International Journal of High-Rise Buildings
March 2020, Vol 9, No 1, 61-70
https://doi.org/10.21022/IJHRB.2020.9.1.61

International Journal of
High-Rise Buildings
www.ctbuh-korea.org/ijhrb/index.php

15 Park Row New York City - 120 Years Later, Still Relevant in Contextualism and Sustainability

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Abstract

After the 1884 Home Insurance building in Chicago and 1889 Tower building in New York, 15 Park Row became the tallest building in the USA in 1899 and it held this record for nine years. Completed just before the arrival of the 20th century, this building deserves to be recognized for the sophistication of its architecture with respect to contextual understanding of the 19th century historic texture in Lower Manhattan, its uniquely economical floor plans, and its use of natural ventilation and daylight. The compositional techniques using the proportional analysis of its context reflect the highest level of architectural education of its time by its architect Robert H. Robinson. In addition, it also offers a unique glimpse to the state-of-the-art technology of its time regarding its structure, its use of movement systems that was capable of serving 4000 users.

Keywords : Contextualism, Passive Sustainable Design, Occupancy

1. The Unique Historic Background

Going back to the early settlements in Lower Manhattan helps us understand why the worlds' tallest building for nine years was built here. Original home of Lenape Indians, the island of Manhattan started off as a fertile nursery for fish and productive farmland. (Sanderson, 2009) The 1660 Castello map of New Amsterdam (Fig.1) shows the location of the Dutch Settlements and the area just North of this elegant town as virgin farmland and fields of indigenous tree species. Our marker indicates where the 15 Park Row would fall in relation to the earliest Dutch settlements.

However hundred years later, 1782-83 British Headquarters Map and the 21st century version of the same map verified and corrected by geographic information system (GIS) map (Fig. 2) show the positioning of the current streets and avenues in Lower Manhattan. The site of 15 Park Row was on the Manhattan's dense sands above schist layers, just South of the wetlands and salt marshes that would make its construction much more difficult. It was not possible to locate any geological research done to determine the proximity of the site to the wetlands at the North, but engineering records indicate that boring tests were made to determine the depth of the sand and the location of the schist below the building before it was built. (Homberger, 2005)

Park Row close to the end of the 19th century was already an established center of New York City intellectual community and this building was located among a row of newspaper publishing establishments. Original owner of the building William Mills Ivins (Malone, 1961) was a visionary and a prominent lawyer, a judge and enlightened citizen with powerful connections.

To build this new unconventional office building on



(Location of 15 Park Row noted)

Figure 1. 1660 Castello Map of Amsterdam.

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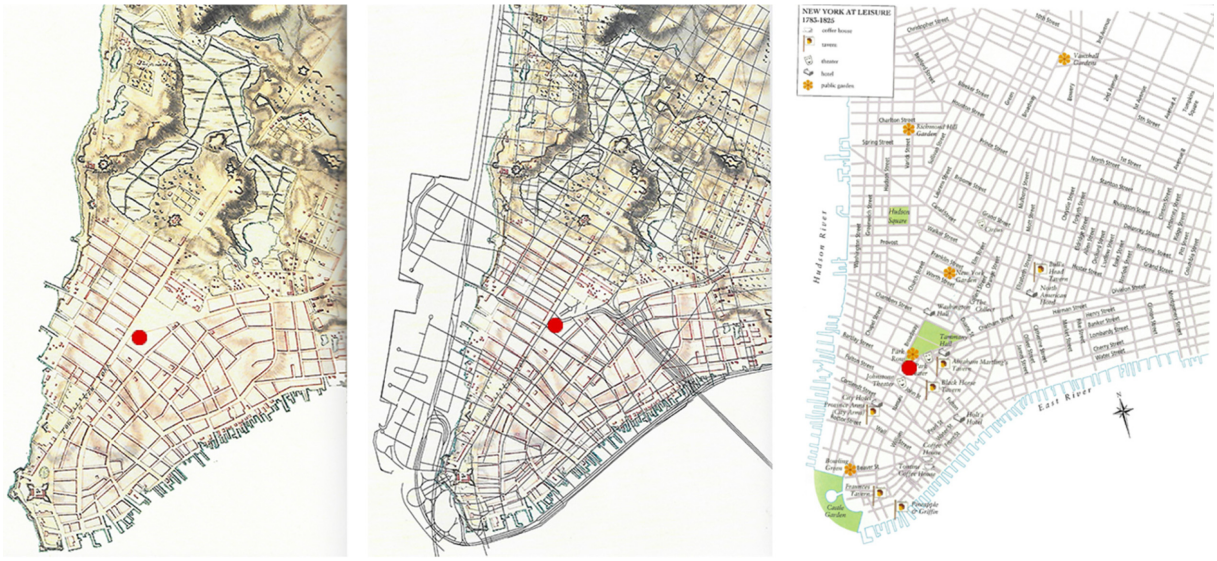


Figure 2. British Headquarters Map 1782-1783, GIS Map Overlay, 1783-1825 Map of Eric Homberger.

