staff based at the location in Munich an abundant amount of room.

The building complex consists of a five-story plinth building, from which a 23-story high-rise tower rises. The total height of the building is close to 93 meters. The ground plan of the star-shaped plinth building measures 187 meters in a longitudinal direction and 107 meters in a transverse direction. The ground plan of the high-rise building measures 35 by 65 meters.



ADAC Headquarters – typical floor plan. © Werner Sobek Group

On the side facing northeast toward the railway tracks, the tower building stretches approximately seven meters beyond the contour of the plinth building. Design considerations included positioning and aligning the high-rise tower on the northern edge of the building plot, to prevent it from casting shadows over its sister or adjacent buildings.

A roughly rectangular structure was built below ground, housing three basement stories. With the ground plan measuring 206 meters by 108 meters, the basement level practically uses up all of the available building plot. Two tunnels of the underground railway lines U4 and U5 run below the building plot.



ADAC Headquarters, Munich. © Werner Sobek Group

A large number of demanding engineering solutions were required to support the high-rise tower, to build above the underground railway tunnels and transform the round body of the building above ground into a rectangular basement structure below. The foyer area, spanned by a multifunctional steel-glass roof, as well as the complex building façade, which allows individual user control, also proved to be particularly demanding challenges.

Werner Sobek, Werner Sobek Group

living in a high-rise is truly the norm. In Chicago it would be a more deliberate choice, inspired by some groundbreaking and aspirational residential projects, including Mies van der Rohe's 860–880 Lake Shore Drive, Bertrand Goldberg's Marina City, and SOM's John Hancock Tower on Michigan Avenue.

Some of the aforementioned motivations for high-rise living in Europe have started to dissipate the public's perception. However, momentum has stagnated as developers failed to step forward to fill the void, thereby leaving a gap between product and aspirations. More recently, high-rise developments aimed to offer a different product without truly understanding this historical phenomenon. Other than offering a higher level of internal finishes or views, many of these products do little to enrich the living experience. Indeed, some developers have become fascinated with the opportunity to increase the value of their properties by using views and finishes alone as a means to attract higher prices. Unfortunately, very often many of these high-rise apartments are sold to overseas buyers as an investment opportunity for the purchaser, rather than as a place of

emotional attachment for homeowners. Therefore, there is often little that enriches the high-rise experience for the communities living in or near them.

With the Manhattan Loft Gardens project in London, we are aiming to redefine high-rise living. There are key criteria in creating an aspirational, yet pragmatic, residential offer: First, redefine the spatial and volumetric experience, second, promote a sense of community through social interaction.

A focus on providing generous volume in addition to floor area is the essential ingredient in creating loft apartments. Large communal roof terraces replace small private balconies. These moves, along with a mix of amenities, restaurants, cafés, and fitness facilities bring multiple user groups together and allows a continually recursive novel experience that promotes social interaction. This theme permeates through the whole building, from the shared communal entrance foyer, which gathers hotel guests, residents, and restaurant customers alike, to the hotel roof terrace. The theme also blurs the boundary between the residential and the hospitality sections, extending to the upper

roof terraces, which promote varied activities from eating outdoor meals to simply enjoying the view. At Manhattan Loft Gardens, every day will offer the potential for a new experience and fresh encounters, which we are confident will pave the way for other residential developments to follow in its path.

Does Europe Lead the World for Environmental High-rise Buildings and, if so, Why?



Werner Sobek, Founder, Werner Sobek Group

Europe may not boast the highest buildings in the world – but it certainly is home to the most sustainable ones. In my view there are four main reasons for this: design, technology, measurability, and awareness.

1. *Sustainable design* – In order to construct a sustainable building (no matter how high it is) you need well-qualified architects and engineers. These have to be capable of

“London is the complete reverse [of Manchester]. The process is beset by opacity, inherent suspicion and a default answer of “No!” Values, however, are 10 times regional values with a currently insatiable demand.”

