



**PDHonline Course C819 (6 PDH)**

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# **Frank Lloyd Wright and the House of Wax**

*Instructor: Jeffrey Syken*

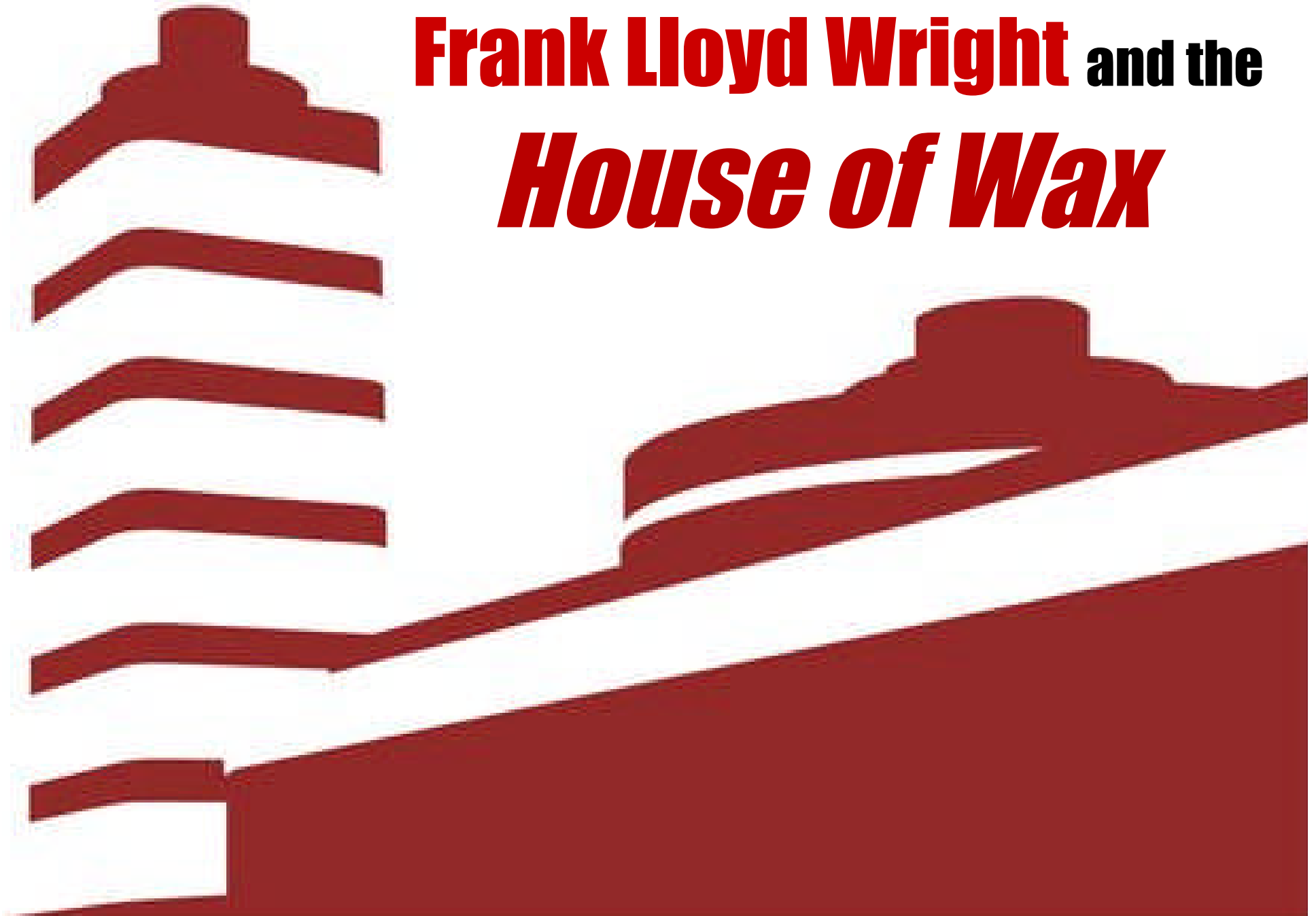
**2020**

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**Frank Lloyd Wright** and the  
*House of Wax*



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# Part 1

## Second Act

# **Greatest Architect of the 19<sup>th</sup> Century**



***“Was he the greatest architect of the 19th century (as the young Philip Johnson twittingly called him) or the first great one of the 20th? Even as he was, years ahead of his time, denuding interiors and dreaming up schemes for mass-produced housing, he loathed the new abstract art from its beginning. Johnson planned to include Wright in his epochal 1932 Museum of Modern Art show on the International Style, but Wright peevishly pulled out, unwilling to be lumped with designers he considered hacks. Wright slagged his architectural descendants, calling the International Style ‘totalitarian.’ Yet he remained by deep temperament a modernist, driven always by the urge to create novelty...”***

***TIME* magazine, October 5<sup>th</sup> 1992**

**Left: caption: “Head and shoulders portrait of Frank Lloyd Wright”**



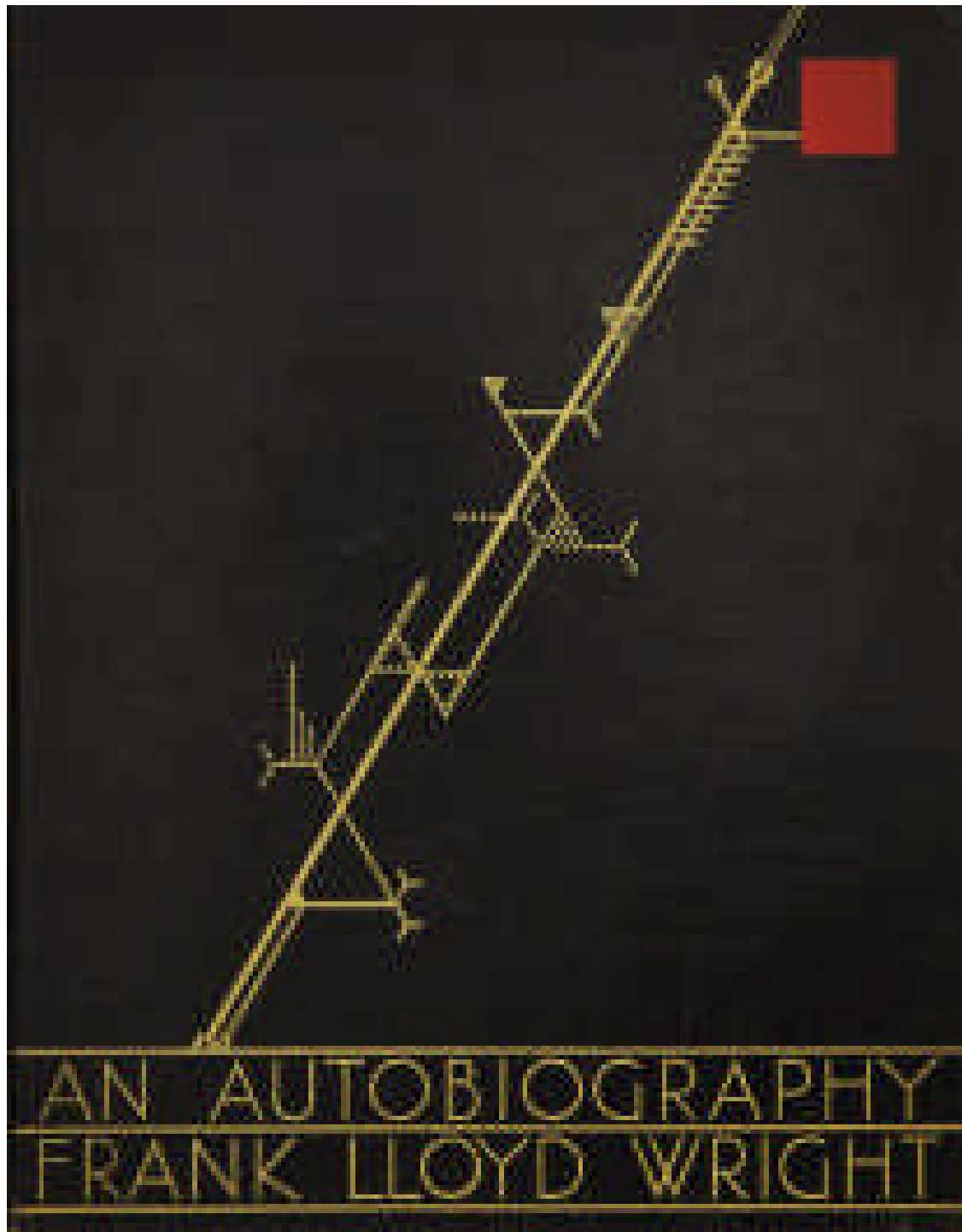
**Above: caption: “Model of Le Corbusier’s Villa Savoye from Modern Architecture, International Exhibition - The Museum of Modern Art, New York; February 9th - March 23rd 1932.” Curated by *Alfred H. Barr* and *Philip Johnson*, the exhibition included photographs and models of buildings that were intended to communicate the idea of a great revolution in architectural design. Like all exhibitions, it had a clear curatorial point of view. What had been a movement of social dimension in Europe was labeled a “style” for the NYC audience, with Hitchcock and Johnson explaining its general formal parameters. Nevertheless, the exhibition introduced interesting and important new architecture to an American audience. With the success of the exhibition (and related book project authored by *Henry-Russell Hitchcock* and *Johnson*), the MoMA show became legendary and Johnson and his associates were recognized as the soothsayers who defined the canons of modernism in architecture.**



***“...The permanently startled look on Architect Wright’s face is rightly come by. His Autobiography was a naive exhibition of martyrdom, rage, scarifying tragedy and adolescent yammering. One time he was stabbed eleven times in the back. Soon afterward he was married, had six children, left them and moved in with another man’s wife and two children, until August 1914 when a disapproving Negro butler killed the woman and children and four neighbors and burned down the house. In his working hours Wright had developed steel-and-glass city buildings, windows covering two sides of a corner, houses made as nearly as possible of one material, the cantilever foundation principle (Tokyo’s Imperial Hotel, floated on a mud base to rock with earthquakes), and the unit cement block system of construction chiefly used in California. His great reputation is that of a revolutionist, based on his long campaign against traditional architecture and architects. Once considered in Europe the greatest U.S. architect, he was conspicuously omitted last year from the staff of architects for Chicago’s Century of Progress Exposition for 1933...”***

***TIME*** magazine, September 5<sup>th</sup> 1932





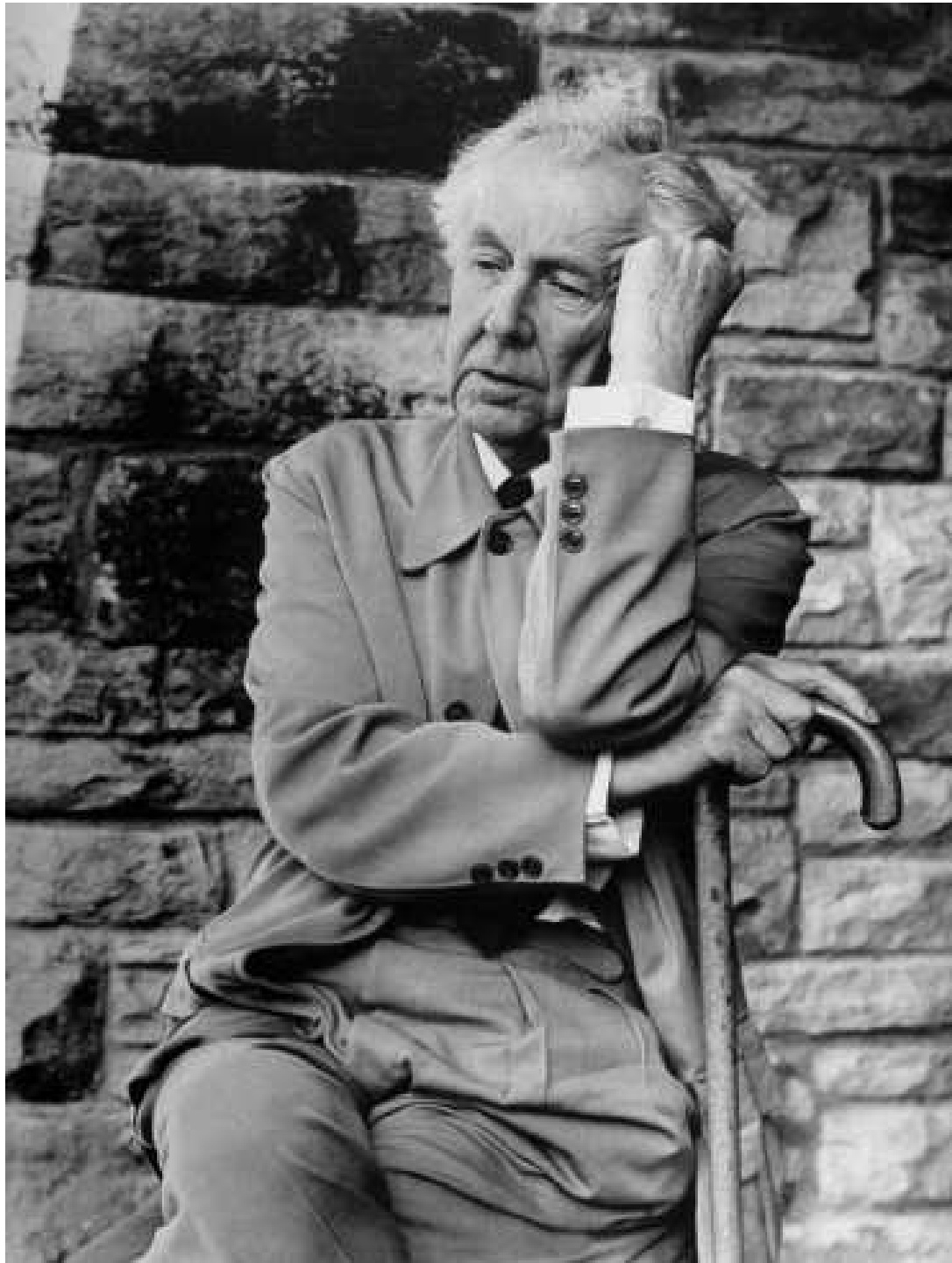
**“F.L. Wright Tells of His Stormy Life. Individualistic Architect Sets Down Story of Long Struggle to Keep His ‘Freedom’...Predicts Death of Cities, Assails Skyscrapers.”**

**RE: *New York Times* headline in March 1932 upon the publication of FLW’s *An Autobiography* (left). By the 1920s, it appeared FLW’s best work was behind him. With few commissions, he spent much of his time during the “Wilderness Years” lecturing, theorizing and writing his autobiography.**

***“..To the U.S. man-in-the-street 15 years ago, the name Frank Lloyd Wright meant, if anything, the builder of a hotel in Tokyo which by some engineering magic withstood the great earthquake of 1923. To the U.S. man-in-the-subway, his name was associated with scandalous episodes ground from the inhuman human-interest mill of the tabloid newspapers. A decade ago, when the brand-new International Style in architecture was seriously taken up by U.S. architects, many of them were surprised to discover that Wright had been its forerunner 30 years before, that by great European architects such as J.J.P. Oud and Mies van der Rohe he was regarded as a master spirit. In 1932 Wright published his autobiography, a book which combined magnificent self-revelation with the most stimulating discussion of architecture ever heard in the U.S...”***

***TIME magazine, January 17<sup>th</sup> 1938***

**RE: MoMA curator *Philip Johnson* had deridingly referred to FLW as: “The Greatest Architect of the 19<sup>th</sup> Century.”**



***“...Wright’s unconventionality has always been frowned upon by official bodies and architectural juries. He was not invited to participate in either the Chicago Exposition of 1933 or the New York World’s Fair. He has never been awarded any of the important U.S. architectural medals or prizes. Neither the U.S. government nor the government of his home state Wisconsin has ever employed him to design a building. He has never become a member of the American Institute of Architects, some say because the institute is afraid to invite him lest he refuse with a violent public denunciation...”***

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***LIFE magazine, August 12<sup>th</sup> 1946***



**Above: caption: “Exhibit of the works of Frank Lloyd Wright at the Layton Art Gallery in Milwaukee which later toured the United States, 1930-1931. Numerous models and drawings of Wright designed buildings are on display including most prominently the residence designed for Richard Lloyd Jones.”**



***“This is what happens when you leave a work of art out in the rain”***

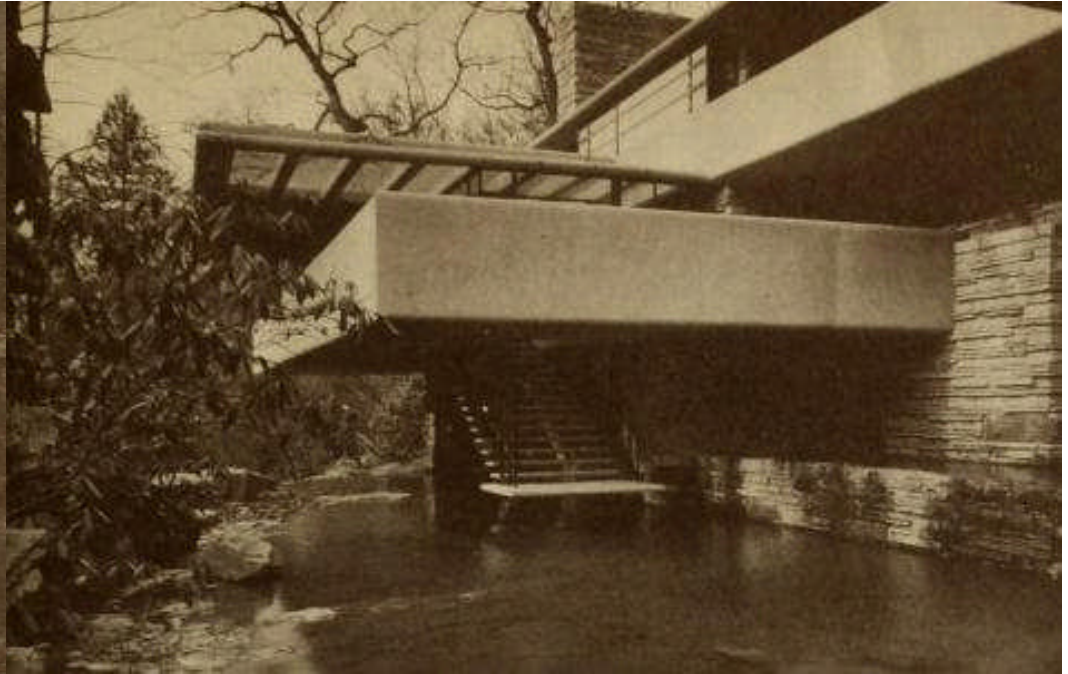
**RE: when the *Johnson Wax Administration Building* project began in 1936, *H.F. Johnson* visited the house that *FLW* had built for his cousin *Richard Lloyd Jones* in Tulsa, Ok in 1929 (above & left). *Johnson* noticed numerous tubs and canning jars scattered throughout the house. Inquiring as to the reason for them, *Mrs. Lloyd Jones* apologized to her guest and used this simple, to-the-point explanation. Even so, he was suitably im-**

# **Game Changer**

***“...There is a visceral thrill to Fallingwater, something even Wright’s drawings convey. Like a gymnast on the high bars who freezes his body horizontally at the top of his arc, the house appears to defy gravity with an impossible muscularity. In magic, the technique is called ‘misdirection.’ Looking beneath the building’s projections to find adequate support, we are mystified to find only air. The magician-architect knows where the observers will look for support – in the logical, but wrong place. Instead, he extends his hidden support beams from the front edge of the ‘floating’ deck back through and beyond the house deep into the hill beyond...”***

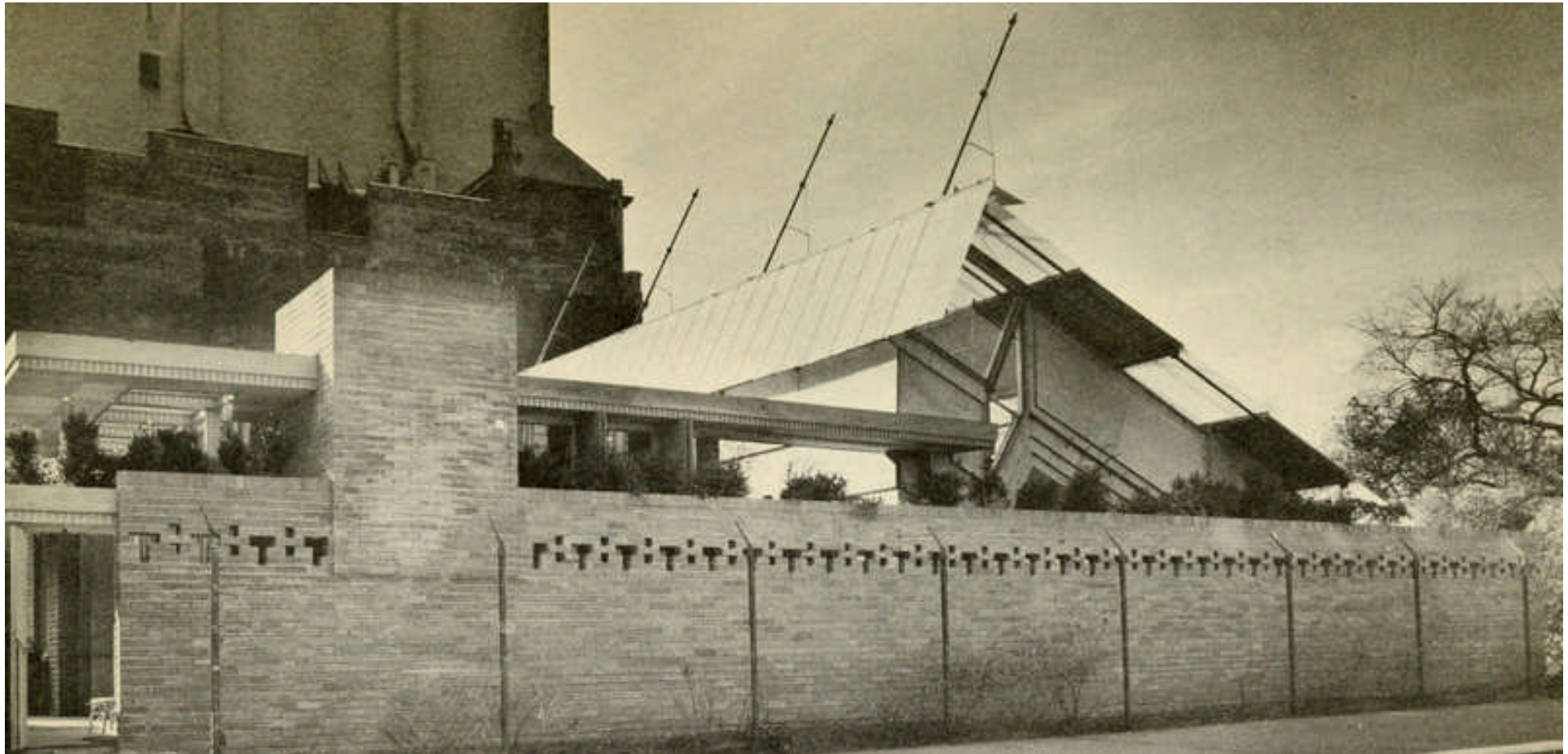
**RE: excerpt from *The Fellowship***

**RE: with two commissions nearly back-to-back; *Fallingwater* (1935) and the *S.C. Johnson Wax Administration Building* (1936) and his *Taliesin Fellowship* (1932) well-established, FLW would prove that he was still a force to be reckoned with despite jazz-age author F. Scott Fitzgerald’s lament: “There are no second acts in American lives.” During the last sixteen years of his long life (1867-1959), FLW received nearly 50% of the total architectural commissions of his career as an architect.**

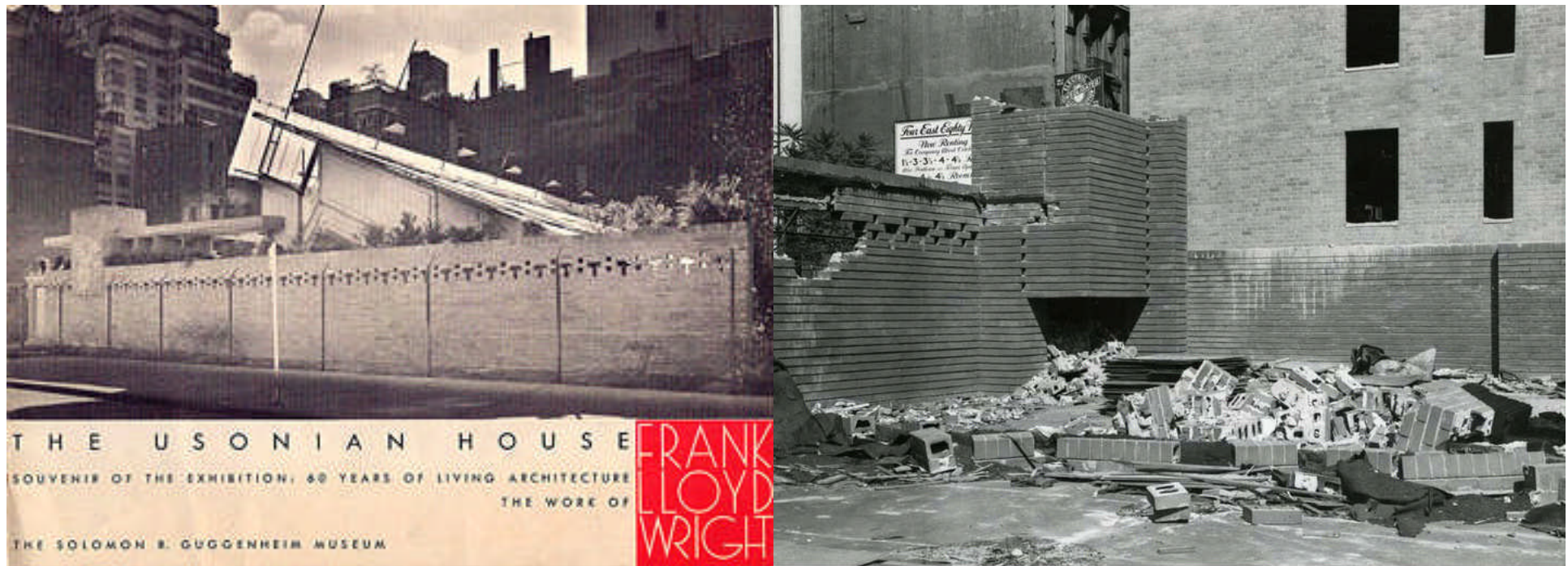


**Above & Left**; caption: “Fallingwater, country dwelling for the Edgar J. Kaufmans. The first house in my experience to be built of reinforced concrete. So the form took the grammar of that type of construction. The Gale house at Oak Park built in wood and plaster was its progenitor as to general type.” Excerpt from catalog of an exhibition held October 22nd – December 13<sup>th</sup> 1953 at the *Solomon R. Guggenheim Museum, NYC* entitled: “Sixty Years of Living Architecture: The Work of Frank Lloyd Wright.”

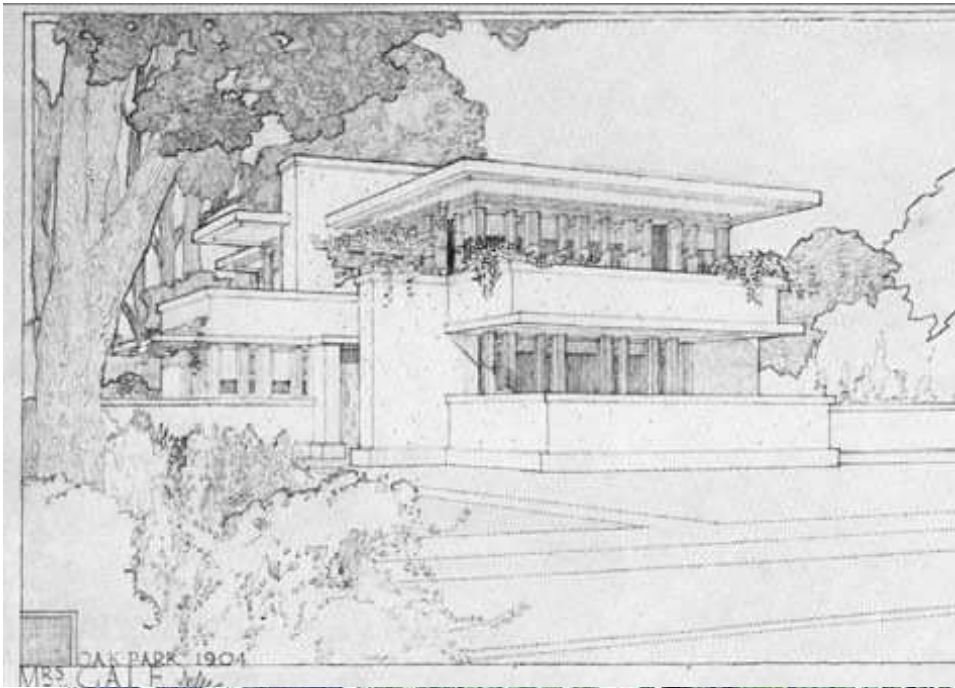




**Above: FLW was commissioned to build a permanent building to exhibit and house the Guggenheim Museum's collection of non-objective art in 1943. However, construction did not begin until 1956. A temporary glass-pavilion building (at right in the photograph) designed by FLW was erected in 1953 on the site where the *Solomon R. Guggenheim Museum* building in NYC is now located. *Sixty Years of Living Architecture: The Work of Frank Lloyd Wright*, the first and only exhibition held in the building, opened in October 1953. The show, dedicated to FLW's career and life work, featured drawings, models and life-size reconstructions of his most famous architectural creations and interior designs. This included a full scale *Usonian House*, based on FLW's vision of the future of American private homes that was built on the museum grounds before being sold, disassembled, and moved to a permanent location. The house's unique flat roof and upper windows can be seen on the left of the photograph (behind the concrete wall erected around both structures).**



**Above L&R: the exhibition was held from October 22nd to December 13th 1953. In addition to the pavilion, the model *Usonian House* constructed on the lot was furnished with pieces designed by FLW. Conceived of by FLW as a sample of affordable housing for the average American, the two-bedroom house was built to a human scale and had an open floor plan with abundant natural light. The photograph above documents the final removal of brickwork from the Usonian House at the conclusion of the exhibition. Before coming to *New York City, Sixty Years of Living Architecture* had been shown in various European cities as well as in *Mexico* and proved to be immensely popular with the public. During the course of the exhibition in NYC, over eighty-thousand visitors came to the museum, which remained open every day and had extended hours (until 10 pm) several days a week.**



***“...Wright’s jutting decks were not completely original, as Kaufman himself may have known. It was he who had suggested early on that Wright look for inspiration to his former draftsman Richard Neutra’s 1929 Lovell House near Los Angeles, which had been featured in the MoMA show. With its dramatic floors projecting out toward the street, the Lovell house had made a stir in modernist circles. Wright’s son Lloyd, who was living in Los Angeles when the landmark house was built, surely knew the project in detail; his father did too. But the senior Wright could of course claim precedence with his even earlier house completed in 1909 for Zona Gale’s aunt...”***



**RE: excerpt from *The Fellowship* <sup>18</sup>  
Left T&B: FLW’s *Gale House* (1909)**



***“...The staggered horizontal concrete projections of Fallingwater, its massive painted surfaces, the way it hovered in the air – all these suggested that Wright was playing off not just Neutra but also the whole aesthetic thrust of his European enemies. But Wright intended Fallingwater as critique, not homage...with this house, he said, they would beat ‘the Internationalists at their own game’...The message of Fallingwater was clear: The European avant-garde stood on his foundations, their branches had grown from his trunk...”***

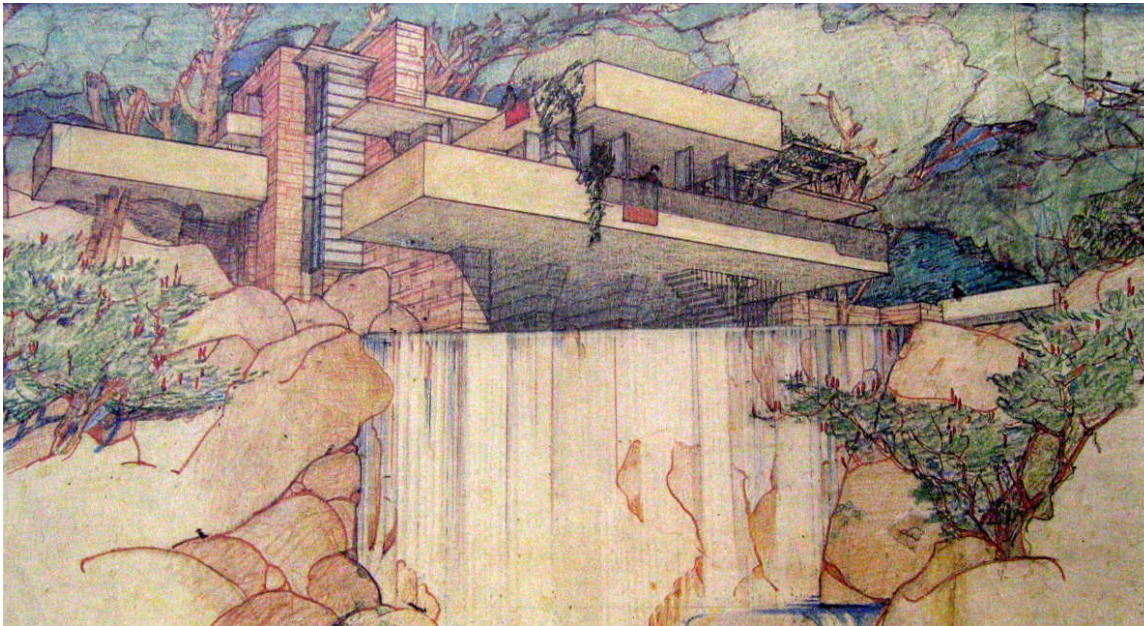
**RE: excerpt from *The Fellowship***

**Above L&R: rendering (left) and photograph (right) of Richard Neutra’s Lovell House (1928)**



***“This building is a late example of the inspiration of the site, the cooperation of an intelligent, appreciative client and the use of entirely masonry materials - the grammar of the slabs at their eaves is best shown by a detail. But the roof water is caught by a lead strip built into the concrete above near the beginnings of the curve so that water dripping by gravity at the bottom of the curve – as it does - does not very much stain the curves. It is not the deluge of water in a storm that hurts a building: it is ooze and drip of dirty water in thawing and freezing, increased by slight showers. The cantilever slabs here carry parapets and the beams. This may be seen clutching big boulders. But next time, I believe, parapets will carry the floors - or better still we will know enough to make the two work together...The effects you see in this house are not superficial effects.”***

***Frank Lloyd Wright***

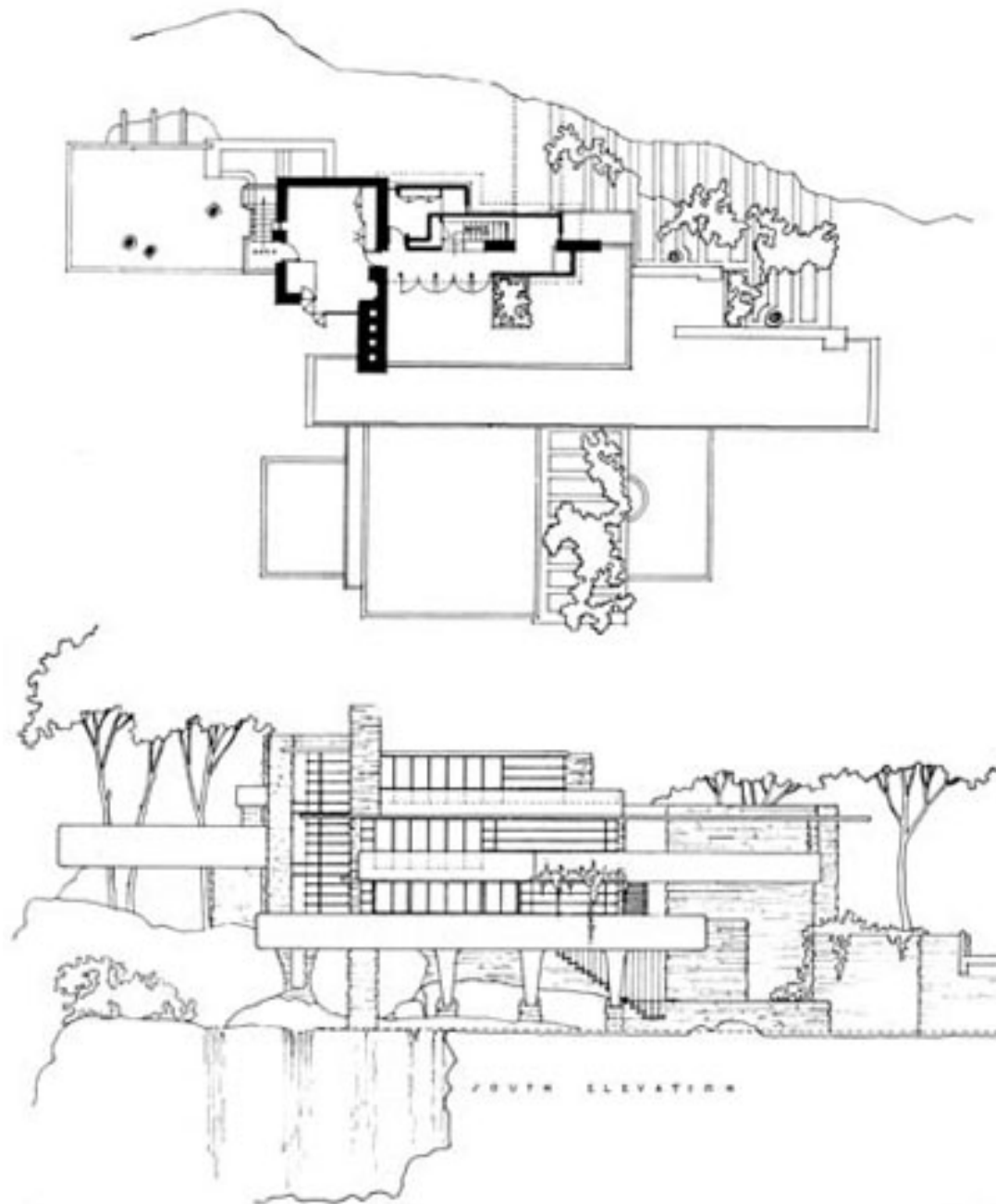


**Top Left: original perspective rendering**

**Top Right: photograph taken from below the falls**

**Left: view of stair leading down to *Bear Run* (above the falls). A glass enclosure in the LR leads to the stair. Left open, it provides a pleasant breeze inside the house from the always cool stream below.**

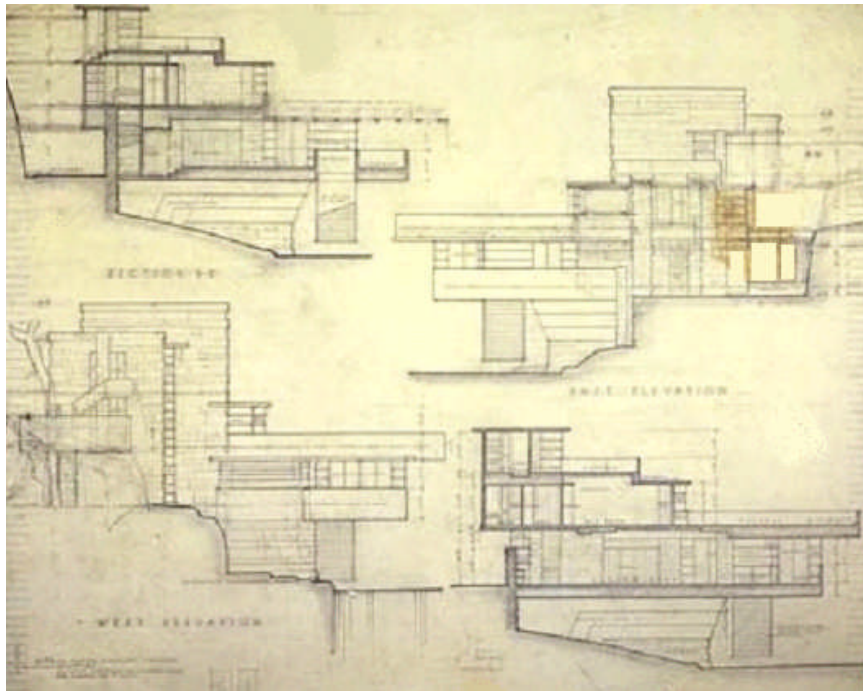




***“Given the contour of the land, Wright located a house anchored in the rock next to the falls, jutting over the stream and counterweighted by massing at the back. Wright oriented the house to the southeast as he preferred, extending floors in horizontal bands which echoed rock ledges. The house would hover serenely over the water...In a house designed for people to live in, these material components and effects would subserve a whole that, inside and out, must be intimate, informal, yet the main living area must be ample. The spaces, sheltered at the rear, would open toward and flow into the space of the wooded valley. The eye of the indweller would be guided outward by low ceilings toward nature, not upward to a grand interior. Light would come from several sides to provide a balanced ambience, and the house and its setting would be interwoven, vibrant with the changing daylight and the seasons’ variations.”***

***Western Pennsylvania Conservancy 23***  
**Left: plan and front (South) elevation**





***“...The engineering principle behind such a structure is that of the cantilever – a beam or floor slab that is rigid enough to extend into space without support from below. Cantilevers are not inherently unsafe; in fact they are commonly found in nature, in tree branches and rock outcroppings like the one that created the waterfall over which Wright wanted to build the house. ‘Nature,’ he told his initially doubtful client, ‘cantilevered those boulders out over the falls...I can cantilever the house over the boulders...”***

**RE: excerpt from *The Fellowship***

**Left: East/West elevations and sections**



***“...Fallingwater was much more boldly three-dimensional than anything coming from Europe; its composition referred to forms and forces of nature, not the machine. Wright left space for trees to grow right through the bedroom terrace. He specified locally quarried flagstone for the walls and the floors, not just to blend with the site, but also to suggest the stratified outcroppings through which the water coursed below. And the horizontal concrete decks were sustained and penetrated by vertical stacks of Taliesin-like masonry...”***

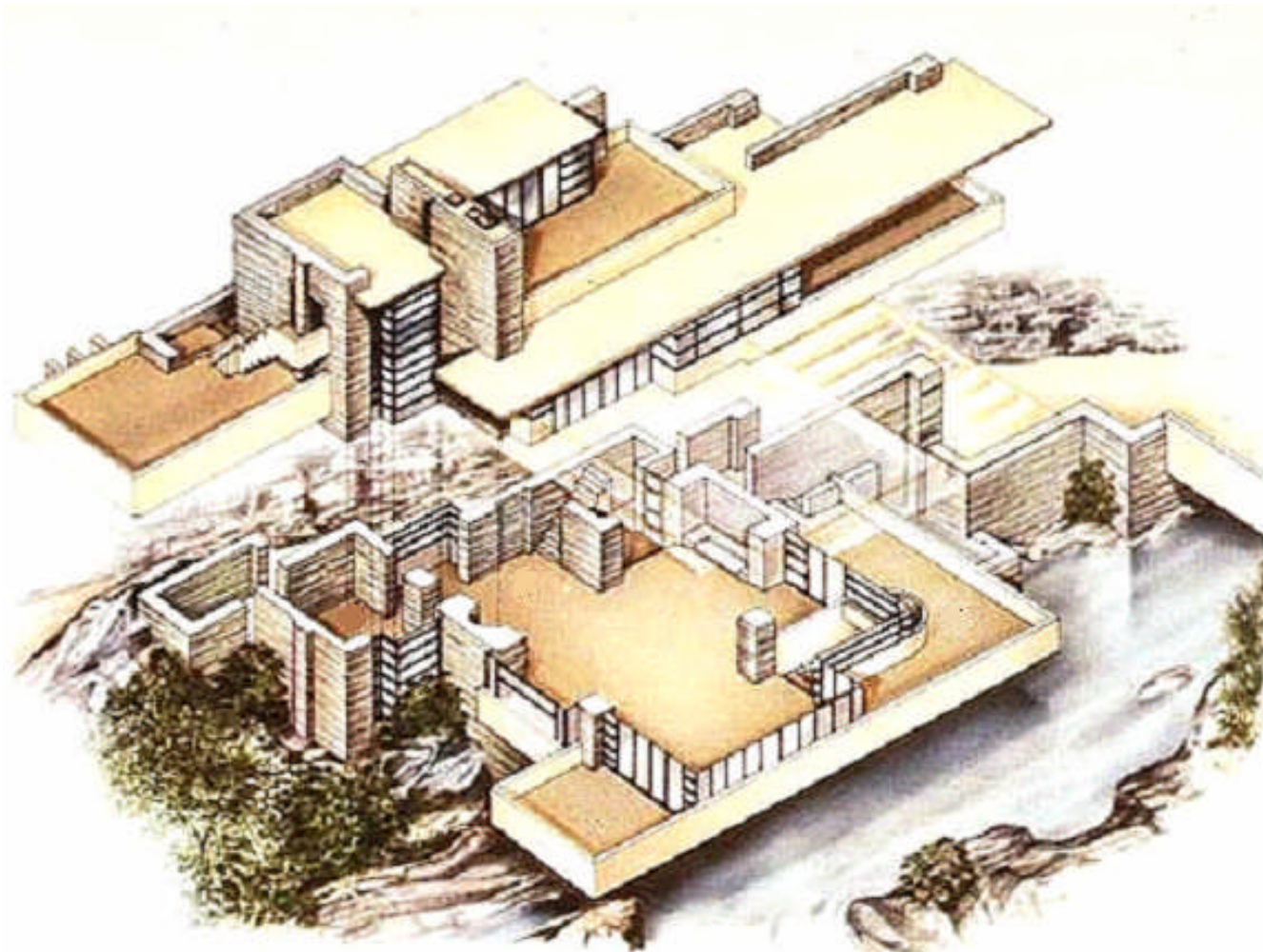
**RE: excerpt from *The Fellowship***

**Top: transverse section**

**Bottom: main floor/site**

**plan**





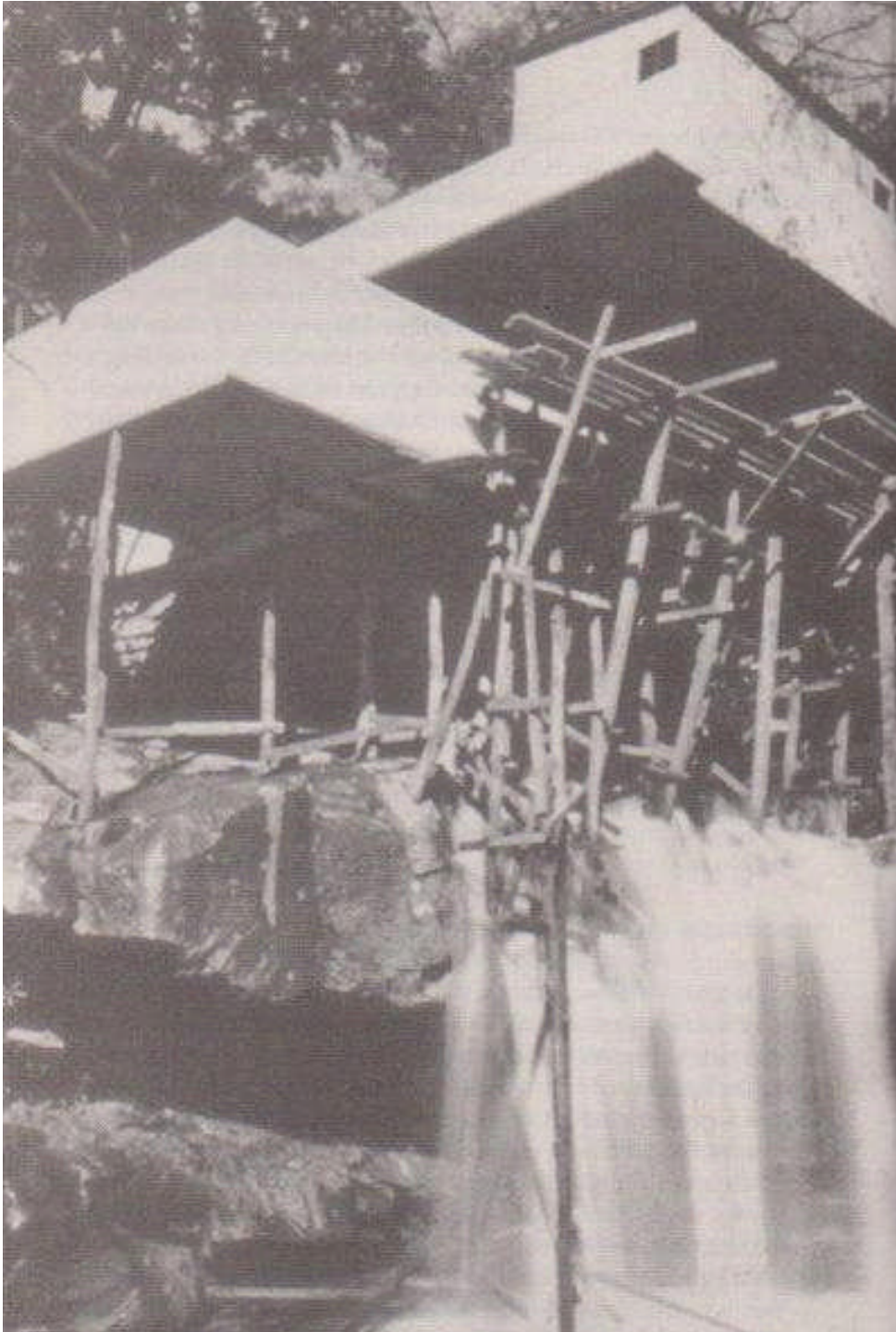


***“...Without informing Wright, Kaufman forwarded drawings to his own engineers in Pittsburgh for checking...They questioned the long-term stability of the rock on which the house was to sit. They thought that insufficient attention had been paid to the effects of the stream at flood levels. They did independent calculations that indicated that the stone foundation walls should be one third thicker...in a devastating indictment, they complained that the drawings didn’t have enough information for them to confirm, one way or the other, whether the structure was safe. When E.J. sent the document to Taliesin, Wright exploded. He demanded the return of his plans; Kaufman didn’t deserve the house. Kaufman apologized and later buried the report in one of the walls. This would prove to be a mistake...”***