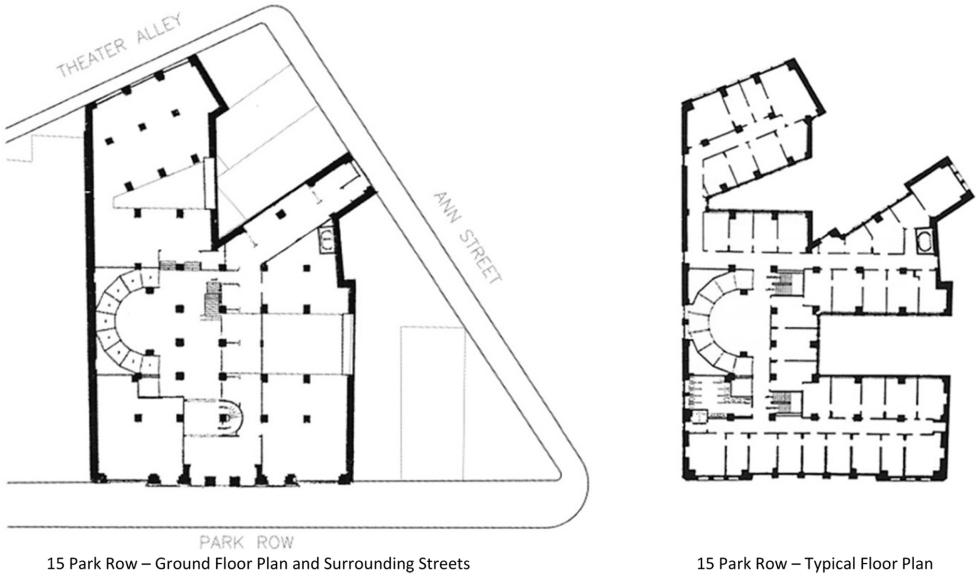


Figure 3. 15 Park Row - Ground Floor Plan and Surrounding Streets, 15 Park Row - Typical Floor Plan.

Park Row Street connecting Chatham Street to Broadway, (The Publishers Row) several low-rise commercial buildings including the old International Hotel were purchased and demolished. Mr. Ivins was able to raise the $2,750,000.00 from a number of investors. He persuaded them, to build an office building with almost 1,000 offices and approx. 4,000 occupants. Ivins's concept was to create a 'village' where many people could work and function in close proximity to the main legal and administrative center of the city. Prior to the design of the Park Row building in circa 1893, the corner property to the South was considered, but not purchased due to the high price demanded by the owners. (Engineering News, 1896) Therefore, irregular and extremely challenging building envelope shown in Figure 3 above, was partially a result of the cost decision made by Mr. Ivin and his group of investors. The building known as the Ivins Syndicate Building opened its doors on July 20, 1899. A few years later, the building was purchased by August Belmont (Landau and Condit, 1996). Mr. Belmont was an investment banker and had also commissioned the 15 Park Row architect R.H. Robertson and his new partner Potter to design another building at the end of the block an 8-story office building on Park Row. Between his new building at 15 Park Row a 4-story building was located. To retain the natural light for his 15 Park Row building, Mr. Belmont eventually purchased

that building and another 8-story building owned by Joseph Pulitzer as well.

Ironically, even though he was still in his 40's and a very successful architect in New York City to design the tallest building in the world during the prime of his professional life, Mr. R.H. Robertson never received any other commissions similar to the scope and prestige of the 15 Park Row building. His later commissions like 9 Jay Street and Hugh D. Auchincloss House in the Hamptons were prestigious but much smaller.

2. The Author's Connection to the Building

In search for an architectural office space close to Tribeca, the South Tower was found by the author. It had been vacant for a number of years. Interior walls were significantly damaged by years of neglect and water infiltration. Envisioning the potential of drafting boards facing the magical views of New York waterfront and City Hall Park, a lease was signed immediately. In the process of restoration, several layers of damaged gypsum board and acoustic tiles were removed exposing the abandoned round elevator shaft with its delicate bronze elevator doors. The worn marble steps leading to the cupola at the crown of the dome (Fig. 4b) were one of the clues that lead the author to the historic significance of this building. It was clear that many people came to this building to observe the city and its magnificent harbor. As one ascended to the private space shown in Figure 4c above; the archives of the Across From The City Hall magazine were found still intact inside the copula, leading to the lantern at very top of the dome with a steel 'samba' stair. Further research into the exquisite detailing and more subtle qualities of the entire building revealed many more fascinating details as the authors professional office settled into this unique place of work and inspiration. As it is costumery with most speculative office buildings in New York, the building was sold several times to different owners during the occupancy of the author and the rents for the tenants kept on rising. Eventually the space became un-affordable for an architectural practice. After returning back to its abandoned state for another decade, in 1999 the New York City Landmark Preservation Commission designated the 15 Park Row building as an Architectural Landmark on its 100th birthday and the turrets were re-purposed for residential use.