Ian Simpson, Director, Ian Simpson Architects,

working in an interdisciplinary manner. They also need a broad range of viewpoints, thinking not only in terms of design issues, but also taking into consideration technical qualities such as ease of maintenance, refurbishment, and recyclability. Moreover, relatively simple measures in the early design stages can help to make maximum savings later on. For example, in our consultancy we have developed structural concepts allowing weight reductions by up to 25%.

2. *Sustainable technology* – You have to have efficient technical installations if you want your building to be sustainable. This applies to everything from lighting to elevators, but above all to the building envelope. Properly designed double-skin façades can provide perfect thermal comfort in summer and winter, without necessitating any mechanical HVAC systems

3. *Measuring sustainability* – In order to describe, evaluate, and compare the sustainability performance of your buildings in an objective and holistic manner, you need the right tools as well. In this domain, Europe is also leading the market. Early standards such as BREEAM (Building Research Establishment Environmental Assessment Method), and HQE (High Quality Environmental) prepared the ground. Second-generation systems such as DGNB (German Society for Sustainable Construction) now offer a perfectly balanced tool that helps investors, designers, and users alike.

4. *Awareness of sustainability* – Last, but certainly not least, you need clients to have a strong awareness of the need to focus on life-cycle costs (and not only short-term profits). Once investors have understood that sustainability is an indispensable ingredient of long-term profitability, they never look back.

All four factors mentioned above can be found in a particularly high concentration in Europe – leading to an astonishing number of sustainable high-rises in Europe, but also to many European designers, investors, and companies working on such buildings in other parts of the world.

What Factors are the Most Important in Creating an Eco-Skyscraper?



Christoph Ingenhoven,
Founding Principal,
ingenhoven architects

In 1991, we won the international competition for the headquarters of RWE AG in Essen. This building became the first ecological high-rise in Germany and one of the first worldwide. At that time, our main object was the creation of a naturally ventilated building, with technical elements that would be as elegant and unobtrusive as the building itself.

The idea was to provide a healthy environment for the people working there, as well as for visitors. Windows can be opened for fresh air and provide as much daylight as possible. Sunlight, room temperature, and natural ventilation are controlled individually, saving energy.

Additional objects included conserving resources and using materials judiciously. By providing natural working conditions in a high-rise, the comfort and well-being of people is increased and the instances of sick building syndrome reduced. We also sought to optimize the flexibility of working space by devising easily relocated dividing walls.

Most of these factors, which created a new type of high-rise, became standard for an ecological skyscraper today. Over the years the understanding of ecology increased, while the technical innovations that underpin an ecological skyscraper became more and more complex and multifaceted.

The construction of a high-rise is only “ecological” if its construction is motivated by a need to build high, such as the drive to increase density, which saves energy by reducing commuting, consolidating utilities and other services, and more. Considering that more and more people will live and work in cities, and necessarily in skyscrapers, we constantly rethink this building typology.

In our latest high-rise, 1 Bligh Street in Sydney, the achievements range from pleasant circulation of fresh air through the bottom-to-top central atrium, to the tri-generation system, which uses gas and solar energy to cool and heat the building. A comprehensive blackwater treatment facility was also designed for the tower, which uses filtered sewer water from the municipal waste stream to flush toilets and provide makeup water for the cooling towers. This system provides 100,000 liters per day, reducing the demand on municipal potable water by 90%.

The glass-covered atrium ensures that the interior of the building is suffused with natural daylight. It caters to the needs of the occupants by installing hundreds of lockable

bicycle spots, locker, and shower facilities on each office floor, child care and a cafeteria. Community and social aspects are also important factors in today's eco-skyscraper design briefs.

Reflecting this, 1 Bligh is generous in its encouragement of public use at ground level, including open access to the atrium, which offers general views of the building in its entirety. The design is not only about energy efficiency; it is also about creating public space that supports a high quality of life inside and outside the building.

It is this holistic approach that creates truly sustainable skyscrapers and forges the role model for a greener future.

How can Tall Buildings Benefit the Ground Plane?



Karen Cook, *Founding Partner, PLP/Architecture*

Skylines define the global identity of a city. The sculptural appearance and transformational power of tall buildings send a powerful message. The renovated Tour First, now France's tallest

tower, signifies to the world that La Défense is a dynamic place to do business. London makes the same statement with a number of tall buildings recently completed or under construction.