**RE: excerpt from *The Fellowship***

***“...When they removed the wooden formwork after pouring the concrete cantilever, the slab immediately sagged two inches. Some sag is to be expected when forms are pulled, but no more than half an inch, according to sound engineering practice. If Mosher hadn’t approved the extra steel, the slab might have collapsed altogether...any experienced builder would have adjusted for the weight of the concrete by tilting the forms slightly up so that the expected sag would bring everything back to level when the forms were removed. Hall’s men had built the forms level, and when the structure sagged, it sagged visibly...When Mendel Glickman learned of the two-inch sag, he was stunned. ‘Oh my God,’ he gasped, ‘we left out the negative reinforcement.’ It was an astonishing mistake. In a cantilever, negative reinforcement bars must be placed toward the the top of the slab or beam to prevent the upper portion from stretching, allowing it to bow downward under its own weight...Completely ignoring the negative reinforcement issue, Wright blamed the problem on the one thing that certainly wasn’t an issue: the weight of the extra steel recommended by Kaufman’s engineers and snuck in by his own renegade apprentice, Mosher...”***

**RE: excerpt from *The Fellowship*. Mendel Glickman was a former apprentice and, assisted by FLW’s new son-in-law Wes Peters, served as consulting structural engineer for *Fallingwater*.**



**Left: caption: “Fallingwater during construction. Fearing a collapse, the workmen refused to remove the wood braces (note the precariously placed construction shed atop the cantilevered terrace).” When his own workman balked at removing the temporary supports for fear the entire cantilever slab would collapse on top of them, the contractor had to do it himself.**

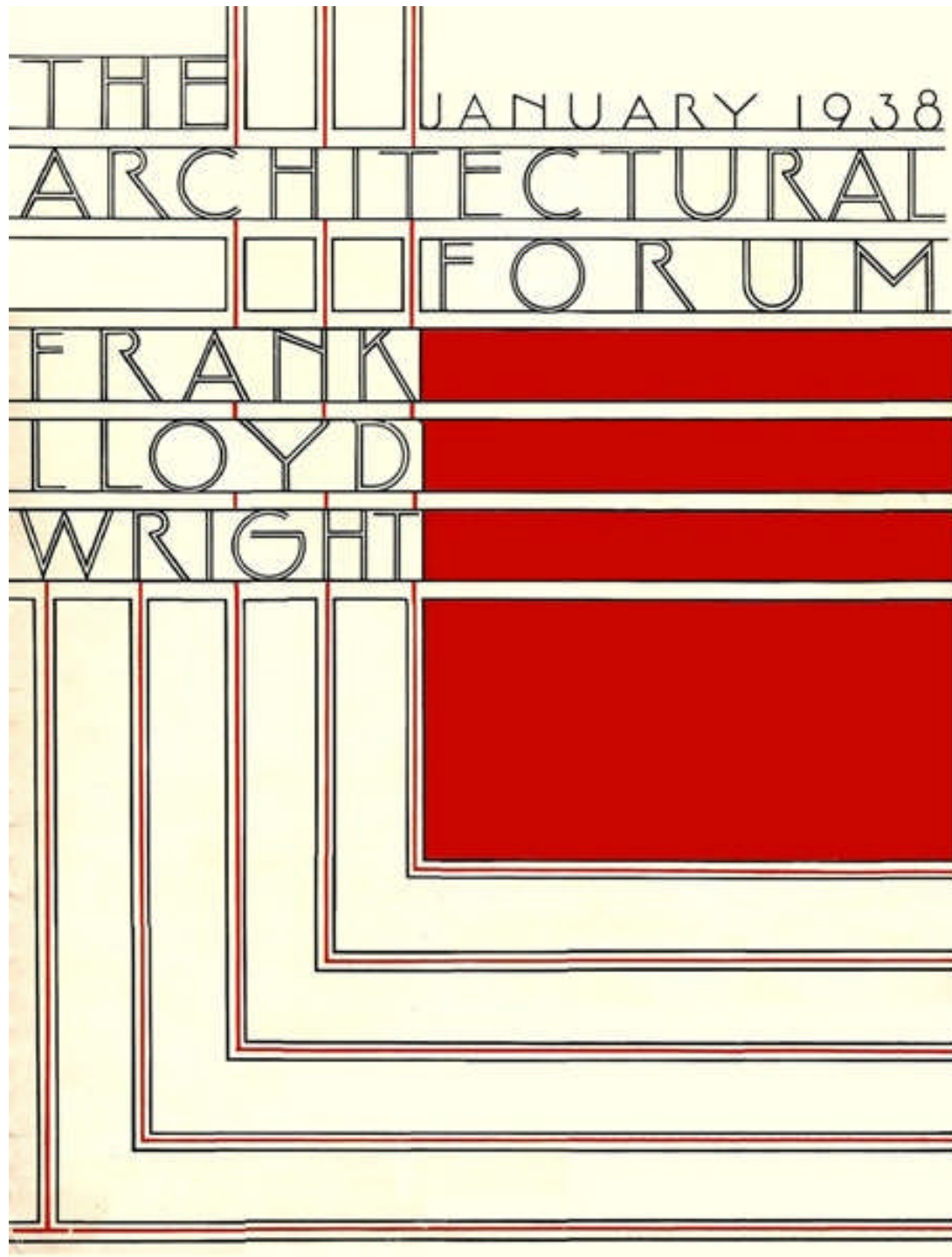


Frank Lloyd Wright 1867-1959 Fallingwater Mill Run PA

Architecture USA 20c



# Vindication



***“...a tremendous, powerful vehicle that put Wright in front of the public and virtually inspired a generation of architects that all cited this issue of architectural forum as having galvanized them...a reminder that Wright was not buried, but was ahead of all the young folks who were practicing architecture at that time...”***

***Jonathan Lipman, Author***

***Left: cover of the landmark FLW retrospective issue of ARCHITECTURAL FORUM magazine (Jan. 1938)***

# **The Perfect Celebrity**



***“...Personally, Frank Lloyd Wright is the perfect celebrity. He not only is an extraordinary man; he looks and acts the part. Sporting a Malacca cane, a flowing tie and a cape like Superman’s, his white hair blowing in the wind, he resembles a great actor about to launch into a tirade from ‘King Lear.’ He is about 5-feet 8-inches tall, but looks larger. His clothing, which is all made by a Chicago tailor to his own specifications, ranges from elegant Palm Beach suits to velvet knockers and makes him as conspicuous as a baroque cathedral...”***

***LIFE magazine, August 12<sup>th</sup> 1946***

***Left: caption: “Frank Lloyd Wright standing under a tree at Taliesin in December 1937”***

**NPD**

**Narcissistic Personality Disorder (NPD)** is a personality disorder in which the individual is described as being excessively preoccupied with issues of personal adequacy, power, prestige and vanity. This condition affects one percent of the population. First formulated in 1968, it was historically called megalomania, and is severe egocentrism. Persons diagnosed with a Narcissistic Personality Disorder are characterized by unwarranted feelings of self-importance. They have a sense of entitlement and demonstrate grandiosity in their beliefs and behavior. They have a strong need for admiration, but lack feelings of empathy. These qualities are usually defenses against a deep feeling of inferiority and of being unloved.

***Wikipedia***



**Narcissistic personality disorder symptoms may include:**

- **Believing that you're better than others;**
- **Fantasizing about power, success and attractiveness;**
- **Exaggerating your achievements or talents;**
- **Expecting constant praise and admiration;**
- **Believing that you're special and acting accordingly;**
- **Failing to recognize other people's emotions and feelings;**
- **Expecting others to go along with your ideas and plans;**
- **Taking advantage of others;**
- **Expressing disdain for those you feel are inferior;**
- **Being jealous of others;**
- **Believing that others are jealous of you;**
- **Trouble keeping healthy relationships;**
- **Setting unrealistic goals;**
- **Being easily hurt and rejected;**
- **Having a fragile self-esteem, and;**
- **Appearing as tough-minded or unemotional**

*Wikipedia*

***“Odds are you know some narcissists. Odds are they’re smart, confident and articulate. They make you laugh, they make you think...It’s a deep and all but certain truth about narcissistic personalities that to meet them is to love them, but to know them well is to find them unbearable. Confidence quickly curdles into arrogance; smarts turn to smugness, charm turns to smarm. They will talk endlessly about themselves, but when they ask about you - well, never mind, because they never do. Narcissism falls along the axis of what psychologists call personality disorders, one of a group that includes antisocial, dependent, histrionic, avoidant and borderline personalities. But by most measures, narcissism is one of the worst, if only because the narcissists themselves are so clueless. Their coworkers dislike them - but it must be because they’re jealous. Their spouses divorce them - but it’s because they don’t understand them. Their friends abandon them - but only because they can’t keep up with them. It’s this obtuseness that makes narcissists so hard to treat. How, after all, can you address a problem if you have no idea that it even exists?...narcissists do think extraordinarily highly of themselves but, over time, realize that their friends - or former friends - don’t share that view. They know they’re seen as cocky, as conceited; they know, in short, that they’re obnoxious...Since narcissism is fueled by a greater need to be admired than to be liked, psychologists might use that fact as a therapeutic lever - stressing to patients that being known as a narcissist will actually cause them to lose the respect and social status they crave. That may or may not work, but if it doesn’t, it’s worth remembering what the psychologists are up against. The new paper opens with a quote from Frank Lloyd Wright, who famously said: ‘Early in life, I had to choose between honest arrogance and hypocritical humility. I chose honest arrogance and have seen no reason to change.’ Such self-adoration may be forgivable in Wright, whose buildings have long since outlived his personal failings. Most of us - narcissists or not - will never achieve such fame...”***

***TIME magazine, October 27<sup>th</sup> 2011***



# **A House Builder and a Home Wrecker**

***“... You covet attention. You are always out of step, marching by yourself, scoffing at all others, calling everybody and everything ridiculous, speaking in only words of contempt for your country and your countrymen. You tell organized society to go to hell, and then expect it to honor and praise you... Did you ever stop to consider the cause of all the troubles you ever had? Every one has grown out of your insistent appetite for a woman, a purely selfish wish to follow your own selfish interests in utter self-indulgence... a house builder and a home wrecker... wrecked three homes in your heroic effort to work out your own salvation with honesty and freedom from hypocrisy... You are the most conspicuously selfish person I have ever known. You expect all your friends to make personal sacrifice to stand by you, and if need be, to go to hell for you... What you need is a Hart, Schaffner & Marx suit of clothes, a four-in-hand tie, a Dobbs hat and a chance to learn how to be unseen in a crowd. If you are going to stay here, pull up the children’s chairs to the table, buy the Stars and Stripes, tack a flag-staff to your bungalow and fly the colors and learn to love it.”***

***Richard Lloyd Jones***

**RE: Jones was FLW’s cousin - a newspaper publisher in Tulsa, OK, who he called “Dickie.” To save him from financial ruin, a group of investors (including Dickie) incorporated FLW as “Frank Lloyd Wright, Inc.” (later “Wright, Inc.”). FLW responded to his cousin’s tirade saying he was: “a puritan and a publican of the worst stripe.”**

# **What's Wrong with the Wrights?**



***“...Wright’s mother certainly had violent, hysterical attacks, and even pleaded with her husband, William, to put her in an asylum. But William’s own peripatetic career, the way he moved his family from place to place and mastered so many fields without ever really succeeding in any of them, also suggests a manic-depressive streak...”***

**RE: excerpt from *The Fellowship*  
Left: Anna Lloyd Jones Wright**

***“...And what of the great architect himself? Frank Lloyd Wright had nearly all the classic symptoms of manic behavior; the bursts of energy, the cocksure agility and speed of thought, the inspired ebullience always shadowed by a streak of irritability. Manics spend too much; they’re prone to sexual escapades; their talk is grandiose; they take reckless chances. The energy coursing through a manic personality enables some to grasp complex situations, to sort through associations at light speed, to visualize correspondences and imagine extraordinary solutions. Of such stuff is artistic genius often made. Artists of all kinds - poets and writers, but also musicians and architects – are especially likely to suffer such mood disorders. It is out of this passionate sensibility that many of our greatest cultural achievements have emerged...”***

**RE: excerpt from *The Fellowship***



***“...Not long ago Wright was waiting in a railroad-station restaurant when Eliel Saarinen, one of the few other architects whose existence he recognizes, walked in and sat down at an adjoining table. Soon Saarinen noticed Wright and courteously bowed. With a princely show of cordiality, Wright said he a recently seen Saarinen’s design of a new church, Saarinen grunted appreciably. ‘Well, Eliel, when I saw it, I thought what a great architect – I am.’...”***

***LIFE magazine, August 12<sup>th</sup> 1946***

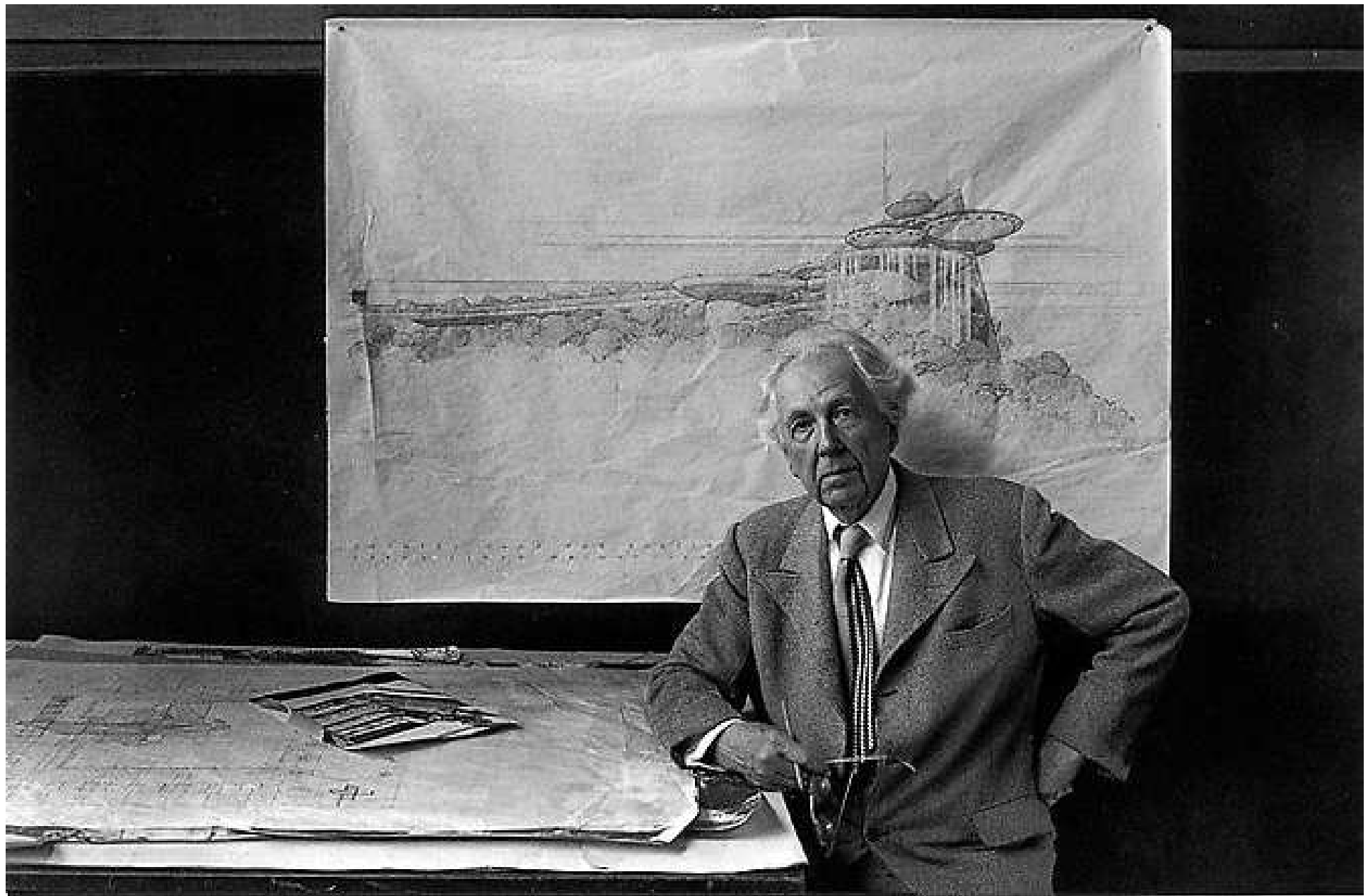
***Left: Eliel Saarinen’s First Christian Church (1942), Columbus, Indiana***

"Always design a thing by considering it in its next larger context

...a chair in a room, a room in a house, a house in an environment, an environment in a city plan."



***"Frank Wright was neither"  
Eliel Saarinen, Architect  
Above T&B: Helsinki Central Railway  
Station by Eliel Saarinen  
(1919)***



***“The one on my board right now”***

***Frank Lloyd Wright***

**RE: his response when asked which of his buildings was most beautiful**



# **Just Like a Cow**

***“I do it like a cow shits”***

***Frank Lloyd Wright***

**RE: his response to a question posed by *Philip Johnson* as to how he composed his spaces. Johnson was visiting the *Taliesin Fellowship* during its first year (1932). He noted that FLW was “so cruel to the kids that worked there” and found his third wife, Oglivanna, to be “a horror.”**

## **Part 2**

# **Seeing is Believing**

# **A House That Straddles Water**



***“A House That Straddles Water.’ Hence the edifice at Racine, Wisconsin, being built now as general headquarters for an international wax manufacturing company, will have a heated floor, rather than hot air vents or radiators. Since the surroundings are very ugly, no windows will look out on the streets. Bands of double glass will let in equal daylight from every wall and between the bands tubes of slightly yellow neon will provide artificial light as needed. The 250 workers will occupy a single great room, only those machines which are noisy being segregated, and cork ceilings will absorb the sound rising from the heated rubber floor, blend it into a placid hum. Department heads will occupy a balcony looking down on the central floor and spiral stairs will lead to each department head. The latter will be separated from each other by movable metal screens and the stairways will also be movable, to allow for expansion and contraction of departments. A roughly semi-circular penthouse on the roof will house the offices of the president and the other executives. Everything about this building is intended to express the dignity of labor and the superior talents of executives who have risen by work well done. The management is enlightened and has provided a theater for its workers - all of them unionized...”***

***St. Louis Dispatch, March 21<sup>st</sup> 1937***

***Left: caption: “Interior, Reception Area, East View From Third Floor Balcony”***



***“...in fact many aspects of the design – from the building’s foundation and concrete screen walls to its radiant heating and ‘breather’ ventilation system of tubes which circulate fresh air from the outside – defied local building codes. So did its emergency exits. Wright agreed to some changes, but was able to convince the officials to accept the sub-standard exits, on the premise that the all-brick building would never catch fire...”***

**RE: excerpt from *The Fellowship***



***“...Wright had gone out of his way to design columns that appeared incapable of withstanding even their own weight. The archetype of structural stability is the pyramid, a mass that widens at its base. Wright’s columns, perversely, narrowed as they approached the bottom. At the point where they would transfer all their weight – and that of the roof high above – to the floor, they were only nine inches in diameter, not unlike a ballet dancer on point. To make matters worse, some of the columns were weakened by being hollowed out to make room for concealed downspouts from the roof. With Fallingwater, Wright had sought to amaze onlookers with a display of apparently impossible-to-support horizontal weight. Now he was doing the same thing on a vertical plane...”***

**RE: excerpt from *The Fellowship* 54**

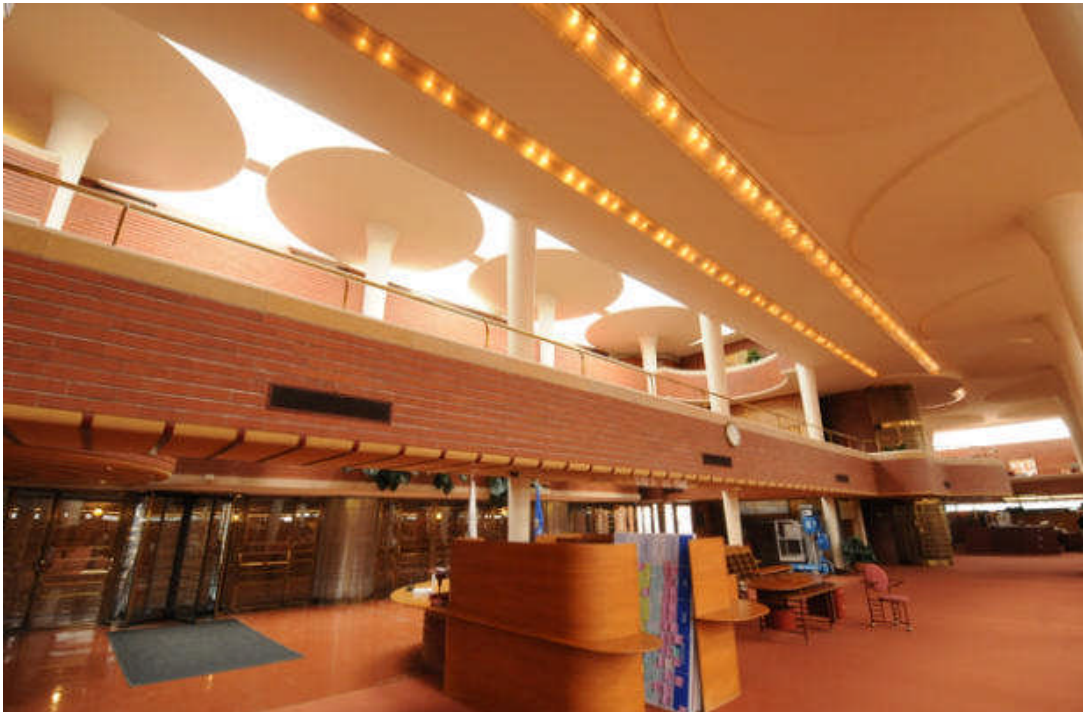


***“...The new column takes the form of a flower, or an ice cream cone. Wright prefers to call it a ‘flower’ column. At the ground, where most columns have their greatest thickness, the Wright column is nine inches in diameter. Instead of tapering, it spreads gradually, like the stem of a flower. At the top of the ‘stem,’ simulating the botanical construction of a flower, there is a perceptible widening of the forms to create the appearance of a cup. Wright calls this the ‘calyx’ from the botanical name for the corresponding part of a flower. Surmounting the ‘calyx’ is a large concrete ‘dish,’ 18.5-feet in diameter, which is called the ‘petal.’ The roof of the building will rest on these concrete ‘petals,’ spaced 20-feet apart throughout the building. Light will be brought into the building through glass skylights which will fill the diamond shaped areas on the roof caused by the rims of the petals...”***

***The Milwaukee Journal, June 4<sup>th</sup> 1937***



# **A Dream of Heaven**



***“...Somber, forest-abstract made in stone...the architecture we call Gothic is much nearer to us and has taken itself a long course of time in which to die...”***

***Frank Lloyd Wright***

***Above: caption: “Interior of a Cathedral by Peeter, the Younger Neeffs, 1659.” With Johnson Wax, FLW sought to resurrect and reinterpret the Gothic Cathedral with its columns and vaults. As the Gothic came to prominence with the rise of the merchant-class, he saw his architecture as heir to the Gothic legacy and entrepreneurs like H.B. Johnson and Edgar Kaufman, Sr. as the modern successors to the merchant-prince patrons of the Renaissance.***



***“Organic architecture designed this great building to be an inspiring a place to work in as any cathedral ever was in which to worship. It was meant to be a socio-architectural interpretation of modern business at its top and best...”*** 58

***Frank Lloyd Wright***



***“...as for the columns, in the great workroom they would support only themselves and the exquisite lattice-work of glass tubes that filled the interstices between their not quite contiguous lily-pad tops, while elsewhere in the building they would be supporting conventional built-up roofs...”***

***RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright****



The building would not have traditional windows given FLW's contempt for the south-side *Racine* neighborhood surrounding the Johnson property which he considered "worthless." Instead, he would shut it out completely and turn inward, flooding the interior with light – just like a Gothic cathedral. FLW had tried to persuade *H.F. Johnson* to relocate to the Wisconsin countryside where FLW envisioned an entire community including housing for employees as well as the company buildings. Johnson was adamant that he did not want to move the company out of Racine. Olgivanna warned her husband that he might lose the commission if he continued to argue for the "country campus" concept, FLW filled the building with natural light from skylights and miles of Pyrex tubing. He further downplayed the building's location by placing the main entrance on the north-facing side of the building (1525 Howe Street), away from 16th Street – it's original location.

Top: an existing Johnson Wax building  
Bottom: The *S.C. Johnson Wax Administration Building* in its industrial setting



**Above L&R: 16<sup>th</sup>  
Street service entry  
Left: swivel gate at  
service entry**





**Above: caption: “Interior, Reception Desk”**

**Left: caption: “Interior, Reception Area From East”**





**Above: caption: “Interior, Reception Area From Second Floor West Balcony”**

**Left: caption: “Interior, Detail of Second Floor Balcony Walkway with Elevator”**



**Above L&R: Conference Room**  
**Left: Reception Area**

# **Almost Fool-Proof**



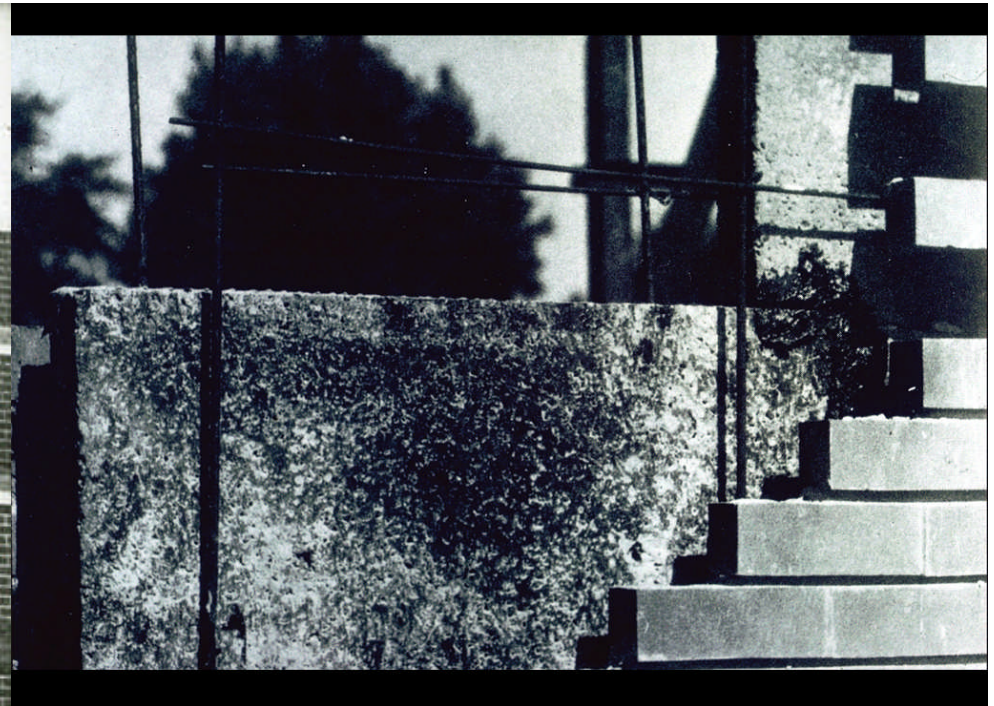
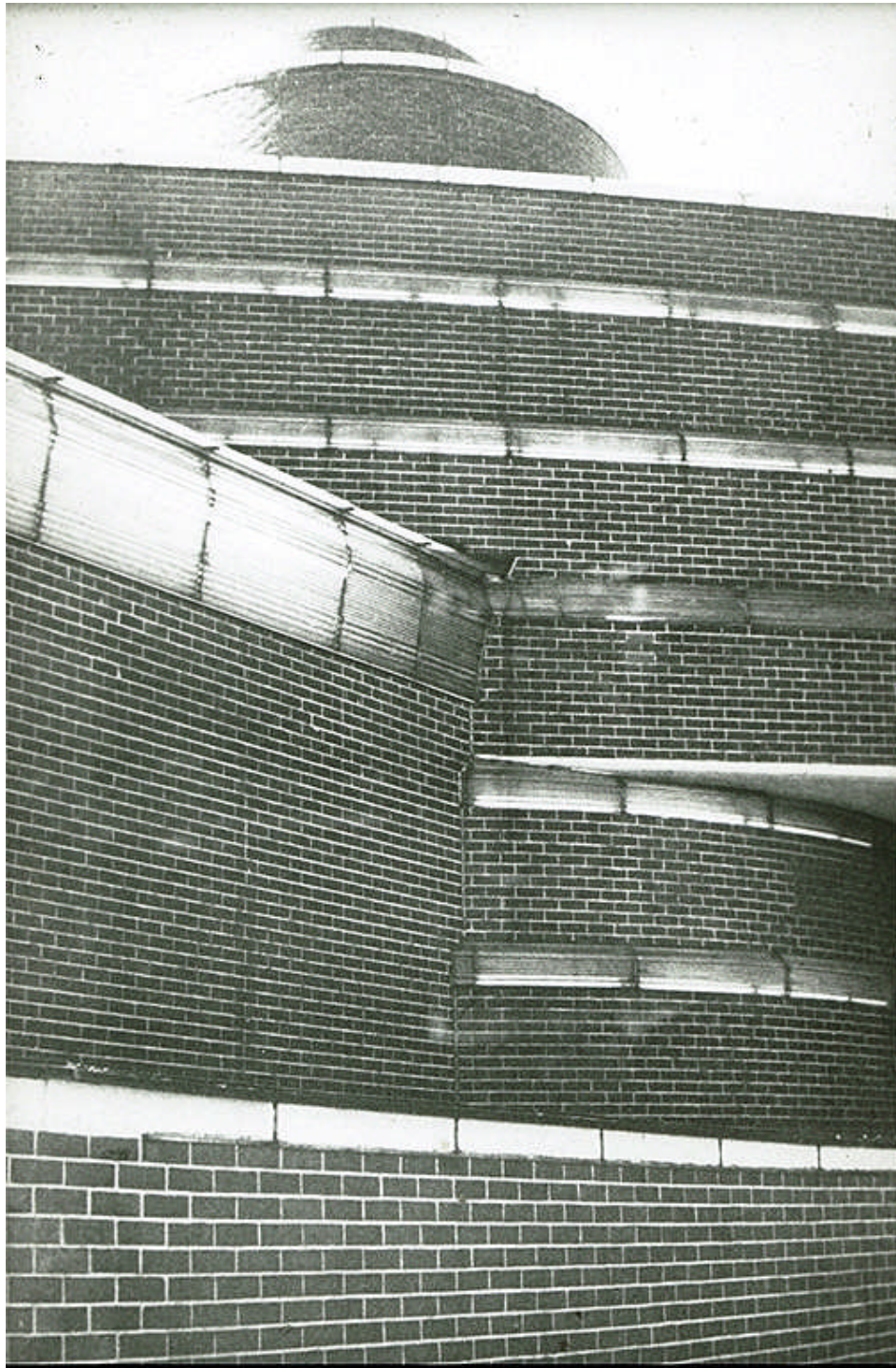
***“...In order to make the structure monolithic the exterior enclosing wall material appeared inside wherever it was sensible for it to do so. The main feature of construction was the simple repetition of slender hollow monolithic dendriform shafts or stems – the stems standing tip-toe in small brass shoes bedded at the floor level. The great structure throughout is light and plastic - an open glass-filled rift is up there where the cornice might have been. Reinforcing used was mostly cold-drawn steel mesh-welded. The entire steel-reinforced structure stands there earthquake-proof, fireproof, sound-proof, and vermin-proof. Almost fool-proof but alas, no. Simplicity is never fool-proof nor is it ever for fools.”***

***Frank Lloyd Wright***

**Above: embedded brass shoe**

**Left: caption: “Two-story work space during construction”**





***“...unconventional was his way of constructing the walls of the building; he invented a sandwich made up of a single thickness of brick on the exterior, a filling of insulating cork and concrete grout, and a single thickness of brick on the interior, strengthened at intervals by transverse copper straps...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

**Above: caption: “Masonry Cavity Wall filled with Cork Insulation”**

**Left: caption: “Exterior View”**

***“...Wright and Johnson succeeded in outwitting bureaucratic opposition to Wright’s unconventional methods of creating foundations for the building: in emulation of what he claimed were ancient Welsh principles, he would dig a shallow trench and pour concrete over a bed of loose broken rock and gravel...As for heating the building, he planned to force hot air through ceramic tiles in the concrete floor slab – a method of heating that Wright had admired in Japan and that Johnson and his colleagues were all profoundly skeptical of...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



***“...But Frank Lloyd Wright, though he believes in abundance and simple comfort for all men, is not an egalitarian and has violated no principle of his own by bridging a squash court to the executive offices, and by making the president’s office overlook a roof garden with a reflecting pool. Although definitely not a functionalist, Wright has held to principles he helped the functionalists establish. The two lovely machines which will suck air down through the funnel-like nostrils to filters will be kept behind glass, so that they can be the chief decoration of the inner court which is the sole access to the building from the street. Efficiency is expressed in the arrangement whereby departments are grouped in a logical semi-circular order from entrance to exit, incoming mail being received at one end of the court, outgoing being shipped from the opposite end. The two nostrils are the central features of the building and are surrounded by great semi-circular stairs that coil around them and around for small circular elevators that rise to the reception room of the executive offices. The only purely ornamental features of the buildings are a big illuminated globe across the street from the entrance drive, and a set of glass murals dividing the theater from the main work room.”***

***St. Louis Dispatch, March 21<sup>st</sup> 1937***

***Left: caption: “Interior Detail of Elevator,  
1<sup>st</sup> & 2<sup>nd</sup> FL”***





**Left: the FLW-designed elevator cage**  
**Right: inside the elevator cage**

# **The Shape of Things to Come**



***“Future historians may well decide that a truer glimpse of the shape of things to come than is represented by the New York World’s Fair was given in a single structure built strictly for business - the Administration Building of S.C. Johnson & Son, Inc., in Racine, Wisconsin.”***

***LIFE magazine, 1939***

***Above:*** caption: “The Trylon and Perisphere, glow in the night at the fairgrounds in Flushing Meadows, location of the New York World’s Fair of 1939 and 1940, promised visitors they would be looking at the ‘World of Tomorrow’”

***Left:*** caption: “Interior, Reception Area from West, First Floor”



***“...H.F. Johnson, Jr., the company president who hired Wright during the Great Depression, fretted about the construction delays and cost-overruns. Wright assured him that the extra dollars would be more than offset by the attention the building would bring to the company. The building opened concurrently with the opening of the 1939 New York World’s Fair. An article in Life magazine praised the fair, but added that if people wanted to see something really special, they should visit the administration building in Racine. Today, as an internationally-known architectural landmark, it draws some 4,500 visitors every year.”***

***The Journal Times, August 2010***

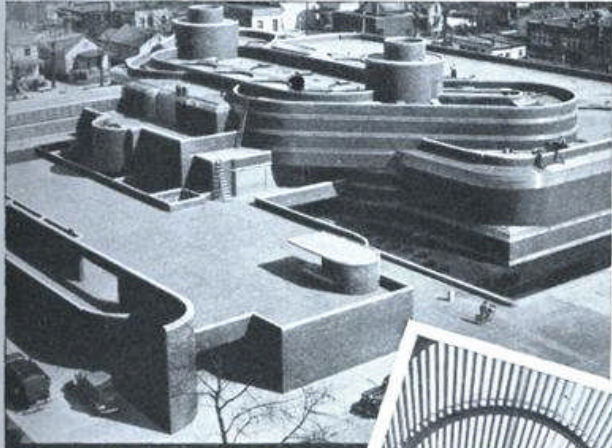
***Above L&R: General Motor’s Futurama exhibit was by far the most popular attraction the 1939/40 NY World’s Fair. In it, visitors could glimpse the future world of 1960, albeit in highly detailed scale model form. Upon exiting, they were given a pin (left) proclaiming: “I Have Seen the Future.”***



***“...In his large city buildings, for which he is more famous, his idea is to tailor the structure to its purpose instead of designing a beautiful exterior and then splitting the interior into cubicles. The outside lines flow around the pattern set in the interior. The resulting buildings usually have such simplicity that they are startling...”***

***Popular Mechanics, April 1948***

## 'Golf Tees' Support Roof of Windowless Office



Above you see no model of building of future, but the office of S. C. Johnson & Son, Racine, Wis. Two air intakes at top are called "nostrils" by architect, Frank Lloyd Wright. Skylights and unseen fixtures supply light in the windowless building



**Upper Left:** caption: "Above you see no model of the building of the future, but the office of S.C. Johnson & Son, Racine, Wis. Two air intakes at top are called 'nostrils' by the architect, Frank Lloyd Wright. Skylights and unseen fixtures supply light in the windowless building."



Center, glass-enclosed bridge linking two buildings. Above, glimpse of tapering "golf tee" columns which support roof. Circular stairways between floors save space. Reception hall is seen below

**Middle Right:** caption: "Center, glass-enclosed bridge linking two buildings. Above, glimpse of tapering 'golf tee' columns which support the roof. Circular stairways between floors save space. Reception hall is seen below."

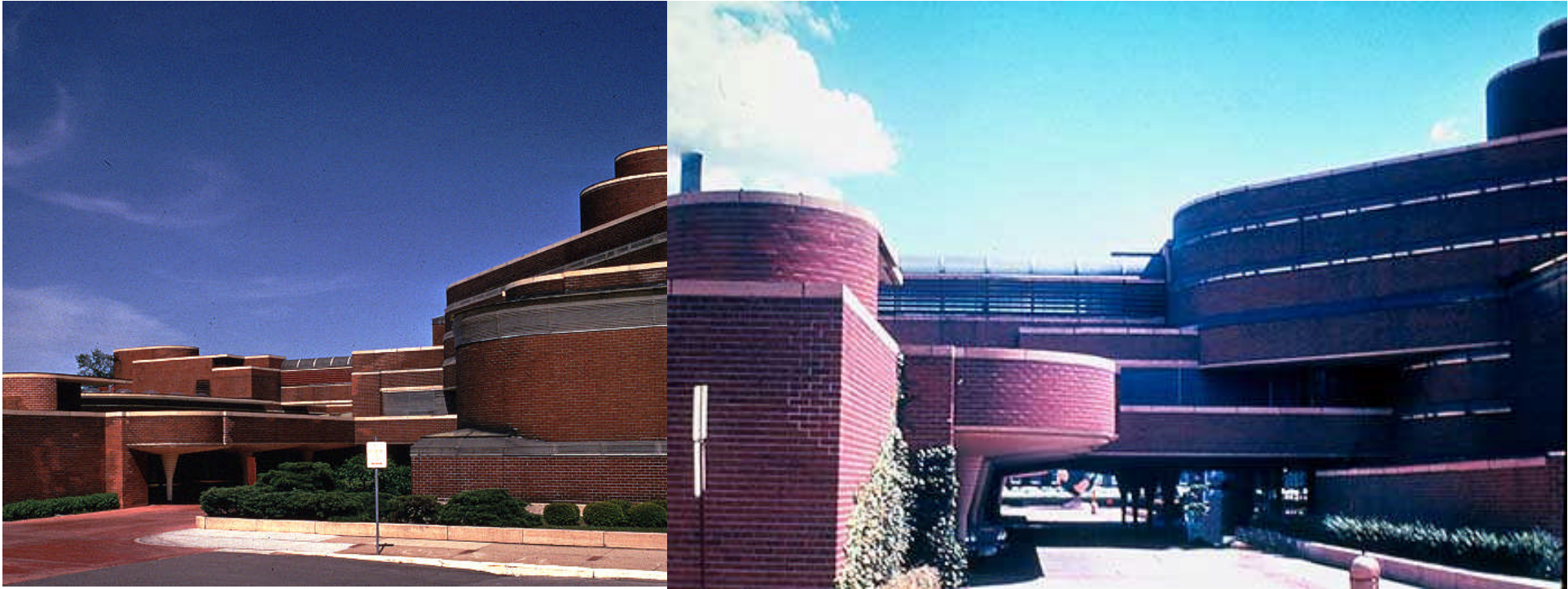


Above, the circular "bird-cage" elevator. Radiant floors heat the building, steam pipes being laid under the four-inch concrete slab. Without a conventional front door, entrance is through a roofed-over auto driveway. Near by is a "carport" for parking, and on its roof a theater and a squash court

**Lower Left:** caption: "Above, the circular 'bird-cage' elevator. Radiant floors heat the building, steam pipes being laid under the four-inch concrete slab. Without a conventional front door, entrance is through a roofed-over auto driveway. Near by is a 'carport' for parking, and on its roof a theater and a squash court."



