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Urban Open Space - A Tower in the Park and a Park in the Tower



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Abstract

In urban centers dominated by tall buildings, access to outdoor space is important. We will explain how two urban office building developments provide valuable outdoor open space in different ways. In Chicago, the development involves transforming an open urban scar into one of the city's largest public landscaped areas. The development is located on a key CBD site along the Chicago River. The result is a unique 52-story structure of which enclosed ground floor space occupies <25% of site area; offering public landscaped open space. Result: A Tower in the Park. In San Francisco, a developer is building a 42-story tower that covers virtually the entire site, with at-grade outdoor space limited to recessed entries. This lack of outdoor space is overcome on the upper floors, which feature large outdoor landscaped terraces. Total area of terraces almost equals the ground floor site area. Result: A Park in the Tower.

Keywords: High Rise; Office Tower; Outdoor Amenity; Transformation; Urban Design

As urban centers become increasingly dominated by high-rise buildings, access to outdoor space has become a very important amenity. This paper will explain how two commercial high-rise office building developments located in different parts of the United States provide valuable outdoor open space in different ways for fundamentally different reasons.

A Tower in the Park

150 North Riverside, Chicago, Illinois

1,400,000 gross square foot commercial office building

Developer: Riverside Investment & Development Company

The 107,500 square foot site that is now known as 150 North Riverside has all of the key locational attributes that is expected of a class A office building. The site is two blocks from Chicago's busiest commuter rail station and it offers convenient access to all forms of public transportation with easy access to the City's expressways. It is a very prominent site on the Chicago River with great view potential both looking across the river toward the site and from the site looking across the river at the surrounding cityscape.

Given the location and its positive attributes, it is natural that many developers had considered developing this site. However, the site remained undeveloped and an open scar on the City for more than 70 years (Figure 1). Riverside Investment & Development Company (Developer) believed this was the best available office building site in the central business district and decided to pursue but they knew that they faced a number of obstacles.

In order to achieve success where others failed, it was necessary for the developer to establish a design approach for 150 North Riverside that responded simultaneously to the challenge of constructability as well as the challenge of the public approval process. As a result, the City of Chicago and the local residents will receive 80,000 square feet of public open space on the river (Figure 2) and Riverside Investment & Development Company is able to build a unique building that has been well received in the market and almost 70% of the office space pre-leased before the structure was out of the ground. (Figure 3)

Obstacle 1 - Assembling the Site

The Developer first had to face the financial challenges of assembling the site which consisted of three parcels owned by three different parties: a bankrupt developer, Amtrak and the City of Chicago. (Figure 4) The Developer had to commit to purchasing the parcels one at a time without being certain that they could purchase the other parcels. Only the

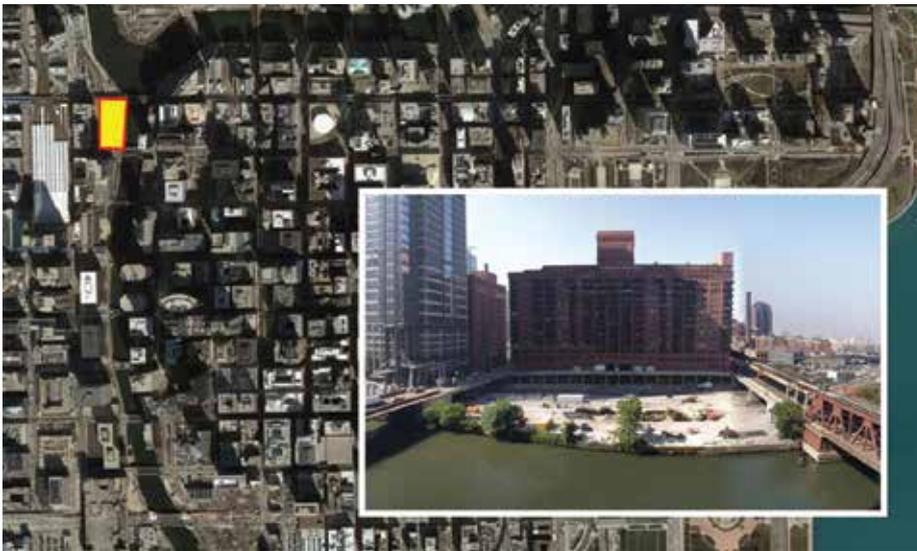


Figure 1. Aerial and street view of existing site (Source: Google Earth (Aerial); Goettsch Partners (Street view))



Figure 2. Aerial view of park and building base (Source: Goettsch Partners)



Figure 3. Views of overall tower (Source: Goettsch Partners)

parcel owned by the bankrupt developer was a clear land purchase but it was too small to be worth anything without the other two parcels. The purchase and use of the second and third parcels was limited to air rights.