Skyscrapers' analogous impact on the morphology of the public realm concerns British and Continental European debate. The nomenclature "public realm" rather than "ground plane," suggests deliberate consideration for creating ennobled public spaces. The collective aspiration is to provide an urban setting for the theatre of life itself. How does one set a brief? How shall a design proposal be evaluated?

London's medieval, non-Cartesian street pattern offers unexpected, near, and distant

glimpses, revealing only a partial understanding of the city from any given point. The inhabitant relies on memory to piece together these episodic experiences into a comprehensive understanding of the whole environment, perhaps contributing to

the romantic notion of assessing design proposals in perspective, in relation to townscape. Every new proposal is evaluated in terms of its relation to its surroundings as well as its own coherence. A tall building on the London skyline should associate

Tour Carpe Diem, Paris

The Carpe Diem tower will be the first tower to receive dual certification in the form of Haute Qualité Environnementale (HQE) and LEED Gold. This next-generation tower features total usable floor space of 44,000 square meters over 38 floors. Carpe Diem sits at the heart of La Défense, and is set to recreate the urban landscape through the vehicle of a generous pedestrian link between the main square and the neighboring city of Courbevoie, as well as the development of the areas immediately surrounding the tower.

Carpe Diem is a genuine answer to today's environmental challenges, with its innovative architectural design and state-of-the-art, high-performance technologies designed to enhance user well-being. The internal environment within Carpe Diem is also dynamic and flexible, and can be adapted to the company's changing needs and projects. Carpe Diem offers 30 office floors, each averaging 1,300 square meters and capable of accommodating up to 120 people, or 10.8 square meters per workstation.

With a ceiling height of three meters throughout the building, Carpe Diem sets new standards of comfort and wellbeing for future users, allowing more light into the building, creating brighter spaces and bringing the



Tour Carpe Diem, Paris. © Aviva investors

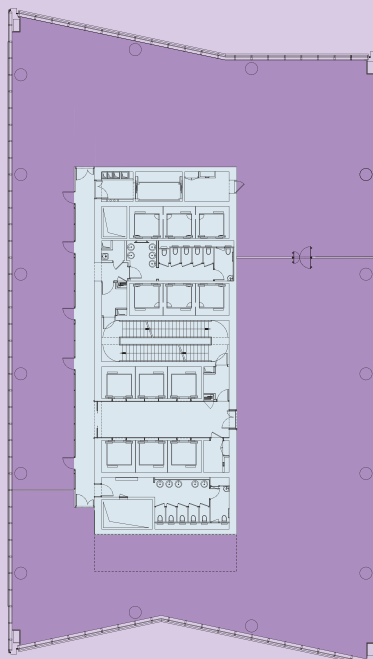
outside inside. With its winter garden and interior bathed in natural light, Carpe Diem offers an experience that cannot be found anywhere else at La Défense. The project has more than 1,000 square meters of green space overall.

Carpe Diem takes a whole new approach to dining and reception areas, locating the spaces on the upper floors so as to receive plenty of natural light. The auditorium, which is open to the public, will be directly accessible from the circular boulevard.

Carpe Diem has been deliberately designed with a limited number of materials to give a uniform, harmonious effect from top to bottom. This modern, understated vision is centered on key elements such as crystal-clear glass, patina zinc, and satin-finish black granite in parts of the lobby and the gallery. Carpe Diem also features strong wrought-ironwork design cues, including the emblematic ground floor doors and the folding screens in the restaurants.

Robert A. M. Stern, SRA and Jean Jegou have worked alongside Aviva and Predica to create the unique atmosphere and spirit of Carpe Diem.

Sébastien Jardin, Aviva Investors Real Estate France



Tour Carpe Diem – typical floor plan. © Aviva investors



Centre Point, London. © Almacantar

Centre Point, London

Tall buildings, particularly those as prominent as Centre Point, are focal points in our cities. Because of their height, they must engage with both the skyline and the ground. They are scrutinized from every distance, and their presence informs a whole area. This is particularly true of Centre Point, which is used as a reference point across London.