*Popular Mechanics*, August 1939













***“Not only the greatest piece of twentieth-century architecture realized in the United States to date but also, possibly, the most profound work of art that America has ever produced”***

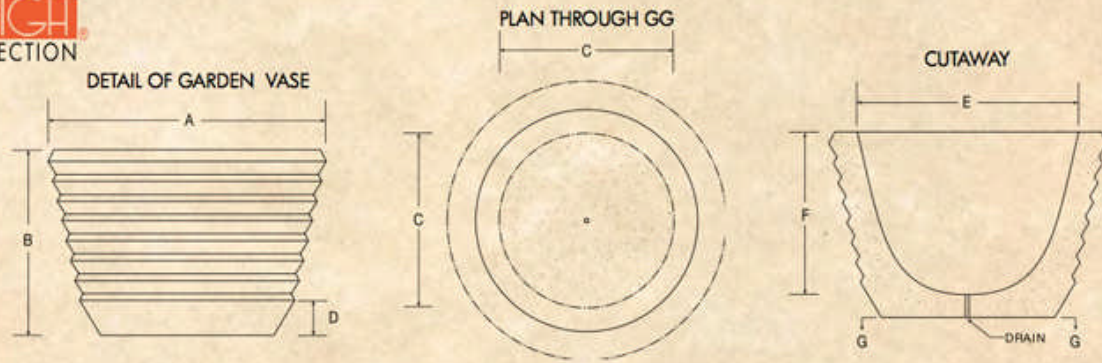
***Kenneth Frampton, British Architect***  
**Left: caption: “Close-up of a Frank Lloyd Wright pillar with surrounding Pyrex tubing in the Administration Building on the SC Johnson campus”**



FRANK  
LOYD  
WRIGHT  
COLLECTION

JOHNSON WAX ADMINISTRATION BUILDING RACINE, WISCONSIN  
FRANK LLOYD WRIGHT ARCHITECT - TALIESIN, WISCONSIN

1936



DIMENSIONS	A	B	C	D	E	F
SMALL	24	16	15	3	19	14
MEDIUM	36	24	22 1/2	4 1/2	28 1/2	21
LARGE	48	32	30	6	38	28







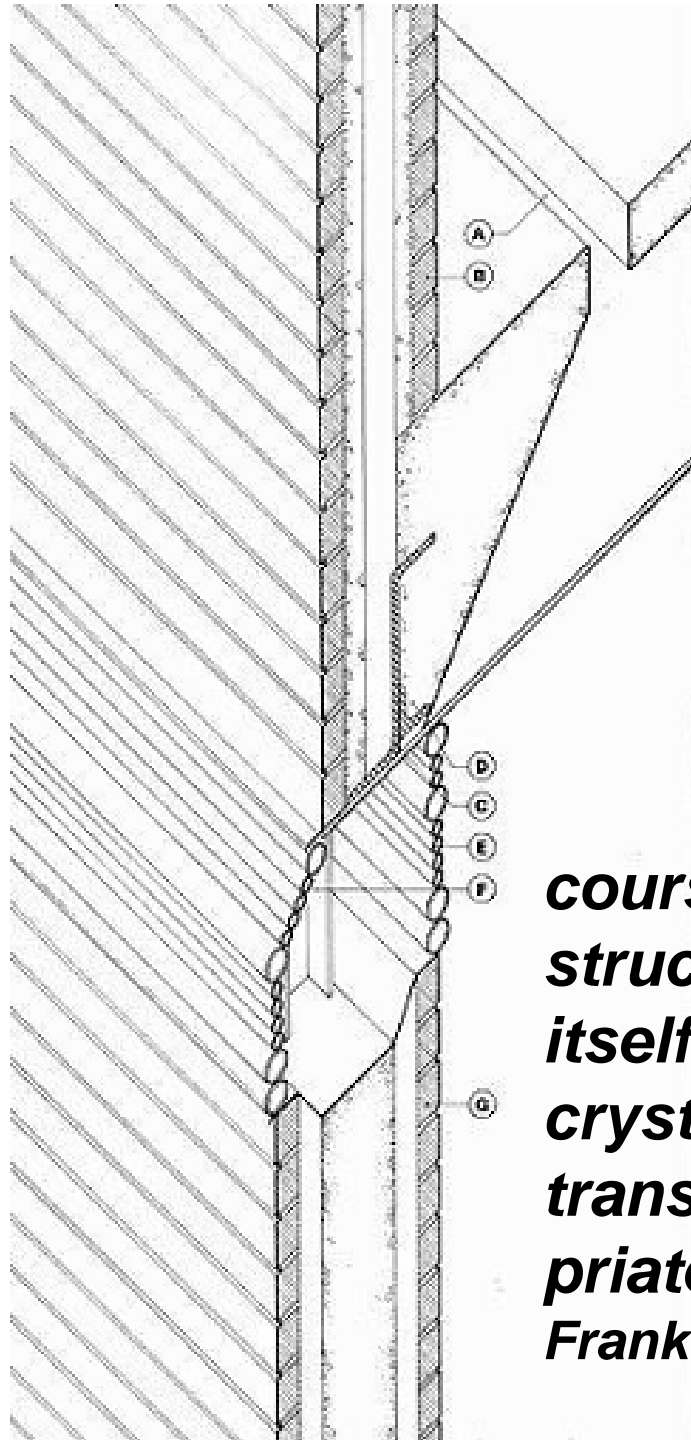
***“Both the Administration Building (also called the Johnson Wax Building) and the later Research Tower...are of brick and glass. The main office work space is articulated by dendriform columns capable of supporting six times the weight imposed upon them, a fact Wright had to demonstrate in order to obtain a building permit. The glass is not in panes, but in tubing, and several layers of different sizes are used to admit light but no view....Wright designed all the original furniture for the building, including the three-legged secretary chairs, which tip over if one does not sit with correct posture...”***

***William Allin Storrer, Author***

**Left: caption: “Image of a Frank Lloyd Wright-designed three-legged office chair on parquet flooring. Parquet flooring symbolizes S.C. Johnson’s humble beginnings just as the chair represents their creative spirit.”**

# **The Lure of the New and Untried**





- A Concrete floor slab with slot for air distribution.
- B Upper wall construction. A layer of brick on each face forms a cavity, which is then filled with cork boards and then concrete with reinforcing on either side.
- C Structural steel Z and angle. This is supported by a steel column (not shown in the drawing).
- D Plaster ceiling. The space between the concrete slab and the plaster ceiling is used for air distribution.
- E Pyrex glass tubing.
- F Cast-aluminum rack to hold glass tubes.
- G Lower wall construction. The cork layer here is separated by a concrete wall.

***“...The building was laid out upon a horizontal unit system twenty feet on centers both ways, rising into the air on a vertical units system of three-and-a-half inches: one especially large brick***

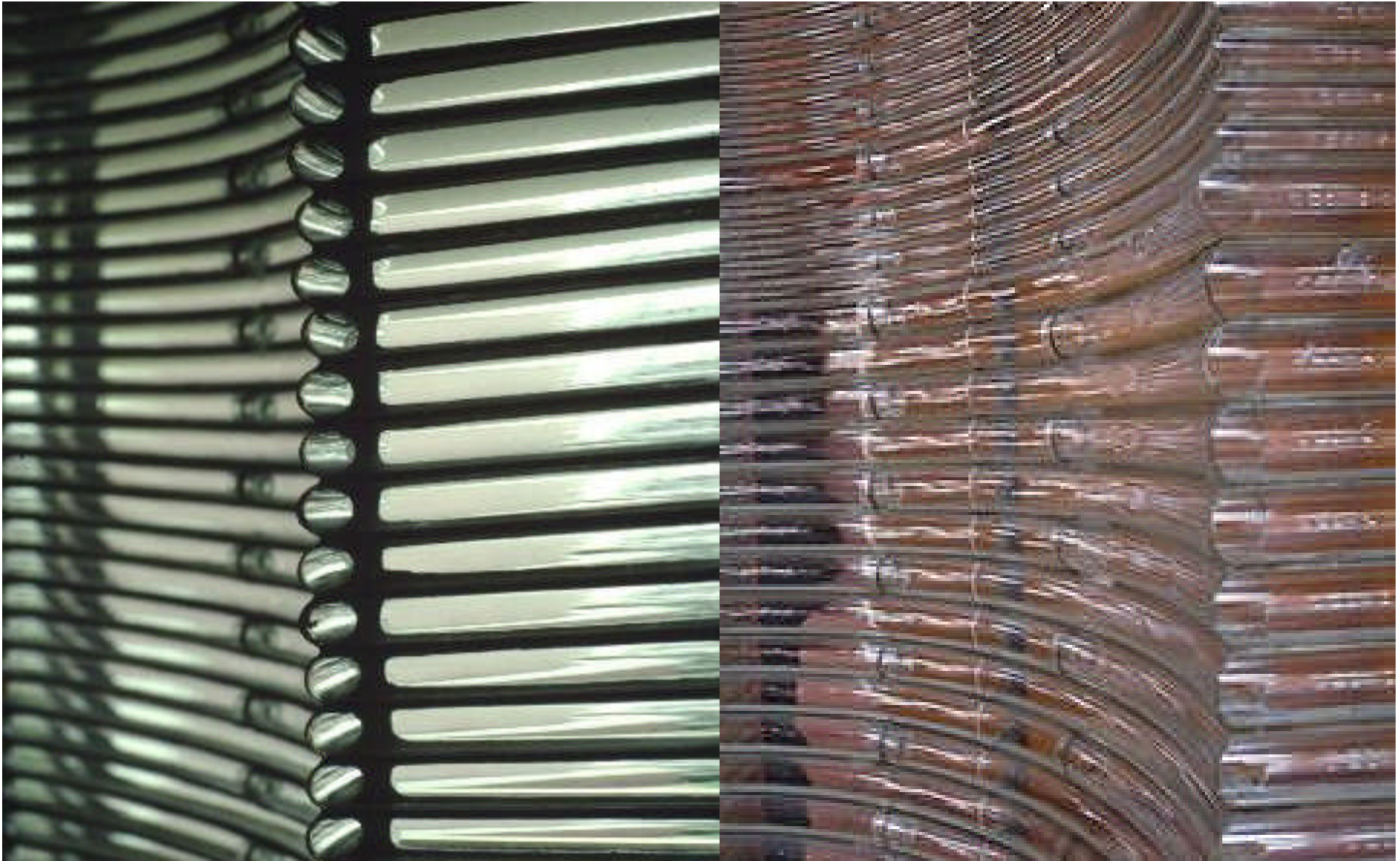
***course. Glass was not used as bricks in this structure. Bricks were bricks. The building itself became - by way of long glass tubing - crystal where crystal either transparent or translucent was felt to be more appropriate...”***

***Frank Lloyd Wright***



**Above: caption: “Exterior, Detail of Translucent Window, North Side, Second Floor”**

**Left: caption: “Exterior, Detail of Brick Work and Plastic Tubing ‘Windows’ Along First and Second Floors”**



# Office Building Has No Windows

## Architect Unveils His New Creation

RACINE (Wis.) April 23. (U.P.) Frank Lloyd Wright, eccentric world-famous architect, brushed tradition aside again today and unveiled his latest creation—an eye-arresting windowless office building which breathes through mechanical “nostrils” and heats itself through a four-inch concrete floor.

“It is designed,” said the architect, “to be as inspiring a place to work as any cathedral ever was to worship in.”

Wright called his new office building, opened for inspection today, “an authentic original of the world’s modern architecture.”



***“...Next came the question: what sort of glass should fill the skylight and the clerestories (Wright called them sunbands) that were to pierce the brick screening walls of the building? At first, Wright had thought of employing the prismatic glass for which he had prepared and patented designs back to the nineties, but as usual he was looking for something better than what had served in the past, no matter how successfully; for him, from youth into extreme old age, the lure of the new and untried was always very great...”***

RE: excerpt from *Many Masks: A Life of FLW*

Above: caption: “The system of the pipes in Pyrex.”  
Initially 3-inches in diameter, they were reduced to 2-inches for economical reasons.

DESIGN  
 F. L. WRIGHT,  
 PRISM LIGHT.

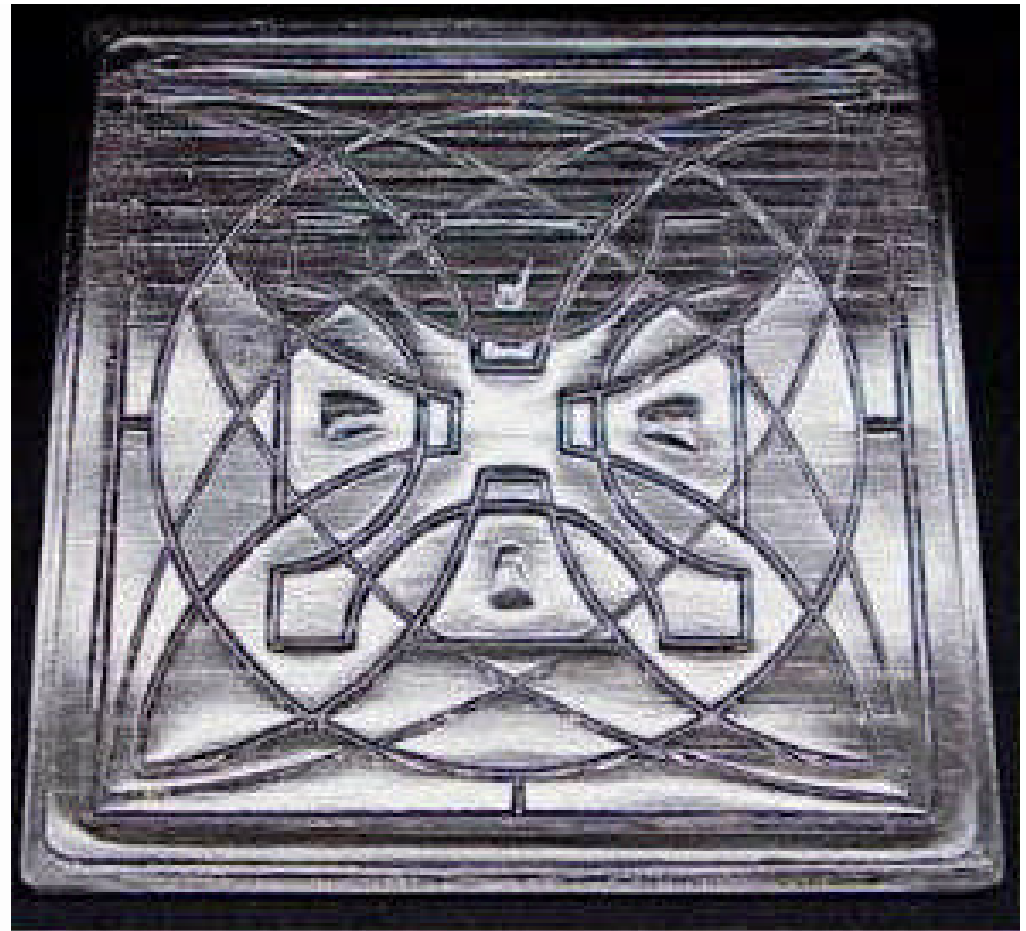
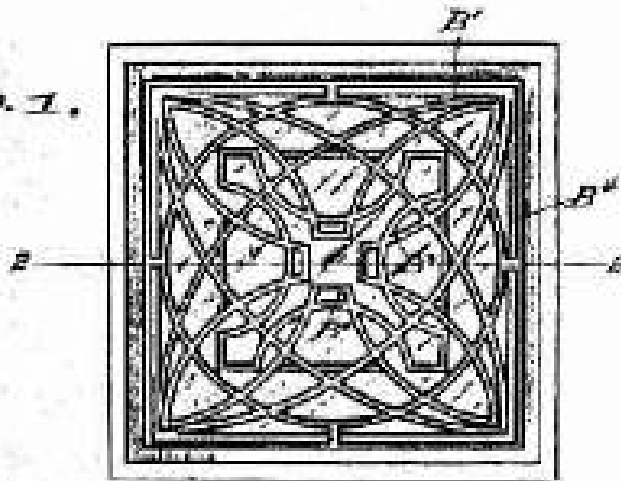
No. 27,977.

Patented Dec. 7, 1897.

Fig. 2.



Fig. 1.



Witnesses:  
*A. Roy*  
*Chas. C. ...*

Inventor:  
 Frank L. Wright.  
 By *...*

In 1897, FLW patented a style of prismatic glass tile designed to refract and diffuse light into the building from the outside for maximum lighting efficiency. These tiles were generally used in storefronts as the transom to the larger plate glass display window/s. FLW patterned this beautiful geometric flower design (above & left) for the *Luxfer Prism Company* in 1897. Some of the other tiles that were made have a raindrop pattern, pleated design and some were just plain. There were a total of 96 designs that FLW held patents for.



***“...After a year’s search, he began conducting experiments with a heat-resistant Pyrex glass tubing manufactured by the Corning Glass Company and hitherto used for test tubes and other chemical purposes...Corning sent the first shipment of glass to Racine in the spring of 1938...Wright was still trying to figure out how to join the four-foot-long tubes together by means of smaller tubes fitted into their ends; he was also striving to locate a mastic that would serve as a watertight caulking between the tubes...”***

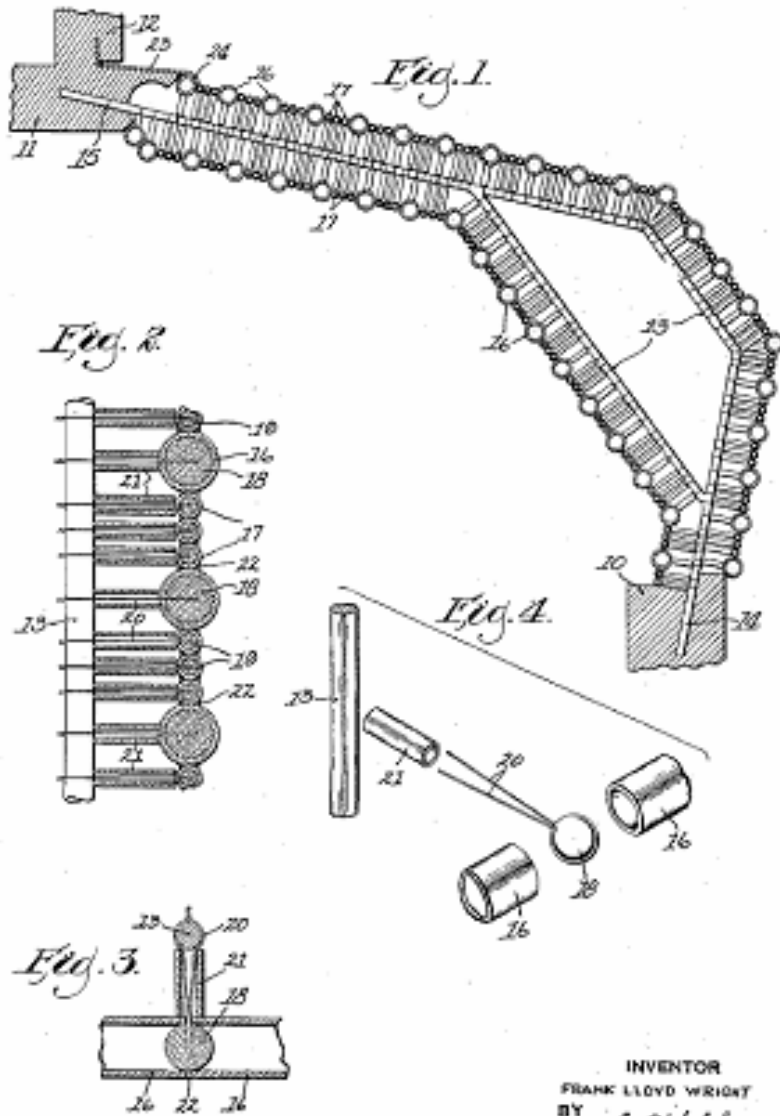
**RE: excerpt from *Many Masks: A Life of FLW***

**Left: caption: “Two inner rows of Pyrex tubes in upper clerestory, wired to aluminum racks”**

July 26, 1938.

F. A. WRIGHT  
STRUCTURAL GLASS  
Filed Aug. 14, 1937

2,124,809



INVENTOR  
FRANK LLOYD WRIGHT  
BY  
Gerrald P. Welch  
ATTORNEY

The *Corning Glass Company* of Corning NY, produced the glass tubes using a formula of borosilicate glass improved under the *Pyrex* trademark (patented in 1915) which was used, at the time, for durable glass products (i.e. kitchen products and/or laboratory applications). In the case of the Administration Building the Pyrex glass provided resistance to sudden changes in temperature as well as to the corrosive action of atmospheric agents and adapted well to the curvatures of the building. This was preferable as compared to flat screens that, for the technology available at that time, would have been more difficult to manipulate during the manufacturing process. Although the patent office assigned seven patents to FLW on the details of the Pyrex glass tubes in 1938 (left), the design of the tubes represented an advanced technological application; implemented but not yet refined, especially concerning the joints of the clerestory (a/k/a “Sunband”) glass tubes.



***“...Wired into place on aluminum racks set horizontally in the sunbands, the tubes would strengthen the building’s emphasis upon streamlining, already manifested in its low profile and rounded corners, and it would transmit light without revealing to the occupants what Wright considered to be the inimical small-town environment in which Johnson and his colleagues had insisted upon constructing the building...”***

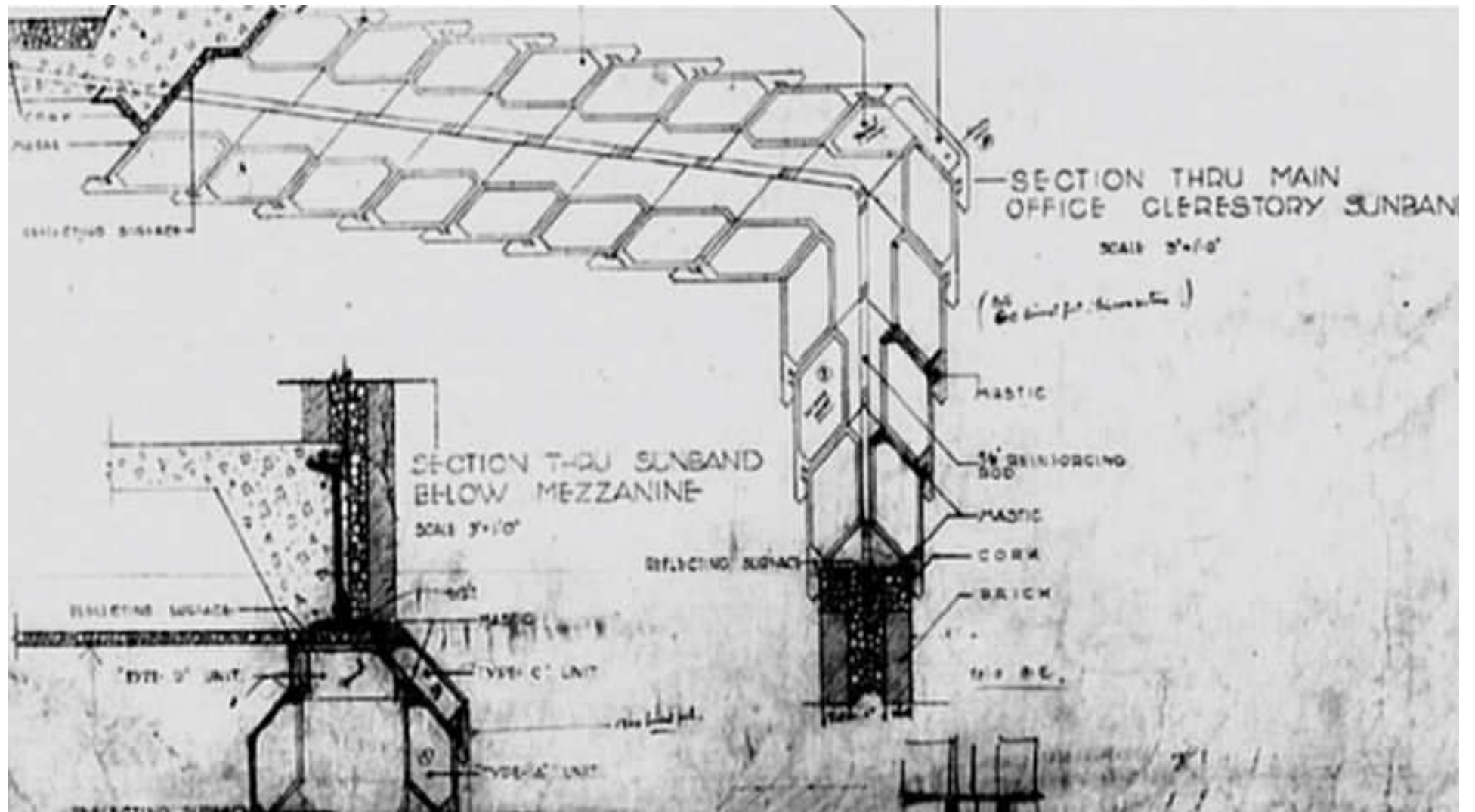
***RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright****





**Above:** the exterior wall glass tubes are a curtain wall; a glass wall stretched on a frame with aluminum borders stabilized with dentil shaped elements so that each engraving accommodated a glass tube, tightened by a wire with a loop knot. The horizontal joint was sealed with a mastic produced by *Vulcanite* (tubes of a smaller size were used at the head joint). FLW hid some *Lumiline* bulbs amongst the double layers of clerestory and lantern tubes, increasing the natural illumination with an artificial one.







***“...From the moment the tubes were chosen, nobody doubted the beauty of their appearance in roof and walls, and except when the sun struck them at an angle that produced a blinding glare, the quality of the light they transmitted was much admired...the tubes were in every other respect a failure; the problem of glare in fine weather was never solved, nor was the problem of leakage in rainy weather...the tubes themselves were replaced wherever possible throughout the building by sheets of glass cast in a form resembling tubes...”***

99

RE: excerpt from *Many Masks: A Life of FLW*





**Above: maintenance of the artificial illumination system required tubes to be removed and wires and bulbs to be replaced using high and bulky equipment. The higher tubes of the clerestories were replaced with an aluminum system in which flat modules in glass fiber were fitted in order to resolve the problem of seepage. Since these interfered with the natural light, it forced the adaptation of the artificial system, with new light fixtures. Properly shaped acrylic (*Plexiglas*) modules replaced the lower tubes, copying the profile and using dark coloring to obtain the original shadow lines on the joints of the tubes.**



**Above Left:** caption: “Roof of the Johnson Wax Administration Building during construction. The skylight domes have been installed.”

**Above Right:** caption: “Rear elevation of the Johnson Wax Administration Building during construction. Construction sheds and a crane are visible on the building site.”

**Below Left:** caption: “Construction workers at the Johnson Wax Building.”

**Below Right:** caption: “Tapered columns in the Johnson Wax Building during construction. Workmen are working on scaffolding built around one of the columns.”



# **Cherokee Red**



***“...Ford and Wright had been mutual admirers since the car-maker had invited Wright to design his estate in 1909. In 1940, when Ford developed an exclusive Lincoln Continental Cabriolet V-12, he had a rendering of the vehicle sent to Wright. As a promotion, the Ford Motor Company had offered to give away a number of new models to prominent Americans, including Wright. When the architect appeared at the Chicago showroom, however, he demanded two – one for each of his estates – and insisted that they be delivered to Taliesin repainted in his signature Cherokee red. Ford complied...”***

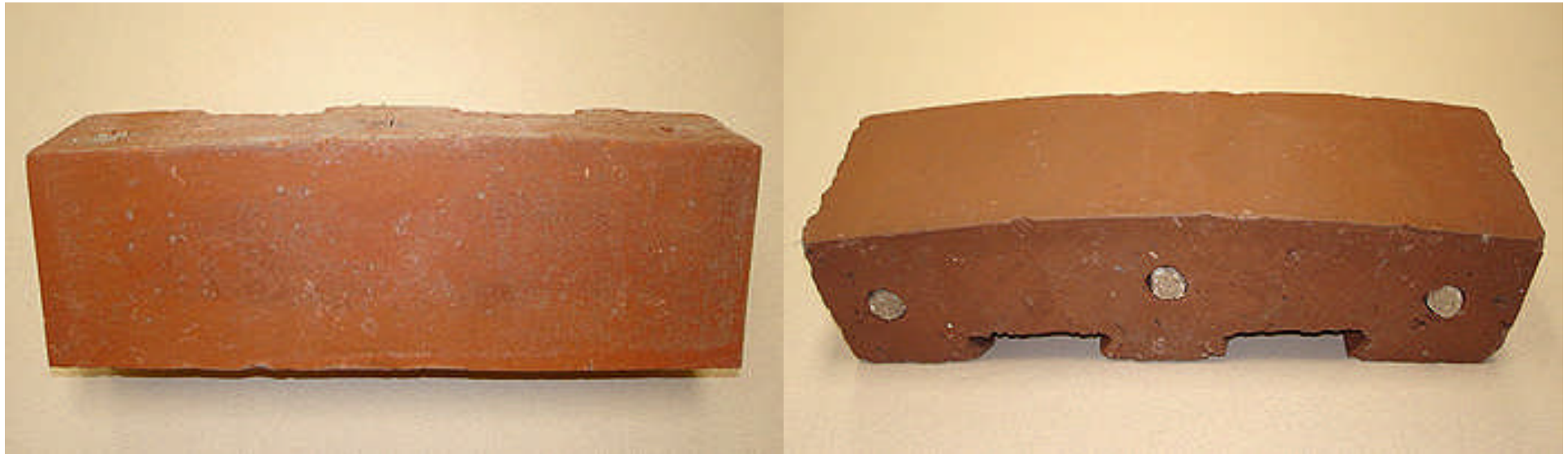
**RE: excerpt from *The Fellowship***



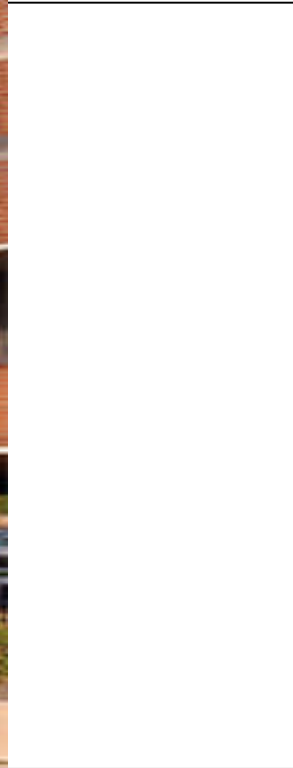
**FLW's use of red became his signature color. While many reds were used in his schemes, he preferred a warm, brownish red that he called "Cherokee red." Some say the color came from a favorite native American pot, but it could have been inspired by the red barns that dotted the rural southern Wisconsin landscape he loved so much. That red - an iron-oxide mixture - was used to help preserve the wood in the barn from rot. It was a familiar and natural companion to the colors of the foliage. FLW colored his own farm buildings at *Taliesin* Cherokee red, as well as his fleet of cars, roofs, gates and signs. It was specified as the accent color in many of his buildings and continues to be generously used by his disciples. Even concrete floors were integrally colored and waxed with a warm red.**

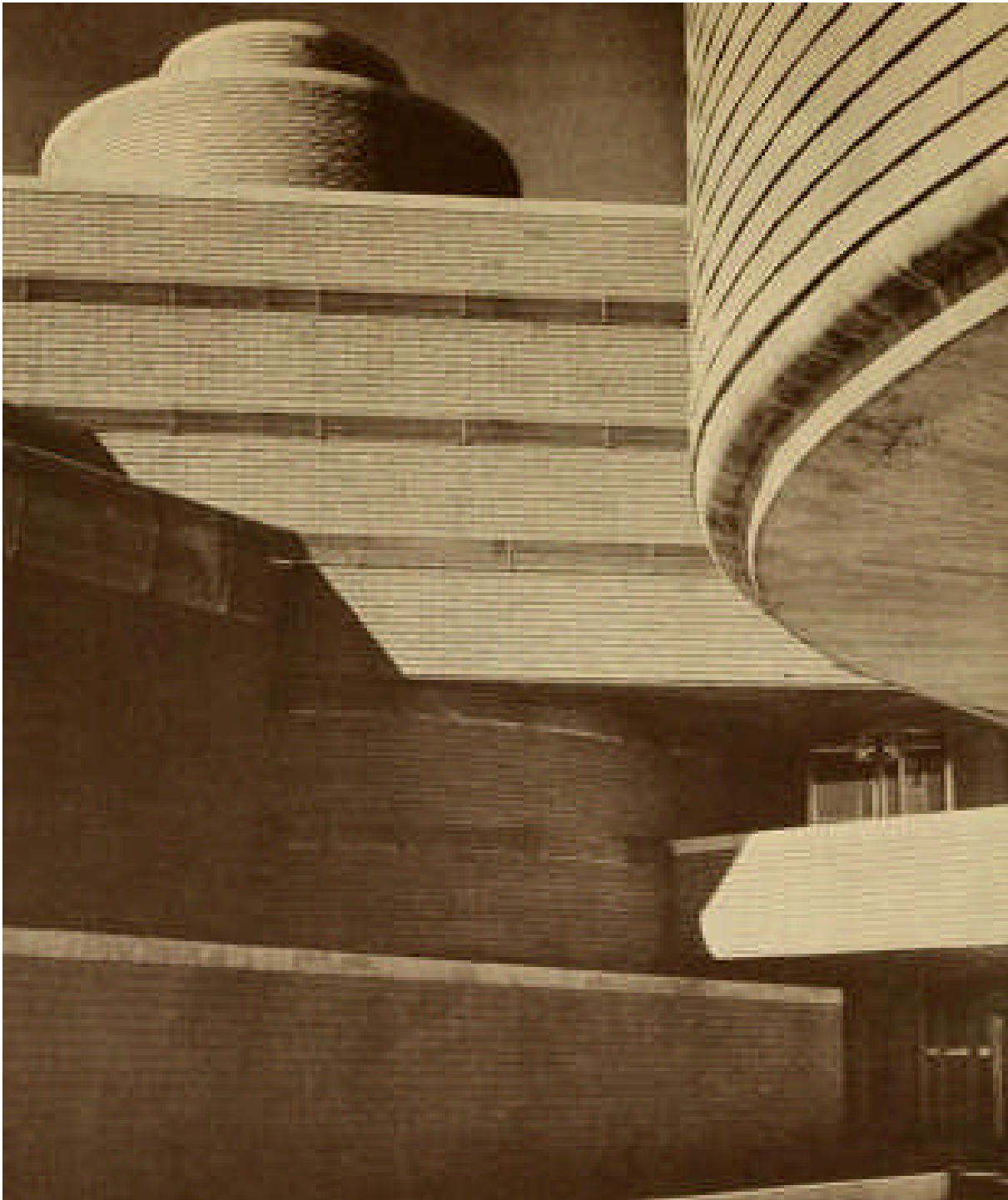
**Left: caption: "Fallingwater's gates were painted FLW's signature color, Cherokee red"**

**Right: caption: "Frank Lloyd Wright was an auto aficionado all his life. The Cherokee red 1940 Lincoln Continental above is one of the cars most associated with Wright"**

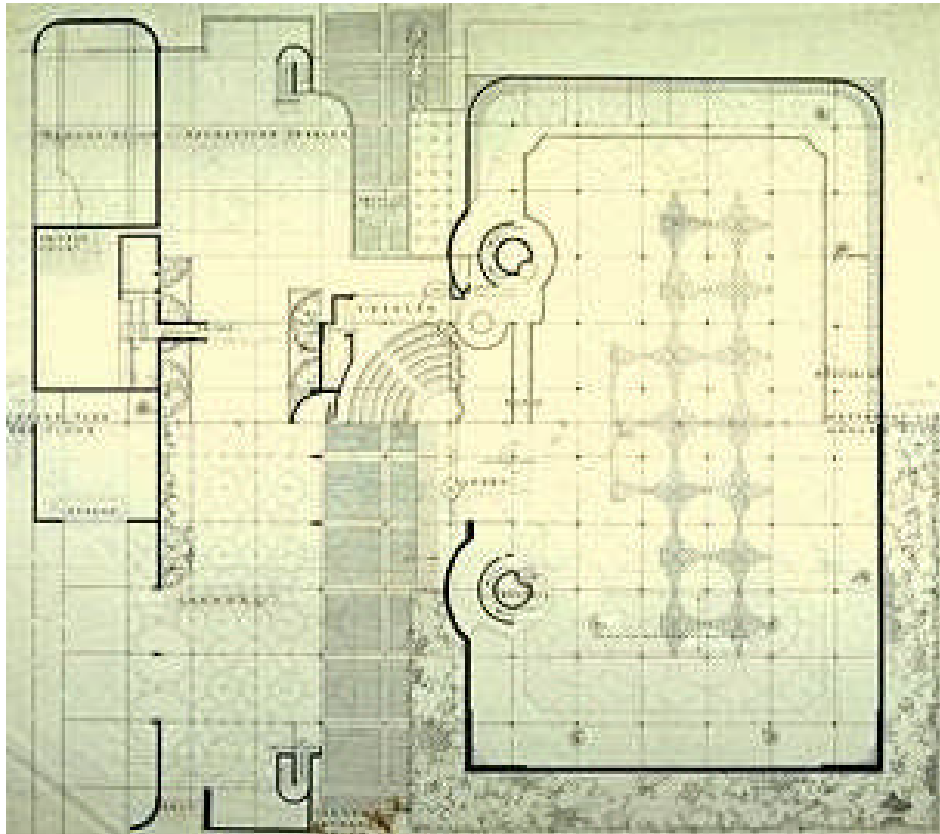


**Above: Straight (left) and curved (right) brick used for the *Johnson Wax Administration Building* in Racine, Wisconsin. More than two-hundred sizes and shapes were used to form the angles and curves designed by FLW. For the color, he specified *Cherokee Red*. The brick was trimmed with a lighter color *Kasota Stone* and the mortar in the horizontal joints was raked. After Johnson and the contractor rejected using the brick factory in Racine, FLW selected the *Streator Brick Company* in Streator, Illinois. In 2007, restoration of the Administration Building was initiated and the original bricks were carefully salvaged, cleaned and re-installed.**





**Above & Left:** caption: “1938. The original Johnson Administration Building. In the exhibition many views of this novel construction may be seen. Glass tubing laid up like bricks in a wall compose all the lighting surfaces. Light enters the building where the cornice used to be. In the interior the boxlike structure vanished completely. Subsequently, the Heliolab and parking courts were added, completing the scheme in 1950. The walls carrying the glass ribbing are of hard brick and red Kasota sandstone. The entire fabric is reinforced concrete, cold-drawn mesh used for reinforcement...” Excerpt from catalog of an exhibition held October 22nd - December 13th 1953 at the *Solomon R. Guggenheim Museum, NYC* entitled: “Sixty Years of Living Architecture: The Work of 108 Frank Lloyd Wright.”



***“...The birds began to sing again below the house at Taliesin; dry grass on the hillside turned green, and the hollyhocks went gaily into a second blooming...What a release of pent-up energy the making of those plans! Ideas came tumbling up and out onto paper...”***

***Frank Lloyd Wright***

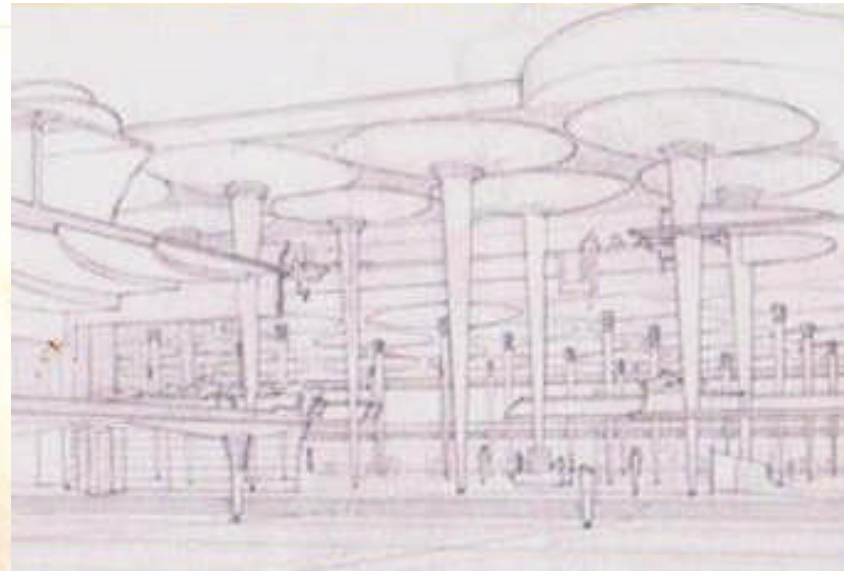
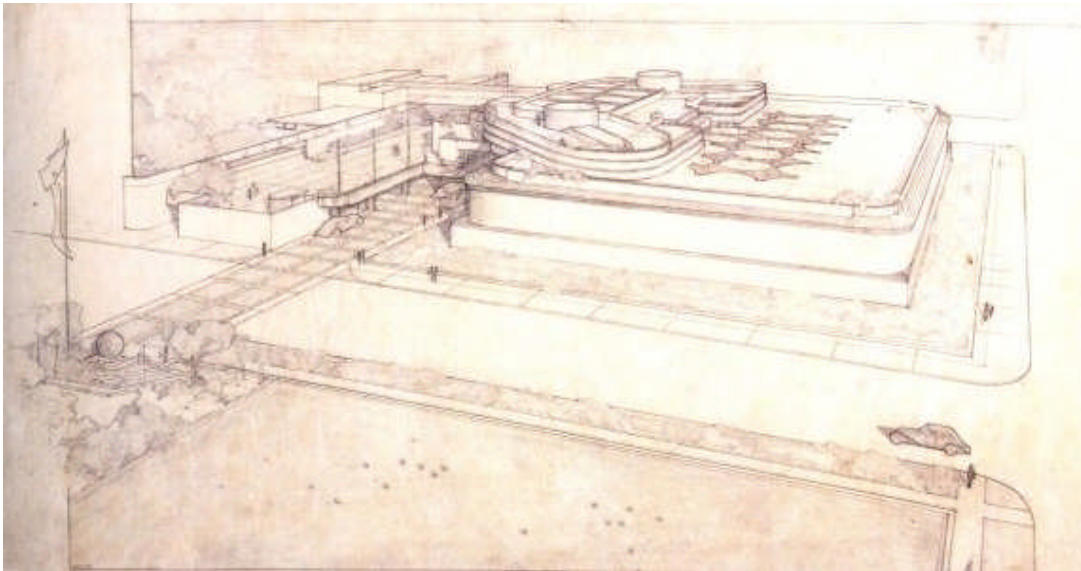
**RE: after ten straight days of non-stop drafting to create the set of plans for the formal proposal to SCJ&S, FLW declared the drawings complete. He left the studio and returned with four Japanese prints, placing one on each of the drafting boards of the four apprentices who assisted him tirelessly, telling them that he appreciated their efforts.**

**Left: caption: “Administration Building, main level plan”**

**Right: caption: “Portrait of Frank Lloyd Wright”**

# **Part 3**

# **Cathedral of Work**

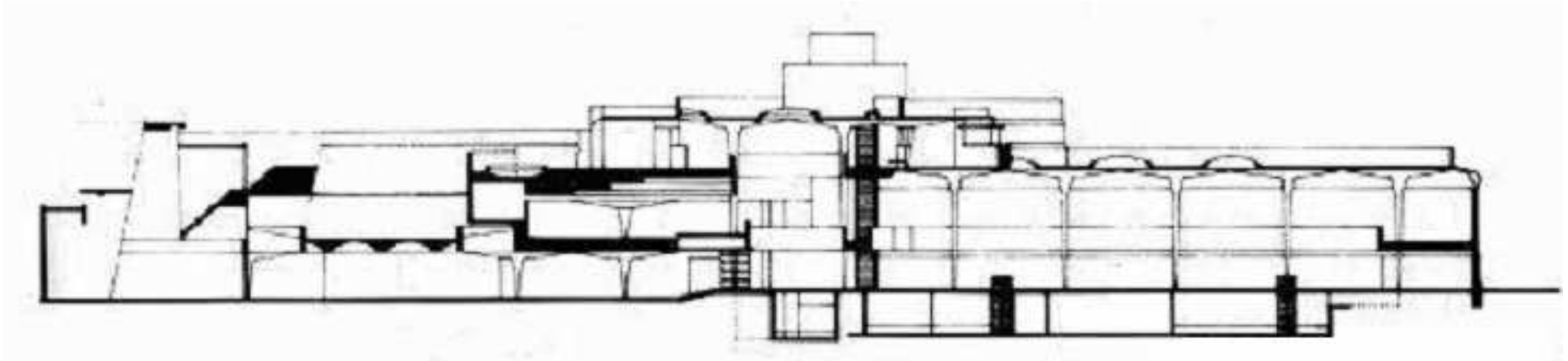


***“...Wright came in humming. He sat down at the table and, as was his habit, pushed all of his silver off to one side. ‘I think I’ve just done something pretty good,’ he told the group...‘I’ll show you later.’ After lunch, everybody trooped down with Mr. Wright to the drafting room. ‘On his table,’ his sister Marginel remembered, ‘beautifully drawn, was the first rendering of a plan for a building...It was very stirring to see this bold conception fresh from his mind and hand.’ A forest of lily-pad columns rose from the large open space where the secretaries would type their reports and letters, the natural light filtering in from the glass openings between the pads above...”***

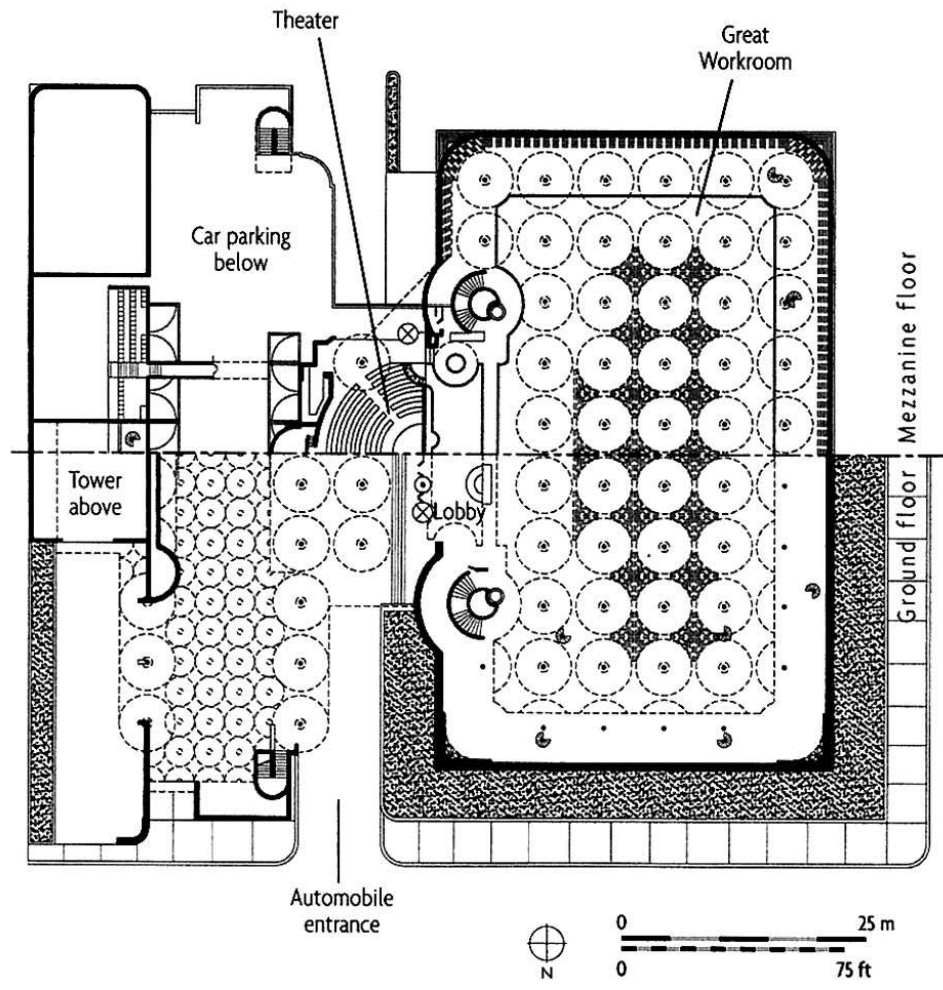
**RE: excerpt from *The Fellowship*.**

**Above L&R: original FLW renderings**



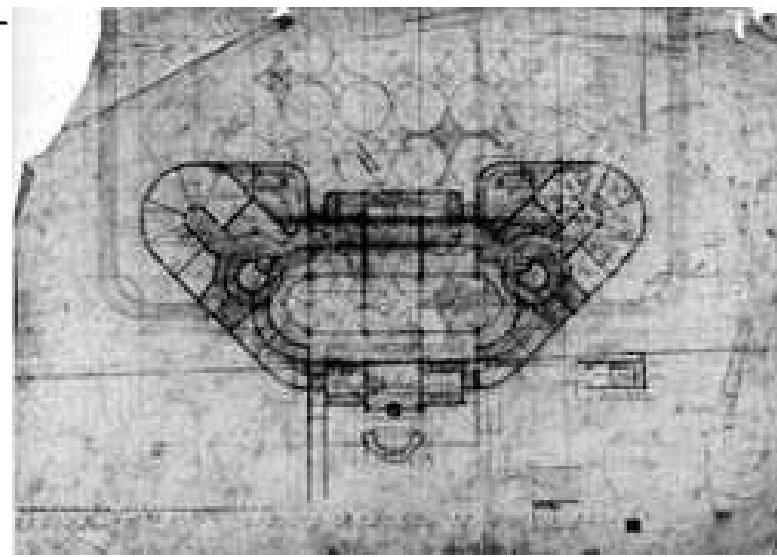


**Above: longitudinal section through Administration Building**



**Left: Ground/Mezzanine floor plan of the *Great Workroom* (a/k/a “Cathedral of Work”)**

**Below: Penthouse plan**





***“The progressive industrialist and the radical architect...the heart of the administrative building is the ‘Great Workroom’ – a two story, single hall where executives and clerical staff all work together”***