Obstacle 2 - Difficulties of Constructability

Parcel One, the narrow strip of land along the river on the east, was only 85 feet at its widest point and was the only parcel upon which major structural foundations could be located. At 24,302 square feet, it was too small to support development without the other two parcels.

Parcel Two, the narrow western land to the west, was owned by Amtrak and covered with numerous active tracks. Air rights was the only option, however some rules had to be followed, which included no vertical structural obstacles could be located closer than 17 feet of the track center lines, head room of 23 feet had to be maintained, all of the diesel exhaust from the trains had to be discharged in an appropriate manner and any foundation or structural work at the track level, if approved, could only be performed between midnight and 5:00 am.

Parcel Three, the narrow strip of land in the center, was owned by the City of Chicago and air rights was the only option because the City granted Amtrak a long-term easement for track operations at grade, which carried the same restrictions mentioned above for the Amtrak parcel. The center parcel was worthless without the other two parcels, but negotiating a fair price with the City was a tedious task.

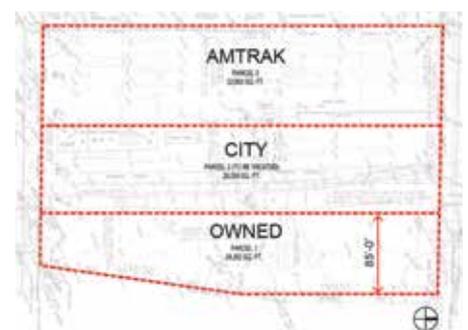


Figure 4. Parcel division diagram (Source: Goettsch Partners)

Obstacle 3 - Public Approval Process

Regardless of ownership, the area along the river was under the city's River Walk Guidelines which mandates a 30 foot wide public walkway open to the sky. The walkway was required to be located at the river level and remain fully ADA accessible to the street level above. This meant that 30 feet of the available 85 foot width must be dedicated to an open public walkway. The Chicago City Council recognizes Aldermanic Privilege, which means that nothing happens in an alderman's ward unless he approves it. On the west side of the site was a very large residential building that had clear views across the river and of the city skyline. The Alderman made it clear that he is elected by the residents rather than businesses, therefore objections from residents would be a potential major stumbling block.

In spite of the fact that the proposed development was well within the 16 FAR allowed by zoning, the building height was above 600 feet and therefore the site falls under the Lakefront Protection Ordinance. Because of this, the development had to go through the City's Planned Development process. This process requires the developer to commit to a series of public meetings during which he would receive requests or demands for various modifications and urban amenities by neighbors and numerous City departments, none of whom have any sympathy for the developer's need to limit costs and produce a viable financial project to secure tenants and, ultimately, financing.

Having observed other developers fail on this site, the Developer had to be convinced of the following:

- 1. Marketability** - A building could be built on the site that would have the floor plate size necessary to attract the top quality tenants required to secure financing.
- 2. Constructability** - A building could be built on the site in such a way that the difficulties and expense associated with constructing a building with a limited footprint could be minimized.
- 3. Approvability** - A building could be built with sufficient merits to successfully weave its way through the City's approval process.

Marketability

The key characteristics for a class A building in the Chicago CBD market requires a 27,000 - 29,000 gross square foot floor plate with a

center core, a 45 foot lease span and a five foot planning module. Assuming that the core of the building could be located only on Parcel One and the footprint of the building could not project over the east property line, which was the edge of the Chicago River, the building with the required foot print just barely fits on the site (Figure 5). It was close but the floor plate did fit on the site. The other positive attributes of the site - access, visibility and views - made it the best development site in the City at the time. The Developer was confident he could attract top quality tenants if he could build it for a reasonable cost and get it approved.