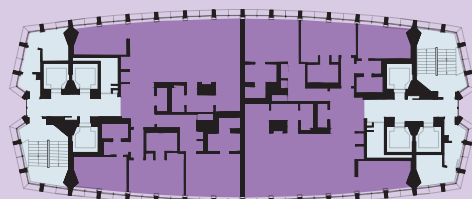
In fact, the design of Centre Point informed a whole era. It was reflective of the brave new world Britain was just beginning to embrace in the post-war period. Building magazine once described it as London's "first Pop-Art building," and it still influences British design today.

Our plans will transform Centre Point into a unique urban quarter, with a thriving cluster of restaurants and retail outlets at its base. Due to its relatively small footprint, the tower itself is better suited to residential use, with every bedroom and living room enjoying at least five meters of city panorama, totally unobstructed by other tall buildings. Nowhere else in London's West End can command such a view.

Inside, we will draw on the building's architectural texture. The apartments will capture the spirit of the building: modern, ambitious, and graphically compelling.

More and more people are favoring city-center homes, and Centre Point stands at the very heart of our global city. Its future residents will live a few minutes' walk from the Royal Opera House and the British Museum, and above a new Crossrail station, providing direct links to Heathrow, the City, and Canary Wharf. As they move from street level up to their apartments, they will find respite from London's hustle and bustle, and experience the serene grace of the city from above.

*Tim Bowder-Ridger,
Managing Director, Conran and Partners*



Centre Point – typical 3 Bed plan. © Almacantar

harmoniously with its neighbors and enhance the meaning of the whole.

The tall building must be clearly understood at differing layers of scale: observed from afar by the voyeur, it simultaneously forms the intimate surrounding of the pedestrian, who co-inhabits the public urban room.

We admire some historic spaces (Piazza San Marco, Campidoglio) for their museum quality, others for their enduring success in providing a setting for urban activities. What makes spaces successful?

Public spaces have historically taken shape in response to society's needs. In London, today's frequented public spaces were formed incidentally, that is, subordinate to an event: a marketplace (Leadenhall), an open mews yard for keeping animals (Trafalgar Square), a crowd gathering along the processional route to the gallows (Oxford Street), shops along a "Living Bridge" ("Old" London Bridge). Popular spaces borne out of circumstances quite different to their current use reveal no trace of their sometimes ignominious origins. All have changed radically in response to society's evolving needs.

What is the essence of the problem here, now? It is a social question: how do we live and work? What value can a tall building, in its primary purpose a functional product, contribute to our basic societal needs? Is it enough that it serve as a landmark? Or are there other ways it can enrich our urban existence?

A client with vision wishes to provide a size and function in response to society's needs. He assigns his architect the task of organizing these requirements, and examining with enthusiasm the particular problem of the site, to propose a particular solution for the client and for society.

Today, people seek others for stimulation and knowledge exchange. Tall buildings, intertwined with the public realm, can satisfy those needs when the following attributes are carefully incorporated:

- High density occupation with homes and workplaces located at transport nodes, so local shops thrive and public transport is cost-effective.
- Pedestrian permeability, connections to nearby destinations, orientation, and intuitive way-finding to encourage walking.

- Hierarchy and differentiation of external spaces, places of contemplation and places of activity, to support individual desires.
- Art and craft.
- Clear expression of use, richness of detail and layering of scales to promote an understanding of our built environment.

The architectural objectives are to provide shelter while enhancing life so that society can function at its creative peak. Truly public, the tall building in the city, as well as on its skyline, should ultimately aim to delight and inspire its citizens, as well as provide us with heroic symbols of excitement and hope.

Why Retrofit Existing Tall Buildings?



*Mike Hussey, Chief
Executive, Almacantar*

...Is actually the wrong question: It should be "Why not retrofit...?"

Of course, the answer will be specific to virtually every asset, but there are more

contributing factors to this debate that skew the probability in favor of a retrofit.