***The 2001 Brick in Architecture Award Call for Entries***

**RE: FLW referred to the *Great Workroom* as a “Cathedral of Work”**



**Above: caption: “Interior of the two-story work space in the Johnson Wax Building during construction showing the tapered columns”**

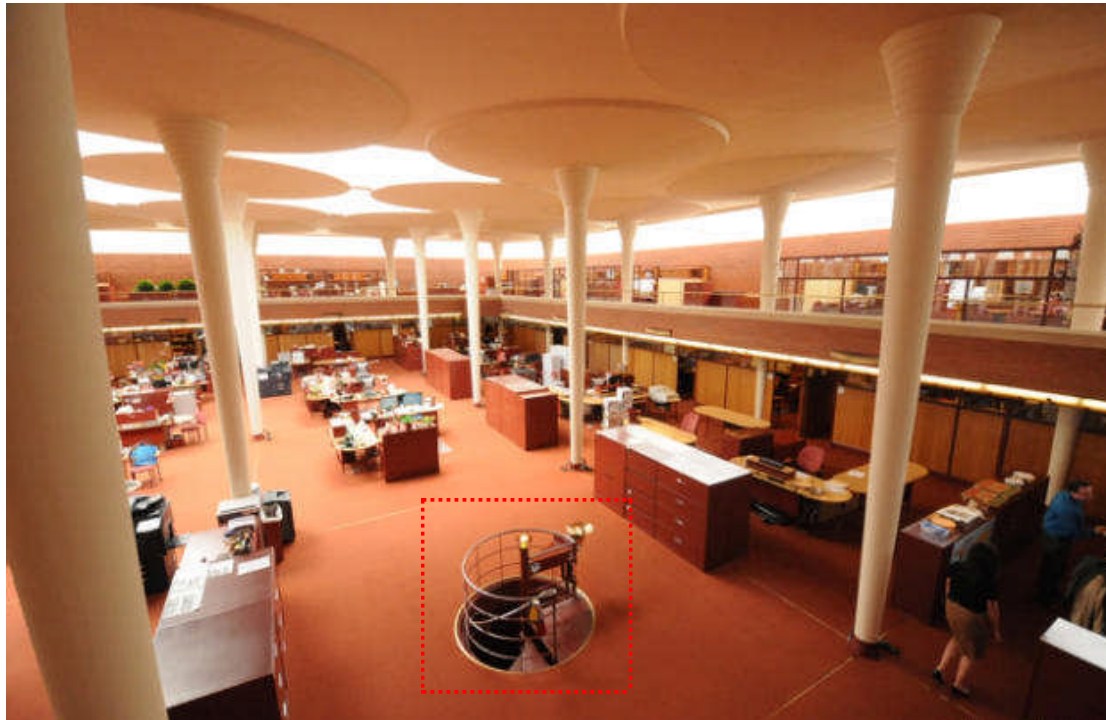
**Left: caption: “An interior view of the construction of the Johnson Wax Building during construction”**



**Top Left:** caption: “Interior, Third Floor Reception Area with Elevator”

**Top Right:** caption: “Interior, Third Floor Balcony, from West”

**Left:** caption: “Spiral staircase leading to the Basement” (Bathrooms were located below the *Great Workroom*, in the Basement level)





***“Wright decided the Administration Center was to be a functional building. He studied the daily work flow and believed that the most important criteria for his designs were the people. Wright also considered the corporate hierarchy. The clerical staff had office areas on the main level, the manager’s offices were on the mezzanine level surrounding the clerical staff, and the executive offices on the third or Penthouse level, over-seeing everyone below.”***

***Racine County***

***Above:*** caption: “Interior, Third Floor Balcony and Work Area, from North”

***Left:*** caption: “Interior, Southeast View, 117  
from Second Floor Balcony”





**Top Left: caption: “Interior, Northwest Corner Office Area, from Second Floor Balcony”**

**Top Right: caption: “Interior, Typical Employee Desk and Cubicle”**

**Left: caption: “Interior, Third Floor Office Area, Near Elevator”**



# **Of One Nature**

***“...As he had done in the case of the Larkin Building, Wright had persuaded Johnson that the building and its contents must be seen to be of one nature. The furniture that he designed, mostly of metal, shared the same streamlining as the building: desks and chairs were either rounded or curved and in their emphasis upon horizontality resembled the bi-planes and triplanes designed by aeronautical engineers early in the century – heavy as the furniture might be, one suspected it of being capable of flight...”***

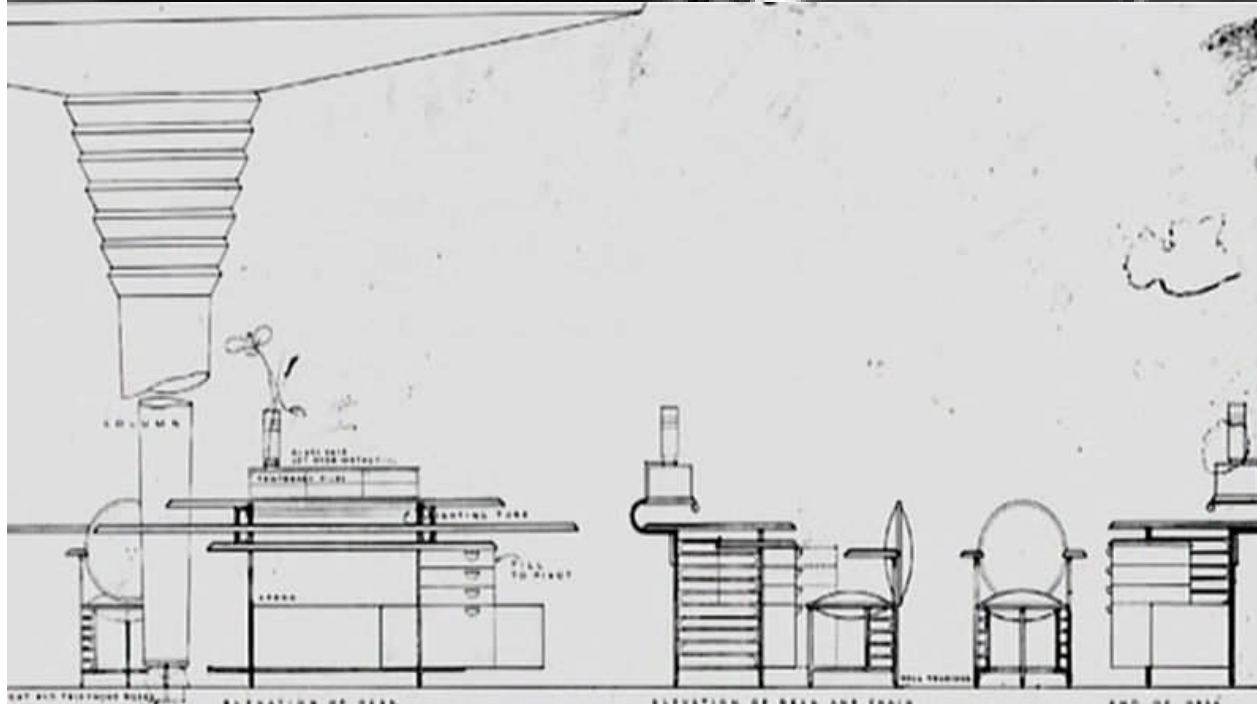
**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



***“...As a result of a two-year design and production partnership with Wright, we created task-oriented furniture, the genesis of the modern workstation...”***

***Steelcase Corporation***

**Left: caption: “S.C. Johnson & Son, Inc., Racine, Wis. The great workroom, where several hundred clerical workers are grouped in departments in this perfectly lighted open office.” Steelcase manufactured FLW’s designs for both the *Administration Building* and *Research Tower*. The streamlined forms of the Cherokee red desks, some with built-in filing systems, were in keeping with the streamlined architecture of the building/s. However, the three-legged tubular chairs (right) proved hazardous and were replaced with a four-legged version.**



# **Remarkable for Its Instability**

***“...Despite much advice to the contrary, Wright insisted on designing a chair with three legs, remarkable for its instability. With his usual gift for employing any argument, however implausible, in order to have his way, Wright claimed the chair would improve the alertness and efficiency of the employees by forcing them to adopt a correct posture in order not to tip over. The chair having spilled enough people unceremoniously onto the floor (Wright himself is said to have been one of them), he was at last obliged to approve the design of a comparatively normal four-legged chair...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



**Above: original three-legged chair (at desk)**

**Left T&B: FLW designed three-legged chairs for the company's employees (top), but after many workers had trouble keeping from tipping over, he agreed to design a much more stable four-legged version (bottom).**





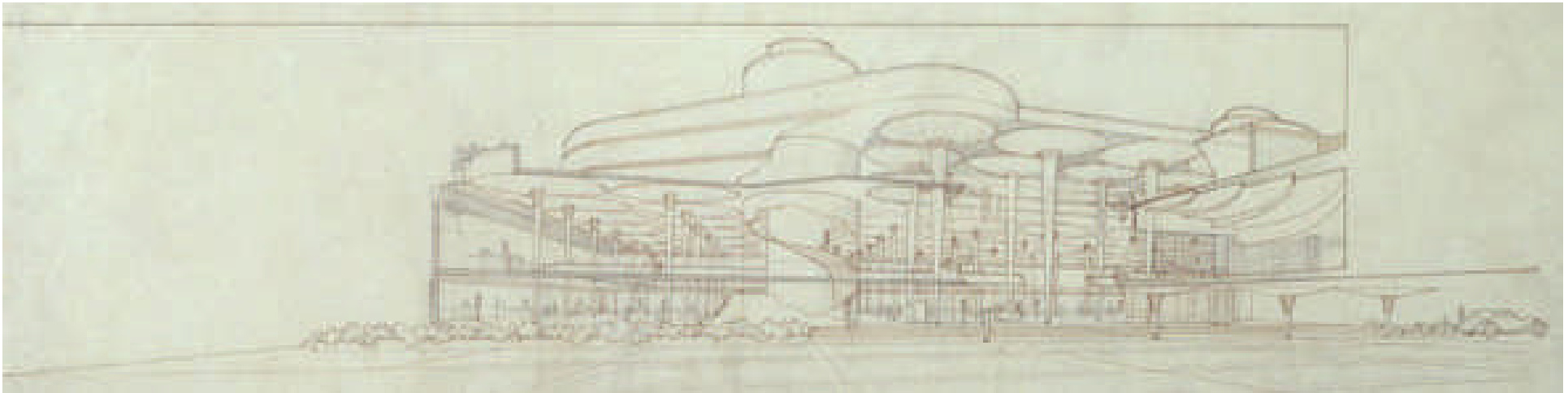


***“...Wright wanted the furniture to reflect the columns’ treatment of the cantilevers, round surfaces and light base supports. Desks of the 1930s had large bases to protect the floor but Wright wanted desk legs to narrow at the base...”***

***Jonathan Lipman, Author***

***Above: drawers swing-out, allowing full access***

***Left T&B: to the present day, employees who work in the SCJ&S Administration Building sit at desks designed by FLW. The desks have three levels and emphasize the linear horizontal plane,*** 128 ***just like the building does.***



***“This is not only a thoroughly modern piece of work, but more nearly exemplifies the ideal of organic architecture than any other I have built”***

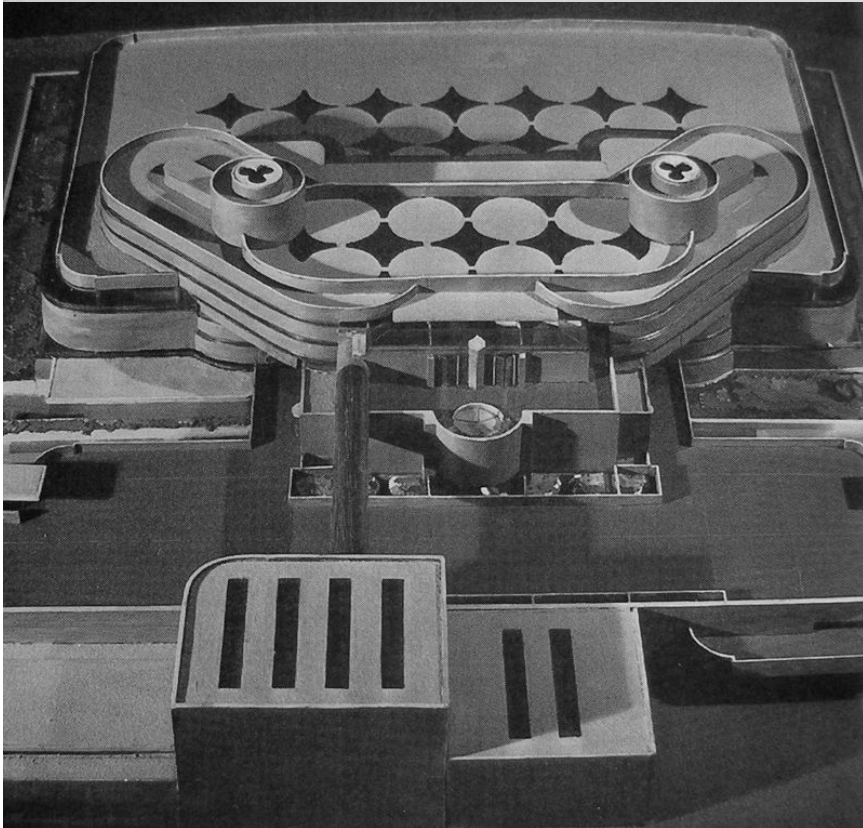
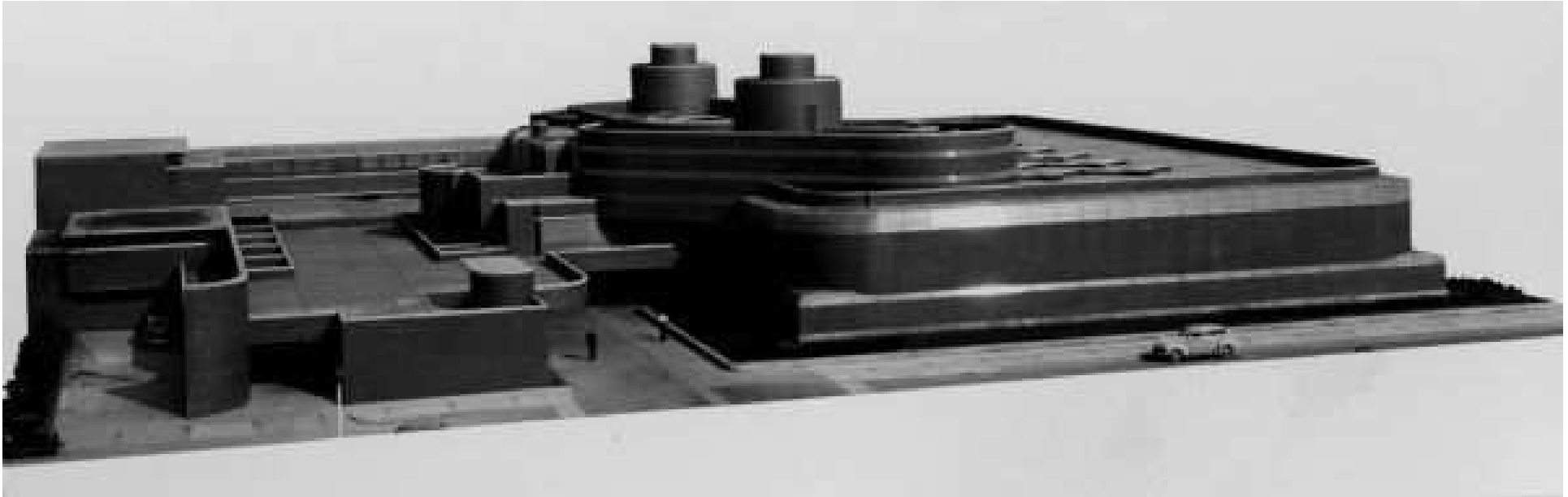
***Frank Lloyd Wright***

***Above: cut-away perspective view of the Administration Building’s Great Workroom by FLW***

***Left: entry to the great Workroom (at right) with the manager’s mezzanine level at perimeter (left)***



***“Space is the Breath of Art”***  
***Frank Lloyd Wright***



***“At the end of August, Wright guided three of his apprentices; Blaine and Hulda Drake and Eugene Masselink in the construction of a large, detailed model of the Administration Building that could be separated into two halves, allowing one to peer into a miniature Great Workroom”***

***Johnathan Lipman, Author***

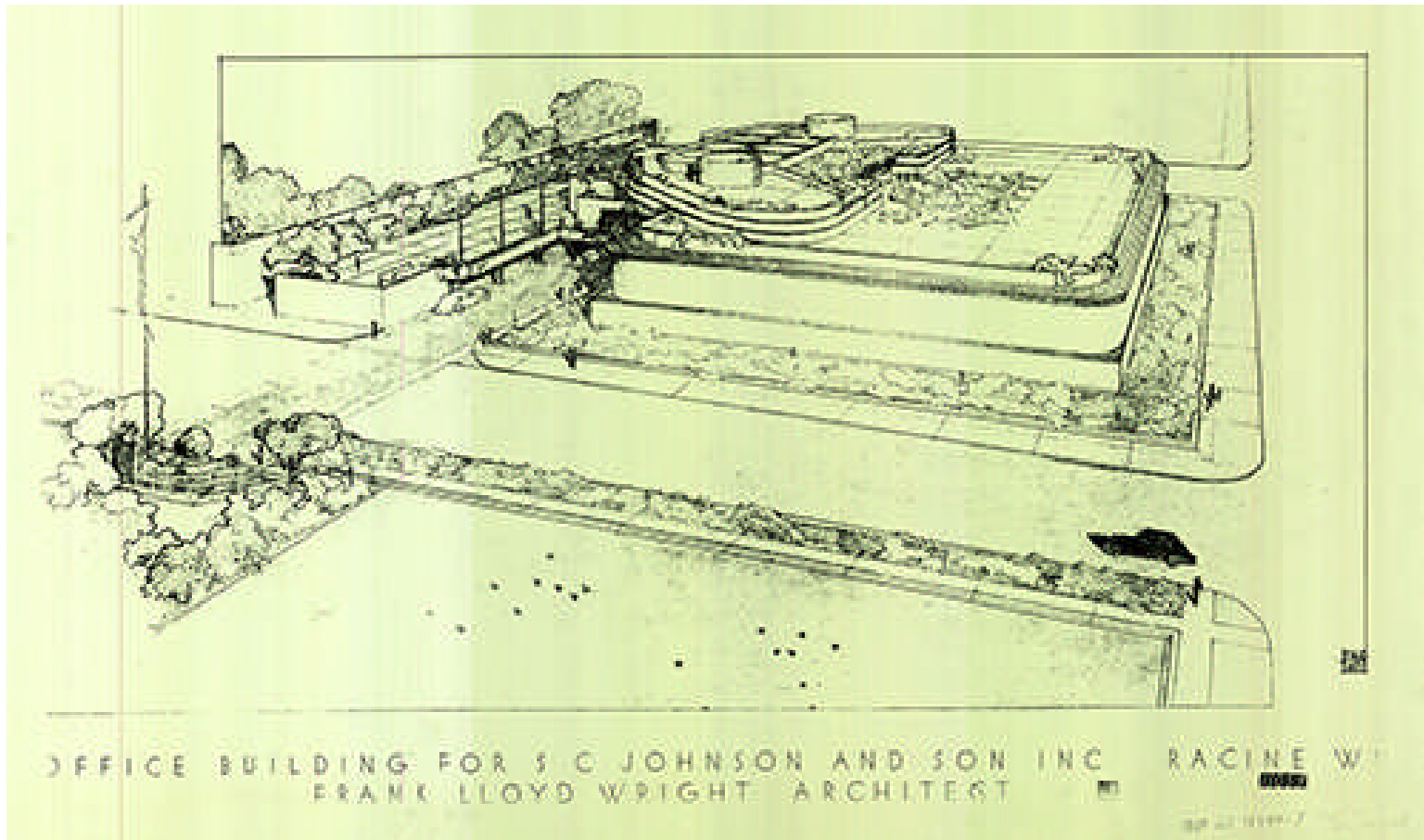
***Above & Left: caption: “Model of the building created for Johnson Wax by FLW apprentice Hulda Drake.” Construction of the model led FLW to make changes in the design.***

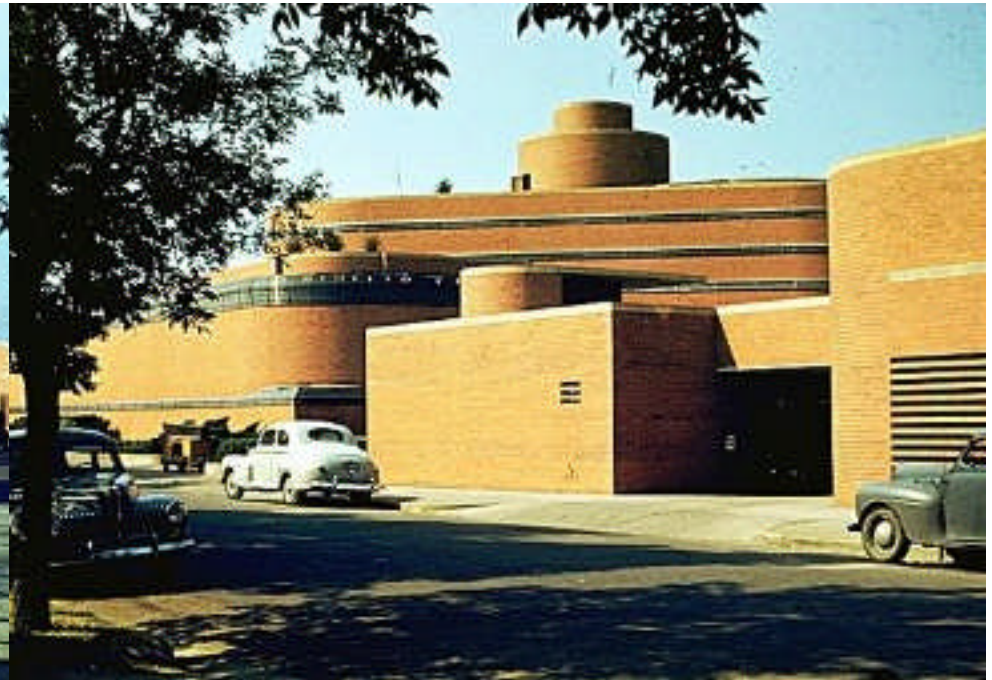


***“...Architects have called it the greatest contribution to business housing since the advent of the skyscraper. It is built without windows and doors (other than the main opening) and is heated through the floor and supported by ‘golf-tee’ columns, modeled on the structure of a flower...”***

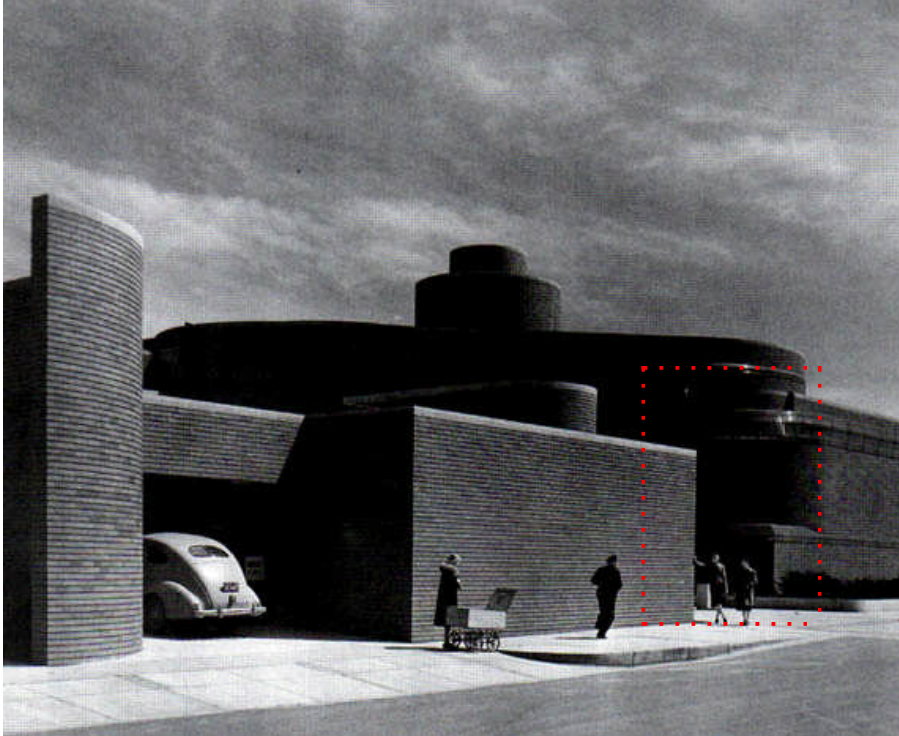
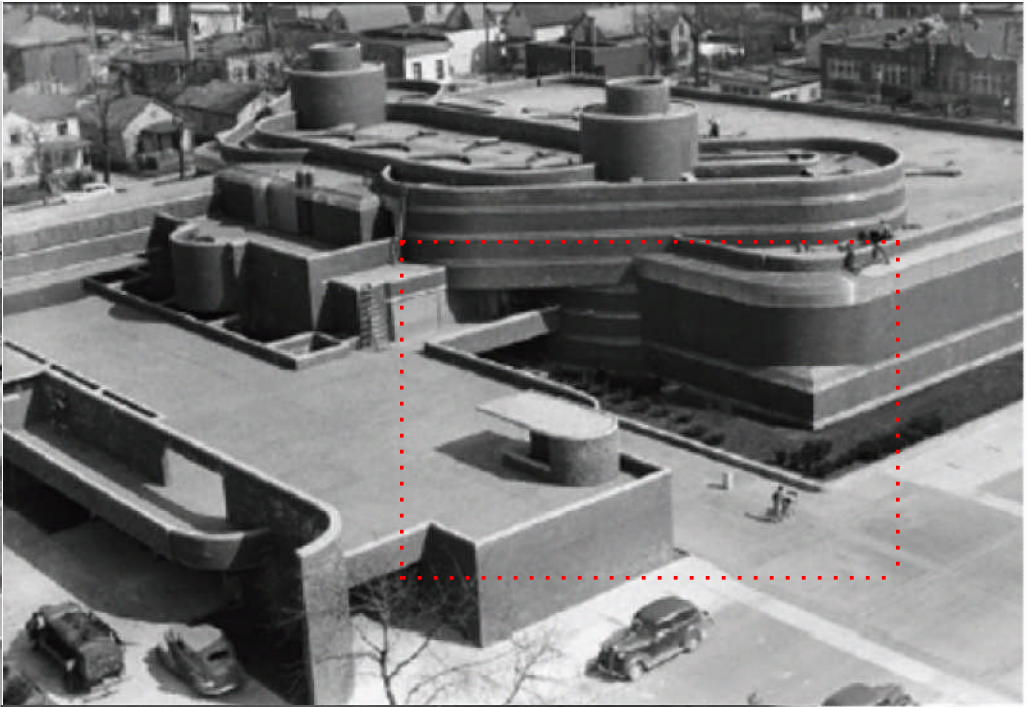
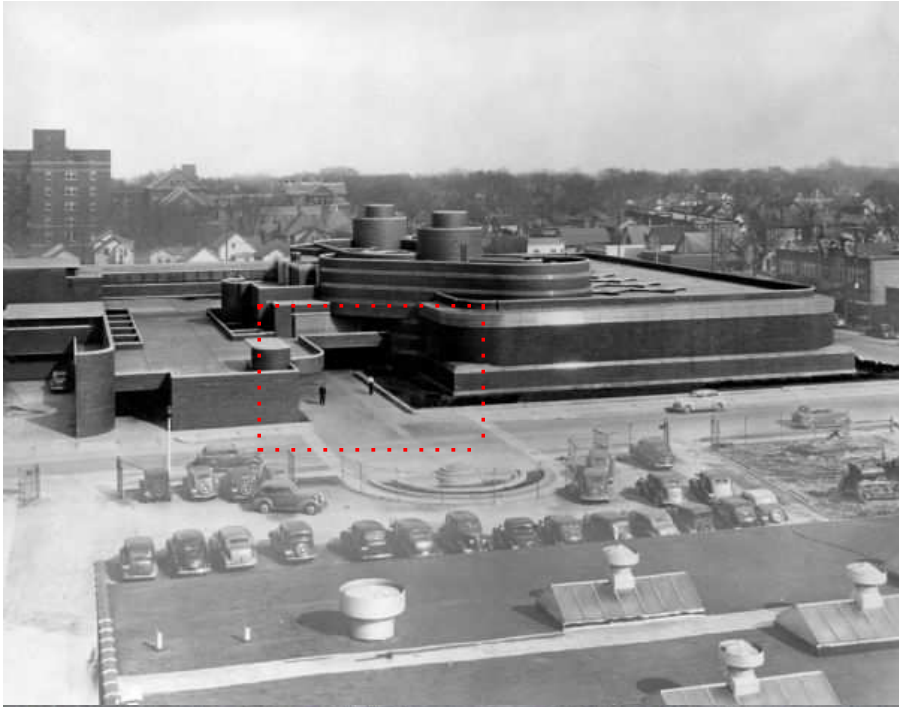
***Johnathan Lipman, Author***

**RE: in the 19th Century, author *Victor Hugo* postulated that mass-produced books, via the invention of the printing press, had superceded the medieval cathedral in cultural importance. FLW saw it as his life’s mission to restore the cathedral and, in-turn, architecture, to its rightful place as the height of culture. Therefore, it was no coincidence that, in very many ways, the SCJ&S Administration Building reminds the visitor of a cathedral.**





**Above L&R: Main Entry**  
**Left: Porte Cochere**







**Top Left**: caption: “Exterior, View From Undercover Parking Area”

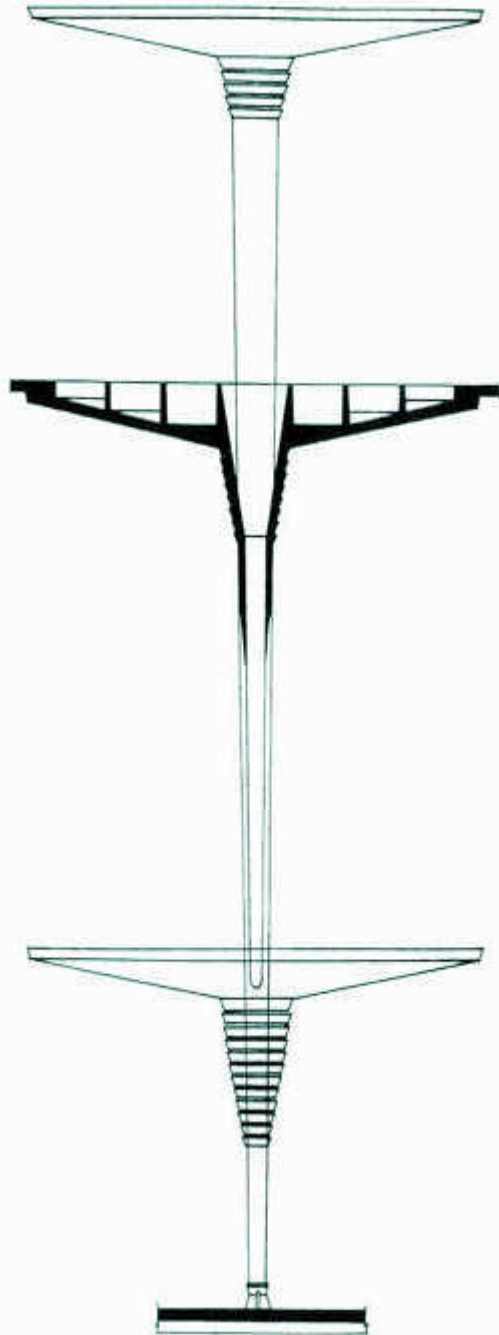
**Top Right**: caption: “Exterior, Detail of Support Columns for Roof of Parking Area, Looking North”

**Left**: caption: “Exterior, Underside of Building connecting Main Office with Towers”





# Tree-Like



***“...The Johnson Building is the first sizable structure Wright has had a chance to build since the Imperial Hotel, and it ranks with that masterpiece as an engineering feat. Wright’s plans for it set the Wisconsin State Industrial Commission on its ear. The columns by which the architect proposed to support his building were neither pillars nor posts but tall stem forms, tapering from a concrete disk 18 ft. in diameter at the top to a base 9 in. thick at the floor. By ordinary reckoning, these slenderizing pencils would take about two tons of weight each where they were called to support twelve. In an official test, the column held up 60 tons...”***

***TIME* magazine, January 17<sup>th</sup> 1938**

**Left: caption: “Frank Lloyd Wright’s dendriform column, which was employed in the Johnson Wax Building.” FLW used the metaphor of a flower in the design and description of the “Dendriform” (*Dendri* means “tree-like”) columns (a/k/a “Lily Pad”) to create a garden within the building. Designed without the benefit of structural calculations, the “Stem and Petal” system incorporated a tapering shaft, hollow core and expanded metal lath.**

**But of Course!**



***“But of course! My vocabulary and nature’s are one. To be in the Great Workroom is to be among pine trees, breathing fresh air and sunlight”***

***Frank Lloyd Wright***

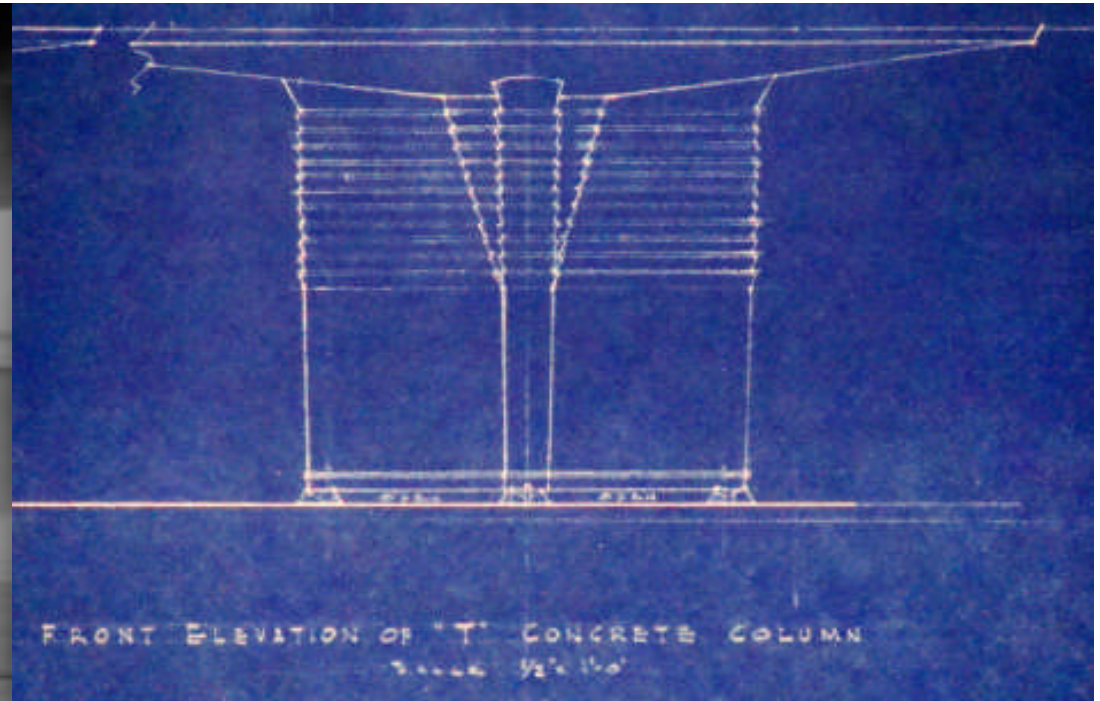
**RE: it’s interesting to note that even today, the columns of the Great Workroom are often referred to using terms derived from nature (i.e. forest, trees, etc.)**



***“...From the start of his career, he worked to overlay masculine geometries onto the efflorescent floral patterns he understood as expressions of Sullivan’s love. And he spent the rest of his life finding ways to incorporate plant forms directly into the most masculine aspect of a building – its structural support. Where Sullivan had used floral imagery for delicate decoration, Wright’s imagination led him to images like the lily pad columns at Johnson Wax, delicate forms employed to carry crushing weight. For anyone attuned to his mindset, the implication was unmistakable. A man, like a building, could be powerful even when drawing on the feminine within...”***

**RE: excerpt from *The Fellowship*. “Sullivan” is architect *Louis Sullivan* - FLW’s mentor and life-long friend.**





***“...These ‘dendriform’ columns, growing from the floor and increasing the spaciousness of the floor level, were made possible by a distribution of stresses through concrete reinforced by welded steel mesh...”***

***TIME* magazine, January 17<sup>th</sup> 1938**

**Above: caption: “Front Elevation of ‘T’ Concrete Column”**

**Left: caption: “Interior of the two-story work space in the Johnson Wax Building during construction showing the tapered columns”**

# Defying Gravity

***“...Building inspectors, schooled in engineering, reviewed the calculations Peters and Glickman supplied. But they couldn’t accept that the tree-shaped columns, ‘dendriform’ as Wright called them, were strong enough...The inspectors’ own calculations suggested that they needed to be thirty inches thick at their base, not the nine specified in Taliesin’s drawings. Peters and Glickman insisted that the design was sound, even efficient...After all, the highest goal of engineering is efficiency – achieving the greatest strength with the minimum materials...”***

**RE: excerpt from *The Fellowship***



***“...According to builders a nine-inch diameter at the base of a column, can support, a maximum column height of 6-feet 9-inches. The nine-inch diameter of the Wright column carries a height of 21-feet 7.5-inches. Secret of weight carrying ability of the new pillar, according to Wright, lies in its departure from the conventional way of building concrete pillars. Instead of using steel rods to reinforce the concrete, the architect has perfected a steel mesh core. ‘Iron rods in concrete represent the bones of a human foot. The steel mesh, however, plays the role of muscles and sinews. Muscles and sinews are stronger than bones. The concrete flows in unison with the steel mesh. It ‘marries’ the mesh, so to speak,’ Wright explained. Some of Wright’s students present at the test said that their mentor’s building technique is based entirely on the ‘marriage’ of building materials. He calls it ‘organic’ architecture...”***

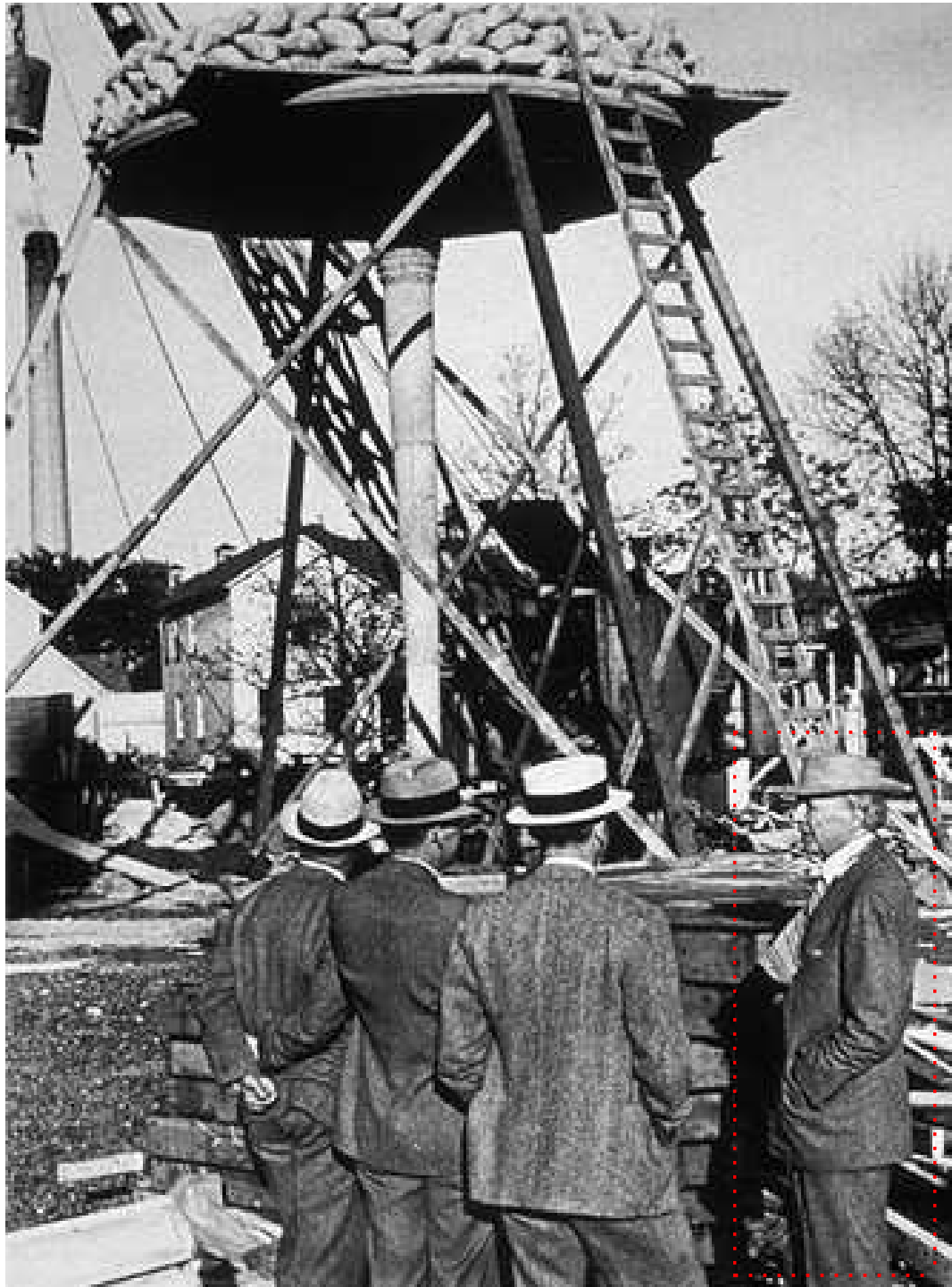
***The Milwaukee Journal, June 4<sup>th</sup> 1937***

**Left: caption: “Interior of the main lobby of the Johnson Wax Building during construction”**

# Moment of Truth

***“...The moment of truth came on June 4, 1937, four days before his seventieth birthday. The interested parties gathered at the dusty construction site...Wright, Hib Johnson, and contractor Ben Wiltschek...Before them was a single concrete lily pad, tapering down gracefully into a slender column. The whole affair was propped up by wood timbers to prevent it from tipping sideways. One by one, sandbags were hauled up and set on top of the pad. As a crowd gathered to view the spectacle, Wright went around with pencil and pad in hand, explaining the structural theory to anyone who cared to listen...”***

**RE: except from *The Fellowship***



***“Frank Lloyd Wright, Wisconsin’s internationally famous architect, Thursday won the first round of an encounter with the Wisconsin industrial commission. He successfully loaded 24 tons of sand on the top of a test column which he designed for the new administration building of the S.C. Johnson & Son Wax Co., at Racine without cracking the pillar. The test was conducted on the site after the commission had questioned the structural value of the column. The district around the building site took on a holiday air as preparations went ahead to test Wright’s most recent contribution to architecture. Word of the trial had gone out to the building industry. Representatives of steel and concrete companies mingled with camera fans waiting for a picture in case the column crumbled. Wright, accompanied by a number of his students, drove from Taliesin, at Spring Green, Wis., to superintend the test. The industrial commission was represented by M.C. Neel, assistant building engineer of the building division, and R.S. King, the building inspector for the commission. H.F. Johnson, Jr., president of the wax company, and Mendel Glickman, Milwaukee civil engineer, who checked the figures on the columns for the architect, were also on hand...”***

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*The Milwaukee Journal, June 4<sup>th</sup> 1937*

Left: caption: “FLW and state officials observe test”



***“...At 4 p.m., after 18 tons of sand had failed to crack the pillar, workmen and visitors retired to the company recreation building for beer and pretzels, a breathing spell, and a short talk by the architect. After the respite, workers, with the aid of a derrick, continued the task of distributing the weight of sand evenly across the wide top of the steel mesh and concrete post. At 6 p.m. the structure was still standing, and plans were made for continuing the test Friday, adding weight until the column crashes. The Greeks who had a word for almost everything, had no word to describe the new Wright building column. The column as the Greeks knew it, and even as it is generally known today, either starts thick at the base and tapers near the top or runs the same thickness throughout. Architectural rules which have been evolved from early day column construction also hold that a certain area of base must not carry a column above a certain height. The column designed for the Racine plant defies so many of these building laws that the commission wanted the test before passing on the construction...”***

***The Milwaukee Journal, June 4<sup>th</sup> 1937***

**Above: caption: “HF Johnson, Jr. sits with Frank Lloyd Wright and his apprentice, Wes Peters, during the weight testing of a dendriform column for the SC Johnson Administration Building in 1937”**