a. Architect's Office



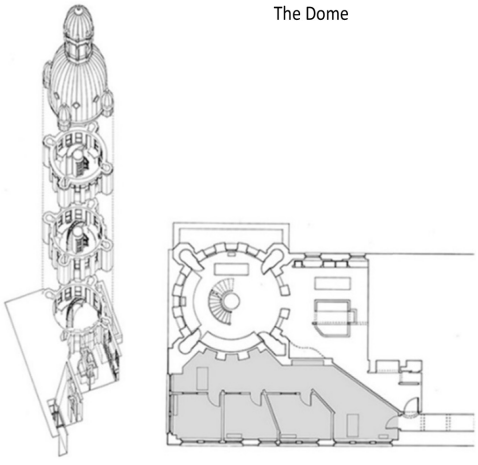
b. Tower Steps and Elevator



c. Archive of Across from City Hall Inside The Dome



d. Exterior Views of the Tower – 1982



e. Axonometric View of the South Tower and Plan of the Entrance Level

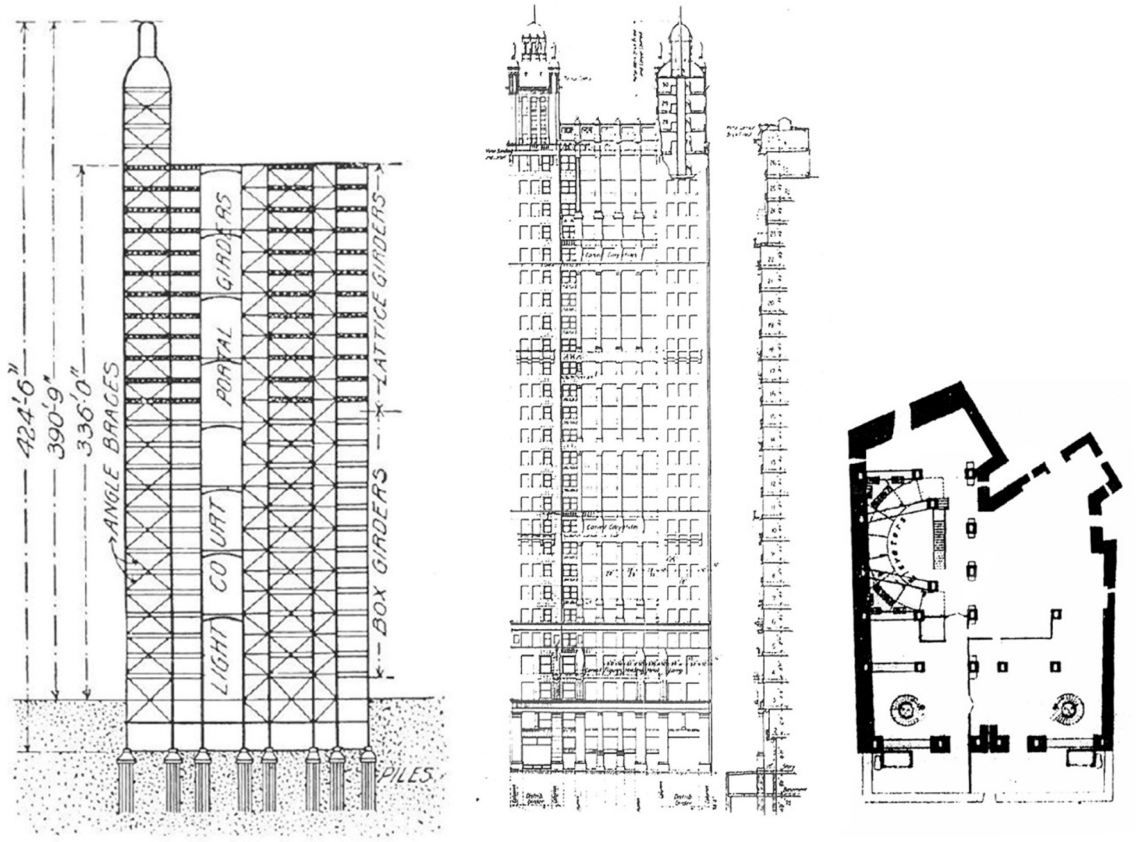
Figure 4. Interior Views of the Tower as an Architecture Office – 1983, Exterior View of the Tower – 1982, Axonometric View and Plan of the Entrance Level.

3. The Light-weight Steel and Elevator Technology

15 Park Row was built on 3,900 Georgia spruce piles at this dense urban fabric and high-water table site. Each pile carried roughly 16 tons of the estimated 65,200 tons of the building weight. (Just 4 tons over the allowable maximum requirement by the NYC Building regulations at the time) Excavations were made to 34 feet below the street level. The spruce wood piles were driven through compact sand, varying between 35 to 59 feet below the pile caps. At the start of the construction, the friction due to closeness of pile excavations caused significant concerns for the adjacent buildings. The construction had to stop to design and introduce additional cross-bracing to prevent the collapse of neighboring buildings. This is probably the reason why 15 Park Row was the last building built on friction piles as opposed to phenumatic caissons that were used for the high rise construction during the following years.

The 'purely skeleton' steel-frame construction was already invented and used successfully to build the Western Union Telegraph Building by Burnham and Root, but it had a maximum floor to floor height of 12', like the other built examples that were mentioned in the 1895 *Architectural Engineering* publication of Joseph Kendall Freitag. In comparison, 15 Park Row had almost 13'-6' floor to floor height. This building was also the first one to reach the height of 29 stories (391 feet). Actually, the height of the structure was 424'-6" high from the top of the concrete pile caps. Despite these unique 'firsts', the significance of the building was dismissed by the prominent engineer and author J. K. Freitag. In his words (Freitag, 1909, p.42); … 'The Park Row building is the highest office building ever erected and it is very doubtful whether it will be found either desirable or profitable to erect other buildings as high as this one.'… Clearly, the complexity of the site geometry and many asymmetrical eccentric loads introduced to the its 'purely skeleton' structural system was found too idiosyncratic to be repeated.