Constructability

The next question was how to construct the building without interfering with the railroad operations at the track level while complying with the River Walk Guidelines, which require a 30 foot wide, column-free path at the river level with accessibility to the sidewalk level above. For the last 25 years, almost all 50-story and up high rise office buildings in Chicago have utilized the same structural concept which is

based on a concrete core on mat foundation. Typical floor framing and columns are constructed with structural steel members. The concrete core is designed to take the horizontal wind loads, which are the major defining structural considerations. The floor area outside the core is usually a structural steel floor framing and steel columns. Only 50% of the gravity loads are carried by the columns and, even for a 50 story building, the column loading is significantly less than the wind loads that the core is designed to resist. Therefore, the column loads can be diagonally diverted into the building concrete core if the diagonals are symmetrical; resulting in equal and opposite forces thus balancing the thrust of the diagonally diverted loads. It is critical that the diagonal angle is less than 45 degrees to avoid putting bending in the diagonal members. (Figure 6) The entry plaza and lobby had to extend over and cover the tracks. Although the spans are very long, only two levels will be constructed above the tracks and column loads can be threaded through the spaces between the railroad tracks. The construction procedure would be very complex but it was possible.

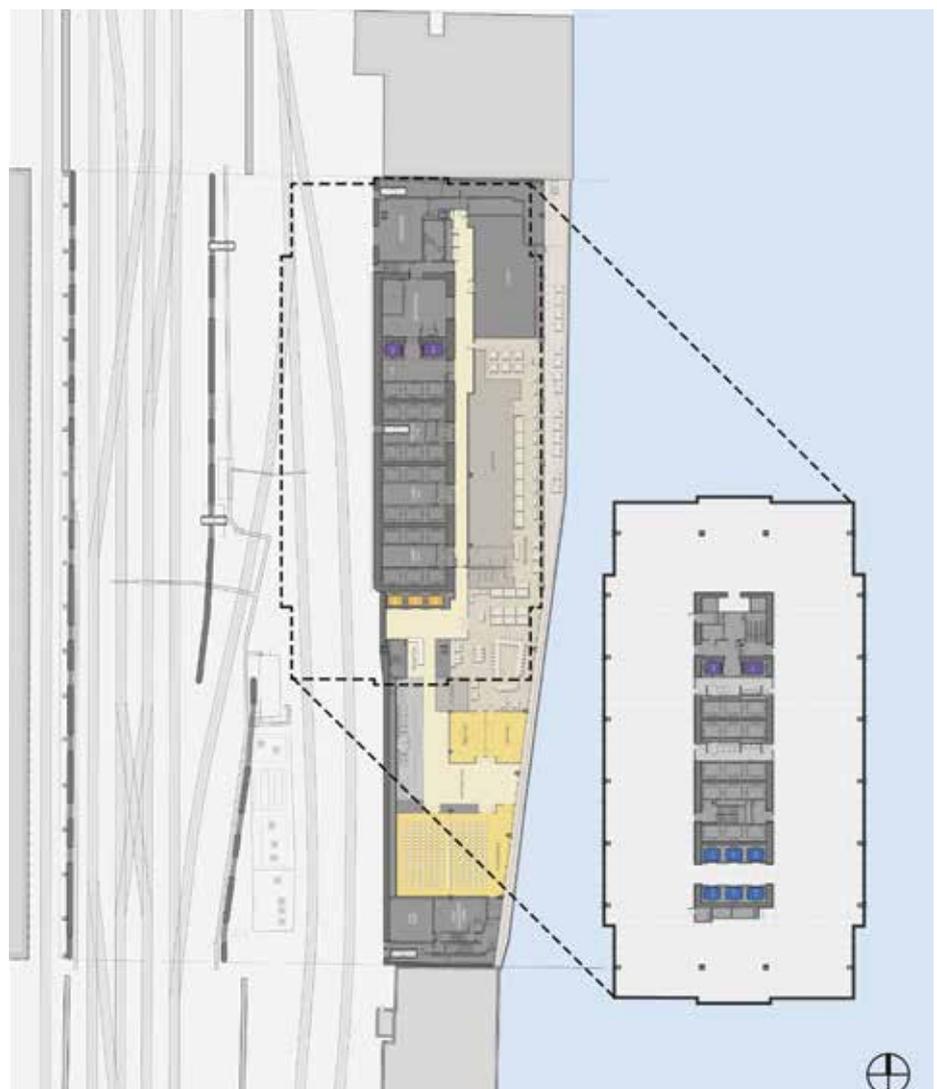


Figure 5. Podium floor plan with tracks as well as typical office floor plan (Source: Goettsch Partners)