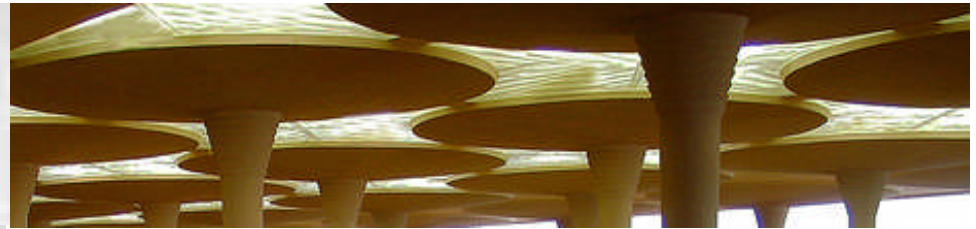
***“...When they reached the required weight – twelve tons – Wright insisted that they go on...The workmen continued to add weight to the column. At thirty tons Wright declared, ‘Keep piling.’ When they ran out of sandbags they dumped loose sand and then pig iron on top...Wright periodically walked right under the column, kicking it and hitting it with his cane. Olgivanna scolded him for gloating at the expense of the board...”***

***RE: excerpt from *The Fellowship****

***“Well I guess that’s enough. Pull the column down.”***

***Frank Lloyd Wright***

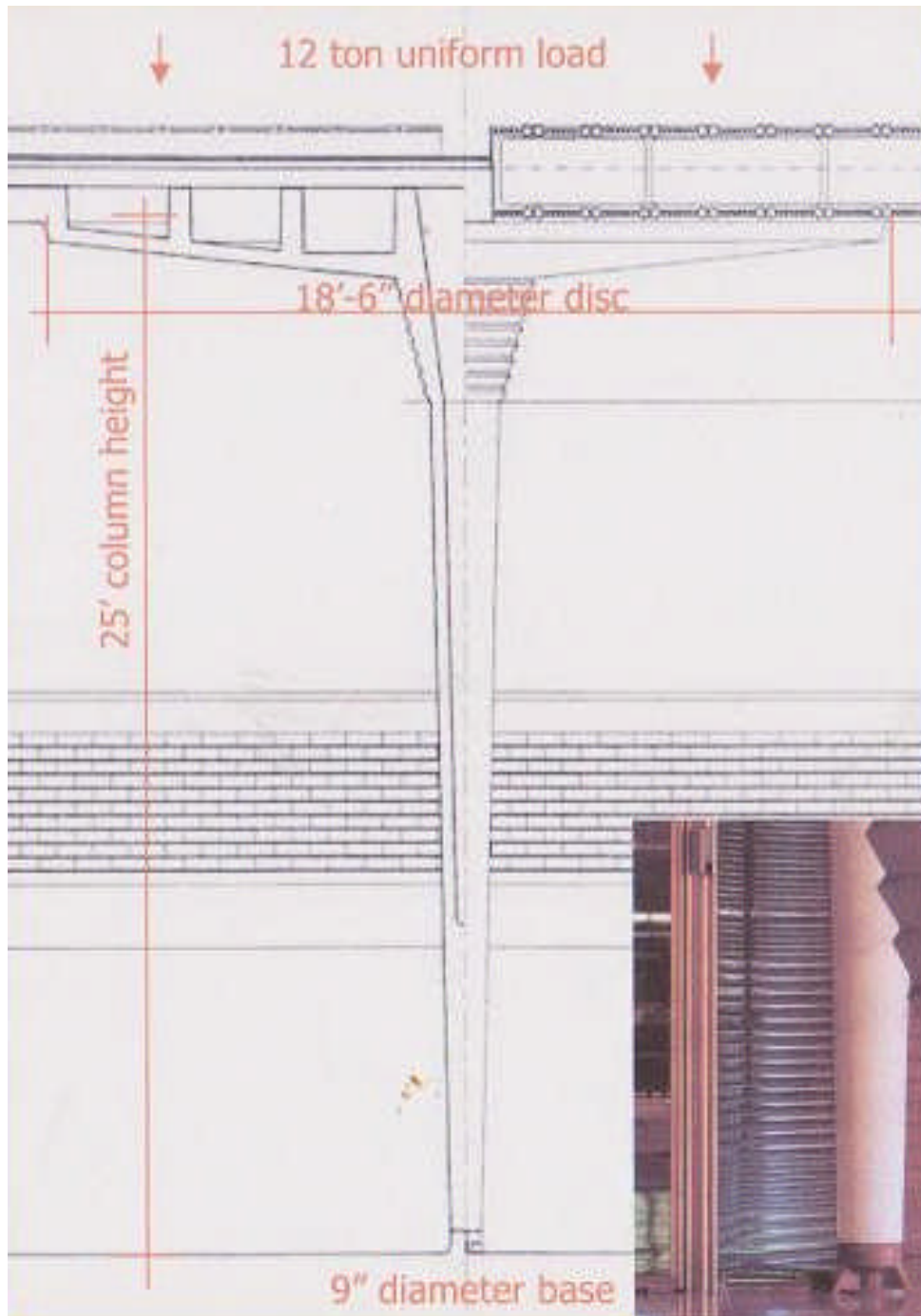
**RE: loaded to sixty tons (5x the required weight), cracks began to appear. FLW ordered the column pulled down and the crane pulled one of the timber braces out. The column snapped at the top and the impact of the sixty tons was so great that a drainpipe buried ten-feet underground burst. Though the lily pad capital was no more, the slender shaft of the column remained intact.**



***“...The secret of his structural soundness lies in Wright’s almost infallible intuitive knowledge of the materials he works with. The famous ‘dendriform’ or ‘golf-tee’ columns that support the Johnson administration building were condemned as unsafe by conservative building authorities until Wright insisted on a public test of their strength. He set one of them up in a field and piled sand on top of it with a steam shovel. When the steam shovel finally stopped loading the column’s pancake-like top, even Wright was surprised. It failed to crack even under the incredible weight of 60 tons...”***

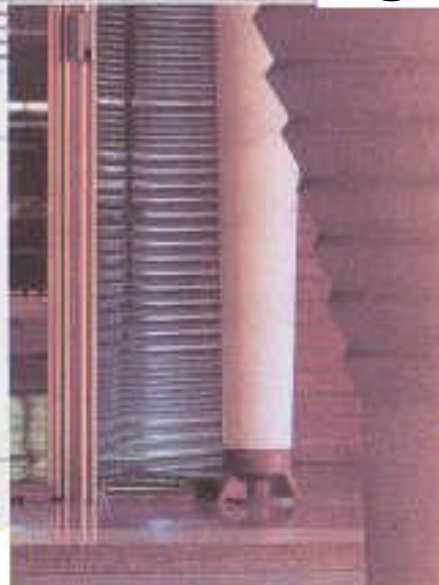
154

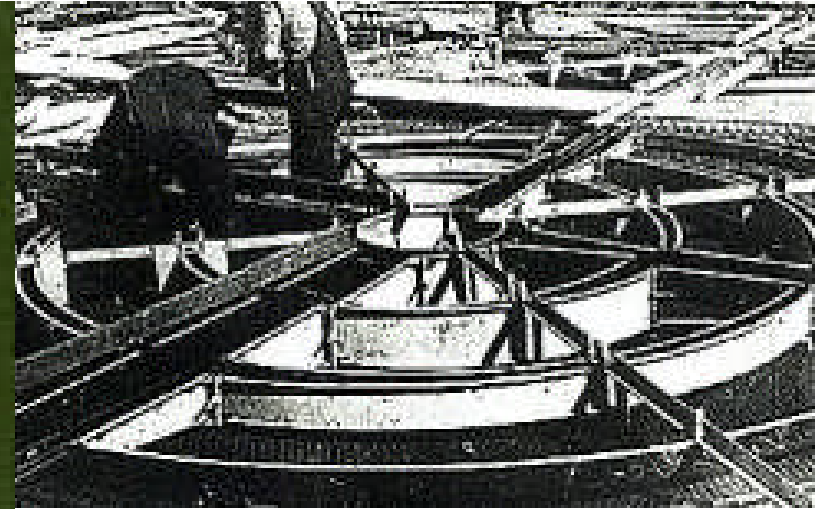
***LIFE magazine, August 12<sup>th</sup> 1946***



**FLW estimated that each column would need to support a twelve-ton uniform load. The *Wisconsin State Industrial Commission* doubted the columns could support five-tons, let alone twelve as called for on the plans. Each column acts as a continuous rigid frame structure hinged**

**at the column foot supporting 400 square-feet of roof load plus additional live loads such as snow. The concrete used cured to a strength of 7K psi.**





**Above: workmen prepare circular metal form for capital of “dendriform” column**

**Left: freshly poured dendriform columns in the *Great Workroom***

# Something of a Sham

***“...Wright’s demonstration, it turns out, was something of a sham. There were three sizes of column in the Johnson Wax building, and the column they mocked up was, at a little more than twenty-one feet, one of the shorter ones. The only real way to test the structure’s stability would have been to test the tallest ones. They were not only a third taller than the one mocked up, but also would have to support both the roof and the weight of the intermediate floors. Their additional height would make the tallest columns more prone to buckle – yet in Wright’s design they would have to bear the heaviest loads, not to mention the additional twisting stresses created by the balcony whose weight they would carry...”***

**RE: excerpt from *The Fellowship***

# Form and Function as One





***“...they remain one of the most remarkable structural designs in twentieth-century architecture. In their unprecedented structural and aesthetic success they were the supreme example of Wright’s dream, ‘Form does not follow function. Rather, form and function are one’...”***

***Jonathan Lipman, Author***

# **The Light of Heaven**



***“...The ‘dotted line’ is an architect’s drawing convention for an edge that’s unseen within a building...a ‘hard line,’ in contrast , is a visible edge, like a roof against the sky...Exactly where does the desert floor end and the foothills begin? It happens so gradually that one can never point to the spot. Wright’s organic theory had always advocated this kind of ambiguity. And his buildings, with occasional dramatic exception, celebrated the blurring of boundaries. The column caps at Johnson Wax, are they of the column or of the roof? Where does the column stop and the roof start?...”***

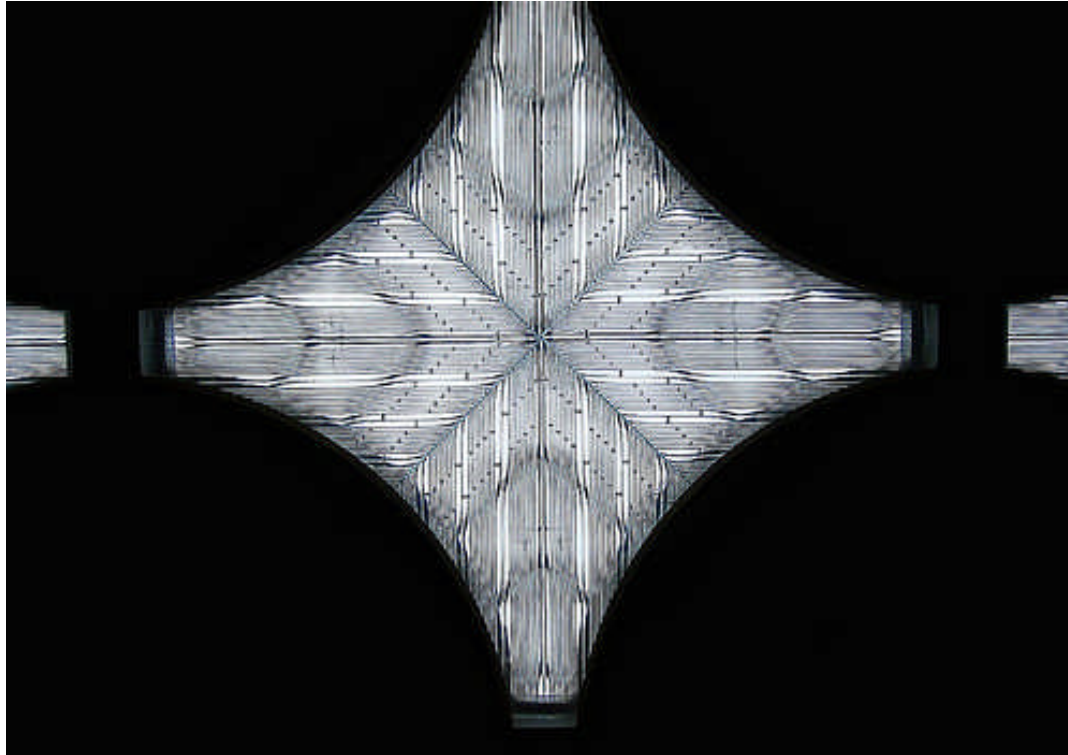
**RE: excerpt from *The Fellowship***



***“...Everybody but Wright seemed to know that the skylights designed for Johnson Wax were going to leak. Hib Johnson certainly thought so. The skylights were unusual in many respects. The building’s roof wasn’t really a roof at all, in the traditional sense. As the columns spread out at their apex, into their elegant circular caps, like checkers pushed together, the space between them was to be filled by four-pointed skylights. The shape of these skylights would certainly be unusual, but that wasn’t the problem...”***

**RE: excerpt from *The Fellowship***

**Above L&R: caption: “Pyrex tubes in Great Workroom skylights”**



***“...Instead of specifying standard skylight construction – typically sheets of glass sealed into metal frames – Wright intended to use a system of glass rods lined up side by side. He had used the same detail for some of the windows in the building with little problem. But this was a skylight; in a pounding rain, even the most careful arrangement of glass rods would inevitably leak. Wright thought he could solve the problem by caulking the rods where they met. But the merest sloppiness in installation, or the expansion or contraction of the rods, or the slightest vibration or settling of the building, would be certain to open up gaps and let water in. And caulking – especially the caulking of Wright’s day – inevitably shrinks with age. Leaks were guaranteed...”***

**RE: excerpt from *The Fellowship***

**Above: view of glass tube skylight from below**



***“...Both Tafel and Peters knew the rods wouldn’t work, and, on several occasions tried to convince Wright to change the design. But he kept insisting that if it worked on the windows it would work on the skylights. Then Tafel actually had the temerity to share his concerns with the contractor, which resulted in a skylight company in Chicago preparing manufacturing drawings for conventional glass units. When Tafel drove back to Taliesin and tried to show them to Wright, the master was so furious at Tafel’s insubordination that he refused even to look at the new idea. Tafel carried the bad news back to Racine, but Hib Johnson instructed the contractor to order the standard skylights anyway. Tafel waited for Johnson to leave the room before calling Wright to alert him to the change. Wright was enraged. Shortly thereafter, Johnson barged in. ‘You snitched! He yelled at Edgar. ‘Get off the premises. You’re fired!’ Tafel packed his things and drove to a nearby pay telephone to call Wright. ‘If he fires you,’ the voice in the receiver declared, ‘he’s fired me.’ On Wright’s orders, Tafel returned to the job. Johnson threw up his hands, and took back not only Edgar Tafel but also Wright’s glass-rod skylights. They leaked...”***

RE: excerpt from *The Fellowship*

Above: caption: “Workman caulking Pyrex tubing, skylight on roof Great Workroom”

**“SCORES OF LEAKS IN GLASS TUBING AND NEW ONES DEVELOPING WITH EVERY CHANGE IN WEATHER AND RECAULKING ONLY TEMPORARILY EFFECTIVE STOP ALSO WOODWORK CONTINUES WARPING STOP SINCE THOSE TWO FAULTS RENDER BUILDING RIDICULOUS AND UNUSABLE MUST HAVE IMMEDIATE PERMANENT SOLUTION.”**

**RE: mid-winter 1938 telegram from SCJ&S General Manager *Jack Ramsey* to FLW (in Arizona for the winter)**

**“ALL REPORTS FROM WILTSHECK AND EDGAR EXTREMELY FAVORABLE HAVE COMPLETE CONFIDENCE IN SUCCESS OF BOTH GLASS WORK AND WOOD WORK CERTAIN MINOR LEAKS AND WARPAGE ARE INEVITABLE BUT GUARANTEE TO OVERCOME ANY THAT APPEAR FAIR PLAY AND GOOD FELLOWSHIP ARE BEST EVEN IN MONEY TROUBLES WE ARE HEADING INTO TREMENDOUS FAVORABLE PUBLICITY WHY THROW IT AWAY EXPECT TO COME EAST ABOUT MARCH FIFTEENTH”**

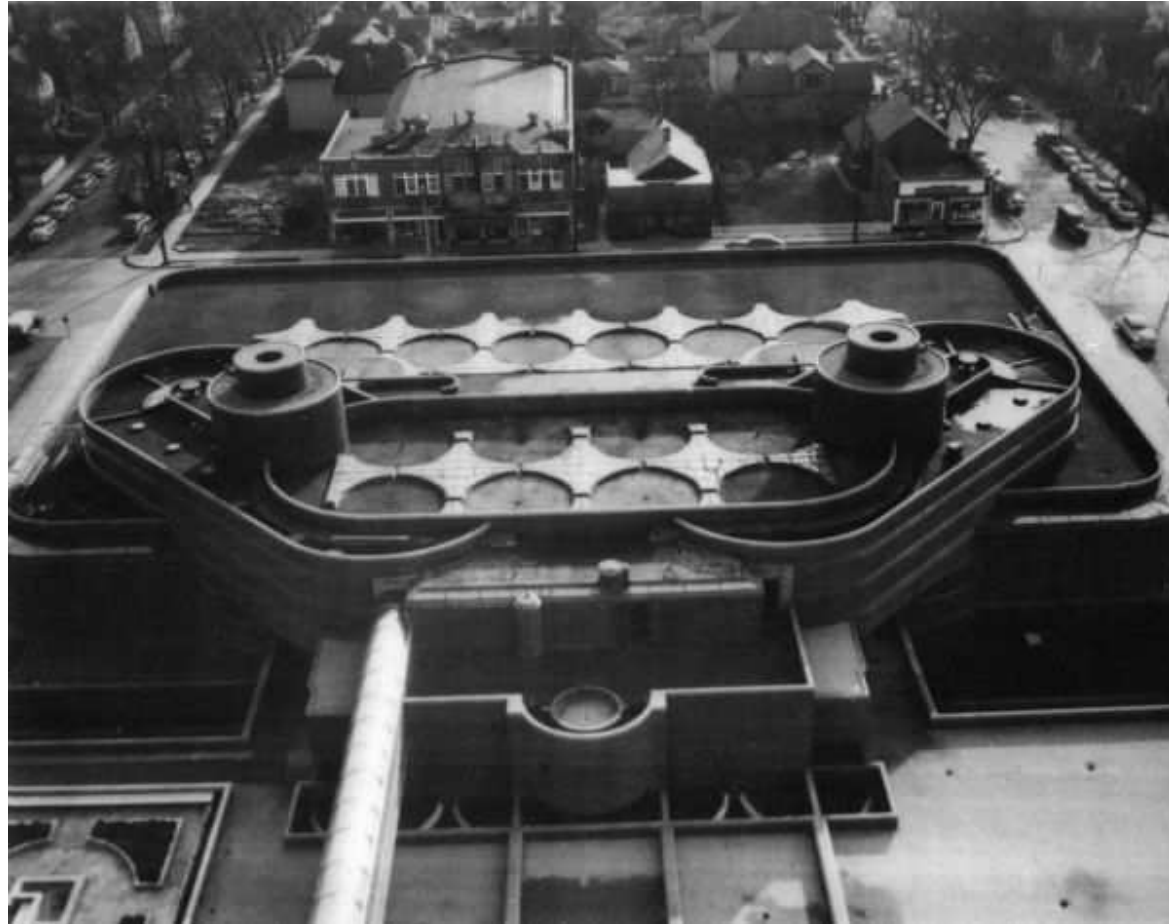
**RE: FLW’s response telegram to Ramsey. At the time, there was no caulking available that would effectively seal the joints between the glass tubes. Having taken a leap-forward in the design of the glass tubes that was ahead of the available technology, FLW would blame technology – not his revolutionary design – for having failed him.**



***“...Over the years, innumerable attempts were made to solve the problem on Wright’s terms, always without success; at last, the company resigned itself to solving the problem by a discreet elimination of its source: the rooftop tubing was covered over by a second roof and artificial lighting was introduced between this roof and the tubes, simulating daylight...”***

**RE: excerpt from *Many Masks: A Life of FLW*. The “second roof” referred to were actually aluminum covers (above) in the diamond shape of the skylights below them (left).**







***“The glass tubes on the roof of the Administration Building leaked so badly that they were replaced by aluminum-frame skylights, which were also sloped to better shed rain and snow, The glass tubes at the ceiling level were later replaced by panels of acrylic tubes (mimicking Wright’s glass tubes) to give maintenance workers better access to the lights above. Metal halide lights, which have a green cast, were installed between the skylights and ceiling panels...”***

***The Journal Times, August 2010***

***Above: caption: “Natural light flows into the building through a skylight made with interconnected glass tubes”***

***Left: caption: “Lily-pad column and skylight above second-floor seating area, which cantilevers out over the main floor”***



***“...Yet the sunlight filtering down through the glass tubes was glorious...apprentice John Lautner took his mother to see what Wright had created at Racine. What they found there was sublime. Flowing around the caps of the fluted lily-pad columns and down their delicate tapering lines, the soft light spread across the office floor below, creating within the voluminous room a feeling of vast yet intimate silence. Lautner’s mother cast her eyes upward and wept...”***

***RE: excerpt from *The Fellowship****



***“...The huge main room is lit not by windows but by a wide horizontal rift of glass tubing at the angle of walls and ceiling and by skylights. It is ventilated through two circular ducts or ‘nostrils’ rising through the building. Radiators have been eliminated by a heating system under the floor slabs...”***

***TIME*** magazine, January 17<sup>th</sup>  
1938

***Left: caption: “This is the famous Corning glass tube ring around the main building”***





**Left: caption: “Elevated view of the Johnson Wax Administration Building taken at dusk with the circumferential bands of glass tubing lit”**

# Part 4

## Doing it Wright

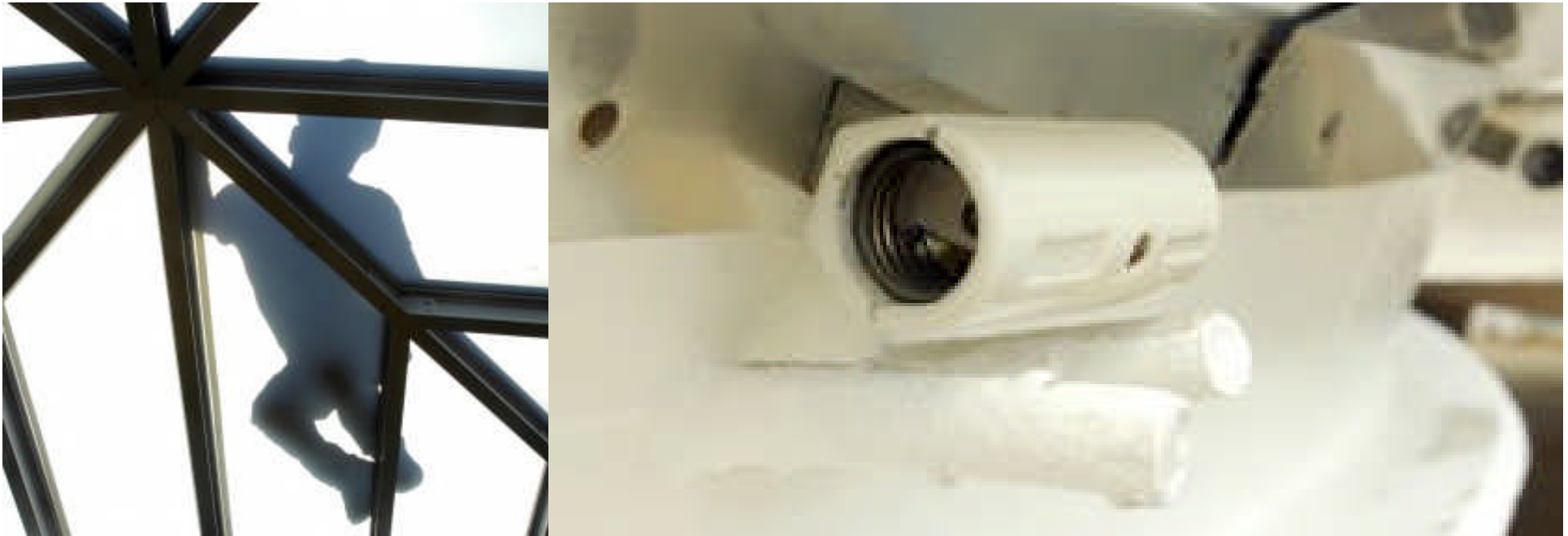
***“...The goal of the current project was simple: ‘Let’s start completely over, and do it right,’ says Tracy Lutterman, construction project manager in Johnson’s Corporate Facilities division. Planning began in 2005. The first restoration was in the lobby, a small area that could serve as a test area for the larger challenge above the Great Workroom. The work was done in 2006-2008. Planning included building mock-ups of the ceiling. New insulated skylights were installed; compact fluorescent bulbs, on timers, were put in the original light fixtures; and new acrylic tubes were installed in panels over the reception area. The area was immediately brighter and visually more pleasing, as the color of the light went from pale green to white. The Great Workroom then looked like ‘a cave’ in contrast to the lobby, says Lutterman. People in the Great Workroom asked, ‘When are you going to do ours?’ While workmen on the roof replace brick parapets, install copper flashing - the first flashing ever on the roof - and install the new skylights, workmen atop the Great Workroom are painting and preparing the area for installation of the new lights and panels of acrylic tubing...”***

***The Journal Times, August 2010***





**Above & Left: caption: “New skylights were installed above the lobby of the SC Johnson Administration Building in 2007. Wright’s SC Johnson Research Tower, which opened in 1950 and closed in 1981, is in the background.”**



***“...The Great Workroom in the center of the building has been likened to a forest with a canopy of trees, formed by the dramatic slender dendriform or mushroom-shaped columns. Today there is a different forest in the room, a maze of iron scaffolding which surrounds the columns. While aficionados of Wright’s work sometimes minimize such shortcomings as leaky roofs in his designs, SC Johnson is to fix the problem. A major project is to repair the leaks, as well as improve the quality of light in the Great Workroom and improve the building's energy efficiency...”***

***The Journal Times, August 2010***

**Left: caption: “A workman is silhouetted, as he helps install one of the new skylights on the roof of the SC Johnson Administration Building, July 2010”**

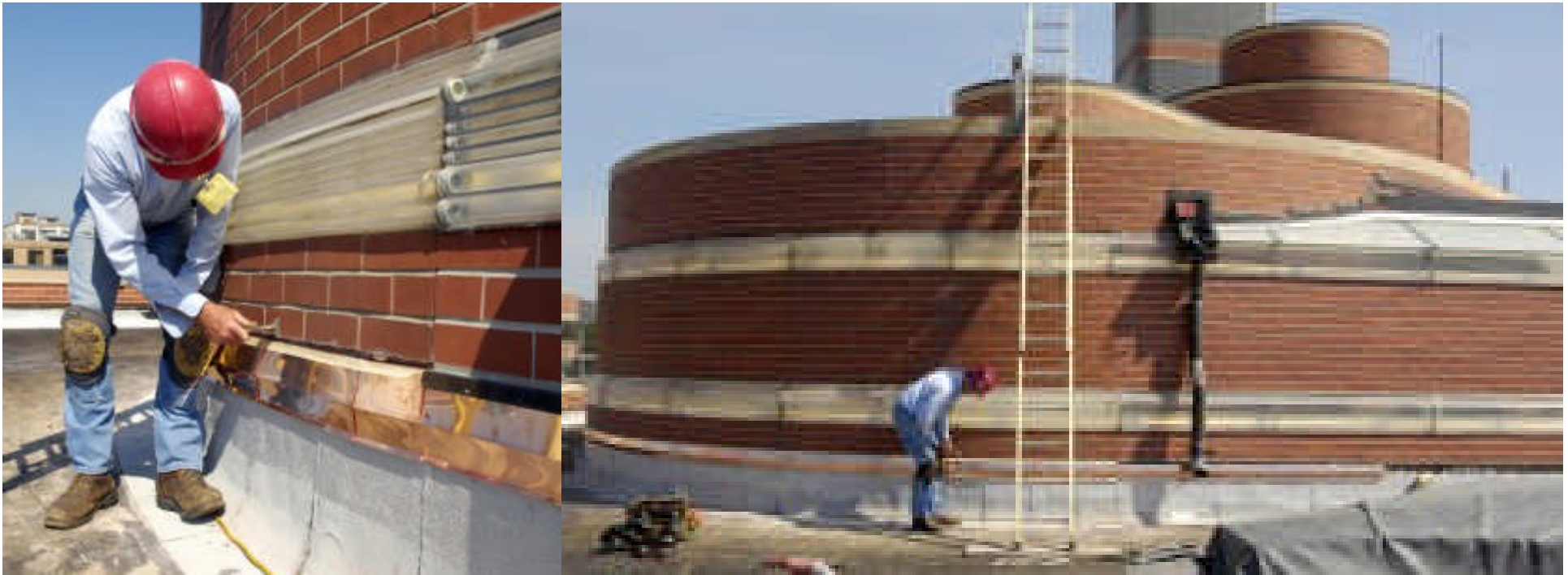
**Right: caption: “Energy-efficient compact fluorescent bulbs will be put in the original light sockets, above the dendriform columns in the Great Workroom of the SC Johnson Administration Building”**



***“...The scaffolding in the Great Workroom leads to a small room that has been built for the repair workers, just below the ceiling. It places the workers at the top of the dendriform columns. The floor consists of two layers of plywood, with insulation in between, to deaden construction noise for the office workers below. Some workers move around on little carts they sit on, because it is only four feet between the tops of the columns and the floor. The room is 6 feet high below the skylights, between the columns. It is anticipated the work will be done this fall...”***  
***The Journal Times, August 2010***

**Left: caption: “A small workroom, with heights between 4 and 6 feet, is built atop a forest of scaffolding in the Great Workroom in the SC Johnson Administration Building, July 2010. Roof restoration work includes new lighting which is more pleasing and energy efficient.”**

**Right: caption: “There is as little as 4-feet of space to work in in the construction room at the top of the dendriform columns in the Great Workroom of the SC Johnson Admin-  
istration Building”**



***“...The building’s streamlined design is accented by Wright’s 47 miles of Pyrex-glass tube clerestory windows, which are in bands that wrap around the building at ceiling height. Wright used the same glass tubes to fill the Great Workroom with natural light. There were two layers of glass tubes, one in roof skylights that encircle the top of each of the dendri-form columns, and one below, at the ceiling. Artificial lighting was added between the layers, after Wright was asked how well workers would see on cloudy days. He suggested that they use desk lamps, but was overruled. There was no effective way to seal the joints of the glass tubes at the time. Silicone caulk was not invented by Dow until the 1950s (in an effort to curb leaking of the glass tube windows in Wright’s Research Tower, which opened in 1950)...”***

***The Journal Times, August 2010***

***Above L&R: caption: “Copper flashing being installed on the roof of the SC Johnson Administration Building, July 2010. The work is designed to not only finally stop the leaking, but also to im-***



**I Want to Dance!**



***“...When they arrived at the building, Wright raced ahead. The portly Woolcott finally caught up with him inside the grand atrium. After craning his head up for a long look, the writer began to wave his arms about. ‘Frank, I want to dance! I want to dance!’ ‘Alex,’ Wright proclaimed, ‘this is education! This is culture.’...Just before construction on Johnson Wax began, Wright had predicted in a press statement that the building would be ‘in no way inferior to the ancient cathedral.’ Wright was seizing the mantle of Hugo’s prophesied genius, the man who would recapture architecture’s place at the top of the cultural hierarchy...”***

**RE: excerpt from *The Fellowship***

**Left: FLW (right) with his friend Alexander Woolcott (left) – a writer for *New Yorker* magazine, at *Taliesin* (1938)**

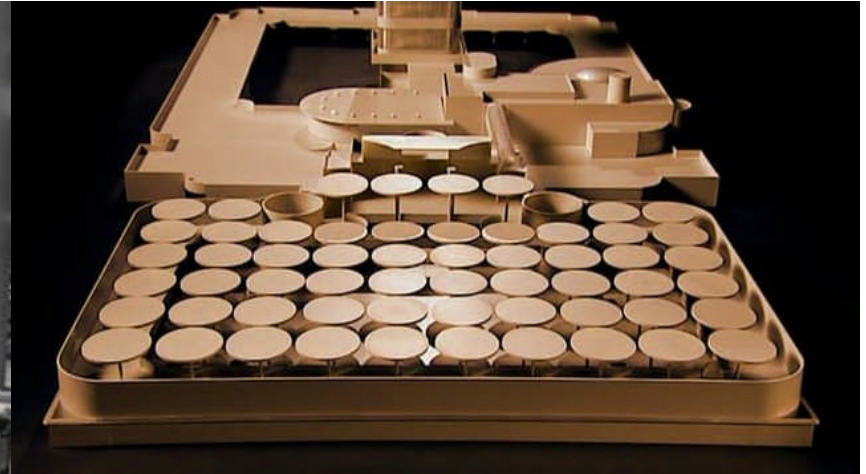
# **The Greatest Room in the United States**





***“Pillars arranged in a unique pattern developed by Wright provide open areas in the Johnson Wax Company’s administration offices in Racine, Wis. Wright cites this building as proof that an architect can obtain spaciousness in a building without making it appear awkward”***

**RE: caption on back of an International Newsreel photograph of the Great Workroom, dated December 27<sup>th</sup> 1953**



***“The greatest room in the United States today”***

**Ken Burns, Documentary Film Maker**

**Above: model with roof removed over the Great Workroom showing “forest of columns”**

**Top Left: caption: “Clerks shown working in the Great Workroom of SC Johnson’s Frank Lloyd Wright-designed Administration Building, ca. 1940s”**

**Bottom Left: caption: “The Great Workroom”**



***“...He was delighted when LIFE magazine described the interior of the building as ‘like a woman swimming naked in a stream,’ and he himself hit upon a robust sexual analogue, saying that the Johnson building was the feminine descendant of the masculine Larkin building...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

# **The First Administration Building**

***“...Wright managed to enrapture a particular type of rich man - Great Lakes mercantile magnates. Darwin Martin, a mail-order-soap chief executive from Buffalo, commissioned houses and offices and lent him tens of thousands of dollars...”***

***TIME* magazine, October 5<sup>th</sup> 1992**



***“Through Martin, Wright got the job of designing the Larkin Company administration building, the first entirely air-conditioned modern office building on record...It is block-like and extremely simple in its forms, and has very little ornamentation...the Larkin building was decisively vertical...Indeed, it was the first consciously architectural expression of the kind of American structure which Europeans were beginning to discover to their delight: the great clusters of grain silos and similar industrial monuments that men like Corbu and Gropius found so exciting in the early 1920s...”***

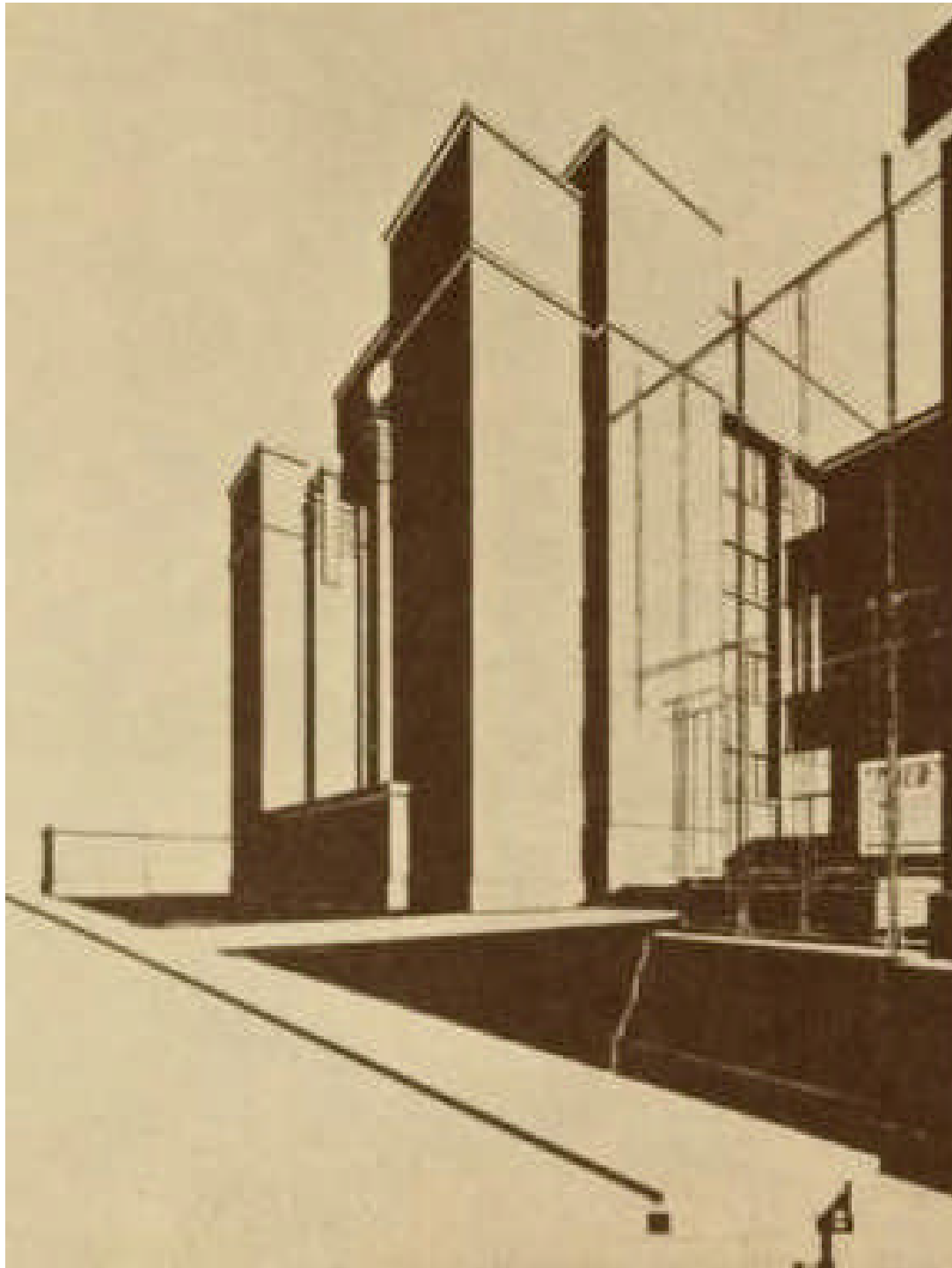
***Peter Blake, Author***

## THE LARKIN FACTORIES, BUFFALO, N. Y.

OVER FIFTY ACRES OF FLOOR SPACE. VISITORS WELCOME

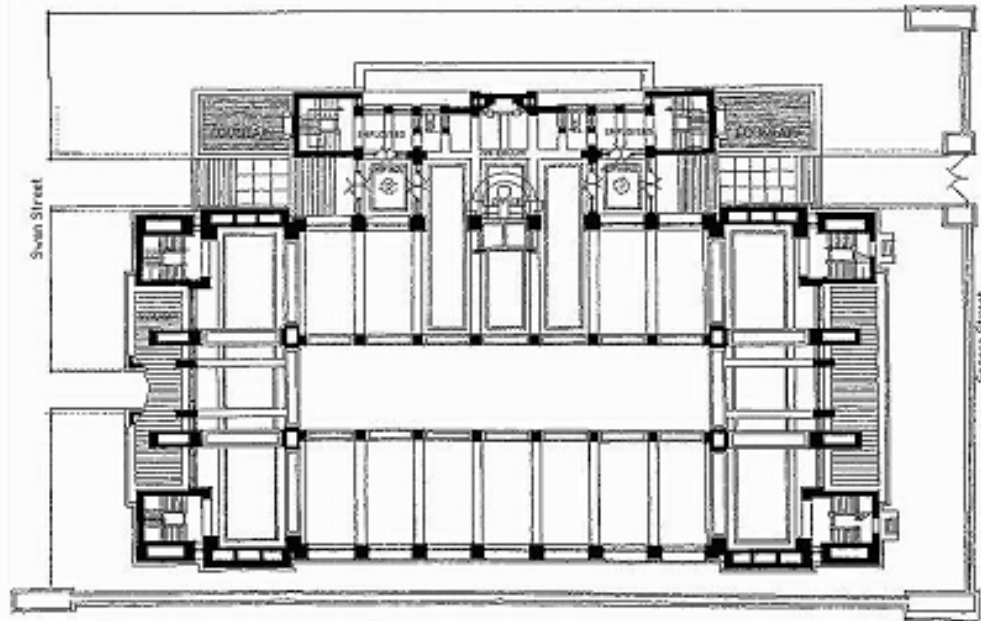


The Larkin Co. are the World's Largest Manufacturers of Soaps and Toilet Preparations and are important Food Specialists. The entire output of the Larkin Factories goes direct from Factory to Family, thus saving for customers the expenses and profits of wholesalers and retailers.