For the entire building the engineers (Nathaniel Roberts of NY and NJ) called for medium carbon steel with ultimate strength of 60,000-68,000 psi and an elastic limit greater than half of the strength. As it was standard in those days, steel was to be coated with linseed oil and a layer of primer paint. Professional publications found this 'questionable' in terms of providing actual protection from fires. Fireproofing became a challenge especially since the building had such a complex and unusual shape.



a. Structural Sections with Combined use of lattice, plate and box girders, angle braces and sway rods.

b. General Elevation and Part Cross Section

c. Basement Plan with Elevator Supports

Figure 5. Structural Sections.

Roebling & Son's 'perforated steel encased in concrete' system was rejected by the New York City inspectors. Therefore, hollow clay/terracotta tiles had to be used to encase the floors to provide the fire separation between the levels. Figure 5 above shows the cross-section of the entire structure and flying buttresses as well as the section of the building with the elevator shafts.

There were additional challenges to the design of the structure since for the first time in the history of the city water had to be brought to the top of the building with adequate pressure to serve the tenants. A water tank of 10,000 gallons capacity was placed at the 25th story resulting in a flat roof and additional bracing at that level.

4. Elevators

The system of (10) trapezoidal elevators arranged in a half-circle was used for passengers in this building. Even though this was not the first time this efficient arrangement was used in a new office building, the previous examples like the 1892 Masonic Temple by Burnham & Root, the 1895 Marguette Building by Holabird &Roche and 1893 Havemeyer Building by G.B. Post all served their rectangular floor plans with their semi-circular elevator lobbies attached to long interior corridors. The floor plans delineated in (Figure 6) below, highlights the elevator layout for those buildings in comparison to 15 Park Row.

In the Park Row Building, architect Robert H. Robinson created a unique architectonic way to connect the arrival point to all of the offices on his typical floors as a well-defined semi-circular space that connects to straight hallways illuminated with daylight, cross-ventilation and magnificent views of lower the New York Harbor. Despite the number of individual workspaces spread around a the most unusual building envelope, the organization is clear and memorable by the character of the location and views. On the contrary, the selected building plans of its contemporaries, with similar semi-circular elevator arrangements go to dis-orienting long corridors like the high rise residential buildings built in the following decades.

The passenger elevators were designed to carry 3000 lb. live load. In addition, there was a slow speed drum elevator for heavy loads, two round elevators in the center of the towers and several dumbwaiters in the building. Originally, the company of Frank Julian Sprague prepared the specifications and built all of the elevators. Due to the ability for speed of their newly invented electric traction model their designs were preferred for this building instead of the Otis hydraulic models that were the most advanced technology at the time.

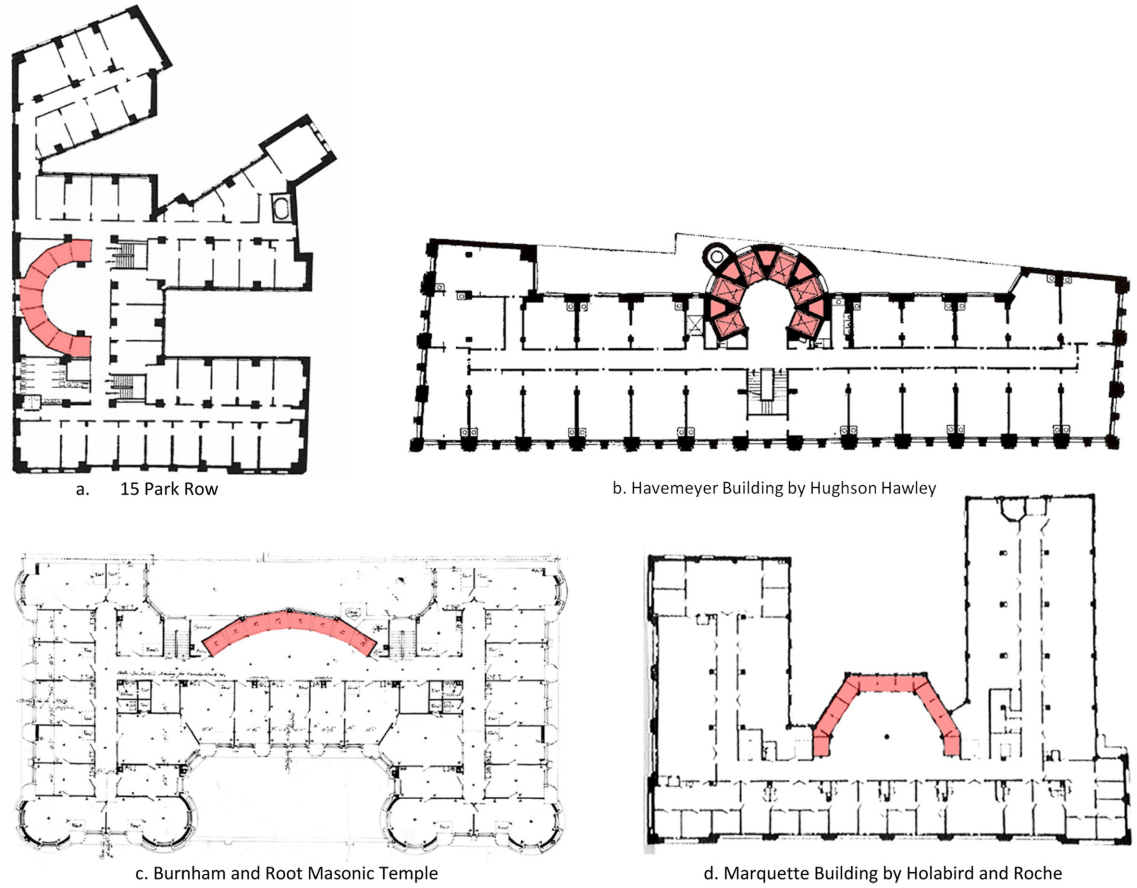


Figure 6. Plan Showing Location and Configuration of Elevators.