City Approval

There were multiple challenges with the City, starting with the Riverwalk Guidelines which required that the river walk to be located at the river level as it is at the Boeing headquarters building located one block to the south. The idea of the river walk also implies a continuous pedestrian path along the river. The block with the Boeing river walk at the river level is a dead space disconnected to street level pedestrian circulation. In this area of the city, pedestrian circulation is not at the river level because that is where the railroad tracks are located. Eventually, the planning department accepted the idea that the river walk would be beneficial to the city if it were located at street level.

The remaining challenge was that the walkway should be open to the sky. We were able to make the case that the diagonal transfers were so far above the walking surface, for all practical considerations, the pedestrian experience would be the same as if the walkway were open to the sky.

Finally, we had to gain the Alderman's support for the project given his concern for residents who lived on the west side of the site who would lose their views across the river and of the city skyline. The Alderman made it very clear that he relied on the votes of these residents to get re-elected and he did not

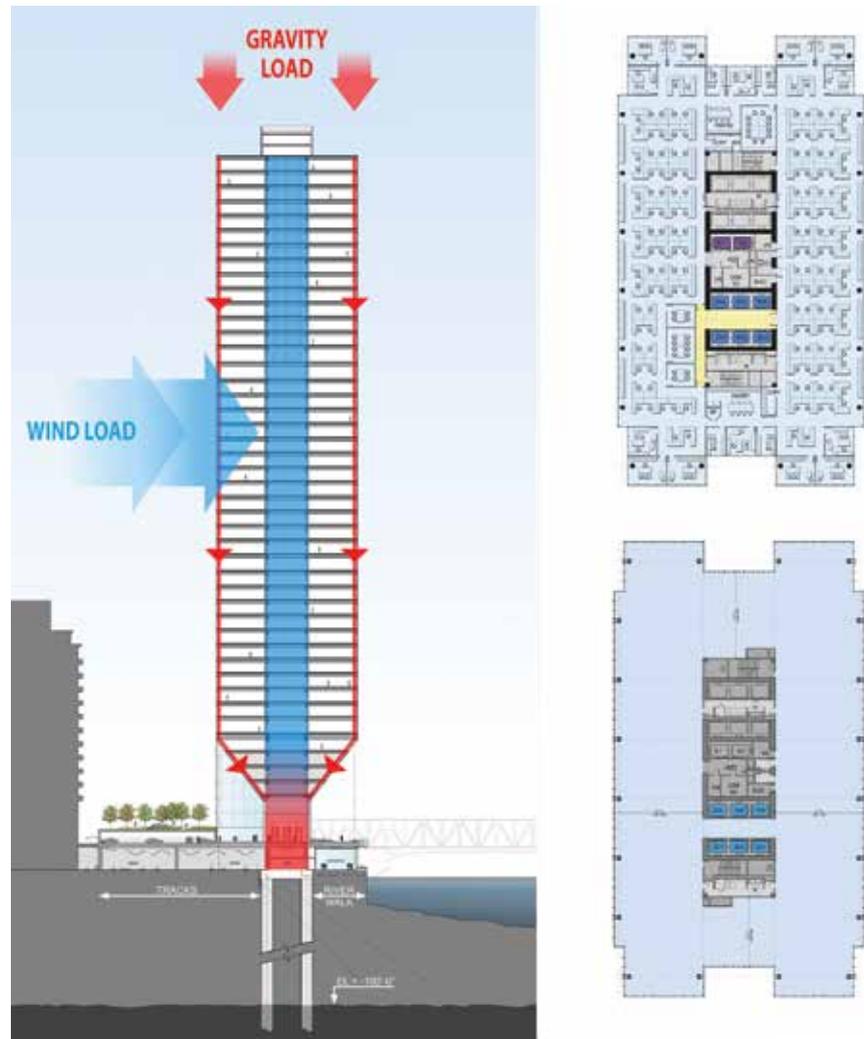


Figure 6. Load diagram and section of the tower with typical office floor plans. (Source: Goettsch Partners)



Figure 7. Sitepark Plan (Source: Goettsch Partners)



Figure 8. Section of building lobby (Source: Goettsch Partners)

want to be viewed as yielding to the interest of the business community at the expense of his constituents. If that perception existed, other voters - not just those in the adjacent building - would be less likely to vote for him in the future, therefore it was not an issue only related to this particular site. We attempted to address the residents' potential concerns one at a time.