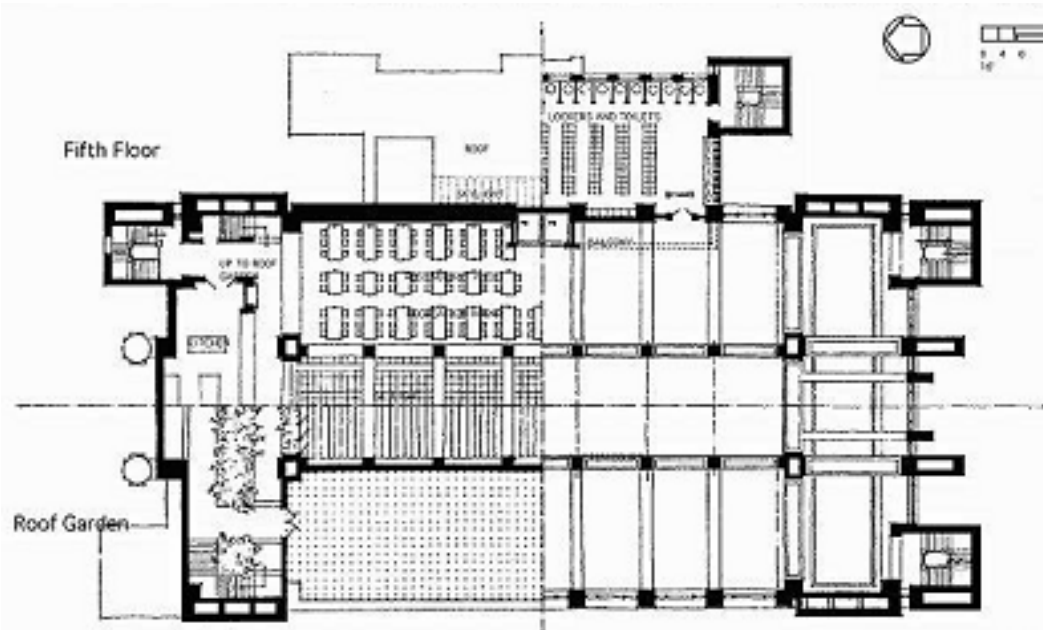


**Left: caption: “1905-06. The Larkin Building, Buffalo, New York. A fireproof, air-conditioned building furnished throughout with steel. First in many ways – all-glass doors, double glass windows, complete air conditioning, especially designed steel filing systems, steel desk furniture and seats, telephones and lighting system especially designed in steel, etc. Building destroyed in 1950.” Excerpt from catalog of an exhibition held October 22nd - December 13th 1953 at the *Solomon R. Guggenheim Museum*, NYC entitled: “Sixty Years of Living Arch-itecture: The Work of Frank Lloyd Wright.”**





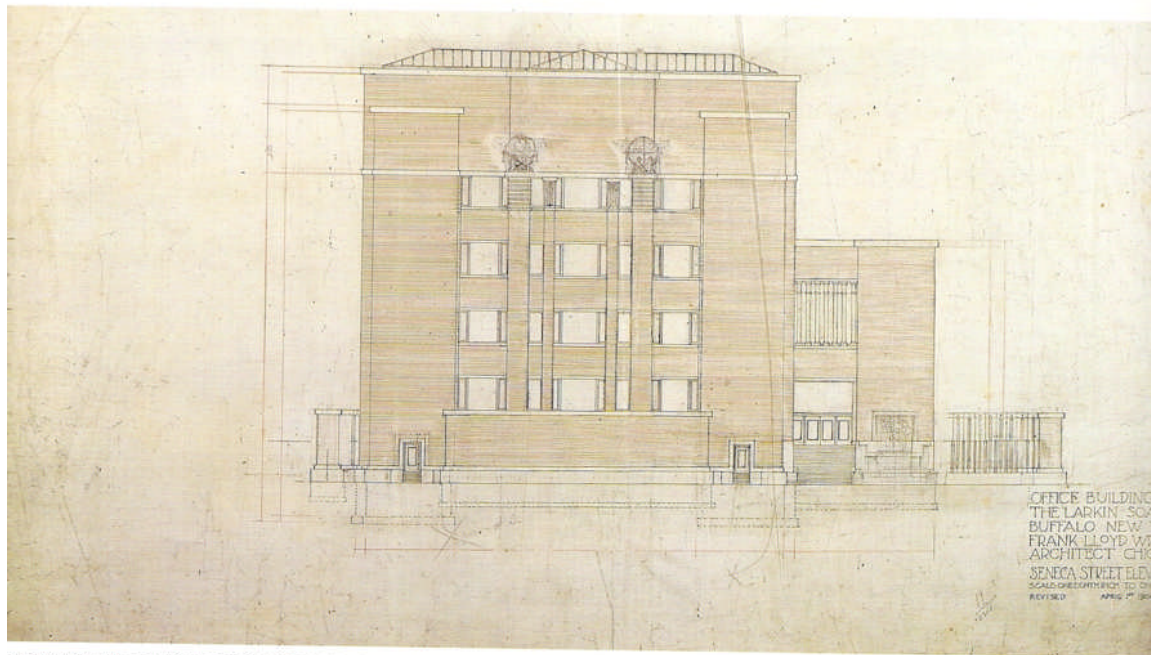
Main Level Plan



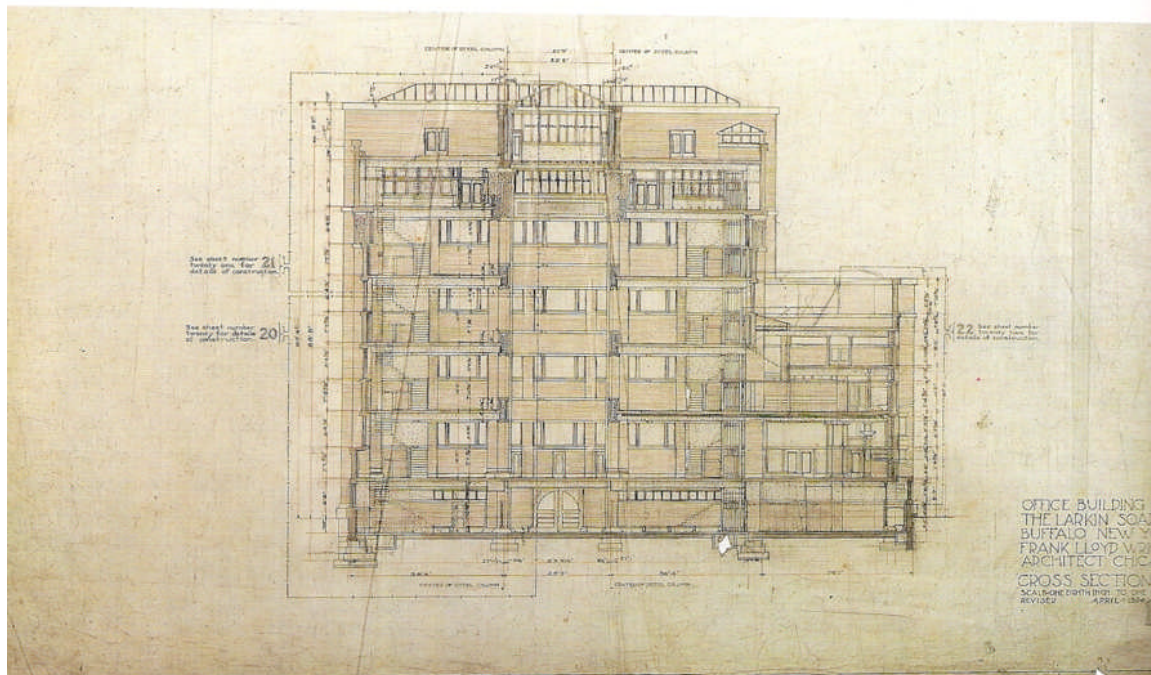
Fifth Floor Plan

***“I think I first consciously began to try to beat the box in the Larkin building. I found a natural opening to the liberation I sought when (after a great struggle) I finally pushed the staircase towers out from the corners of the main building, made them into free-standing, individual features.”***

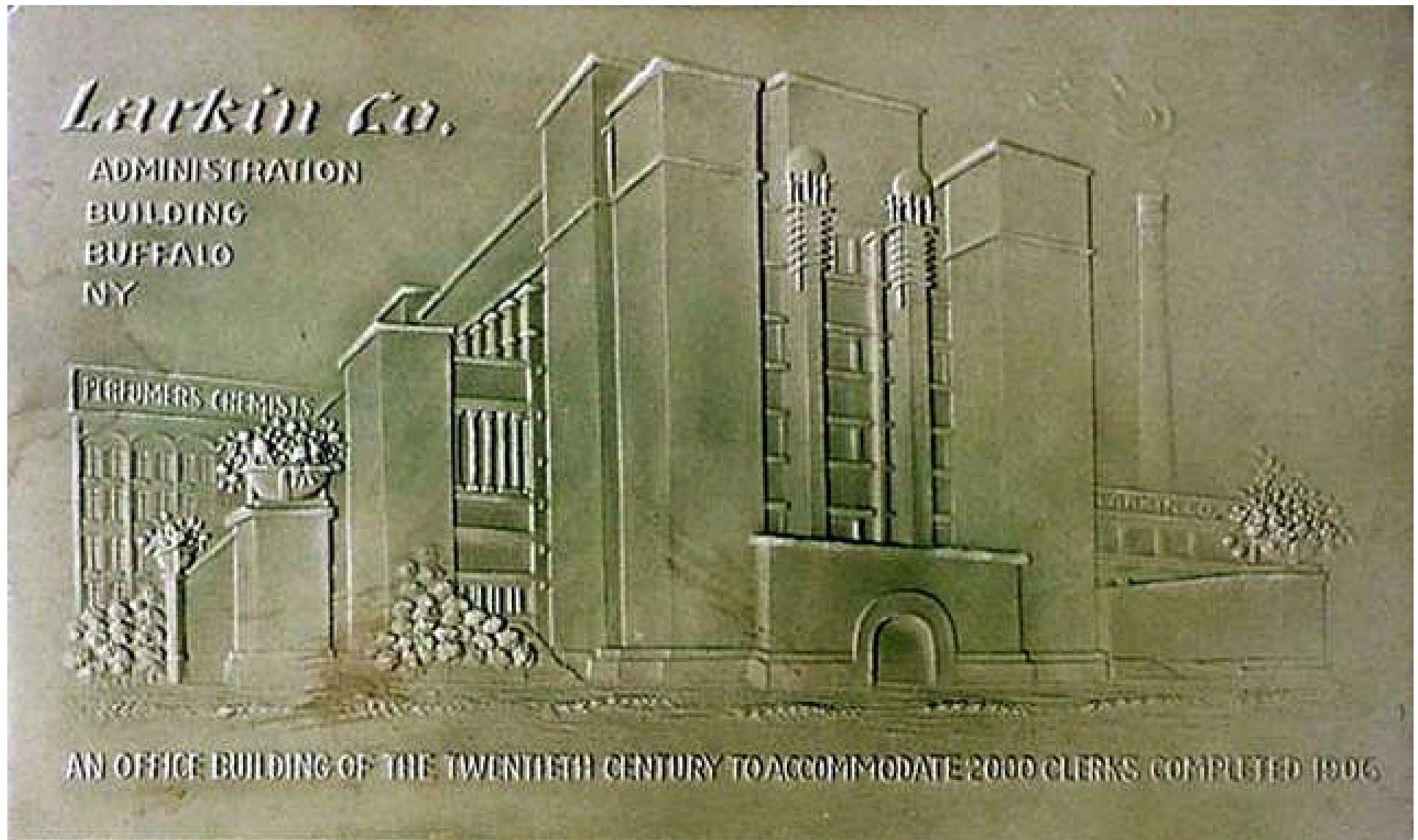
***Frank Lloyd Wright***



NECA STREET ELEVATION. INK ON LINEN, 25 x 37". FLLW FDN#0403.076.



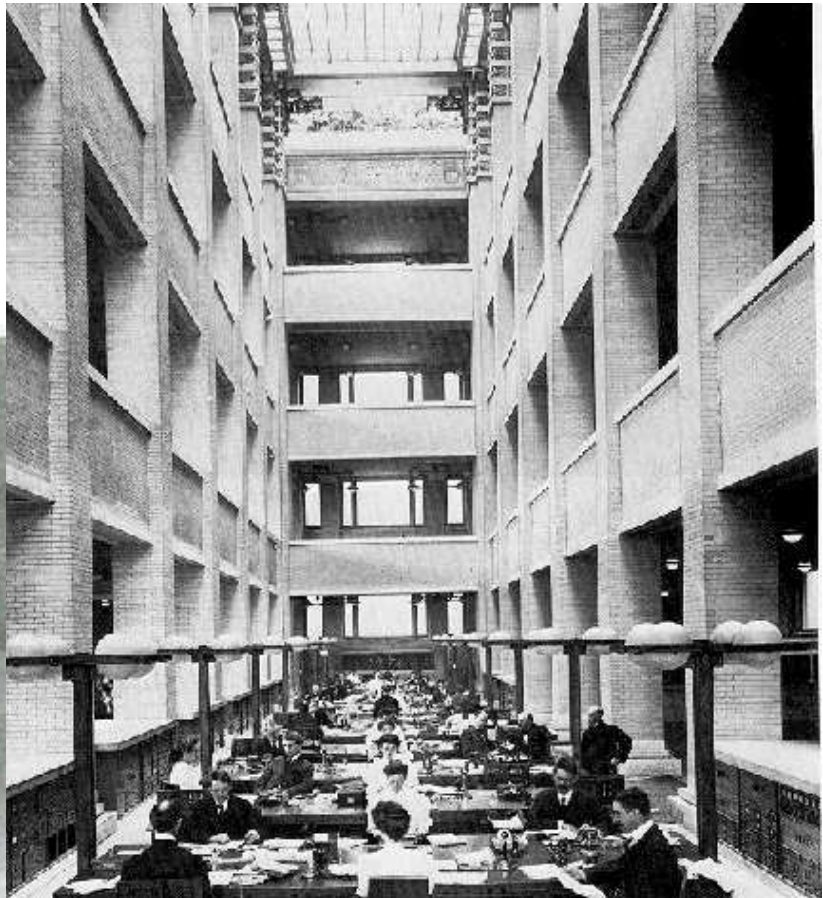
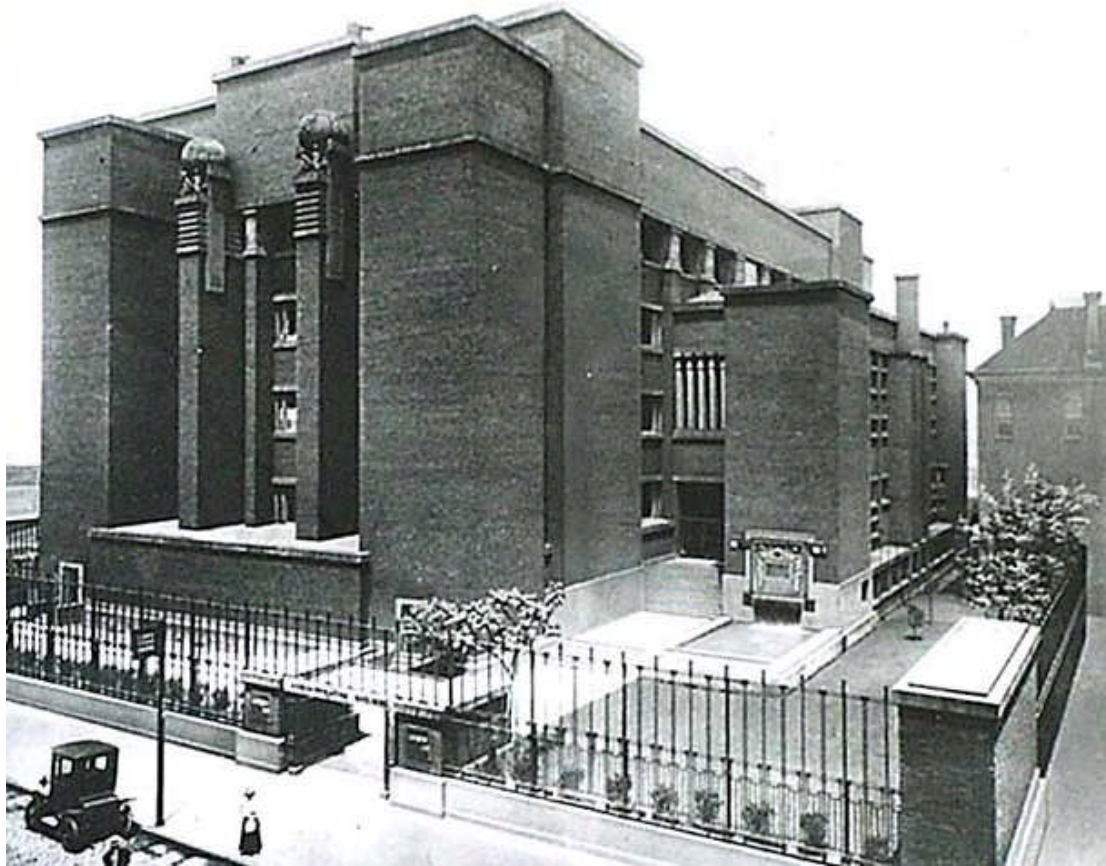
CROSS SECTION. INK ON LINEN, 25 x 37". FLLW FDN#0403.078.



***“...By 1909 Wright was 40, and at the peak of his career. His Larkin Building in Buffalo had pioneered air conditioning, introduced the first metal-bound plate-glass doors, the first all-steel office furniture...”*** 194  
***TIME*** magazine, April 20<sup>th</sup> 1959

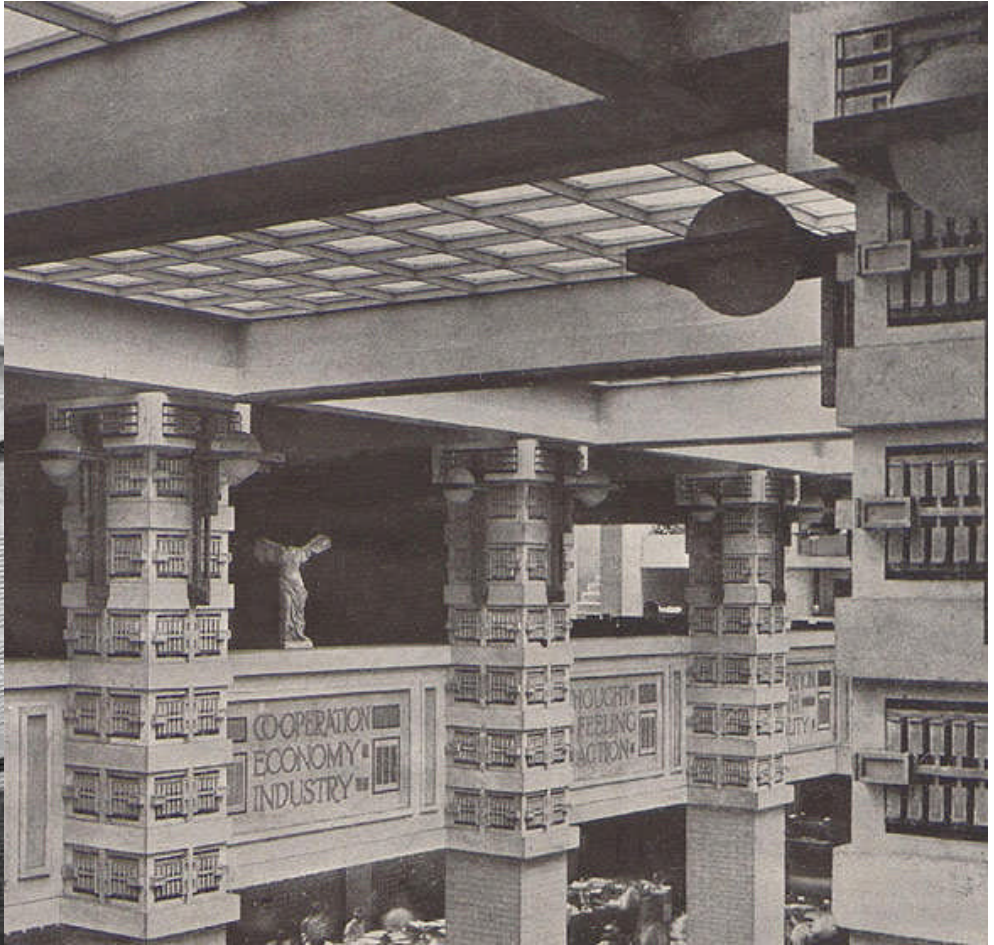
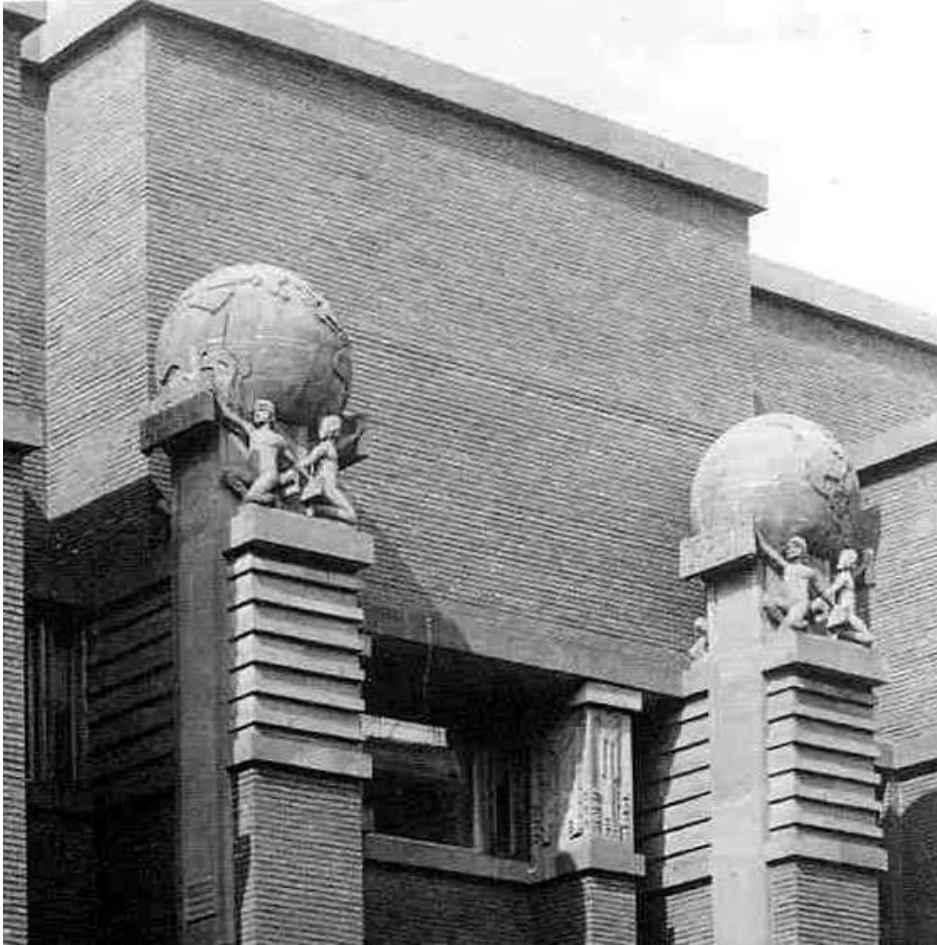
***“Vertical brick piers and wall planes...made possible the splendid integration of space, structure, and massing which Wright achieved in the Larkin Company Office Building at Buffalo, of 1904. In space the building was conceived of as facing inward, with a glass-roofed central hall rising the entire height and with horizontal office floors woven around it. The pattern of piers and walls which makes these spaces is clearly unified in both plan and section. The vertical piers rise uninterruptedly inside, and the horizontal planes of the office floors are kept back from their edges, so that they seem, once more, to be woven through them. Stairways are grouped in vertical shells of wall at the four corners of the building, which then reveals all these articulations upon its exterior: the big piers, the smaller ones between them, the horizontal spandrels and the corner towers, expressed purely as free-standing space containers at the edges of the main, interwoven mass...Entrance was at the side, under a portal set back between the main mass and the thin, subsidiary office block, from the end of which a metallic sheet of water sprang. Here Wright achieved one of the first of his monumental spatial sequences. The exterior is challenging and rather forbidding, but it tells us that something is contained inside. Entrance to it must be sought. It is finally found in the dark place behind the fountain. The block is thus penetrated surreptitiously as it were, and essentially from below. The advance is from outer light toward interior dimness beyond which, to the left, somewhat more light could be perceived filtering down between the central piers. These then rise up toward their rich capitals in a climactic spatial expansion, lighted from above as in Roman buildings and creating, as those also did, an idealized interior space cut off from the world outside. At the same time, the stiff verticals of the interior of the Larkin Building continued to recall the challenge of the exterior, so that the occupant could not feel himself to be simply inside a shell. The sequence was an emotional one and a progress: challenge, bafflement, compression, search, and finally, surprise, release, transformation, and recall...”***

**Vincent Scully. Jr., Architectural Historian**



***“It is interesting that I, an architect supposed to be concerned with the aesthetic sense of the building, should have invented the hung wall for the w.c. (easier to clean under), and adopted many other innovations like the glass door, steel furniture, air-conditioning and radiant or ‘gravity heat.’ Nearly every technological innovation used today was suggested in the Larkin Building in 1904.”***

***Frank Lloyd Wright***





***“I have been black and blue in some spot, somewhere, almost all my life from too intimate contacts with my own furniture.”***

***Frank Lloyd Wright***

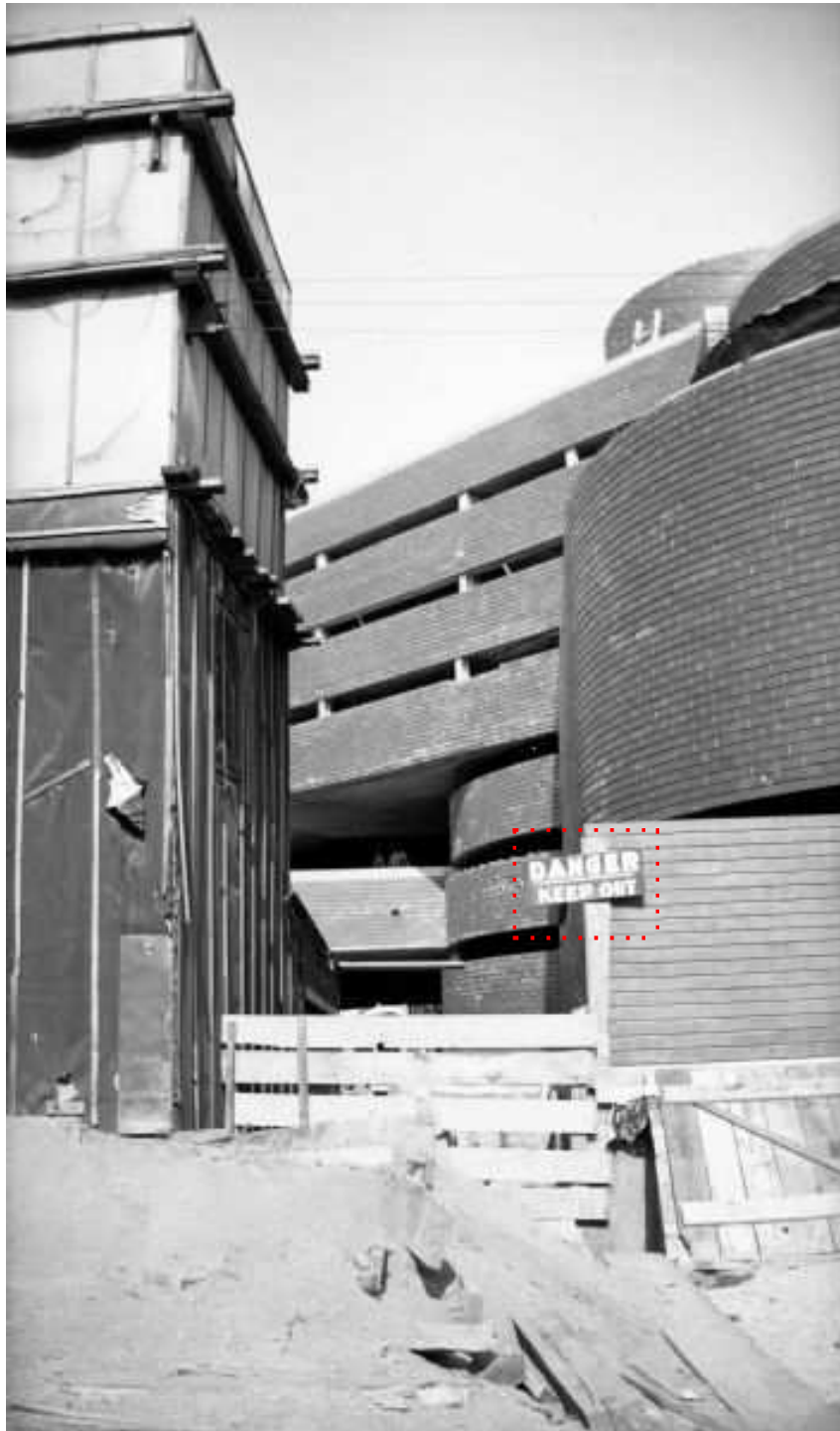
**Left: FLW designed chair for the *Larkin Administration Building*. Metal desks and cabinets for the revolutionary Larkin Building were specially designed by FLW. Since it was a mail-order company, efficiency in the handling of paper was a priority. Some desk chairs were hinged, without legs, to make cleaning easier. Others were on a pedestal with rollers and an adjustable back. FLW wanted the office furniture (made by *Van Dorn Ironworks*) to emphasize the “rectilinear grammar” of the building.**







# **The Public Fancy**



***“...If Wright is a poet in his domestic architecture, he is a thundering virtuoso in his public buildings. They have strained all conventional rules of construction, maddened conservative contractors and building code authorities and hit the public fancy like bombshells. The publicity value of the famous S.C. Johnson Wax Company administration building in Racine (which attracts hordes of curious tourists) has far outweighed its value purely as a building. Fellow architects have often decried this feature of his work as rank sensationalism. But Wright could easily cite in his defense that publicity has been a legitimate goal of architectural splendor at least since Michelangelo designed St. Peter’s in Rome...”***

***LIFE magazine, August 12<sup>th</sup> 1946***

***Left: caption: “Exterior of the Johnson Wax Building during construction. The curved wall near the entrance is on the right. A construction shack is at the left. A sign posted on the construction fence states ‘Danger, Keep Out.’” After the building opened, H.F. Johnson claimed worker productivity increased by 25%, amortizing within the first few months all cost overruns.***



***“There in the Johnson Building you catch no sense of enclosure whatever at any angle, top or sides...Interior space comes free, you are not aware of any boxing in at all. Restricted space simply is not there. Right there where you’ve always experienced this interior constriction you take a look at the sky!”***

***Frank Lloyd Wright***



# Signing the Building



***“...Wright’s mentor viewed the vines and flowers with which he covered his building’s surfaces – the ornamentation work for which he had first recruited young Wright – as feminine forces latent within the masculine self. In his design explor-ations, Sullivan had derived the feminine flower from the masculine, rational square, the shape that Wright later made his own emblem...”***

**RE: excerpt from *The Fellowship*. A FLW “signature tile” appears on a number of Wright-designed buildings. FLW was a dinner guest at the *Haber* home in San Francisco when he asked Mrs. Haber if she would make him *Cherokee Red* tiles with his signature incised in the tile to “sign” his buildings. Mrs. Haber was enthusiastic about the idea so FLW drew the simple design on paper for her. The molds and rough tiles were carefully cleaned and sanded before being baked and glazed. Mrs. Haber was a perfectionist thus, only first-rate tiles were selected. About twenty of the individually unique tiles were sent to FLW who forwarded them to favored clients/buildings. Both the SCJ&S Administration Bldg. and Research Tower received the famous tile (placed near the building/s entry).**





## **Part 5**

# **The Customer is Always Wright**

**It's All Right**

***“It’s all right boys, we got the job!”***

***Frank Lloyd Wright***

**RE: FLW’s announcement upon receiving a check from SCJ&S for \$1K. The money was for a preliminary proposal, not the commission itself, that would require approval of the proposed design. Nevertheless, it was good news to the financially strapped *Taliesin Fellowship*.**

FIFTEEN CENTS

# TIME

The Weekly Newsmagazine



Volume XXXI

FRANK LLOYD WRIGHT  
His life would be remarkable and exciting.  
(See 344)

Number 1

***“...The Johnson Building was Wright’s next major commission. He was eager to get it, and it marked a major turning point for him. Wright was nearing seventy, and after more than five years when he had no significant commissions, the publicity provoked by ‘Fallingwater’ and the Johnson Building reminded people that Frank Lloyd Wright was not merely an important figure in the history of architecture...”***

***Stewart Macaulay, Author***

***Left: FLW on the January 17<sup>th</sup> 1938 cover of TIME magazine (note “Fallingwater” in portrait background)***

# **Personal Improvidence**



***“...The history of the Johnson Building illustrates perfectly one of the traits in Frank Lloyd Wright which lesser architects have played against him for all it is worth. The architect’s original estimate of its cost was \$250,000. By mutual agreement this was later raised to \$350,000. It is now apparent that the final cost of the building will be nearer \$450,000. This sort of thing has happened often in Wright’s career, and the hostile argument runs that few businessmen are as rich as Mr. Johnson and as able to stand the gaff of perfectionism at like cost. Against this argument the fact stands that, out of more than 150 clients, only three or four have been seriously dissatisfied over money or anything else. Both in the early Oak Park period and later, Wright has in general attracted clients who had enough money to be adventurous but not enough to be stuffy. His personal improvidence is legendary...”***

***TIME*** magazine, January 17<sup>th</sup> 1938

***Left:*** caption: “Frank Lloyd Wright shown in the Administration Building with HF Johnson, Jr. during a visit to Racine, 1950s.”

**Hib**



***“...Herbert Johnson, informally known as Hib (he was christened Hibbard but took his father’s name, Herbert, to ensure certain corporate as well as familial continuity), was the third generation of his family to run a company that is often described in the press as one of the largest privately held companies in America...Hib Johnson, a year older than the century, had been president of the company since the death of his father, in 1928...A amateur artist and collector of art...Johnson had a respect for the profession of architecture, a willingness to experiment, and a hunger for intellectual companionship beyond what he had found available to him in the course of his business life...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

**Left: Hib Johnson with FLW**



*Take a tip from  
millions of women!*



Here's why more women use Glo-Coat than any other floor polish...

*"It gives us exactly* the things we want in a floor polish... Lustrous Beauty and Cleanliness and Protection!" That, in a nutshell, is why millions of wives and mothers prefer Glo-Coat.

*So easy, too.* You simply apply and let dry. No rubbing or buffing needed. As Glo-Coat dries (in 20 minutes), it shines itself, without streaks or dull spots. Spilled things wipe up without leaving a blemish. Glo-Coated floors go on looking their Sunday best week after week.

*Experience shows* this famous wax polish adds greatly to the life of linoleum. Glo-Coat's tough, transparent film protects surfaces from wear caused by dirt, friction and moisture. No wonder linoleum makers themselves strongly recommend this kind of care.

*You'll save* yourself hours of work, and save your floors, if you use the easy Glo-Coat method... as so many other women do.

**New! DRAX For Clothes and Fabrics**

Trademark Reg. U. S. Pat. Off.  
Johnson's DRAX is a protective rinse for clothes and fabrics that will make them resist dirt, shed water, keep fresh longer! 1. Look for the DRAX tag on garments you buy. 2. Many laundries and dry cleaners can give you DRAX service.



Tuesday Night is Radio's  
Big Night! Tune in  
Fibber McGee and Molly, NBC.

*Five Famous Johnson Polishes:*

*Self-Polishing Glo-Coat, Paste Wax, Liquid Wax, Cream Wax, Carnu for cars*

© S. C. Johnson & Son, Inc., Racine, Wis., 1940

**"...What made it all possible was a substance called Glo-Coat. Four years earlier, Johnson Wax was the first to come up with a new product idea – self-polishing floor wax. Fighting for survival during the Depression, the company's president, Herbert Johnson, decided on a daring marketing scheme. Without any orders, he sent a carton of Glo-Coat to each of his 90,000 dealers. It worked. By 1936, with the new wax a nationwide success, the company hired a local Racine architect, J. Mandor Matson, to design a new building. Matson's plans included a modernist entrance flanked by bas-reliefs of a woman waxing a floor, a boy waxing a table, and a man painting some mechanical object. Johnson didn't like the bas-reliefs and went looking for a sculptor. When he showed the drawings to an art director in their Chicago-based public relations firm, the man told him he needed an architect, not a sculptor. He suggested they hire Frank Lloyd Wright..."**

**RE: excerpt from *The Fellowship*  
Left: ca. 1930s ad for Glo-Coat**

***“...The company needed a new administration building. It hired a local architect named Matson who offered a traditional design. Jack Ramsey (general manager of Johnson) was dissatisfied. Several people suggested Frank Lloyd Wright. Ramsey and Bill Connolly, the Advertising Manager, went to Taliesin to meet Wright on July 17, 1936. Ramsey knew Wright’s reputation as an architect from Ramsey’s experience in Europe, but he also knew Wright’s negative reputation in Wisconsin. People there thought about the scandals related to Wright’s domestic situation, how seldom Wright paid bills on time, his unconventional houses, and the cost of his work. The commission could be a great opportunity for Wright, after having so little work for a number of years. Wright was at his most persuasive, and Ramsey was impressed. He wrote a memorandum to Hibbard Johnson who was at his cottage in Northern Wisconsin. Ramsey’s memo strongly recommended that Johnson meet Wright. A Frank Lloyd Wright building became Ramsey’s cause within the company. In effect, he committed his reputation to a project by the controversial architect...”***

***Stewart Macaulay, Author***



***“...While people have read bits and pieces about the Matson building, virtually no one alive knows what it looked like. Now, thanks to Edgar Tafel, the Wright apprentice who supervised the construction of the landmark Administration Building, there is a glimpse of what might have been built instead of the Wright building at 1525 Howe Street. Tafel, 90, drew a copy of one of Matson’s proposals for the Johnson building from memory in 1995. Floor plans and other blueprints in the Johnson company archives add to the Tafel drawing as one tries to surmise the details of the Matson design. The Johnson archives seem to show plans for three versions, two from 1935, another ‘Drawn J.M.M. Mar. 16. 1936.’ The first 1935 plan was simply a proposal to remodel an existing building, while the other two plans were for a completely new building. The second 1935 version is bolder than the 1936 one, and seems to be the one Tafel remembers. Though Tafel’s drawing is dated 1936, it seems to be of the 1935 Matson design for a new building. There is no ‘elevation’ or architect’s rendering of what the front of the completely new building looked like in the archives, so Tafel’s drawing is the only guide to the design other than the blueprints. Matson’s own papers were apparently destroyed in a fire years ago...”***

***The Journal Times, May 12<sup>th</sup> 2002***

***Left: architect J. Mandor Matson***

***“...Building progresses well, Tafel making minor decisions like a master...”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

**RE: FLW made *Edgar Tafel* - an inexperienced but loyal, able and intelligent *Taliesin Fellowship* apprentice the clerk-of-the-works for the *Johnson Wax Administration Building* project, much to the appreciation of his client. The building was scheduled to be completed in a year, instead it took three. Including furnishings, FLW had predicted the cost to be \$250K complete. In the end, it was closer to \$3 million. However, in its first year of operation the building received about \$5 million worth of free publicity. Being a prosperous (even in the depression) family-owned business (without stockholders to answer to), SCJ&S was able to amortize the spiraling costs, but it was a bitter pill to swallow, nevertheless.**



***“New York City architect Edgar Tafel, an original Taliesin fellow credited with saving some of Frank Lloyd Wright’s most important works, has died. He was 98...He was the last surviving member of the original Taliesin fellows, a community of young apprentice architects established in 1932 at Wright’s home and school in Spring Green, Wis...He had a hand in two of Wright’s most enduring structures: Fallingwater on Bear Run creek in southwest Pennsylvania and the Johnson Wax Building in Racine...”***

***Associated Press, January 25<sup>th</sup> 2011***

**Left: caption: “Edgar Tafel at his drafting board in F.L. Wright’s Taliesin Fellowship”**

**Right: caption: “Edgar Tafel poses at the Administration Building in Racine in 2002. Tafel died Jan. 18 at his home in New York. He was 98.”**

***“...Somehow, in the midst of it all, Tafel was able to squeeze in a side project...Wright’s policy in such situations – perhaps inspired by his own memories of how Sullivan had fired him for moonlighting – was to allow apprentices to take on projects of their own as long as they were formally brought into the Fellowship and Wright got a generous share of the fees. To this Tafel happily agreed. Tafel’s work on the residence was good – too good...Sometime after the Alberts moved in, Wright and Wes Peters drove in to inspect the building. While they stood talking, a friend of the Albert family walked over and shared with them ‘how nice the house was that Edgar Tafel designed.’ It was beautiful, functional – and, he added, ‘it didn’t leak.’ It was a sore point: Leaking roofs had become almost a signature for Wright...Back in Spring Green, he called a meeting of the entire Fellowship and announced that apprentices would no longer be allowed to take on their own projects. ‘From now on,’ he announced, ‘there will be one prima donna in our organization. And that is me’...”***

**RE: excerpt from *The Fellowship***

# **Eliminate the Drab**

***“...Matson was a Norwegian-born architect who left behind a significant body of public buildings in Racine when he died in May 1963...The Johnson family had first hired Matson in 1924, and then in 1934, to remodel the family home at 1737 Wisconsin Ave. The first Matson blueprints are labeled ‘Plans to remodel Red Brick Office and add third story.’ The plans to remodel the building, possibly the Johnson building now known as Building 6, show decorative touches like an Art Deco or Moderne entrance added to the plain facade. The building was just west of the present building, near where the company’s famous globe now stands...Johnson enjoyed drawing, and wanted the new building to ‘eliminate the drabness and dullness we so often find in office buildings.’ In the end, Matson gave Johnson a building that was as drab and dull as the Wright design was challenging, exciting and innovative. In Tafel’s words, Matson had ‘no feeling for the idea behind the building.’ Johnson gave some direction to his architect...He wanted Matson to decorate the building in some way to tell the story of wax and the company’s products. Johnson also suggested that Matson take cues from the Hershey Chocolate Co.’s new air-conditioned office building in Hershey, Pa. The Johnson and Hershey companies were both family owned, and both were keenly interested in the welfare of their employees...The idea of air-conditioning was particularly important to Johnson...Johnson closed the company for the day if temperatures in the factory reached 90 degrees. He says that the new Johnson building was to be ‘air conditioned, artistic, and uplifting.’ The Hershey building, touted as the ‘Windowless Office Building,’ opened Dec. 26, 1935. It is a three-story limestone building, with Moderne or Art Deco styling, without windows...”***

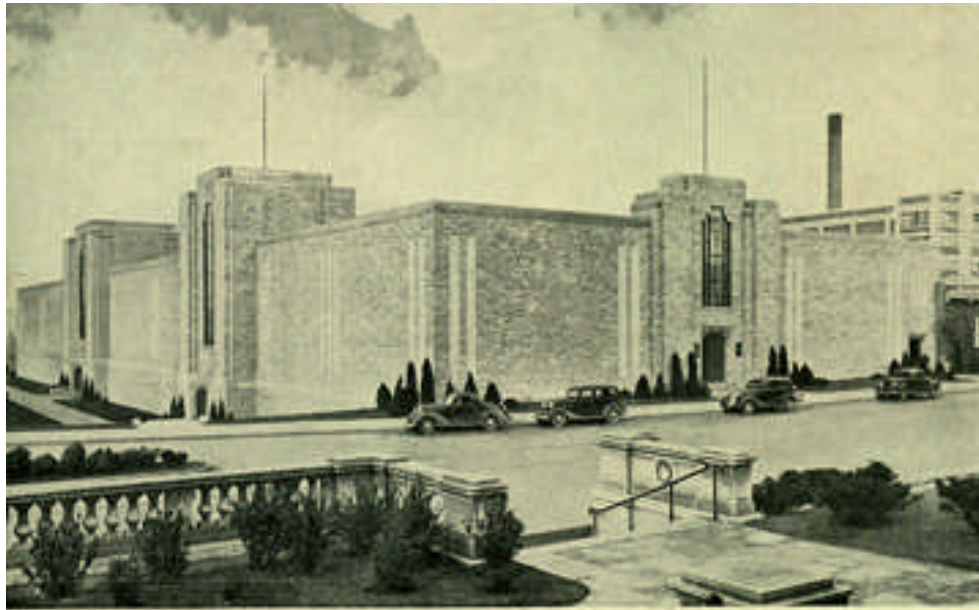


THE FACTORY AND MODERN OFFICE BUILDING OF THE HERSHEY CHOCOLATE CORPORATION



***“...He visited Hershey, Pennsylvania, the model town of the Hershey Chocolate Corporation, Where a windowless, air-conditioned administration building had recently been completed, and he returned to Racine with the intention of putting up a structure that would set a higher than usual aesthetic standard for industrial architecture...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright*. In the early 1930s, Milton Hershey responded to the economic upheavals with a construction program. During those years, many of Hershey’s monumental structures were built, including *Hotel Hershey*, the Milton Hershey School’s *Catherine Hall* (then the Junior-Senior High School), the *Community Building*, *Hershey Sports Arena* and the *Office Building* (HQ) for the *Hershey Chocolate Corp*. Milton Hershey’s interest in innovation and experimentation shaped the design of the new office building. Original plans for the HQ building called for a conventional design with windows and awnings. As the foundation was being dug, Milton Hershey became intrigued with the idea of a windowless facility since such a design would dramatically increase the efficiency of the heating and cooling systems. At Mr. Hershey’s direction, architect/builder *D. Paul Witmer*, quickly drew up new plans while construction continued without delay. Constructed of locally quarried limestone, construction began in the fall of 1934 and was completed in December 1935. The HQ building was designed and built by the *Hershey Lumber Company* (Architect Witmer served as its manager). Certain interior building products were installed by the *Hershey Department Store*. The *Hershey Chocolate Corp*. hosted a public open house on December 28th 1935. Nearly 14K people attended the day-long event.**



## the modern office building

Hershey Chocolate Corporation  
Hershey, Pennsylvania

***“...Conditioned air, dust free...The room devoted to calculating machines and other noisy equipment has its walls of the same special acoustic plaster as is used on the lobby ceiling...communicating facilities are provided between all office and the plant by dial telephones and messenger service...special small box type elevators connect the Receiving Department with the Mailing Desk. A pneumatic tube system connects the Traffic Department with the Shipping and Stock Rooms of the plant for the rapid, safe delivery of all orders...”***

**RE: excerpt from booklet. Visitors to the Hershey Chocolate Corporation received a booklet (cover, left) describing the building’s special features. In particular, it described the building’s interior plan, atmosphere and innovative/modern features (i.e. A/C). Completed in 1935, the building served as the corporate headquarters for Hershey for over forty years. Today, it serves the company as operational offices.**



# **Enlightened Selfishness**

***“...Under the father’s direction, the company had become well known for its interest in the welfare of its employees; it had been a pioneer in introducing paid vacations, the eight-hour day, and profit-sharing. Hib Johnson said that people might call it ‘enlightened selfishness,’ but he believed in it and practiced it, and by 1936 when it became obvious that the company, constantly expanding, was in need of a new administration building, he wished to make sure that the employees would gain improved working conditions as well as more space...”***

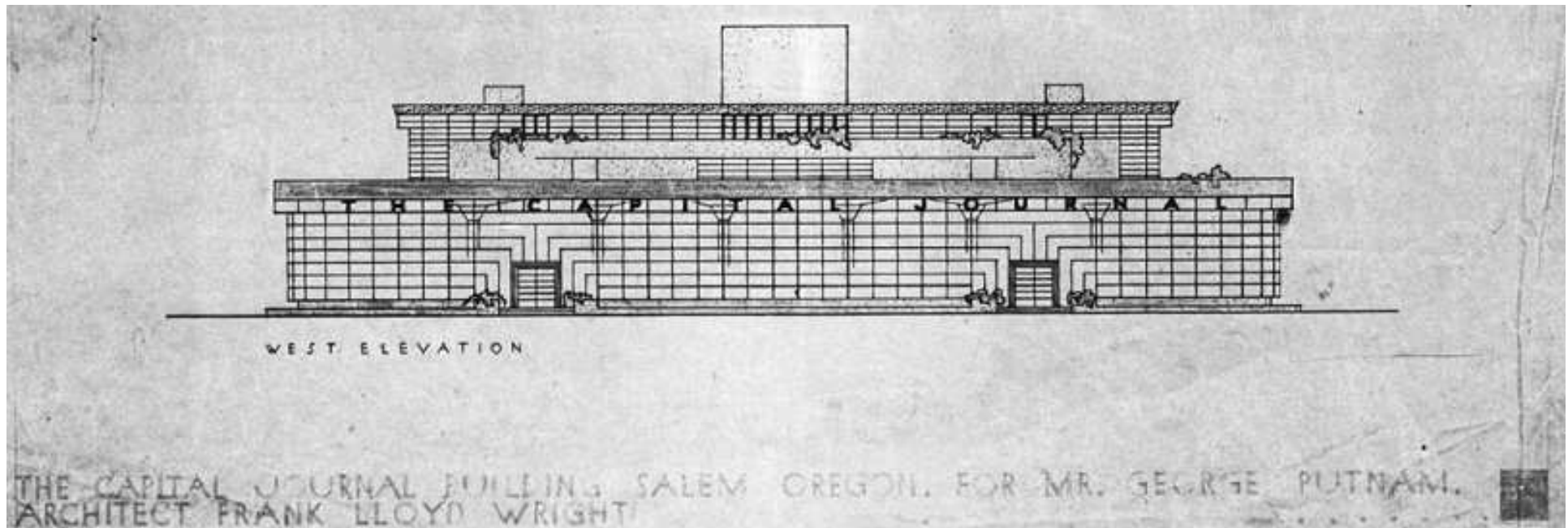
**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

# **Just Another Building**

***“...The only similarities in Matson’s and Wright’s plans are that both buildings were air conditioned, and essentially windowless. Matson’s building plans show some touches in the Moderne or Art Deco style that was popular at the time while Wright’s building was a design unto its own, a streamlined building, resembling the sketches Wright had made in 1931 for a proposed newspaper building in Salem, Oregon...Though Matson drew two sets of blue-prints, a year apart, one without windows and one with windows, something didn't click for the client. Neither Johnson nor Jack Ramsey, the company’s general manager, were happy with the Matson design. Ramsey, in his note to Johnson, says the Matson design ‘isn’t good enough, it’s just another building.’ Ramsey and William Connolly, Johnson’s advertising manager, showed the plans to Johnson’s ad agency in Chicago. They said they were looking for a sculptor for the building. Some of the advertising executives at the meeting had recently spent a weekend with Wright at Taliesin, his home in Spring Green, and it was suggested that rather than look for a sculptor, Johnson look for another architect, such as Wright. Ramsey wrote his note to Johnson on Sunday July 17, 1936, two days after meeting Wright. ‘We have right here under our noses, a native Wisconsinian who was the absolute father of all modern architecture, who is the outstanding architect of the world today...and it would be a crime not to talk to him.’ He added that, ‘gosh he could tell us what we were after when we couldn’t explain it ourselves.’ Wright had looked at Matson’s plans, and told Ramsey that the niches for the sculptures ‘memorialized the defunct windows,’ meaning that Matson evidently could not forget that windows had to be in a building whether it were windowless or not. At the end of his breathless, lengthy note, penned that summer Sunday morning, a note that arguably led to a turning point for both Wright and the Johnson company, Ramsey noted, ‘Got to stop and get to church.’ Matson had drawn his plans over two years, but he was told to stop working on the project just four days after Ramsey wrote his gushing note to Johnson...”***

***The Journal Times, May 12<sup>th</sup> 2002***





***“Wright was invited by John Clifford, president of the Salem Arts League, to give a talk in Salem and meet politicians, including the new governor, Julius Meier. A major inducement had been the prospect of a commission that was described as a ‘new capitol building group.’ At dinner before his talk, Wright met the respected editor George Putnam, known as a crusader for reform...Within days Wright received the retainer with a cover letter outlining the proposed building’s program. Putnam cautioned that it would be ‘some years’ before the building would be required, that was, at least until a current lease expired...”***