Sprague elevators were the first electric traction elevators to serve the height of 27 floors. The system designed by Sprague worked well enough for several years but required frequent maintenance due to wearing of the screws and nuts. In 1895, before the building was completed Otis Elevator Company bought the Sprague's Elevator Company and eventually they were able to produce a drumless and gearless electric model that allowed the kinetic energy of the falling counterweight of the cabs to reduce the loads on the motor and smoother operation. The two triangular spaces resulting from the placement of circular elevator bays against the North wall were used to locate the hoisting machines for the elevators.

5. The Building Materials

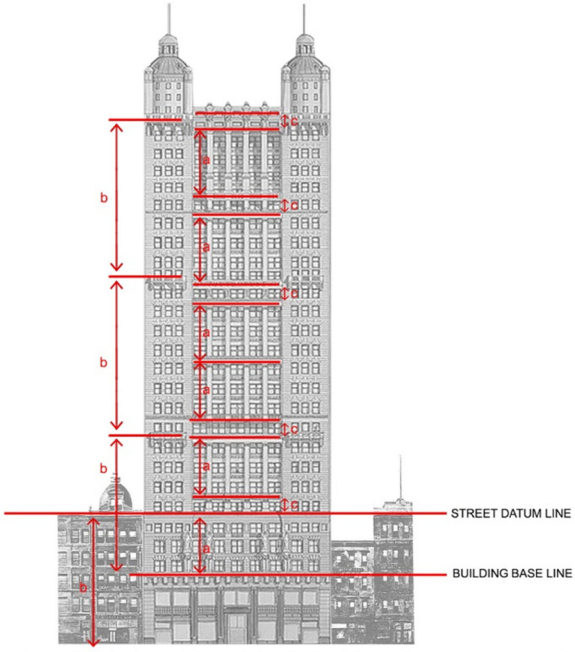
The use of brick and terracotta on the exterior walls was basically the only choice due to the technology and materials available at that time. However, their use as 'veneer' instead of as load bearing walls made the exterior walls extremely efficient and slender with less dead load imposed on the structural system of the building. Ornamentation used for the entire façade and cornices were terracotta and brass. It is remarkable how these features have been able to survive for over 120 years.

6. Unique Floor Plans

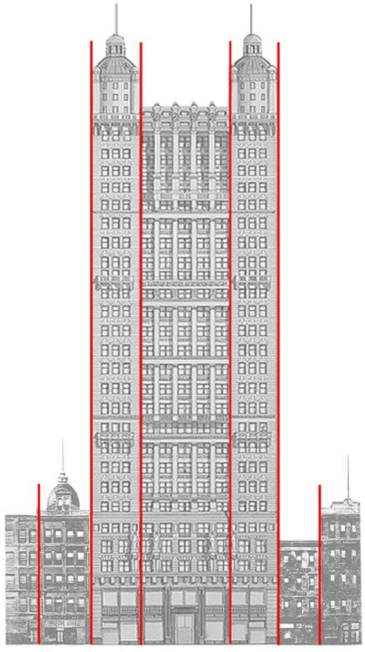
As indicated in figure 3 above, even though it was the tallest building erected in the city, its response to the complex layout of its historic surroundings by connecting Ann Street and the Theater Alley to the Park Row (Publishers Row) made it one of the most contextual Beaux-Arts Plans ever created. The Ground Floor also had a service entry from the side street elegantly connected to the service elevator and the lobby. The floor plan's ability to relate to the historic texture of Lower Manhattan has not been matched by any other skyscraper that was built since then. The diagrams shown in Figure 9 in the section below, clarify the efficiency and concern for the quality of life for the occupants. Robert Henry Robertson was an experienced architect who designed many public buildings. According to Montgomery Schuyler (Schuyler, 1896), His education in Philadelphia and subsequent interest in Victorian Gothic style and then his introduction and infatuation to H.H. Richardson's work in masonry and classic architecture influenced R.H. Robertson to always to produce coherent but highly irregular floor plans, and never to sacrifice the practical requirements of the users.

7. Compositional Experimentation in the Design of the Façade and the Building Mass

As a teacher of architecture and a practicing architect, this author has been most impressed by the experimental quality of its façade composition and the degrees of formal inquiry to create a façade of this height by the compositional tools available at the time of its creation. Clearly, a serious effort was made to belong to the historic



Horizontal Ordering – (3) Modules derived from the context are used to break up the vertical scale of the building. The floors are grouped to avoid the monotone stacking of identical levels.



The front elevation is broken vertically to relate to the size of neighboring building lots.

Figure 7. Horizontal and Vertical Ordering.

context and the aesthetic preferences of its time. As indicated in Figure 7 above, the proportional ordering systems derived from the height of the existing buildings on Park Row and the size of the building lots that were determined during much earlier property regulations. These dimensions were rigorously used to determine the size of the vertical tripartite divisions on the façade composition.