In all likelihood, a tall building is a large building. The amount of capital required to build new is still larger than that which is typically required for redevelopment. Also, the type of capital has changed, along with the terms and conditions upon which investors or banks feel comfortable to lend. So, I suspect, there has been a greater propensity to *refurbish*, than *redevelop*, purely based on the availability of capital and the desire to reduce construction and letting/sales risks.

As with funding, market risks are not as defined as they were. The desire to condense time scales for delivering a building to market, combined with the desire to operate in a smaller competitive circle together make the argument for retrofit compelling.

Finally, let us not forget sustainability. It is ever-present as an issue and is incredibly

important, particularly when contemplating the renewal of a large, tall asset with the subsequent issues of waste and energy efficiency involved in its replacement. A retrofit may not be the “greenest,” solution but it could be the “only” solution.

In reality, the decision is incredibly simple: the product you can create will dictate whether you retrofit or not. Building height and modernity will not be a valid substitute for poor layouts and poor specification. The financial markets have slowed the relentless drive to redevelop any significant asset, but have increased the complexity of the decision-making process and the need for skilled operators to execute in these restricted environments.

And that is good, by the way!

No Shocks of the New – Future-proofing Buildings



Ken Shuttleworth,
Founder, Make

One of the ways in which we can effectively future-proof our buildings is to design them to incorporate flexibility and include the widest possible range of uses. By allowing for adaptation of the building fabric to suit changing circumstances and creating a range of places for people to live, work, and play within the same scheme, we are adopting a highly sustainable, future-proof method of building.

A successful example is The Cube – Make’s iconic mixed-used building in central Birmingham, completed in 2009. This 18-story landmark scheme comprises offices, apartments, a boutique hotel, a rooftop

Morello Tower, London

The Morello Tower is a tall building project in Croydon for developer Menta that we hope will be the first of a new generation of buildings to bring a badge of quality to this rapidly regenerating town - effectively “rebranding” the area.

The scheme sits alongside East Croydon Station and the extensive rail network leading to central London and beyond. The brief called for an architecturally striking residential building to demarcate this important gateway

site, as well as a hotel and conference center, an office building for start-up businesses, and low-rise housing. In compliance with the London Plan, all the apartments are dual-aspect and cross-ventilated in anticipation of future energy-saving legislation; the design aims to gain BREEAM Excellent and Code for Sustainable Homes Level 4, and achieve carbon emissions 44% lower than current building regulation requirements. But perhaps the key issue here is the creation of a new standard of accommodation, through the incorporation of extensive community facilities and new public spaces.

The slender form of the 55-story tower seeks to counter the surrounding townscape’s somewhat dreary slab-blocks, towers, and low-rise terraces by emphasizing verticality, with slim, ascending strips of glazing and protruding segments in silver and pale bronze reminiscent of train tracks and carriages. These “sliding” forms are a vertical expression of the adjacent moving trains and overlook a generous new public square and a “green link” which connects a nearby residential area with the station entrance.

This will always be a predominantly residential building, but built-in flexibility will allow the walls to be moved as space requirements change. On the 43rd floor, a Club Room provides a shared amenity area accessible to all residents, with a gym, sauna, games and party rooms, and a triple-height garden with a climbing wall. Other floors feature similar facilities, including a children’s play area, elevated public gardens, a committee room and business center, restaurants and bars, while at ground level the building opens up to merge with an attractively designed public realm. The scheme ties in to the East Croydon Master plan

and the existing approaches to the railway station, with the provision of generous communal spaces and a new east-west bridge crossing.

Ken Shuttleworth, Founder, Make



Morello Tower – floor plan. © make



Morello Tower – Level 19 plan. © make

“The construction of a high-rise is only ecological if its construction is motivated by a need to build high, such as the drive to increase density, which saves energy by reducing commuting, consolidating utilities and other services, and more.”

Christoph Ingenhoven, ingenhoven architects

restaurant, shops, automated parking, and public spaces, all designed to allow a high degree of flexibility.