With some success we made the case that residents do not own the view corridors outside of their property, but even more important was that the proposed office building would be 122 feet away from the residential tower. This happens to be the same distance that separates 900 North Michigan from the Palmolive Building, two of the most expensive and exclusive residential addresses in Chicago. The distance between the buildings should not be considered unacceptable in this situation.



Figure 9. View of building base and entry (Source: Goettsch Partners)

Perhaps the most compelling realization for residents to view this project in a positive light was that they were currently subjected all day and all night to sounds of clanging bells from trains, the screeching sound of steel wheels against railroad tracks, as well as the noise and exhaust from the diesel engines. The Developer demonstrated that his proposal to build a platform over the tracks would eliminate all of these negative characteristics. Perhaps more important, the platform would become a landscaped public open space. As required, public hearings took place and not one resident objected to the project. The Alderman immediately became a supporter of the development. With the Alderman's support, the City's Planned Development was approved without difficulty. The final result was literally a Tower in a Park.

This public open space is divided into three different zones, each with a slightly different character: the entry plaza, the river front promenade and the elevated park. (Figure 7)

I have always thought that how a high rise building meets the ground is almost more important than how it meets the sky. Here, the enclosed building occupies 25% of the site however the interior spaces are an extension of the exterior spaces and the exterior spaces serve as an extension of the interior spaces. (Figure 8)

The core of the building is clad in the same granite both on the interior and exterior. All of the surfaces that are not structural are glazed and the west wall of the lobby is enclosed with a 90 foot high glass wall suspended from the structure above and supported by 2 1/2 foot deep glass mullions. (Figure 9)



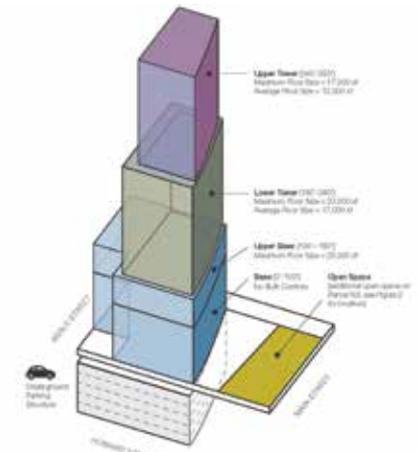
Figure 10. View looking down river walk (Source: Goettsch Partners)

Given the location on the river, the architectural form is dramatic but directly reflects the design of the structure. (Figure 10)

The building's curtainwall enclosure was designed to reference its location on the river where the water is sometimes highly reflective and very smooth and at other times providing a wave-like texture.

A Park in the Tower
Park Tower, San Francisco, California
750,000 gross square foot commercial office building
Developer: MA West Development

Originally known as Block 5, the site is a parcel within the city of San Francisco's Transbay Redevelopment Area. The explosive growth of technology companies in the Bay area has driven the demand for office space and with vacancies at 6% and lease rates doubling in the last five years. The Office of Community Investment and Infrastructure, the agency in charge of redevelopment, solicited financial and design proposals from qualified developers to develop 700,000 square feet of commercial office space in a 550 foot tall tower on the 28,969 square foot site. As required, an initial



Illustrative example of bulk control for Park Tower

Figure 11. Building location rendering and bulk control diagram (Source: Goettsch Partners)

design accompanied the developer's financial offer. Four developers responded to OCII's offering and were evaluated based on the price and quality of design. MA West Development (a joint venture of The John Buck Company and Golub and Company) submitted the highest offering at \$170 million for the right to develop the site. In effect, the offer required the developer to pay \$242 for every square foot of office space that it will build, which reflects some of the highest land costs in the US.