Soon after the completion of the building, architectural critics found the façade composition …'confusing, monotonous and awkward.' It was stated that R.H. Robertson did not know that he could no longer make use of the old formulas and that a new language was required for building as tall as this one. (Record and Guide, 1898)

The towers were also criticized and called 'rabbits ears' by some critics. It would be interesting to know if the decision to make two round towers were a result of wind load calculations by the engineers or they simply offered a way for the architect to breakdown the scale of the building while expressing the lot sizes and property divisions that defined its context.

Robertson also received criticism about the plain treatment of the side walls not facing the Park Row. However, the sheer mass of the building and its logical and elegant structure and buttresses became a source for inspiration for many artists. Photographer Irwin Langdon Coburn (Hirshler, 1989) , S. and D. T. Germany, Alfred Stieglitz, Joseph Pennell, John Marin all used the image of the side and the back and praised the building as a symbol of the modern city and stress the skyscraper form as a unique American building type. They called it …' the architectural success in which America is wholly original and beholden to no one. (Hirshler, 1989, cited in Van Dyke, 1909 p.92)

8. Defining the density of the downtown Manhattan

When the 15 Park Row building was first built in 1899, there were no height restrictions for commercial buildings in New York City. (Height restrictions did not become law until 1916.) The diagram prepared above in Figure 8, using the recent New York Times article (Chen, 2019) we were able to document where 15 Park Row stands in its height and building mass in comparison to other skyscrapers that dominate the skylines of New York City now.

It is remarkable that even though the building was only the tallest building in New York City for nine years until the construction of the Singer Tower in 1908, the adjacent buildings have only reached and exceeded its height and made the rectangular façade facing Park Row the new scale of the street wall in this part of New York City in 2018. Figure 9 above shows how the new mixed-use high-end residential construction used the actual height of the street wall defined by 15 Park Row in 1899 as their datum and rose way above to catch up to their contemporary competitors.

9. The Program Distribution Fresh Air and Daylight/ The evolution of Office space since 1899

The typical layout of the floor plan and the placement of the elevator bays also seem to create one of the most economical layouts for office space with daylight and fresh air.

As described in the paragraphs above, the hallways at each level lit by natural illumination and cross-ventilated

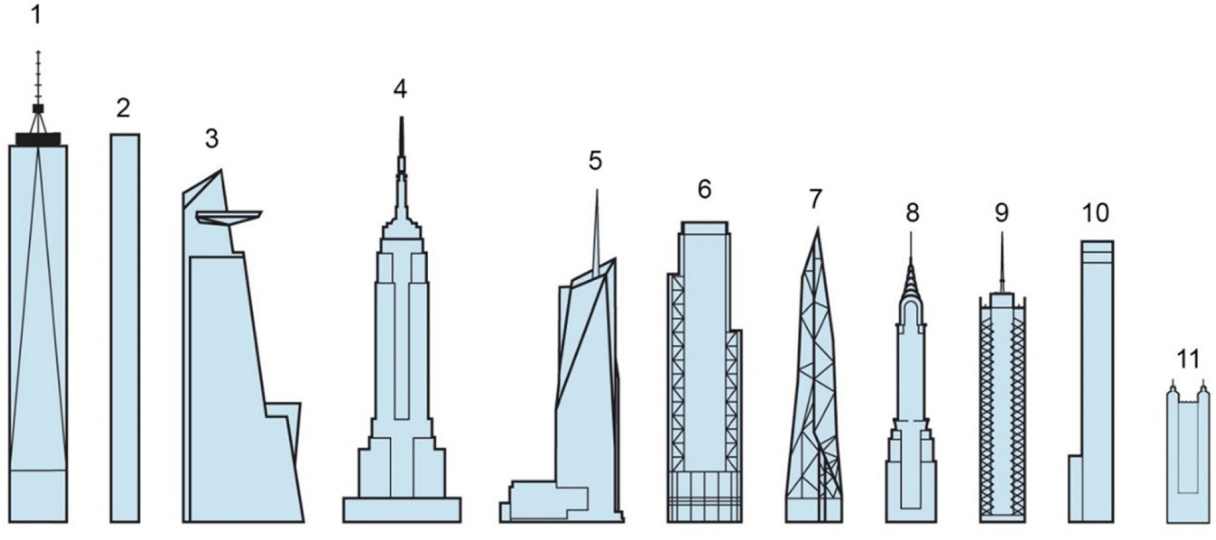


Figure 8. Manhattan Skyline in 2019



Figure 9. Photographs of the Adjacent Buildings in Progress, July 2019.