The design is a relatively simple structure – in essence a container that was “carved out” to create a dynamic structure, adding visual drama to the range of uses. The concept was molded to suit the client’s brief, using a rapid, iterative design process, in which the structure was developed in response to an analysis of the cost plan. This, in turn, generated the floor heights, with the lift zones designed to allow the top floor of retail to be used as office space if required, and enabling some of the apartments to become part of the hotel. It is a truly flexible approach that allows the development to respond to changing market and tenant demands.

For many years we have talked about the idea of offices being converted to residential, but we really need to challenge the “silo” mentality of designing and building single-use residential, office, or retail schemes. The corollary is to create communities where people can work, live, sleep, and eat, all in the same vicinity – as with The Cube. Adhering to this design philosophy means we can also reduce the need to travel – a sustainable imperative.

Today, with residential towers becoming a more “normal” way of living, a new generation of sophisticated tall buildings is replacing those with no social network and poor community facilities. Energy is likely to become a bigger part of the equation.

Zero-carbon buildings with extremely well insulated walls will force others to build new curtain walls and take on new uses – or face extinction. This adaptability, flexibility, and openness to a multiplicity of uses defines future-proofing, writ large.

What Is Distinct About European Skyscrapers?



*Chris Wilkinson, Director,
Wilkinson Eyre Architects*

In the historic cities of Europe, there has always been a slight distrust of skyscrapers, which is probably born out of the familiarity with modestly-scaled townscapes and the fear of change.

However, there has been a more welcome acceptance of taller buildings in recent times, although these have had to justify their existence through quality of architecture.

Difficulties in gaining planning consent have meant that each new skyscraper has to follow an arduous process of public scrutiny, detailed analysis, and lengthy justification. While this can lead to refinement of detail, it can also result in a softening of the design concept.

In London, the Canary Wharf skyscrapers of the 1980s were generally designed by New York and Chicago architects and followed North American aesthetics. More recent

examples in the City, however, have taken on their own unique character.

The Gherkin, the Shard, the Walkie Talkie, and the Cheese-grater, as they are affectionately known, each have a very definite shape that has inspired its nickname. It was Foster & Partners’ circular 40-story office tower at 30 St. Mary Axe that started the trend for a strong modern form that rises above the more traditional city office building to create an identifiable landmark on the skyline. This has been matched by the other contenders, such as the recently completed Shard by Renzo Piano, which is currently the tallest in Europe.

In Paris, there are a number of tall architectural forms in the La Défense district, with names such as Tour Granite and Tour EDF, but the Grand Arche from 1989 still presents the most potent image, being on an axis with the Eiffel Tower.

Frankfurt’s skyline is graced by the Commerzbank Tower, Skyper, and the elegant Westhafen Tower, which are all quite straightforward compared with some of the recent constructions in Barcelona.

Hotel Porta Fira by Toyo Ito, for instance, takes an extraordinary irregular organic curvilinear form, clad in bright red tubes with square glazed openings. However, these organic credentials were preceded by Jean Nouvel’s Torre Agbar, in 2004, which could politely be described as “cigar-shaped,” but is extremely phallic in appearance.

While it is hard to define any real distinction between European skyscrapers and those in the rest of the world, it is clear that they often have to be more contextual in responding to adjacent buildings of a lower height. Also, following the Darwinian Theory of Survival of the Fittest, the European condition has led to a number of strong individual designs with identifiable characters that compete for popular affection.

OKO Tower, Moscow

The OKO Tower is the second skyscraper by Capital Group in MIBC (Moscow International Business Center) Moscow-City, beginning a new chapter in Russian contemporary high-rise development.