***Donald Leslie Johnson, Writer***

***Above: FLW’s rendering for the Capital Journal Building in Salem, OR (ca. 1931). With retainer in hand, FLW made some drawings, but apparently Putnam didn’t like them. One of the elements likely problematic was FLW’s approach to the interior columns (they would influence those found in the Johnson Wax Building). There was also disagreement over some apartments, a roof-top garden and other building elements.***

***“...The approximate configuration of the building was borrowed from a newspaper building that Wright had designed five years earlier for his friend George Putnam, publisher of ‘The Capital Journal,’ in Salem, Oregon (Hard times caused the project to remain unbuilt). The most notable borrowing from that project was a forest of concrete-and-steel columns that Wright had designed to support duplex apartments and a roof garden above a vast, two-story-high room, half a city block long, this room contained the newspaper’s printing presses at ground level and offices on a glass-enclosed mezzanine overlooking the presses...In the newspaper building, the mushroom columns were an ingenious and efficient means of providing the maximum amount of floor space for cumbersome large printing presses; moreover, the narrow bases of the columns rested upon foundations separate from the foundations that bore the weight of the presses, thus ensuring that the considerable vibration caused by the printing of the newspaper wouldn’t be transmitted to offices and living quarters on the floors above. In the Johnson Wax building, what Wright liked to call ‘the great workroom’ would contain nothing but desks, chairs, and other clerical gear, so there would be little difficulty with vibration...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

**Will You See Him?**

***“Regarding the new building, I had a day Friday that so confirmed and crystallized my feeling about Matson’s present offering and that at the same time so inspired me as to what can be done that I was on the point of sending you wild telegrams Friday night when I got home, or getting you out of bed on the telephone...Honest, Hib, I haven’t had such an inspiration from a person in years. And I won’t feel satisfied about your getting what you want until you talk to him - to say nothing of not feeling justified in letting \$300,000 be clothed in Matson’s designs. He’s an artist and a little bit ‘different,’ of course, but aside from his wearing a Windsor tie, he was perfectly human and very easy to talk to and most interested in our problem and understood that we were not committing ourselves, but, gosh, he could tell us what we were after when we couldn’t explain it ourselves And he asked about what we thought this building would cost us. I said, when we got through with the building, landscaping, furnishings, etc., we’d be investing around \$300,000. He asked how many people it would house. I said about 200. He snorted and said it was too damn much money for the job and he could do a better functional job in a more appropriate manner for a lot less. He is very easy to talk to, much interested in our job whether he has anything to do with it or not, because it hits his ideas of modern building, because it is a Wisconsin native proposition, and because it seems to hurt his artistic conscience to see so much money spent on anything ordinary...Will you see him?***

***Jack Ramsey, General Manager – S.C. Johnson & Son***

***RE: excerpt from memo to Hibbard Johnson after meeting FLW on July 17<sup>th</sup> 1936***



***“I showed him pictures of the old office, and he said it was awful...He had a Lincoln-Zephyr, and I had one - that was the only thing we agreed on. On all other matters we were at each other’s throat...then he described the kind of building he would design, unconventional, imaginative, trend-setting, a visual symbol of a great company”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

***Above: caption: “Advertising billboards and factory buildings which were located at the north-east corner of Racine and 16th Streets. At this intersection the sweet smell of wax was so strong that a blind man would know they were near the Johnson Wax factories.” On July 21<sup>st</sup> 1936, H.F. Johnson drove to Taliesin to meet FLW. At first, the two men argued. Johnson described his goals for the new building wanting it to symbolize the progressive company that his father and grandfather had created.***

# **The Relentless Multiplicity of Suave Roundnesses**



***“...The Administration Building wasn’t going anywhere and had no need for reduced wind resistance; in its relentless multiplicity of suave roundnesses, it embodied some playful whim in Wright’s unconscious – one that was wholly at odds with the no less playful whim that led to the vivid angularities of Fallingwater, designed at precisely the same time. It is tempting to find a clue to Wright’s streamlining of the Johnson Wax Building in the fact that Hib Johnson and he, both devotees of fine cars, owned Lincoln Zephyrs, which have entered history as among the most handsomely streamlined cars ever designed. Wright claimed, without adducing proof, that he was the first to apply the term ‘streamlining’ to buildings...”***

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RE: excerpt for *Many Masks: A Life of Frank Lloyd Wright*



***“Streamlining was associated with the recent triumphs of technology over nature such as airplanes and ocean liners. Seeing that the other man shared this portentous car likely reinforced to each other that the other man, like himself, understood and was a part of this grand new triumphant epoch of progress.”***

***Jonathan Lipman, Author***





***“...It was high time to give our hungry American public something truly ‘streamlined,’ so swift, sure of itself, and clean for its purpose...I like it, they like it. Let it go at that.”  
Frank Lloyd Wright***



***“...Streamlining was known to be of practical value in the design of automobiles, airplanes, and trains, but in the 1930s it became the fashion to design stationary objects whether large or small (refrigerators, furnaces, electric toasters, and even pencil sharpeners) with so-called aerodynamic contours; the fashion spread to architecture, colliding with the weapon-like zigzags of Art Deco and sometimes marrying them...”***

**RE: excerpt for *Many Masks: A Life of Frank Lloyd Wright***

**Left: the first commercially-produced streamlined car was the *Chrysler Airflow* (1934), so named because it was designed with the prototypical streamlined form, allowing air to pass over it (ironically, it was more aerodynamically efficient in reverse).**

**Right: electrical products began to display the same progressive imagery found in airplanes and cars. This is an *Electrolux* vacuum cleaner, designed by the *Lurrelle Guild* in 1937. Though an inanimate object, it still adopts the kinetic style with chrome trim and speed-lines. It was made from aluminum and chrome-plated steel, which presents it as a piece of precision engineering. This type of streamlining had no functional purpose; it's use was purely decorative.**



***“...He insulted me about everything and I insulted him, but he did a better job...If that guy can talk like that, he must have something...Anybody can build a typical building. I wanted to build the best office building in the world, and the only way to do that was to get the greatest architect in the world.”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

**RE: FLW tended to be congenial and accommodating to clients lacking significant financial resources yet were bold enough to ask him to design a building for them. On the other hand, to the wealthy and powerful he was pure *Prima Donna*.**

***“I just remember the time right after dad first saw Mr. Wright, I was at Kemper Hall (a boarding school in Kenosha), and he came down to pick me up one Sunday and he said to me, ‘Karen, you’re studying art history, now who is the greatest architect in America’ and I said, Why everybody knows it’s Frank Lloyd Wright. He was sort of appalled that I knew that. I remember that vividly. He was flabbergasted that his kid would know it. He told me at that time that he was going to have Mr. Wright do the building.”***

***Karen Johnson Boyd (Hib Johnson’s then 12yo daughter).***

# **An Unfortunate Urban Accident**



***“...The only local example of Wright’s architecture – the pleasing little Thomas Hardy house, of 1905, suspended like an exquisite, symmetrical toy on the edge of the bluff above Lake Michigan – was held to be an unfortunate urban accident, totally at odds with the houses facing it across South Main Street...Hib Johnson’s sister, Henrietta Louis, reported that their father always laughed at the house, which the family thought of as ‘kooky’...Hib Johnson had passed the Hardy house hundreds of times in the course of driving back and forth between his house and his office...Wright pointed it out to him on the occasion of a visit to Racine in 1936...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

**Above: FLW rendering for the *Thomas P. Hardy House*, Racine, Wisconsin 245 (1905), at left. Present-day photograph from South Main Street, at right.**

***“...On August 9, 1936, Wright and Tafel bundled up the drawings, got into Wright’s car, and headed for Racine to make the presentation. They brought no alternatives to the radical design. If the company’s executives didn’t go for it, it was probably all over. When they got out of the car, Tafel put the roll under his arm. Wright took it from him. ‘The architect,’ he told the apprentice, ‘carries his own plans’...”***

**RE: excerpt from *The Fellowship***

***“I am now asking you to proceed with plans and sketches of a \$200,000 office building for us in Racine on the basis of 2.5% or \$5,000 to be paid you when sketches and plans are submitted...It is my understanding that the remaining commission of 7.5% or \$15,000 will not be paid to you unless your plans are used wholly and under your supervision. Also, that we are free to use any or all the ideas you offer - either ourselves, or other architect...I want to take this opportunity of expressing my appreciation, as well as Mr. Ramsey’s, for your gracious hospitality, and for the inspiration and education we received.”***

***Hibbard Johnson, CEO – S.C. Johnson Wax Company***

**RE: excerpts from letter to FLW dated July 23<sup>rd</sup> 1936. Hib Johnson’s father was famous for playing his hunches successfully. So too would his son play a hunch about FLW to great success, but no one said it would be easy. FLW still insisted on moving the whole SCJ&S operation, including worker’s housing to the countryside (in *Broadacre City* fashion), but Johnson would have none of it. Taking his wife Oglivanna’s advice to: “Give them what they want, or you’ll lose the job,” he grudgingly agreed to the Racine site. Johnson had not only to deal with FLW’s artistic temperament, but also a conservative Board of Directors, made up mostly of his father’s generation.**



***“...Hours later, the telephone rang at Taliesin. The news spread quickly. ‘We got it! We got it!’ cried one apprentice to another. It spread, Maginel recalled, ‘to the courts, to the gardens, to the far fields’...Around this time, Wright applied for his first recorded architecture license; he received it on January 29, 1937. Doubtless he was prompted by the need to secure a building permit for Johnson Wax, but the apprentices would benefit as well; now their employer was officially an architect, their time at Taliesin could finally be credited toward the internship period for their own licenses...”***

**RE: excerpt from *The Fellowship*. “Maginel” was FLW’s sister, who was visiting *Taliesin* at the time.**

***“Some time ago the Directors approved a sum of \$200,000 for a new office building. No mention was made of furnishings, fees, etc. At the next meeting I will advise them of your goal - the building complete at \$250,000 - which I feel will be acceptable to them, considering the plus value we will receive by having you do it for us.”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

**RE: letter dated August 18<sup>th</sup> 1936. FLW and his apprentices had worked around the clock for ten days to produce his proposal after receiving the commission in July. He presented it to Johnson, Ramsey and several other executives on September 15<sup>th</sup> 1936. On that same day, Johnson and FLW presented the plan to the firm’s Board of Directors, winning their approval of the project. S.C. Johnson & Son (SCJ&S) hired a contractor on the basis of “cost-plus” (actual cost plus an agreed upon percentage for overhead and profit). Strangely, there is no record of any formal contract between FLW and SCJ&S.**

***“From the start, the money they were talking about wouldn’t have done the most ordinary kind of building. Mr. Wright always started doing what he thought was right for the building. He didn’t burden himself with undue considerations of cost.”***

***John “Jack” Howe, FLW’s Chief Draftsman***

# **Cherish the Faults**

***“...Wright had insisted that a contractor be chosen who would put up the Administration Building on a cost-plus basis; his experience had been that, because of the novel designs, most contractors who bid on them either bid too low or too high, in either case out of ignorance. Johnson had a friend in Racine, Ben Wiltscheck, who had been trained as an architect and had chosen instead to become a builder; he was introduced to Wright, on whom he made a favorable impression, and Johnson was delighted when Wiltscheck agreed to undertake the job. And with reason, for Wiltscheck proved able to accommodate himself to Wright’s importunate demands and to his no less importunate acts of responsibility...Johnson, Ramsey, and Wiltscheck respected Wright for his genius and, resigning themselves to the Foxy Grandpa aspect of his nature, came to cherish the faults almost as if they were virtues, they would often be angry with him, but they could never stay angry with him for long...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***

***“...In Racine, Wis., Contractor Ben Wiltscheck is now finishing a business building for S.C. Johnson & Son which is unlike any other in the world...The Johnson Administration Building has been built like an expensive watch on what Architect Wright calls a ‘unit plan,’ everything fitting into a horizontal scheme of 20-ft. squares, a vertical scheme of 3.5 in. brick units...”***

***TIME* magazine, January 17<sup>th</sup> 1938**

**RE: the all-FLW issue of *TIME* magazine in January 1938, which paid particular attention to both *Fallingwater* and the *Johnson Wax Administration Building*, garnered national and international publicity which delighted FLW immeasurably and served to mollify *Hib Johnson* and his Board of Directors. Much to the astonishment of industrial Racine, the building – scheduled for completion on October 1<sup>st</sup> 1938 – was drawing large numbers of visitors. The summer of 1938 was spent installing the glass tube skylights and it was announced that the building would not be complete until February 1939. A new opening date was set for late April 1939 but, ultimately, the building would not officially open until May 1939.**

***“...I am assuring and driving at the building complete at a cost of \$250,000 including an appropriation of \$20,000 for furnishings. Architect’s fee is included and also the Clerk of the Works fee...”***

***Frank Lloyd Wright***

**RE: excerpt from an August 15<sup>th</sup> 1936 note to *Hib Johnson* concerning costs. In a letter to FLW (dated December 11<sup>th</sup> 1936), GM Ramsey reminded FLW (with his own words) of SCJ&S’s cost expectations per a “verbal agreement” (on 07/23/36) and the “long-hand note” (08/15/36) exchanged between Hib Johnson and FLW. Several problems were delaying the project. There were building programming issues (i.e. questions concerning whether or not the proposed building would serve the company’s needs fully) and two structural problems developed. However, the main problem was the actual contractor cost estimates that were coming in at much higher prices than FLW’s lowball figure of \$250K. The architect’s fee was to be 10% of the total cost of the building. As the cost of the building increased, so did the FLW’s fee. Although the final cost was not announced by SCJ&S, it was clear to all it would be many times more than \$250K. One speculation was \$750K. FLW’s own revised figure was \$850K and another estimate was \$900K. Needless to say, the delays and inflated costs strained the relationship between client and architect.**



***“...on furniture designs you have not yet seen...Christmas is coming and the best way for me to get a good one is to pay up the thousand and one petty accounts nagging my footsteps....”***

***Frank Lloyd Wright***

**RE: aside from debating costs, in December 1936 FLW wrote *Jack Ramsey* proposing to design all the furniture and equipment for the new building for a 10% fee (rather than his standard 20% fee) if he would forward him post-haste \$3K (to help him appease his many creditors and, therefore, have an enjoyable holiday season)**

**Left: caption: “Frank Lloyd Wright confers with another man on the site of one of his great designs, the Johnson Wax Building.”**



***“...But now you tell me it will run about \$300,000 and that apparently exclusive of furnishing and fees!...Money is an irritating part of this world, but we’ve got to take it into account - not for piling up gold for its own sake, but just so that this business continues to run properly and serve the very human destiny that it has for fifty years...In any case, it seems to me that there are a lot of things about the building itself that have to be completed first (before the Johnson firm agrees to Wright-designed furniture). Do you realize that Hib has advanced, to be exact \$20,964 on an extreme expectation of something under \$25,000 (in total architect’s Fees) and we have not yet the completed construction plans, to say nothing of final interior layout and approved plans on heating, ventilating, lighting - even the glass to be used in wall construction? That is confidence beyond anything I can say in words, so I know you will not take my plain words wrong.”***

***Jack Ramsey, General Manager – S.C. Johnson & Son***

**RE: excerpt from letter to FLW dated December 11<sup>th</sup> 1936. Ramsey reminded FLW that the only addition SCJ&S had made to the original plan was a squash court over the parking garage, yet the cost rose exponentially. As for his designing the furnishings, Ramsey said the company could not commit to any designs without seeing them first.**



***“Dear Mr. Ramsey. Thanks a Lot Anyway...”***

***Frank Lloyd Wright***

**RE: excerpt from his letter of response in January 1937 (to GM Ramsey’s Dec. 1936 letter to him). In his own defense, FLW argued that he had saved SCJ&S money by battling state regulators and that in his lump-sum architect’s fee was included fees for consulting engineers which were typically separate for commercial buildings.**

**Left: passageway over parking garage to Squash Court**

***“We can all blame any past delays on the pneumonia germ...but how about action now?”***

***Jack Ramsey, General Manager – S.C. Johnson & Son, February 1937***

**RE: FLW had nearly died of pneumonia in December 1936. By the beginning of 1937, the inexperienced apprentices of the *Taliesin Fellowship* were struggling to produce working drawings for the *Johnson Wax Administration Building* and the myriad of construction/structural problems facing the *Fallingwater* project. On top of this, FLW had several “Usonian” projects underway as well as the private home of *H.B. Johnson*. In the midst of all this activity, FLW and Oglivanna took a three-month tour of New York, California and Arizona, leaving *Wes Peters* in charge of things. When they returned in April, they were soon off to Moscow to attend a conference of Soviet architects. SCJ&S was growing impatient with the lack of drawings and chronic delays.**

***“We’ll construct until they call out the militia.”***

***Frank Lloyd Wright***

**RE: on February 12<sup>th</sup> 1937, fed-up with the lack of drawings, the contractor pulled his men off the job. On top of this and other problems plaguing the project (and FLW’s conspicuous absence), the *Racine Industrial Commission* was refusing to issue the project a building permit. The Commission would allow only “non-structural” construction to proceed pending the test of a sample column. FLW was infuriated and pledged to continue with or without a proper permit. Finally, FLW’s June 4<sup>th</sup> 1937 demonstration of his “Dendriform” column’s strength changed the Commission’s mind and the permit was issued. Another sticking point from the get-go was FLW’s status as a licensed architect in the *State of Wisconsin*. Although he had been practicing architecture for over fifty years, he was not licensed to do so. In response, FLW offered to take a public oral examination at the state capital – the bureaucrats wisely backed-off. He received his architecture license in early 1937.**

# **The Facts of Structural Life**

***“That was alright yesterday, but its not right today...Every change is for the betterment...the last change is made when the boom comes down”***

***Frank Lloyd Wright***

**RE: FLW saw designing during construction as part-and-parcel of his approach to architecture – an element of a genius at work. After all, the great Gothic cathedrals had been built in just this way. For a contractor and modern business corporation, “change orders” meant delays and additional costs, period. FLW’s constant design changes during construction were frustrating to contractor and client alike. Sometimes the changes were minor, others – like relocating the main entry to the opposite (north) side of the building seven months into construction, were major. On another occasion, FLW added a row of short columns to support the roof above the Boardroom. This arrangement was contrary to the twenty-foot grid of columns which ensured each column would be directly above the column below. These columns would rest mid-floor of the mezzanine level whose reinforcing was totally inadequate to support the imposed loads. Site supervisor *Edgar Tafel* learned of this the day before the mezzanine level’s concrete floor was to be poured. *Wes Peters* called the contractor in a panic ordering him to “hold the pour.” He rushed to the site and did some ad-hoc engineering “on-the-fly,” adding sufficient reinforcement to the floor where the columns would bear down. It was a close call.**

***“...The more experienced, such as Peters and Tafel, had learned a painful lesson from Fallingwater and Johnson Wax: The master had serious shortcomings as a structural engineer. They had also learned the fine art of saving his designs by slipping in steel beams and columns after Wright signed off. Failing that, plan B was to do the deed at the construction site, as with Fallingwater. Wes and Edgar would pull an apprentice aside for a lesson in ‘the facts of structural life,’ as Tafel put it. Yet not every apprentice was willing to go against Wright; in one such case the roof collapsed during construction...”***

**RE: excerpt from *The Fellowship***

# **This Scoundrel Genius**



***“...No architect creating anything worth naming as creative work ever made or can make any money on what he does...have the privilege of paying for something way beyond money value...if the office building runs to \$450,000 (as it will) including furnishing - it will have cost the Company about 33 cents per cubic foot, which is the price of any ordinary well-built, fire proof, air-conditioned factory building...considering the resources of the owners and what they are getting for their outlay...The labor scale and shorter hours and prices for materials, all these are higher than any previous work of mine...”***

***Frank Lloyd Wright***

**RE: excerpt from letter to *Hib Johnson*, late December 1937. Johnson was concerned about the mounting costs of the building. In response, FLW wrote him a long letter in an attempt to alleviate his clients anxieties. He denied being a “profiteer” and reminded Johnson of his money-saving efforts. As well, he pointed out the future advertising value and enhanced image of the company once complete, which was worth more than money. FLW claimed that, considering the size of the building and the circumstances under which it was being built, the revised cost of \$450K was not extravagant and that demands on his time in supervising the work were a considerable burden on him.**

***“...I know it does no good to complain as you are an artist so in love with your work that nothing will make you change your ideas of what the building ought to be, even though it works a hardship on your client. You would rather tell the client whatever comes into your head as to the cost and the time to construct, at the start, just to sell the job and give satisfaction to your art to create something worthwhile, rather than be accurate in cost estimates. Why didn’t you put me wise long ago as to the true costs and time to construct? Would that be unreasonable to ask? That is water over the dam now and I going to have to take it, but I will never like it. That is, the way you have handled me; the buildings...I am going to love...Now, Frankie, this reply to your letter is no complaint as it would do no good to complain. You have us hooked and we can’t get away. Rather, it is written to show you how I feel and, if possible, spur you on to economize on matters still undecided in the building.”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

**RE: excerpt from letter to FLW. Though Johnson was frustrated with the spiraling cost of the building, he knew his architect was creating a masterpiece and accepted his subservient position, albeit grudgingly. Out of respect and deference to the master architect, most people addressed FLW as “Mr. Wright.” Having a more intimate relationship, Hib Johnson called him “Frank.” The use of “Frankie” in the letter was more an expression of Johnson’s annoyance with the situation than disrespect.**

***“...Hib Johnson, it seemed, believed in this scoundrel genius. But there was more to it than that: His own fortunes were now married to the architect’s well-being. Wright was building both Johnson’s corporate building and his house; Johnson needed him healthy and happy. And so, in spite of his irritation, he proposed a solution that would facilitate Wright’s personal desert project. Wright’s fees for Johnson Wax were to be paid at the end of each specific project phase. The next payment was not until the end of construction – an uncertain date, to say the least. To help Wright finance his new Arizona camp. Johnson offered to pay at the end of each month for the portion of the work completed to date. He enclosed the first installment, a check for \$3,100. The Fellowship’s desert home was a go...”***

**RE: excerpt from *The Fellowship*. After his near-death bout with pneumonia in late 1936, FLW’s doctor advised him to spend the winter months in *Arizona*. For several years, he and Oglivanna were looking for a suitable piece of land. In late December 1937 they found what they were looking for twenty miles outside Scottsdale, AZ - near the town of Paradise Valley. To pay for it, FLW planned to tap into his 10% of the construction cost fee for Johnson Wax. As the cost grew, so did FLW’s commission, much to the dismay of his frustrated client considering that most of the cost overruns were attributable to FLW. Despite this, the two men needed each other for their own reasons – public and private.**

**“DEAR HIBBARD MUST HAVE MONEY OR MUST SHUT DOWN WILL YOU HELP ME OUT WITH PERSONAL ADVANCE FIVE THOUSAND DOLLARS PAYING YOURSELF BACK OUT OF MY EARNINGS IF YOU WIRE THE SUM TO THE VALLEY BANK SURE WOULD BE NICE COMING EAST SOON BUT IMPOSSIBLE UNTIL FIXED HERE THAT SUM WILL DO FAITHFULLY FRANK”**

RE: telegram from FLW in AZ to *Hib Johnson*

**“SURE SORRY CANNOT ADVANCE MONEY AS MY CREDIT HAS BEEN EXTENDED AS FAR AS POSSIBLE...YOU NEED EDGAR HERE TO SPEED CONSTRUCTION TO EARN COMMISSION STOP GOOD LUCK HIB”**

RE: Hib Johnson's response telegram

**“CAN SEND YOU FIFTEEN HUNDRED DOLLARS STOP WILL THAT ENABLE YOU TO GET AWAY AND IF SO WHEN SHALL WE EXPECT YOU IN RACINE STOP ANSWER RAMSEY”**

RE: telegram from GM Ramsey to FLW on behalf of Hib Johnson

**“JACK THERE IS A WELL HERE MUST PAY IMMEDIATELY THOUSAND DOLLARS SUIT BEGUN BUILDING MATERIALS FIFTEEN HUNDRED NECESSARY FOOD DURING ABSENCE FOUR HUNDRED CARLOAD LUMBER TRACK ON DEMURRAGE SIX HUNDRED CANNOT TURN MY BACK KINDLY TELEGRAM VALLEY BANK PHOENIX TWENTY FIVE HUNDRED CAN THEN COME ALONG RIGHT AWAY”**

RE: FLW's response telegram to GM *Jack Ramsey* (FLW got the \$2,500)



***“...You know, they really don’t understand this building at all. They’re acting as if this were a normal office building and you calculate this the way you would a normal office building. But they have forgotten what they told me initially, which was that this was a memorial to Grandpa, the founder of this great industrial enterprise, and you don’t build memorials with the same materials, or the same spirit, or the same budget, you know as you do speculative office buildings...One of these days you’re going to see tourists from all over the country come and see this building.”***

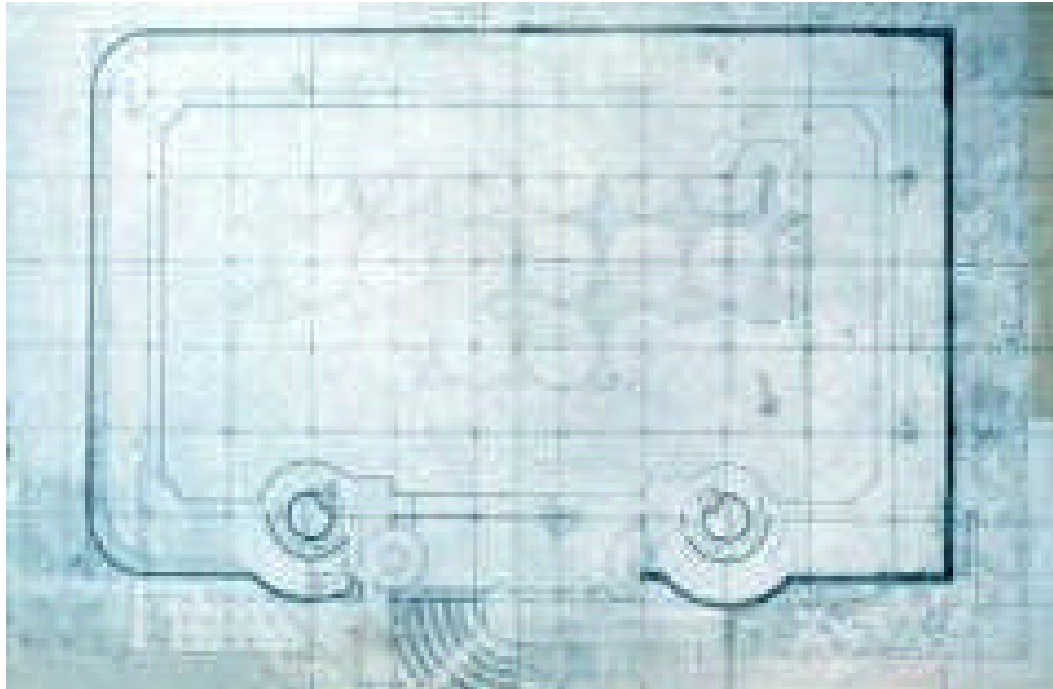
***Frank Lloyd Wright***

**RE: comments made to a writer from *Architectural Forum* magazine while visiting *Taliesin* in 1938 (after a tense telephone conversation with his client)**

**Left: Samuel Curtis Johnson, Company Founder**

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**Right: caption: “1888 - Samuel C. Johnson develops his first paste wax floor care product”**



***“...I realize fully the strain the growth of this great landmark in new-world architecture has thrown on you - and do not resent the breakdown of good feeling and consequently of good sense...”***

***Frank Lloyd Wright***

**RE: excerpt from a letter to GM Ramsey (ca. late 1938). Controversy over cost continued with FLW claiming that the original plans drawn up in 1936 were “a crude unfinished sketch.”**

**Left: original 1936 plan of the Workroom**

***“...I can’t subscribe to the statement that we ever lost ‘good sense’; but I freely admit that ‘good nature’ took an awful long vacation...Cost, as measured in money, is a most difficult thing to argue with you. Idealistically you despise the idea of money as a measure of anything. It probably has not occurred to you that Hib and I and probably 90% of the rest of the world also realize the imperfection of such a measuring stick. Nevertheless, it remains a fact that it is a universal yardstick used even to measure happiness. Wastefulness of dollars in the construction of our building did not grieve us because each dollar came off of a cold figure concerning a bank balance, but offended our sense of justice in that such wasted dollars were a measure of some other constructive accomplishment that thereby must be omitted from the scheme of things. It is, I believe, only a matter of proportion on which we have differed with you. If a farmer has a hundred dollars and has a certain aim in view concerning the raising of poultry, he might be justified in spending twenty dollars on a chicken coop, or even twenty-five dollars with the extra five dollars as a measure of additional content and happiness afforded the chickens and the eyes of all beholders, but he would be morally unjustified in spending ninety-nine dollars on his chicken coop and thereby starving his horses and cows. And if he hired a chicken-coop specialist to build the finest coop in the world at an estimated cost of thirty dollars and the cost ran up to ninety-nine dollars, moral responsibility would be upon aforesaid specialist. That is not a pretty example and it is probably crude and exaggerated but I am impelled to try to illustrate our side somehow.”***

***Jack Ramsey, General Manager – S.C. Johnson & Son***

***RE: response to FLW’s letter to him***



***“..we would all be written off for damn’d fools and sent over the hills to the poor house. I’ve felt (as I know you and Hib have felt) that there were human values involved, in this building way beyond any that could be measured by money...”***

***Frank Lloyd Wright***

**Left: FLW and H.F. Johnson on-site watching the column test. FLW didn’t accept Ramsey’s contentions concerning the building’s cost as outlined in his letter. In particular, he didn’t appreciate the “chicken coop” analogy.**



***“...I’ve heard nothing from Hib since I sent on the piece on the building now appearing (soon) in An Autobiography...I thought he would like the piece very much. But I guess he didn’t...We expected Hib to invite us to dinner sometime this winter - but no.”***

***Frank Lloyd Wright***

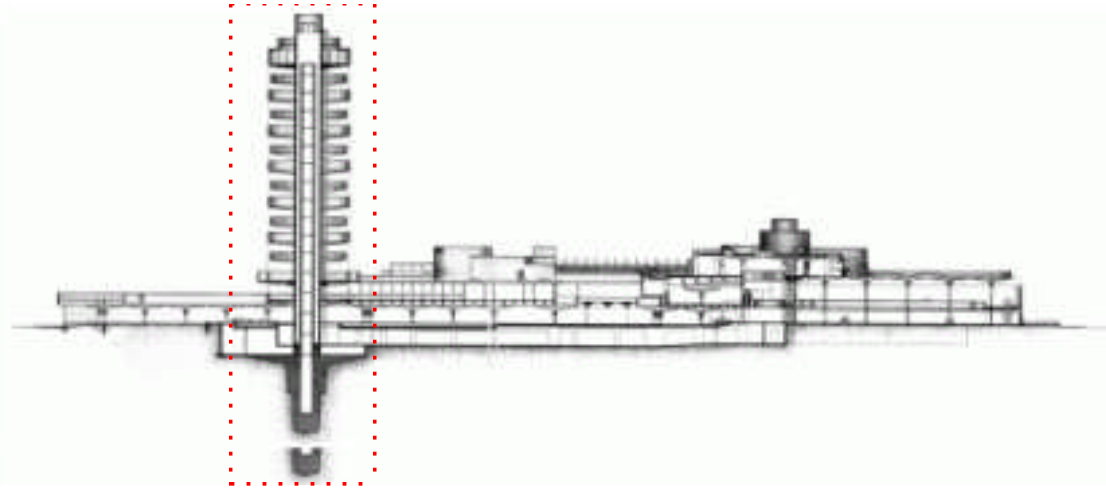
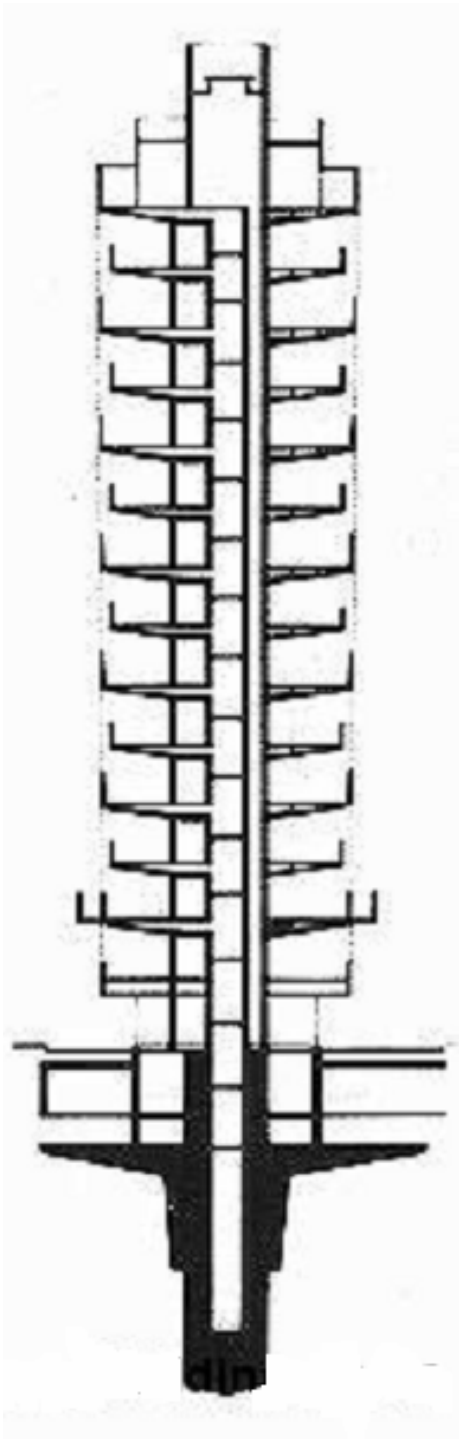
**RE: FLW and *Hib Johnson* had become friends, but Johnson felt that FLW had manipulated him with an unreasonably low estimate to get the commission straining the relationship. After FLW had prepared a revised edition of his autobiography, he wrote GM Ramsey (excerpt above) expressing his disappointment at not hearing from his friend and client.**

# **To Be Frank, Frank**

***“...To be frank, Frank, we simply will not consider a financial and construction nightmare like the office building. It is a plain factory kind of job that should be built by an engineer or contractor like our other factory buildings. Yet because of its proximity to your masterpiece, it should have a relationship thereto and we feel it would be unfair to you and a mistake on our part if we didn’t ask how you think you would want to fit into such a picture.”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

**RE: excerpt from a letter to FLW dated October 1943. The *Johnson Administration Building* was completed in 1939 to great acclaim. In its aftermath, SCJ&S decided to build facilities for research and development of new products, but WWII delayed the project. After much correspondence and a proposal for an adjoining tower to house the R&D laboratories, FLW was given the commission despite Johnson’s trepidation from past experience.**



***“We want this building built on a contract basis, if at all possible; if not that, then on a basis where the cost would not vary 10% over estimates.”***

***Hibbard Johnson, CEO – S.C. Johnson & Son***

**RE: this time, SCJ&S would leave nothing to chance in their dealings with FLW. Nevertheless, they went ahead on a cost-plus basis (without the price ceiling that Johnson wanted). FLW was to be paid his usual 10% commission. The research tower’s estimated cost rose from \$750K to over \$2 million. In May of 1948, Johnson accepted the revised estimate but capped his architect’s commission at \$200K (to be paid over two years).**

**Above: longitudinal section through Administration Building (right) and Research Tower (left, highlighted)**

**Left: vertical section through the Research Tower showing its tree-like structure**



# **Part 6**

# **The Research Tree**



***“...Where the Administration Building seeks to convey an impression of extreme horizontality, what came to be called the Research Tower is obviously intended to provide a strong vertical contrast; sturdily square in plan but with rounded corners, it rises with the dignity of a miniature skyscraper. It is clad in alternating bands of brick and obscure glass tubing, through the glass one is able to detect that the building consists of a central mast, from seven square shelf-like floors project, each of them of sufficient height to contain a circular mezzanine level. The floors extend to the cladding, while the mezzanines, which are in effect free-standing, permit, by Wright’s reckoning, an ease of oral communication between workers on the two levels. Fitted with the mast are a circular elevator, fire stairs, and utilities...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



***“...With building after building, Wright had proved that it is possible to imitate nature’s logic and economy, if not her wanton extravagance, in architecture. His latest proof, announced this month, is a tower laboratory for Johnson’s Wax in Racine, Wis. Its 15-story lab is practically all window; all its heating, plumbing and servicing is done through a central mast, from which it is suspended...It will adjoin the office building Wright designed in 1938, which is held up by columns built like morning-glories. He also built a low-slung modern house for President Herbert F. Johnson Jr., who apparently believes that Wright can do no wrong...”***

***TIME* magazine, April 1<sup>st</sup> 1948**

**Left: caption: “Frank Lloyd Wright and HF Johnson, Jr. are shown admiring the Research Tower, 1953”**





***“Whenever Frank Lloyd Wright designs a building, you can be sure it’ll be different. Usually it is also good looking and functional. This, one of the newest, is no exception...”***

***Popular Mechanics, January 1950***

**RE: SCJ&S Research Tower**

**How's the Weather Out There?**



***“We tried to talk Wright into putting some clear glass on the corners so you could see out. ‘Forget it,’ he said. The only way you could see the weather was if you looked very carefully at one Pyrex tube, right in the middle. you could see through it and get an idea what was going on with the weather out there.”***

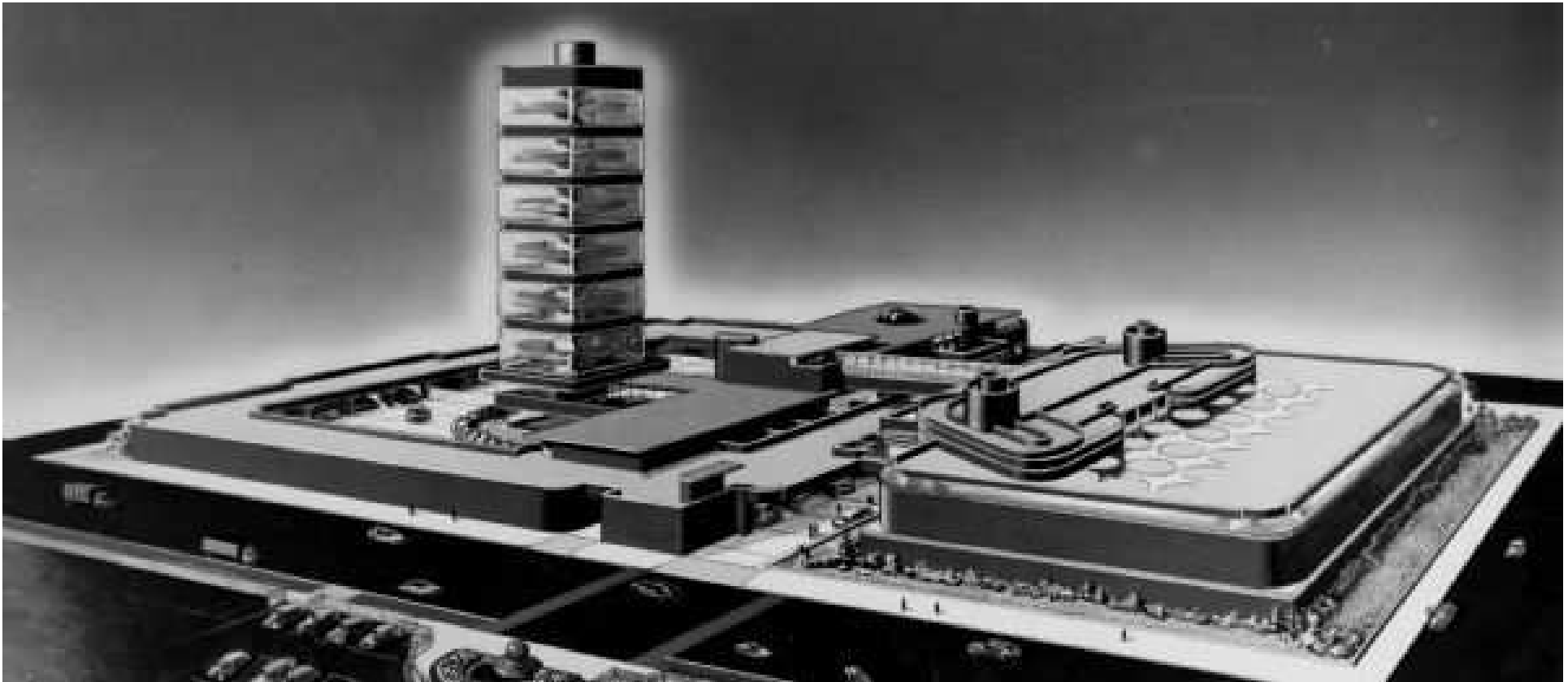
***Dr. Don Whyte, SCJ&S Chemist. The Research Tower would accommodate 75 chemists in 75 laboratories. FLW planned for eighteen floors, reducing to 15 for economic reasons.***





**Above: Research Tower and Globe. Johnson chemists met with Wright about a dozen times while the tower was being designed. After seeing some of his designs for the laboratories, they had full-scale models of a main floor and a mezzanine built in the parking lot. These models helped them plan furnishings and fixtures for each floor of the tower”**

**Left: caption: “Arrangement of circular mezzanine floors that share a two-story high window can be seen in photo made during construction of SCJ&S Lab”**



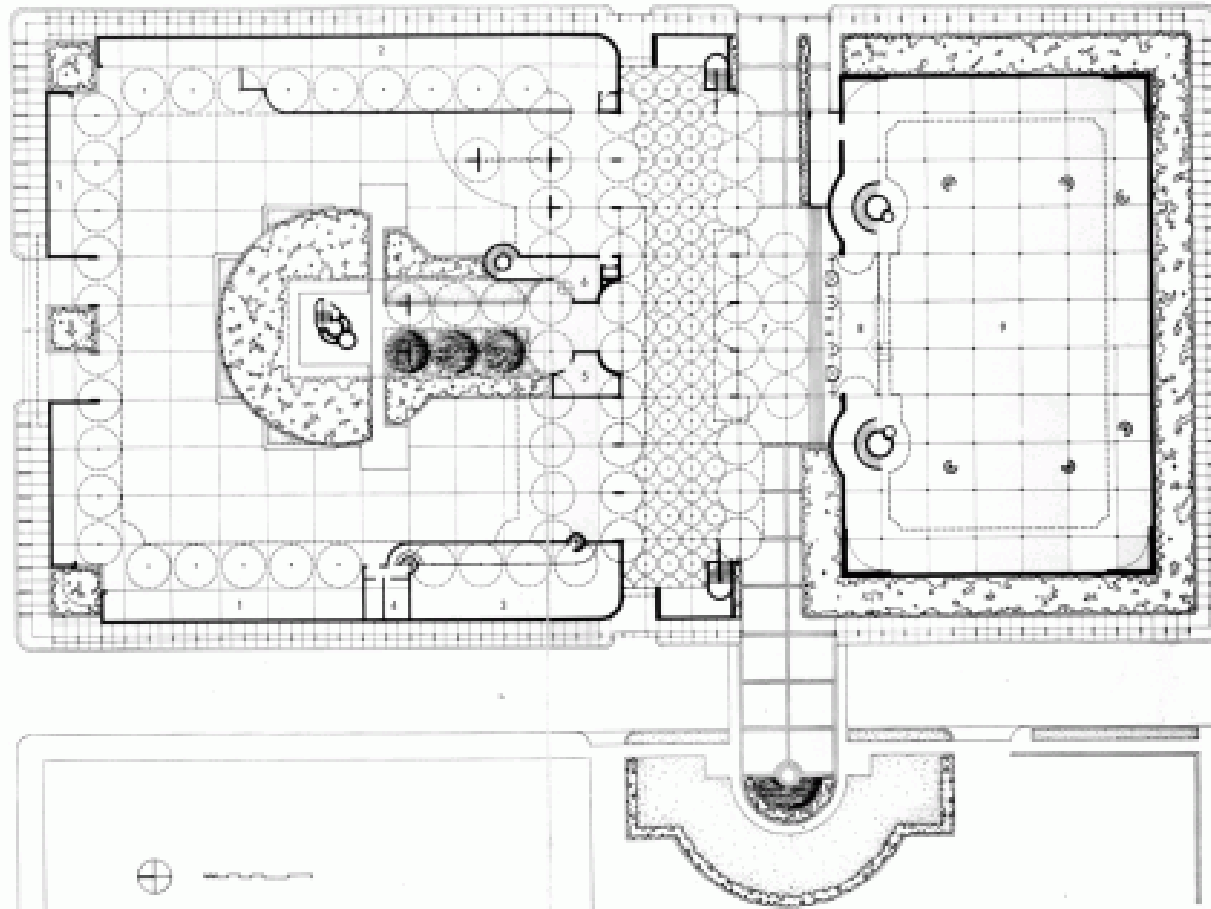
***“...The research tree rises from an open court near the company’s administration building, which was also planned by Wright.”***