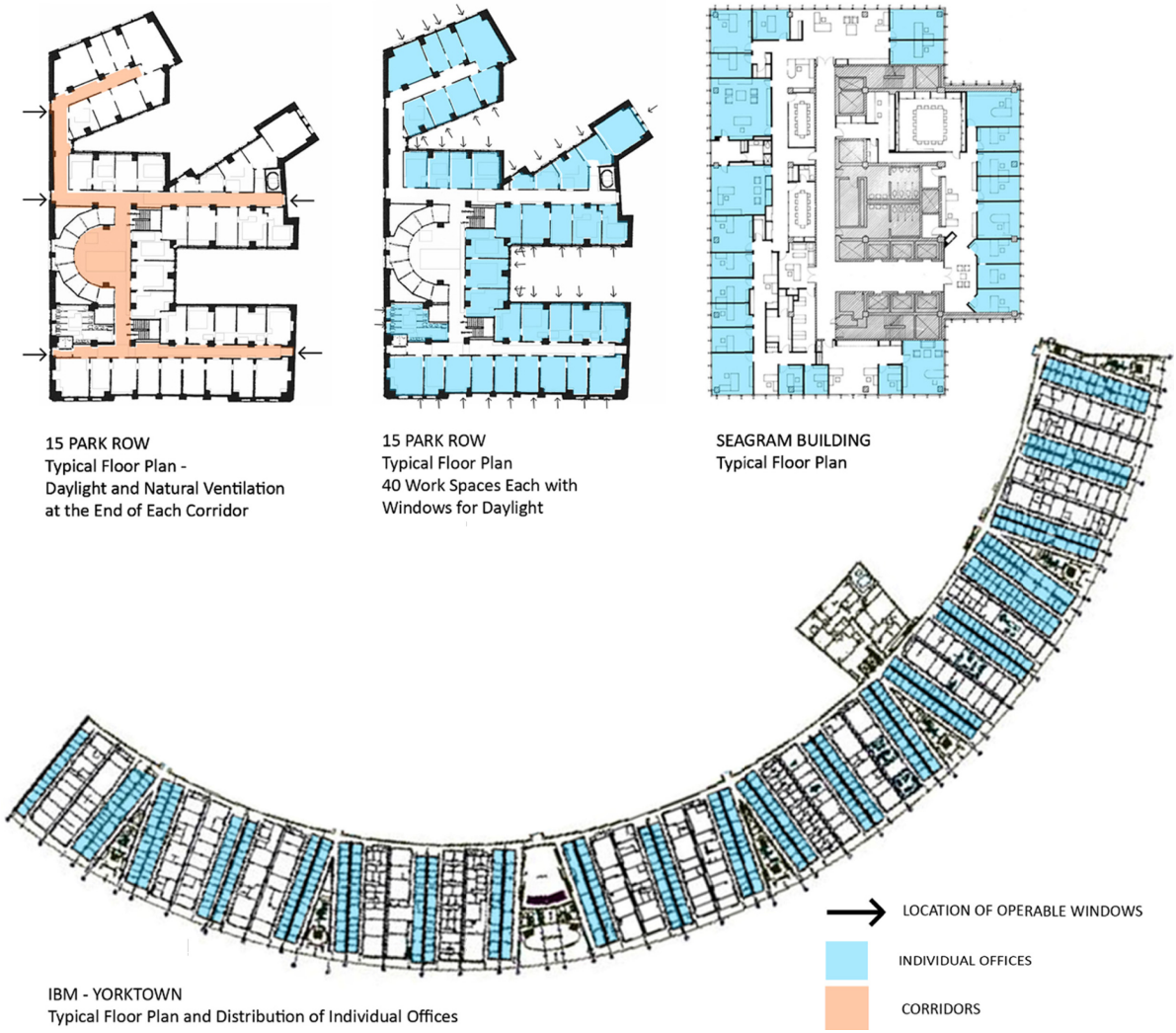
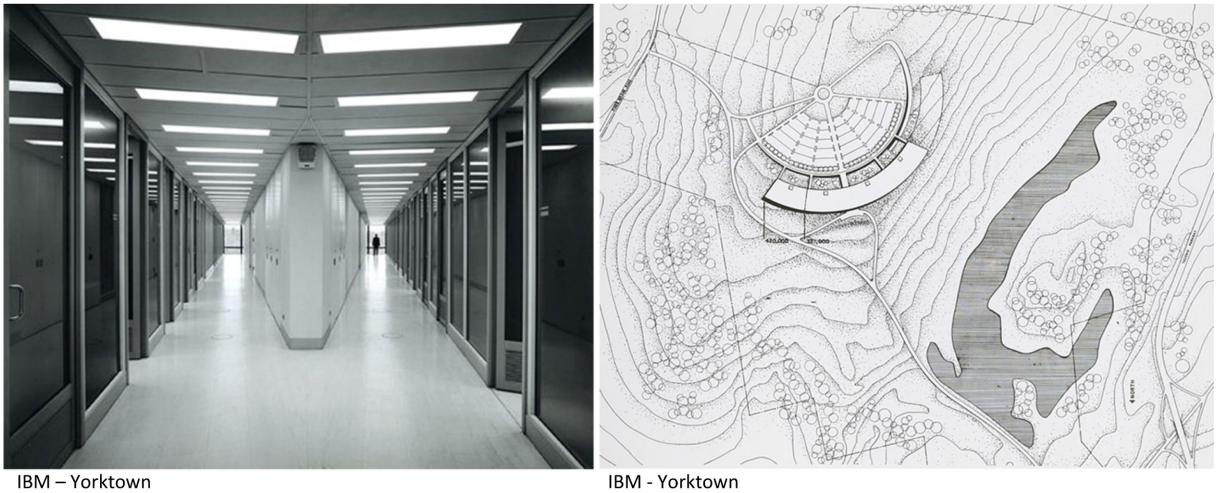


Figure 10. 15 Park Row, Seagram Building and IBM Yorktown Floor Plan Diagrams.