The OKO development is distinguished by the simplicity of its form. As such, it stands out among the surrounding towers of the Moscow-City. Skidmore, Owings, and Merrill has created a sculptural composition of two independent towers united by a transparent crystalline shape at the base. The towers' faceted skin intensely communicates a

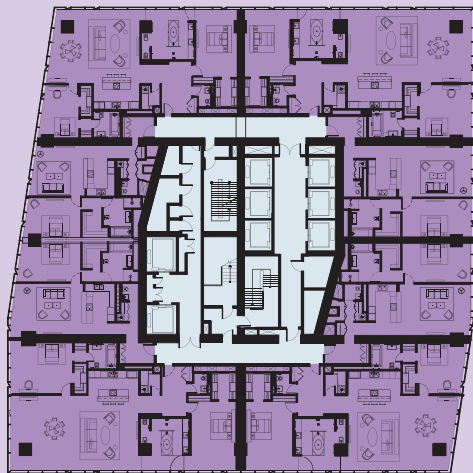
theme of upward free movement, and affords a panoramic view over the Kremlin and the White House, the embankments of the Moscow River, Vorobyovy Gory hill, and the skyscrapers of Moscow.

The OKO consists of an 85-story residential tower where the residents can buy ready-to-occupy apartments, or stay at five-star Delano Moscow hotel. The sister building is a 49-story office tower with class "A" offices. The six-story "crystal" at the base includes a landscaped internal courtyard, bars and restaurants, a private cinema and ballroom, spa, and fitness center. There is also a 15-level parking garage, which affords a ratio of one space per 60 square meters for office tenants.

The construction of the 400,000-square meter OKO began in July 2011. Construction continues on both towers at approximately 28 to 30 stories. Primary construction completion is scheduled for 2014. In 2015, the complex will be fully completed, including interior finish work in the apartments.

Capital Group was founded in 1993. Today, the company's portfolio comprises 56 completed projects in Moscow, totaling 5 million square meters completed and nearly 2 million square meters currently under development or construction.

For most of its lifetime, Capital Group has focused on mixed-use projects development in MIBC Moscow-City. The OKO mixed-use complex joins Capital City Moscow Tower, currently the tallest in Russia, as one of the two main tower groups. The Turkish company Ant Yapi is the general constructor of both complexes. Bolstering MIBC



OKO Tower – Horizon Level (Level 28–45) plan. © SOM



OKO Tower, Moscow. © SOM

Moscow-City's bid to become Moscow's prominent commercial area, the OKO is set to forward the goal of making the new district central to the commercial and social life of the region.

Dinara Lizunova, Capital Group

Tall Buildings as Heritage: A US Perspective



William Baker, Partner,
Skidmore, Owings & Merrill

The Empire State Building. It is the symbol of New York. An image of the skyline that includes the Empire State Building does not need a caption, it is New York. Skyscrapers

have been part of the American identity since the 1920s. Although North America is no longer the nexus of skyscraper construction, tall buildings are still an integral and celebrated part of the culture.

In 1999, the U.S. mint launched a state quarters program, displaying state designs on the reverse (tails) side of the 25-cent piece. Illinois' coin bears Abraham Lincoln and the John Hancock Center. Few would argue the

Hancock's significance in forging Chicago's urban identity, and yet, when it was first proposed, the tower was unlike anything else on North Michigan Avenue. In the late 1960s, many likened the Gold Coast's elegant low-rise Beaux-Arts structures to the look and feel of Paris. Big John undoubtedly ruffled the feathers of many area residents at the time, but it soon endeared itself to millions of Chicagoans who today view the building as an almost universal symbol of the city.

In cities like Chicago, tall buildings do not displace or intrude upon the identity of the place, but rather, define it. They are the cathedrals and castles of America. Like the monuments of Europe, these buildings have their defenders and protectors. Several years ago, a proposed renovation of Hancock's plaza brought out "little old men and women in tennis shoes," who questioned the appropriateness of such an addition. They carried signs in protest, as a means of

defending the massive tower. Recently in Chicago, a tall building of more modest scale has been targeted for demolition. Bertrand Goldberg's Prentice Hospital is now slated to be raised, but the extremely active public defense of the building demonstrates how important these structures are to the community.

One wonders what would happen if a true skyscraper were to be demolished. Certainly their large scale makes demolition an expensive undertaking and provides some degree of protection. Would the "little old men and women" come to the rescue? In America, I think they might; skyscrapers represent what we are. ■

All the authors here will be speaking during the 2013 CTBUH London Conference, June 11–13, 2013. For more information, go to: www.ctbuh2013.com.