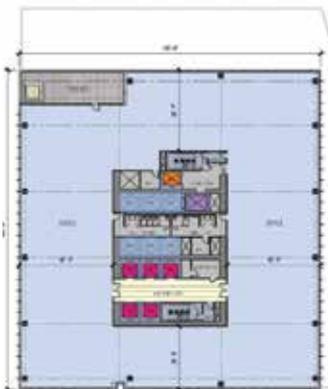
The City of San Francisco has many restrictions on the design of tall buildings including something called Bulk Controls, (Figure 11) which strictly limits the height of buildings, the allowable enclosed building foot print at different floor levels, and the total enclosed area of the building. The steep cost of the land forces the developer to maximize every possible buildable square foot on the site. In order to maximize the buildable area, we had to maximize the building foot print at each level of the building. The low rise floors are 27,694



Figure 12. Views of overall tower (Source: Goettsch Partners)



Figure 13. Aerial view of terraces (Source: Goettsch Partners)



FLOOR 16



FLOOR 43



Figure 14. View of terrace and floor plans (Source: Goettsch Partners)

square feet, which covers 96% of the site, leaving only 4% of the site open to the sky. The remaining 4% was primarily due to irregularities of the interior property line.

Although the market for selling office space is very strong, it is also very competitive. Future tenants of class A buildings have multiple expectations. First, the developer must provide an interior working environment that meets the changing trends

in the workplace of technology-oriented companies. The trends include:

1. Square footage per office worker is rapidly shrinking
2. Private offices are giving way to individuals working in smaller work stations, where team members are adjacent to allow for spontaneous communication
3. Tablets and smart phones have allowed workers to become mobile and are no longer tethered to a fixed workstation
4. In lieu of fixed workstations, employees expect more flexible spaces for group collaboration as well as get-away areas that offer opportunities for private conversation

Equally important, tech-savvy workers are looking for a building that is identifiable on the skyline, something more than a slick glass enclosed tower. Future technology tenants are seeking a building with a personality reflecting a more casual attitude



Figure 15. A line-of-sight diagram from terraces (Source: Goettsch Partners)

toward the workplace which is why they often end up in older, re-purposed buildings. (Figure 12) The development team wanted to propose a building that responded to each of these trends.

Under normal conditions, developers would try to preserve some portion of the site at ground level for landscaping but in this instance, the economics of development did not allow for the usual approach. While maximizing the building footprint, we also recognized the value of workers having access to outdoor space. In an effort to provide the building with both a unique attitude toward the work place and a recognizable image on the skyline, we decided to provide outdoor spaces that serve as an extension of the interior working environment and provide the social/collaboration spaces that the market is looking for. (Figure 13)

The San Francisco climate may not guarantee perfect weather every day but on any given day throughout the year, citizens may be able to enjoy an outdoor experience. Although we could not provide any outdoor space at

the street level, the city Bulk Controls did not limit the area of outdoor terraces provided on the upper levels of buildings. As the design evolved, the building covered 96% of the site but it also provided more than 25,000 square feet of exterior landscaped decks – in addition to the 700,000 square feet of enclosed space.

Two kinds of outdoor decks are provided. The larger roof decks resulting from required building setbacks offer publicly accessible building amenities. The smaller terraces are extension of the interior tenant working environment. (Figure 14)

I think almost everyone is familiar with the fact that the San Francisco Department of Planning takes a very active role in reviewing and approving the design of major buildings. There is an emphasis on having an architectural narrative to explain the rationale for the building massing, and how it fits into the skyline and the streetscape. Over a period of months, the narrative and the design evolved. The terraces were accepted from the beginning, but in time the lower terraces were moved to a location on the northwest corner of the building and related

directly to the elevated Transbay garden. The upper terraces offered views toward the Bay Bridge (Figure 15). The building massing and the details of the exterior were refined to emphasize the streetscape and details were developed to provide the exterior of the podium floors with a greater sense of detail. The exterior of the tower floors were modified to give the impression that the overall architectural form was an assembly of subtly distinct but related parts rather than a monolithic block.

The theme of the building remained the same. Without the opportunity to create landscaped green space at grade, we created park-like spaces as an extension to some of the upper floors of the building. As the leasing brokers began marketing the building, they realized that almost every tenant they spoke with showed an interest in occupying a floor with access to the elevated landscaped terraces. With the popularity of the park-like spaces in the tower, the brokers decided to call the building Park Tower, i.e., a Park in a Tower.