IBM – Yorktown
View of Typical Hallway Between Offices

IBM - Yorktown
Site Plan

Figure 11. IBM Yorktown View of a Typical Hallway Between Offices, IBM-Yorktown Site plan.

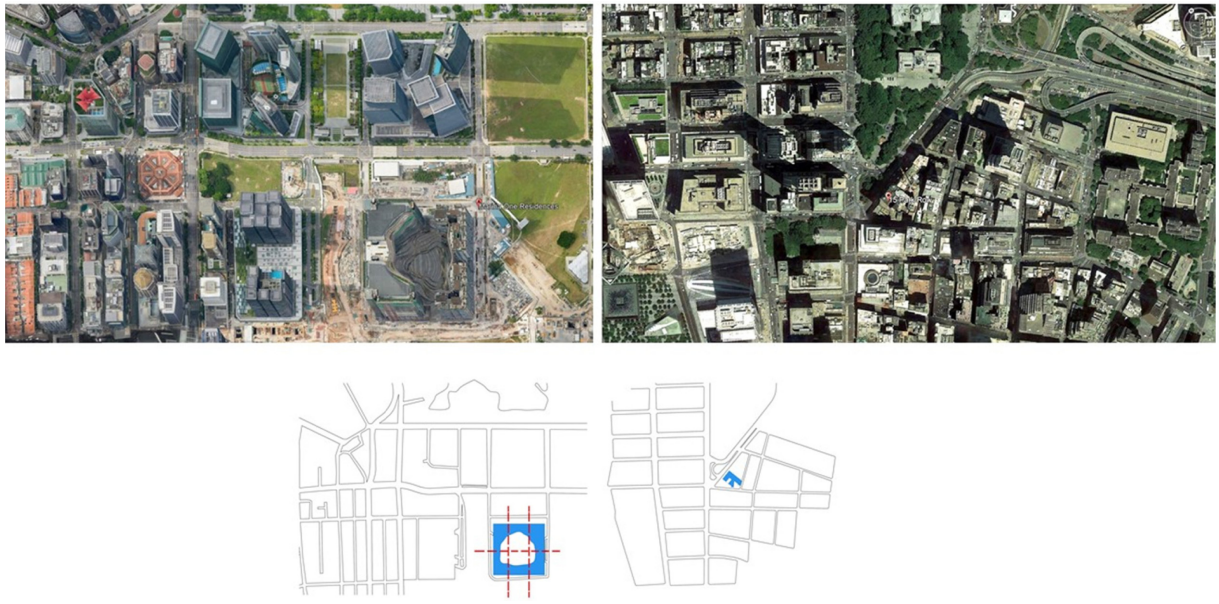


Figure 12. Singapore vs NYC Grid comparison in the same scale.

by the breezes from the harbor was considerably effective in lowering the use of energy more than the typical office building designs. When compared to the layout of sky-scrapers designed for office use in the following decades, the value of this first experiment in speculative office building becomes un-deniable. The building's ability to offer natural daylight to every workspace, ability to use operable windows for ventilation before the invention of ducted HVAC systems for high rise building, distinguishes it as a first example of a large building with a very small carbon footprint. In Figure 10 two iconic office buildings built in the 20th century, specifically built for office use are selected. Mies van der Rohe is considered one of the most function-oriented architects of the 20th century, but in comparison to the Park Row building, his floor plates for the Seagrams Building leave a lot more areas without daylight and more circulation per usable area. Many office towers during the 20th century have been built with this prototypical configuration, keeping the elevator and stairways in the center core and distributing the users around the perimeter.

Also, some very unique examples like Eliel Saarinen's Thomas Watson Research Center for IBM exist. The building takes all of the office spaces out of the perimeter of the building and leaves daylit corridors just to give a slight clue to users about the time of the day by placing the corridors perpendicular to the outside wall. The image of the corridor of offices facing each other and the site plan of the Eliel Saarinen's building is shown above in Figure 11.

10. Conclusions

Most of the skyscrapers built in New York are built on relatively regular sites within the tight urban settings. Those buildings do not have the efficiency of the daylight and fresh air use as the 15 Park Row building. Also, around the globe this concept is being challenged with the new building complexes for office and mixed-use buildings. Ingenhoven's building (above in Figure 12) in Singapore is one of those exemplary developments where the light and air is introduced from the middle of the buildings to provide access to light and air to individual offices again, similar to the 15 Park Row tower, but this time the large footprint of the buildings significantly alter the urban texture demanding a new city shaped with the very large scale blocks.

It is ironic that 15 Park Row had an ice machine at its Basement Level to provide cold drinking water for its tenants because it was built before refrigerators were available for use. To achieve net zero carbon footprint in new buildings contemporary architects may need to re-visit the strategies used in 1899, when heating cooling and ventilation by sophisticated mechanisms were simply not available.

Once described as …'the monster reared his head at Park Row' by architectural critics (Gray, 2000) the 15 Park Row building today may be understood and viewed a bit more kindly by history; the Manhattan grid downtown is still preserved, and even though it is no longer used for offices, the strategies that made the building habitable by simple means are still valid for the new residential units created within.

Acknowledgement

In 1999, NYC Landmarks Preservation Commission designated 15 Park Row as a Landmark in New York City. Their report and archives provided many of the technological details and photographic documentation about the building. This author is indebted to the research done by the NYC LPC staff. They have generously allowed this author to work with their material.

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