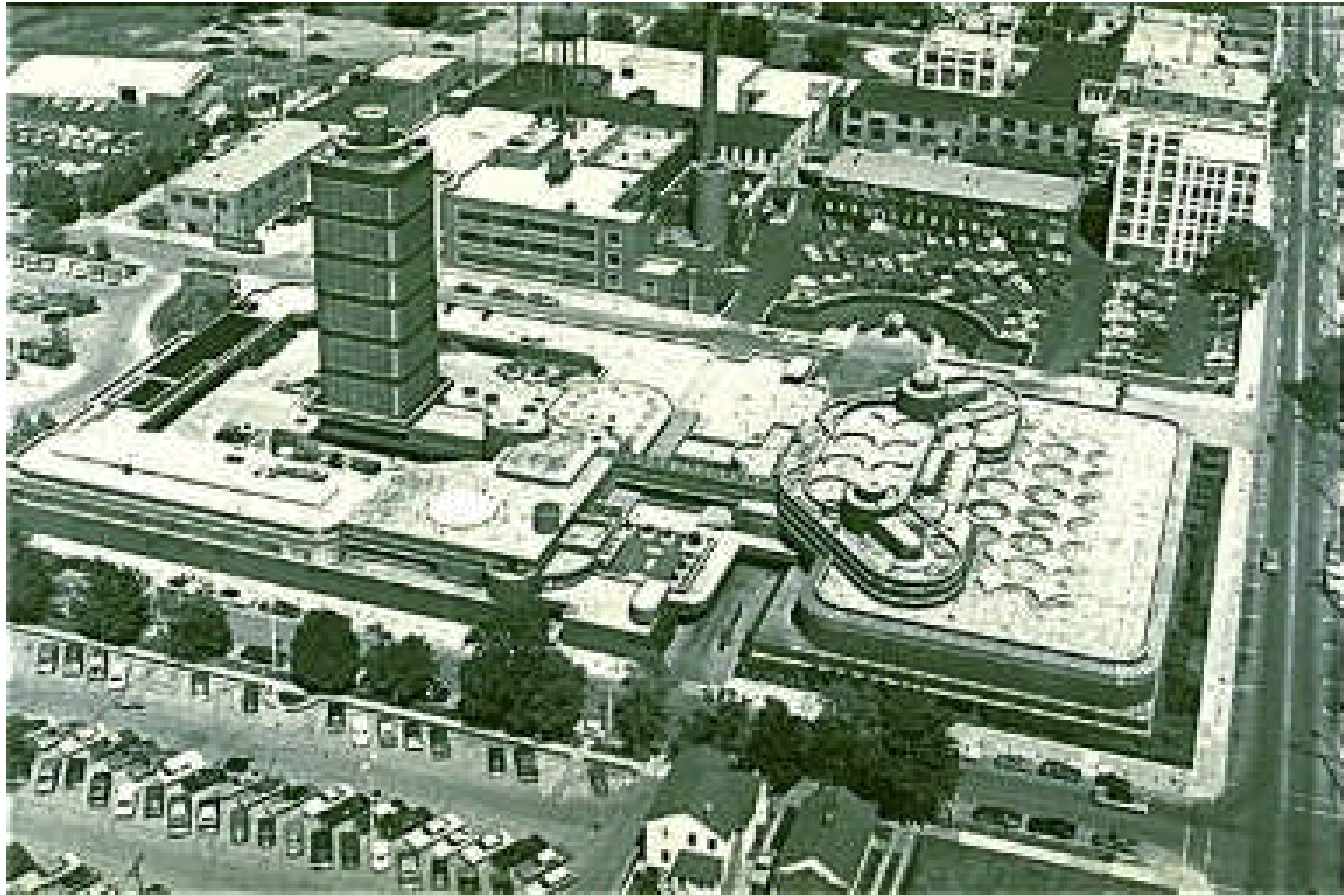
***Popular Mechanics, January 1950***

**Above: caption: “Artist’s rendering of the research and development tower and administration building of the S.C. Johnson and Son Wax Company”**

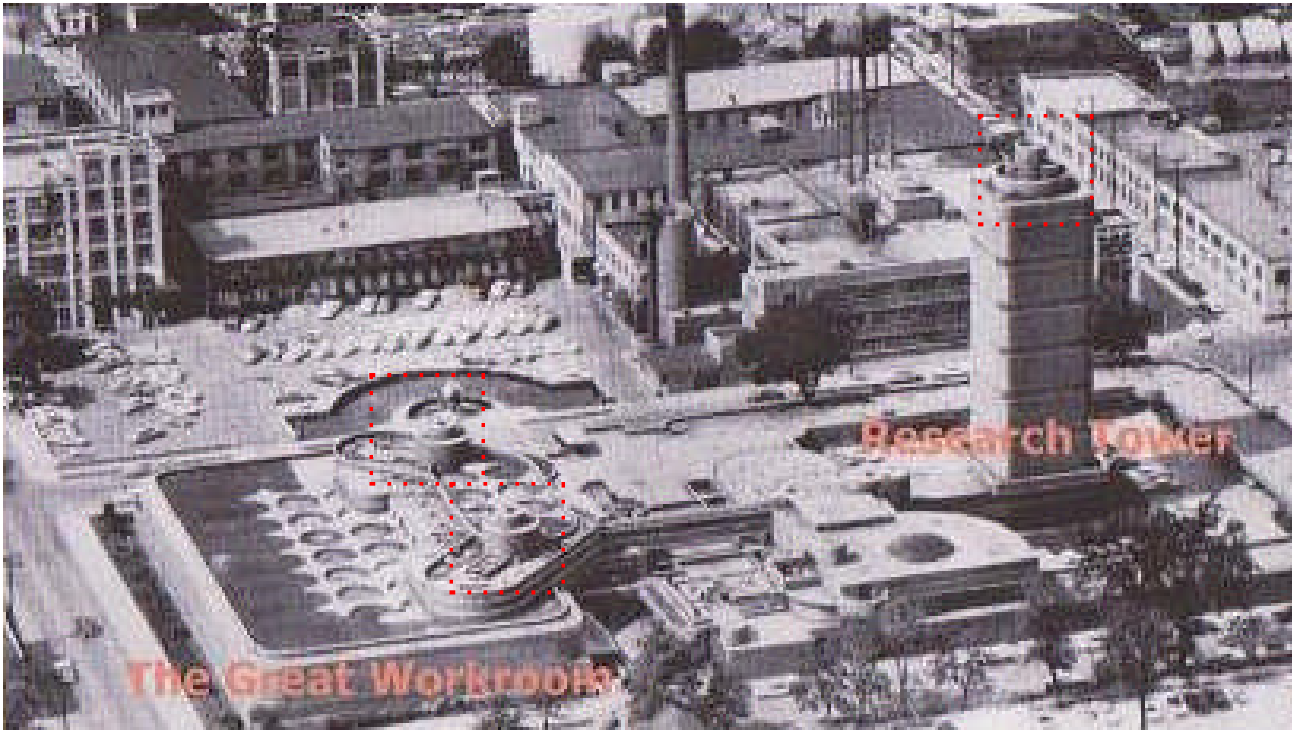
FIRST FLOOR

- 1. Covered parking
- 2. Garage
- 3. R&D Laboratory
- 4. Office
- 5. Groundskeeper's storage
- 6. Research and development department lobby
- 7. Corridor
- 8. Great Workroom lobby
- 9. Great Workroom



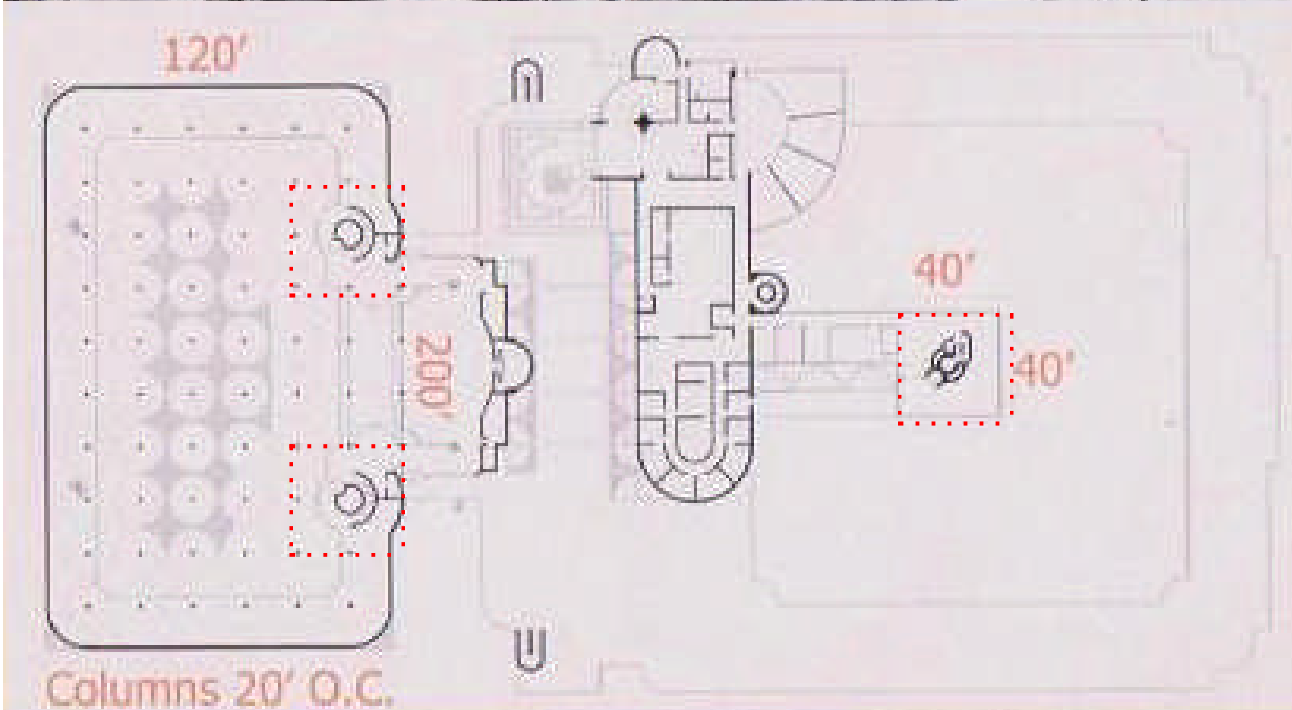






**Above:** glass-tube enclosed walkway connecting the Administration Building with the Research Tower

**Left T&B:** the Research Tower project included building new office space north of the Administration Building carport and a portico on the east, north and west sides of the Tower. The east and west porticos were later converted to laboratories and offices. The top of the Tower reprises FLW's earlier design for the "nostrils" (service cores) above the elevators of the Administration Bldg. (highlighted in photo & 288 plan)







**Above & Left: Tower base**







**Top Left: caption: “Exterior, General View Towards West Drive-In Entrance”**

**Top Right: caption: “Exterior, West Drive-In Entrance”**

**Left: caption: “Exterior, Brick Construction at West Drive-In Entrance”**

# **Innovation & Domesticity**



## A FAMILY COMPANY

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As a family owned business, the Johnson Wax company's emphasis was (and still is) on the virtues of family. Thus, the ideals of family were supported by the company and its policies and marketing efforts, then and now. The Administration Building campus would, therefore, emphasize this belief. Upon entering the courtyard area, two large statues welcome the visitor; one male (left) entitled "Innovation" and the other female (right) entitled "Domesticity." Both were designed by FLW and were meant to illustrate how family friendly the SCJ&S Company is.





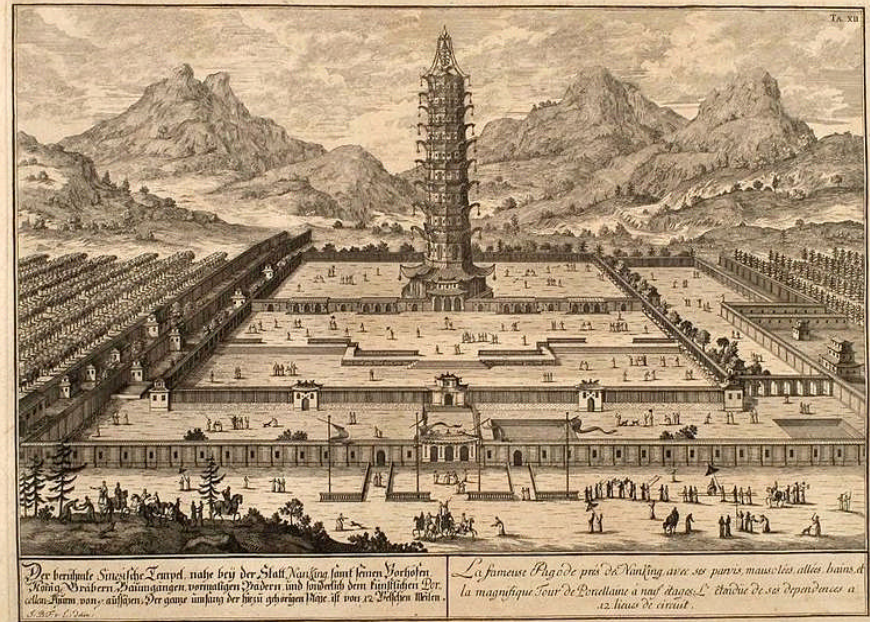


The two statues are situated outside the entrance to the Research Tower. *Domesticity* (left) is of rounded form/s showing a woman and her daughter carrying baskets; symbolic of domestic life. *Innovation* (right) is angular and shows a man teaching his son to use a bow and arrow; symbolic of inno- 296  
vation.



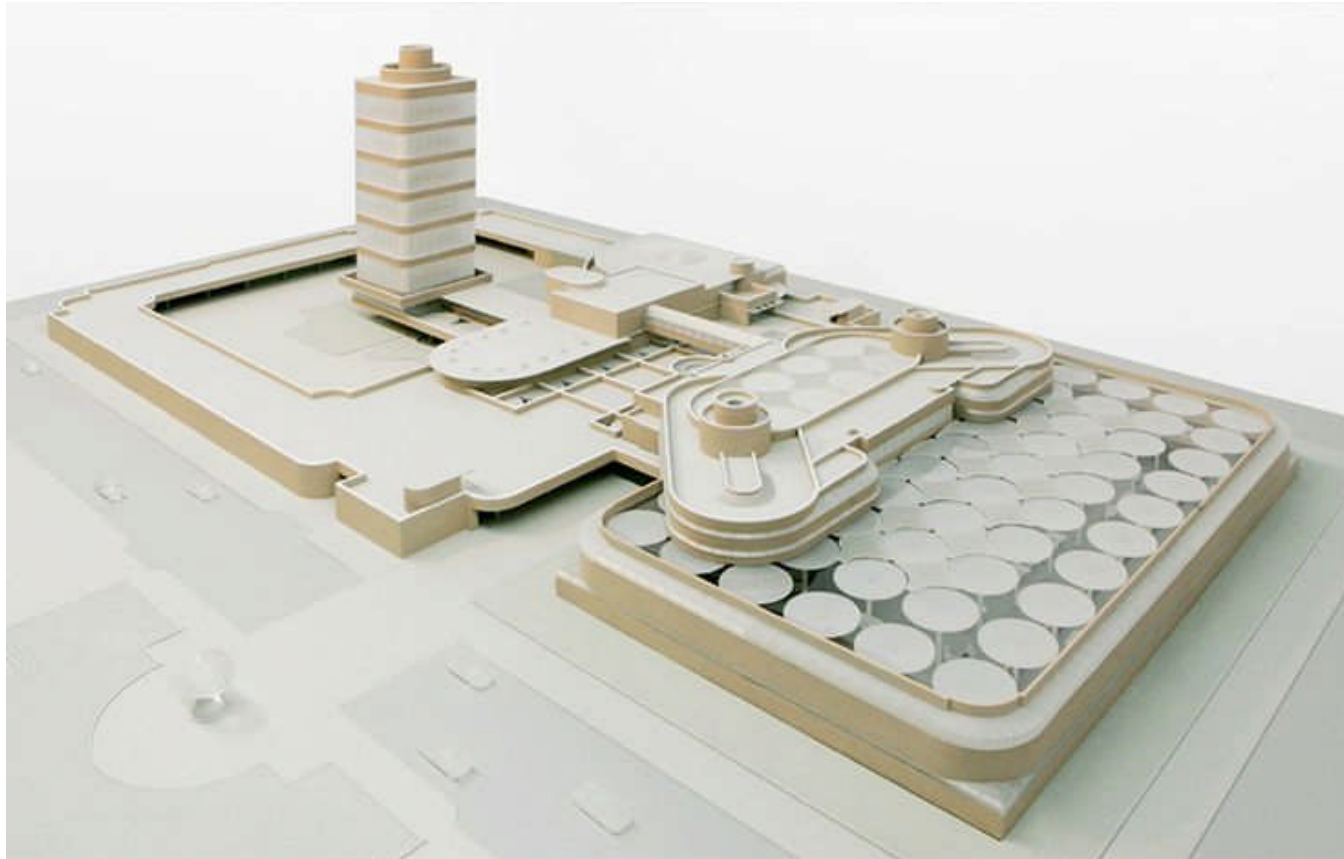


# **A Tower in a Garden**

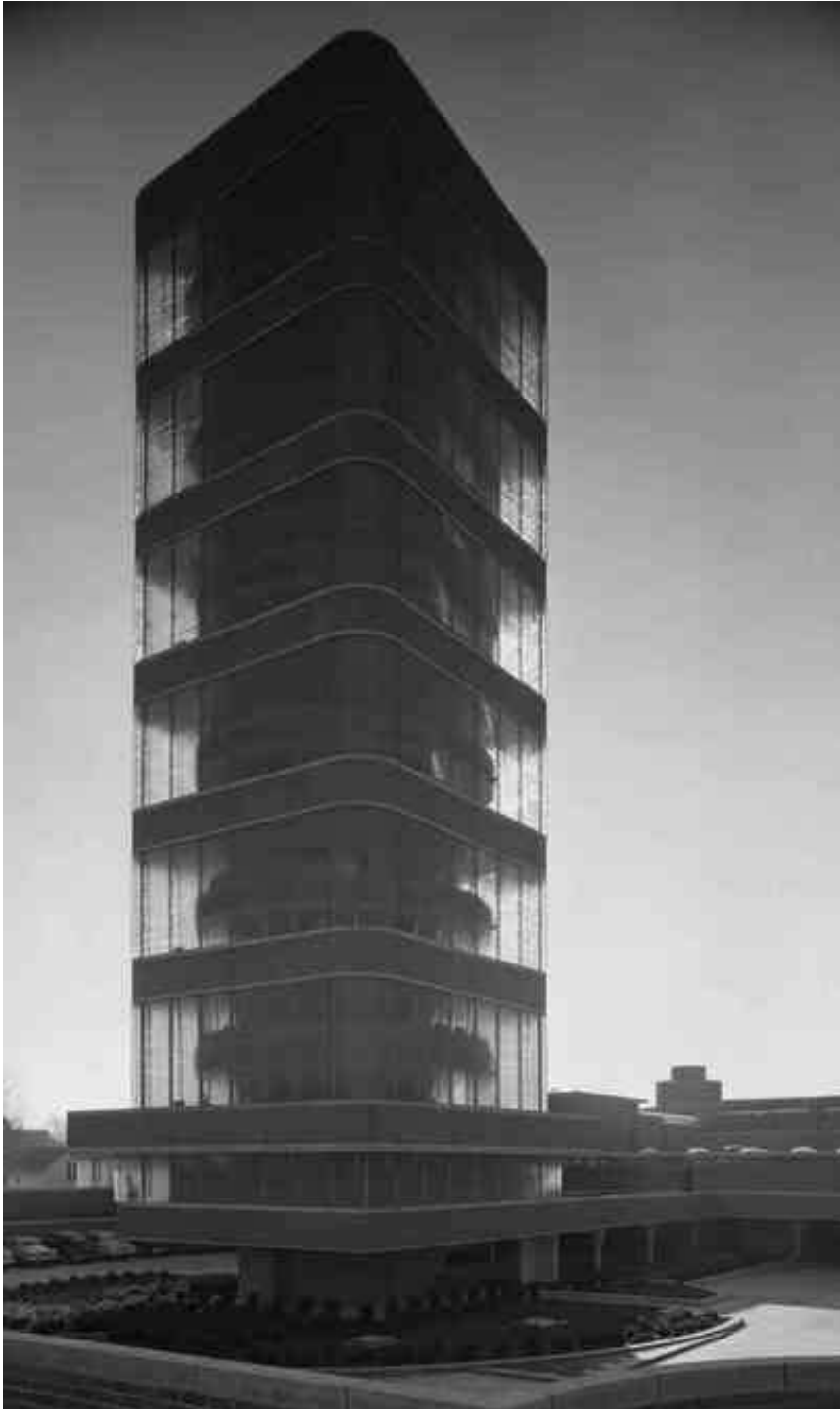


**Above: caption: “The Porcelain Pagoda (or tower) of Nanking.”** FLW borrowed the oriental concept of a tower rising from the center of an enclosed garden for the SC-J&S Research Tower.

**Left: caption: “Exterior view-south side of Tower”**



# **Let There Be Light**

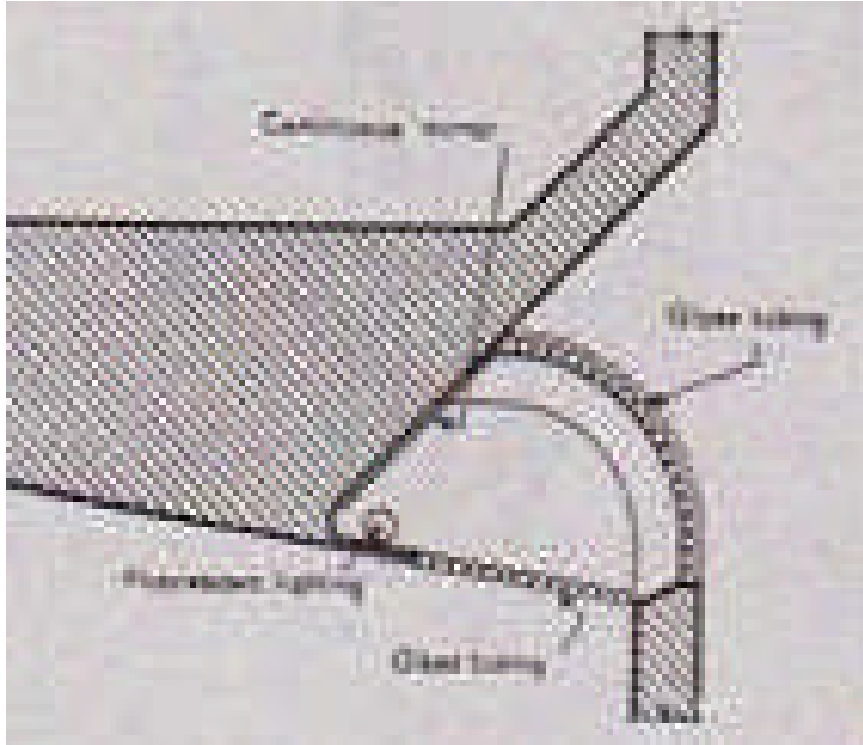


***“...One example is the research building now under construction for the maker’s of Johnson Wax in Racine, Wis. The structure will be 15 stories high with circular walls of tubular glass. Alternating with the main floors will be circular floors inside the walls. The entire building will be supported by a circular masonry stem extending 50-feet into the ground. According to Wright, the building will be flooded with light and will house the research offices in natural relationship flowing downward...”***

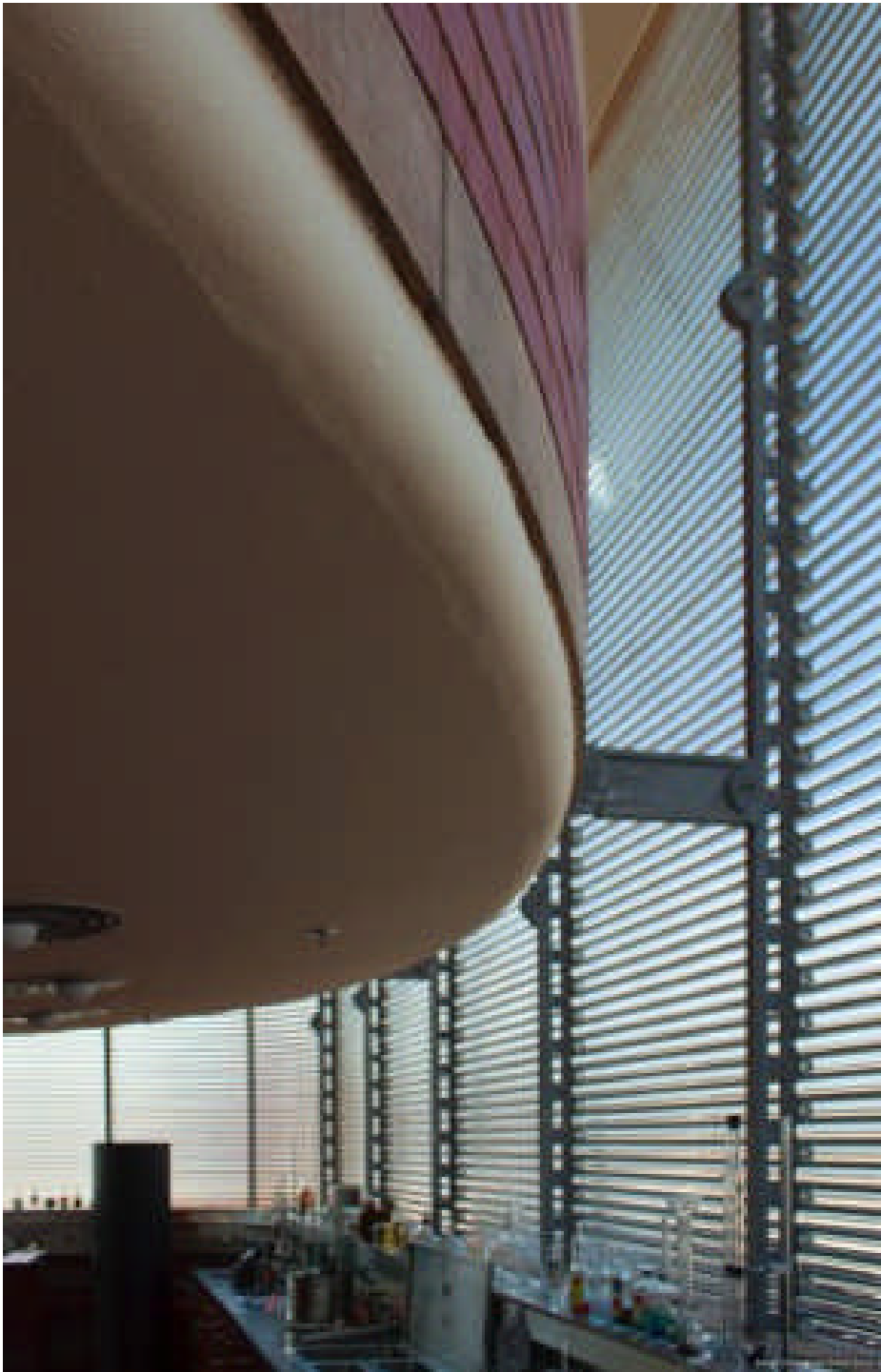
***Popular Mechanics, April 1948***

***Left: caption: “The Johnson Wax Research Tower”***



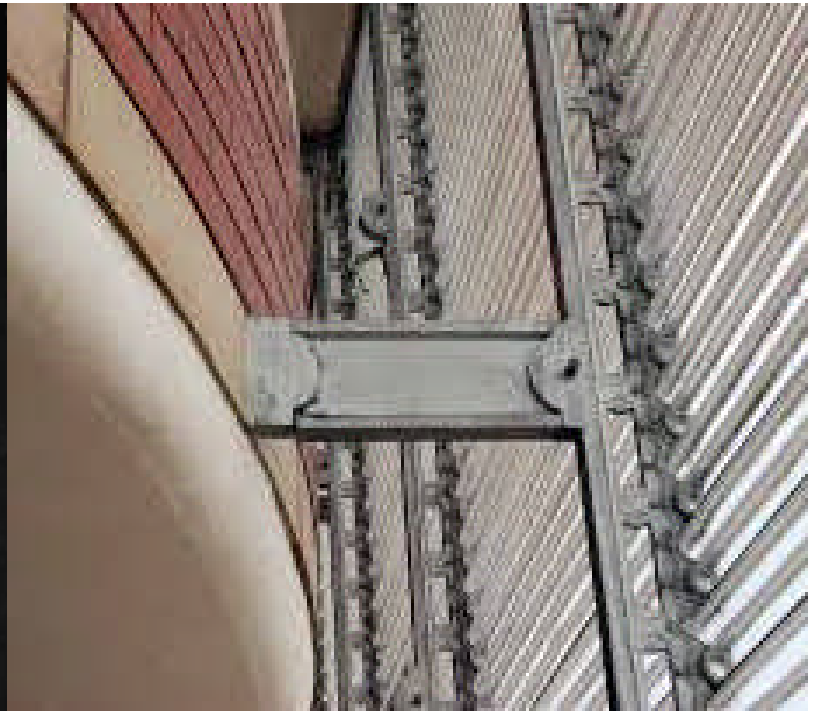


A double wall of hollow glass tubes extends around the perimeter of the Research Tower (for approximately 70% of the facade), in luminous contrast to the cantilevered floors. FLW used the details of glass tubing he had originally planned for the *Guggenheim Museum* in NYC (piled up vertically as being the easiest configuration to be made watertight - unlike the clerestories and lanterns of the Administration Building).  
Left: caption: “Guggenheim Museum Detail”



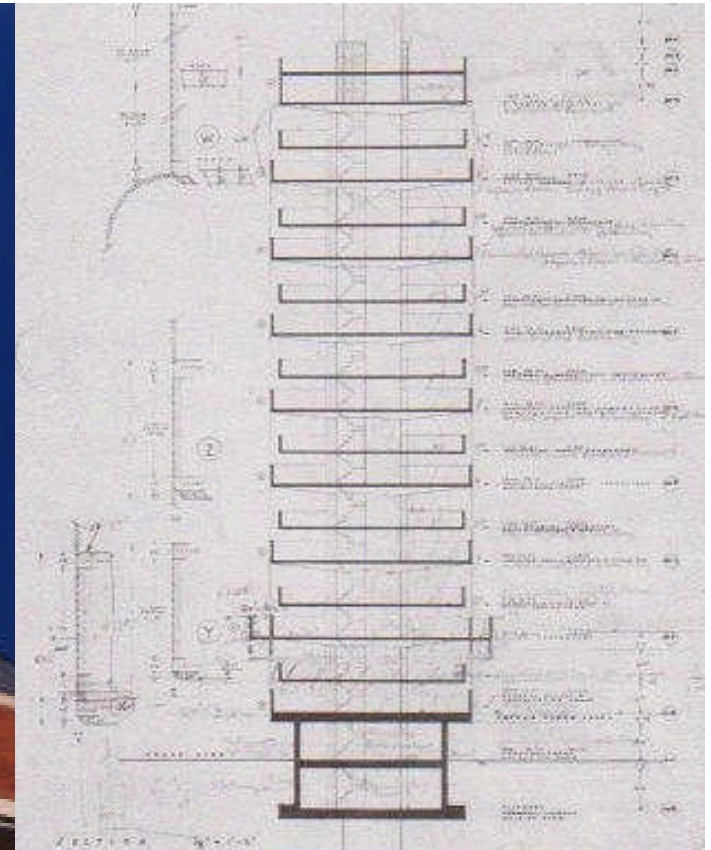
By the end of 1943, FLW was considering four glass tube systems. In the first, a series of tubes would be accommodated inside an aluminum-perforated rack; similar to the Administration Building. A second and more expensive system provided for tubes with two grooves on opposite sides. In this way, a metal sheet would seal the system; conveniently fitted between the grooves of adjoining tubes and screwed to the rack. A third system included a single line of solid adjoining tubes without any sealant, requiring a line of glass sheets hanging from the inside so as to make cleaning easier. This system was abandoned almost immediately because of the dust that would reach the tubes and the condensation that would form (it was also the most expensive system). The last system provided for the replacement of solid tubes with hollow ones in order to guarantee the lighting effect desired. This would be the chosen system. Twenty-eight glass tubes to a rack were fixed with wire by a loop knot, similar to the Administration Building. Once in place, a flat glass module would be installed in front of the glass tubes.

Left: caption: "Glass tubes at circular mezzanine"



**Above: caption: “Interior circular floating floor – Research Tower”**

**Left: caption: “One-quarter-inch-thick plate glass windows formed the building’s inner walls, with three inches of air space between them and the exterior Pyrex glass tube windows. The design was effective in cooling the work space. The plate glass windows were removed when the building closed in 1982, because their weight added stress to the Kasota stone at the bottom of each window.”**



***“We wouldn’t have to have any material in between the tubing, material that hardened and then it would loosen and the water would come through”***

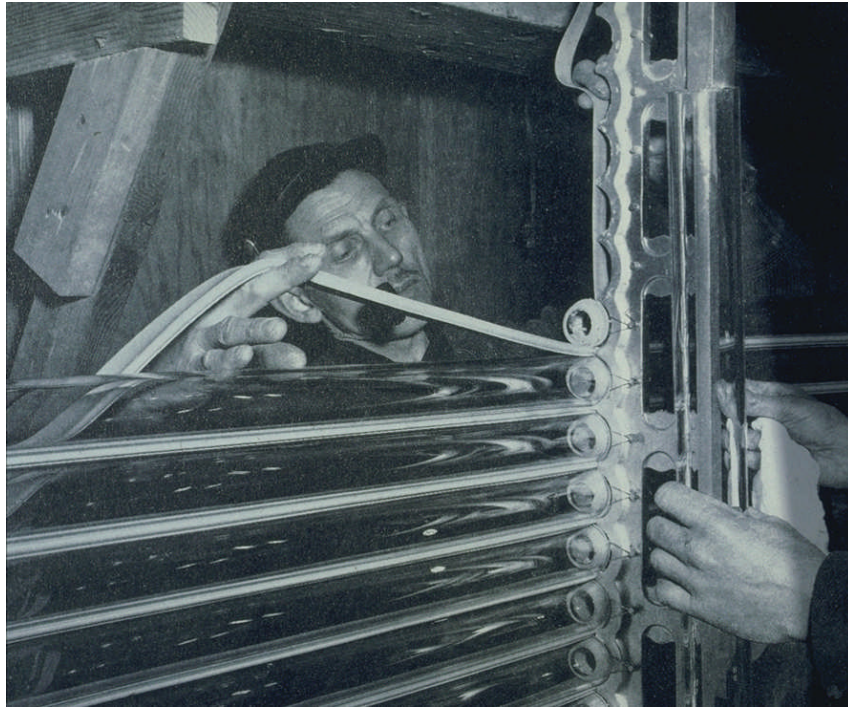
***Dr. Don Whyte, SCJ&S Chemist***

**Left: view from the tower’s base of the glass-tube bands, each two-story’s high**

**Right: caption: “Preliminary section through the Research Tower, with detail sections”**



One of the Administration Building's most innovative details, the use of *Pyrex* glass tubes (the same material as the chemist's test tubes, above & left) to create translucent lighting, produced fine lighting effects but leaked whenever it rained. Dr. Whyte and other chemists urged FLW to consider sheets of plastic tubing for the Research Tower's windows instead of more leaky glass, but FLW would not budge. The sealing mastic used eventually hardened and leaked, as predicted. After spending several years trying to stem the leaking in the tower window seals, silicone caulk (developed by *Dow-Corning* in 1958) was used effectively.



As a sealant, *Corning Glass* (with FLW's approval) resorted to a single layer of open-cell *Koroseal* which was separated by a lining, waterproof and easily moldable by adhering it to the tube (both longitudinally and as a ring on the external head joints). By becoming excessively distorted (because of the weight of the overhanging tubes and by contracting on the glass surface) it became necessary to use plastic wedges to take the weight off the tubes. Furthermore, having to adjust to the variability of the tube/s diameter, the *Koroseal* installation required the use of precise measuring instruments.

Left: caption: "Installation of Glass Tubing"

# Heliolab

***“...Like so many of Wright’s works, the Research Tower succeeds as an aesthetic object, but from the beginning it presented an almost endless series of difficulties. Wright nicknamed it ‘the helio-lab,’ but helios proved an enemy instead of a friend, overheating the building and threatening to parboil and blind its occupants. Wright had as little use for awnings and shades as he did for screens...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright*. Subject to the *Greenhouse Effect*, it was necessary to screen the sun’s radiation from coming through the full-length glass windows on the west-side of the tower in order to provide comfortable working conditions. Despite FLW’s optimism, there were immediate seepages and leakages in the glass tube curtain wall (due to the splitting of the lining that expanded during the summer heat and contracted in the winter cold). In 1958, new flexible linings with a synthetic rubber base (consisting of rubber with a waterproof silicon composition) were successfully installed.**





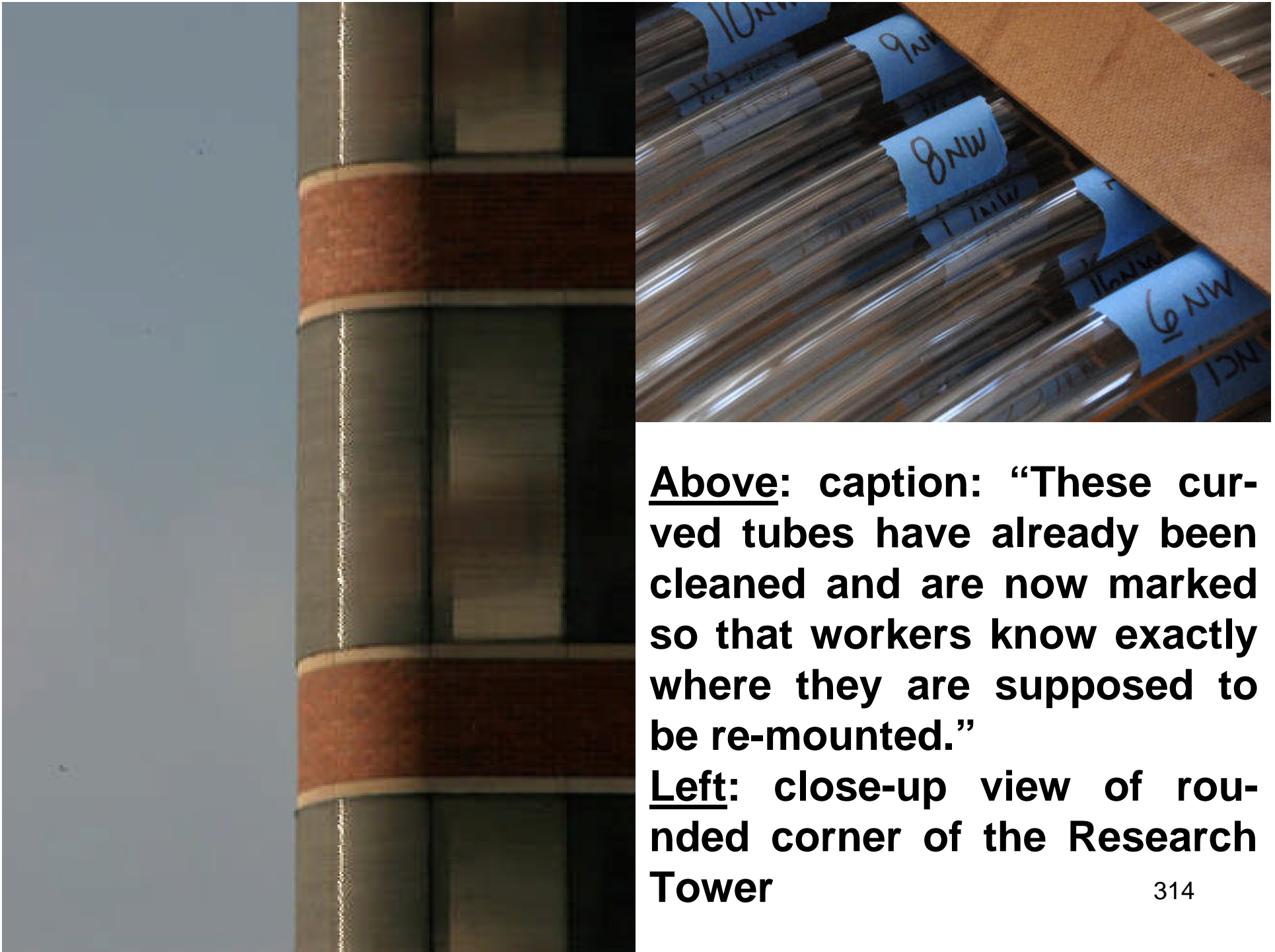
***“...But as with the administration building, the years have not been kind to the R&D tower’s glass facade, or the brick layers between each floor, and today, SC Johnson is fully restoring it...Now, workers are feverishly re-placing the entire brick facade, while also replacing the straight glass tubing from each side of the tower, and restoring the curved tubes from its corners...”***

**CNET, July 26<sup>th</sup> 2013**

**Left:** caption: “Though much of the straight tubing on the building’s sides is being entirely replaced, SC Johnson decided to keep the curved tubes that were mounted on the building’s corners. As a result, workers are meticulously cleaning these tubes. This is a stack of the curved tubes, which are awaiting cleaning.”

**Right:** caption: “Here, we see a section along one wall where some of the tubing has already been replaced with all-new glass, while some has yet to be fitted. That means that, for the moment, there is a view out of the building that will never again be possible once all the new tubing is installed.”





**Above: caption: “These curved tubes have already been cleaned and are now marked so that workers know exactly where they are supposed to be re-mounted.”**

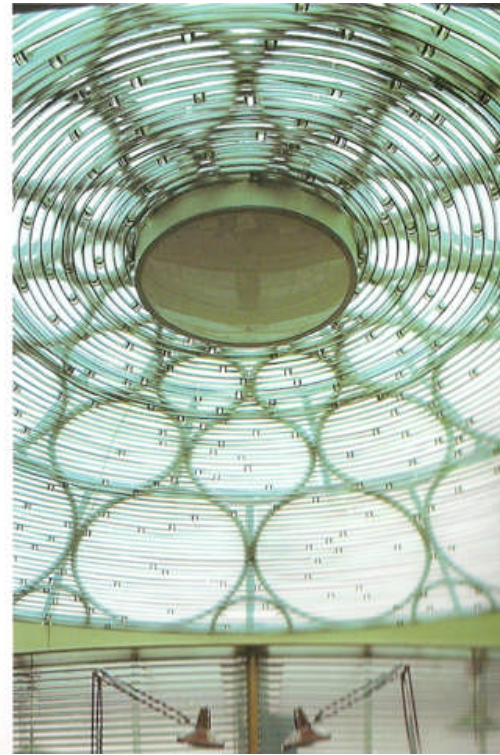
**Left: close-up view of rounded corner of the Research Tower**



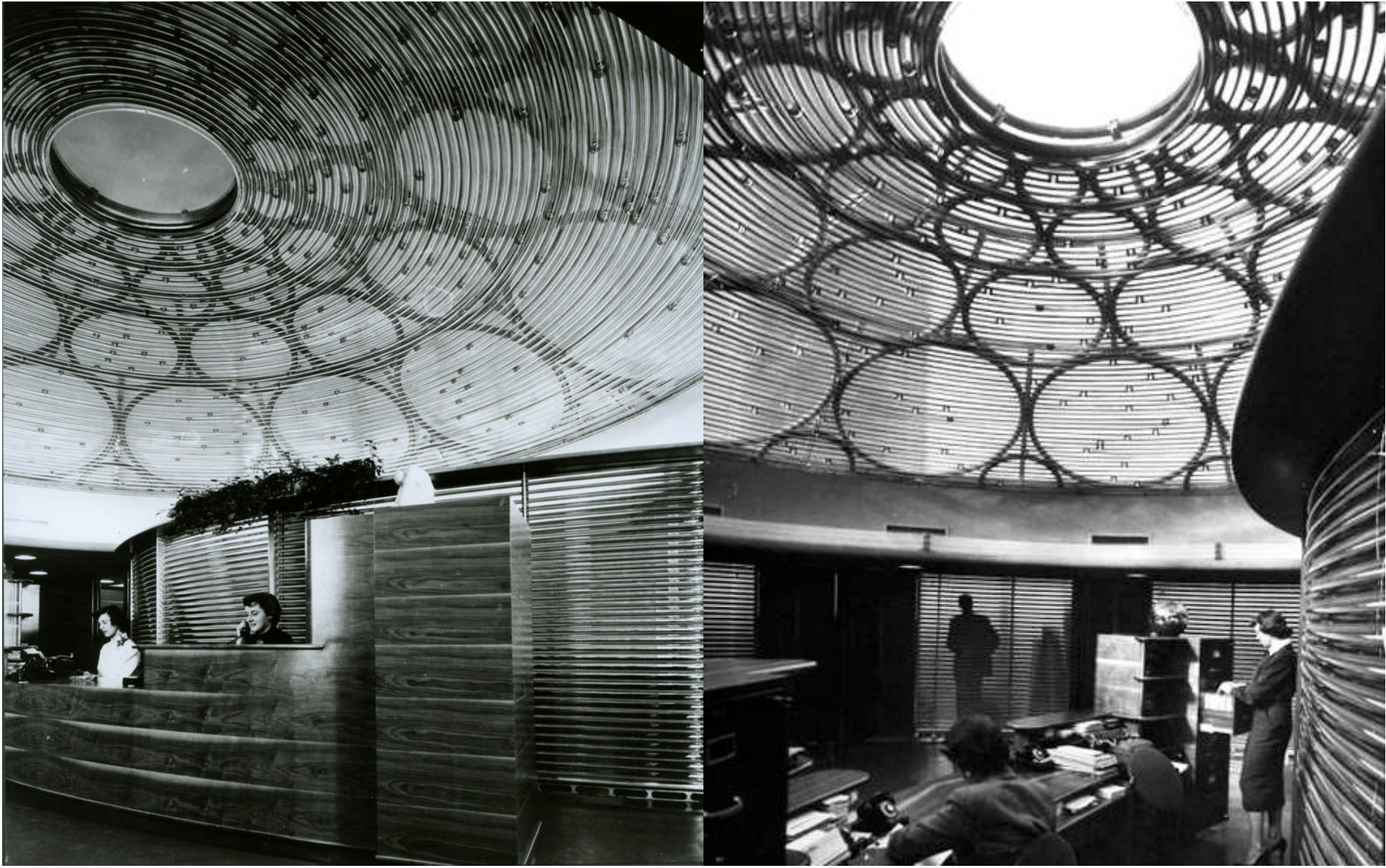


**Above:** caption: “This is an original gasket from the building, which has been taken off for cleaning. Once cleaned, it will be remounted in order to have tubing fitted over it.”

**Left:** caption: “The key to installing the new - and restored - glass tubing is mounting them on special gaskets along the building’s side, as seen here”



**Above L&R: caption: “Bridge From Penthouse to Employee Squash Court (left) / “Reception Area Ceiling” (right). FLW was distancing himself from the strenuous advice of his assistants and the contractor that plate glass over the Administration Building skylights would be essential. He claimed that what was good enough for the glazed cornice was good enough for the skylights. However, glass was eventually installed over the skylights. The pair of photos illustrates the difference between one form of Pyrex tubing installation and another. To the layman, both might seem comparable, but the installing contractor might bid three days for the left-hand example and three weeks for the one on the right because of the many bends, each concentric row of a differing radius, that are required (several errant bends can be noted in the photo). The bends in some parts of the compound, including all of the tower, were considerably easier than the dome above (or the corners of the main structure) because the bends are simple cylindrical sections, with every layer of tubing bent to the same radius.”**







# Faux FLW



**Above: caption: “The visitor center used a molded plastic window that only looks like the tubes on the original building, but was cheaper and leaks less”**

**Left: caption: “Planter made from laboratory bottle, in front of window in the modern glass tower”**

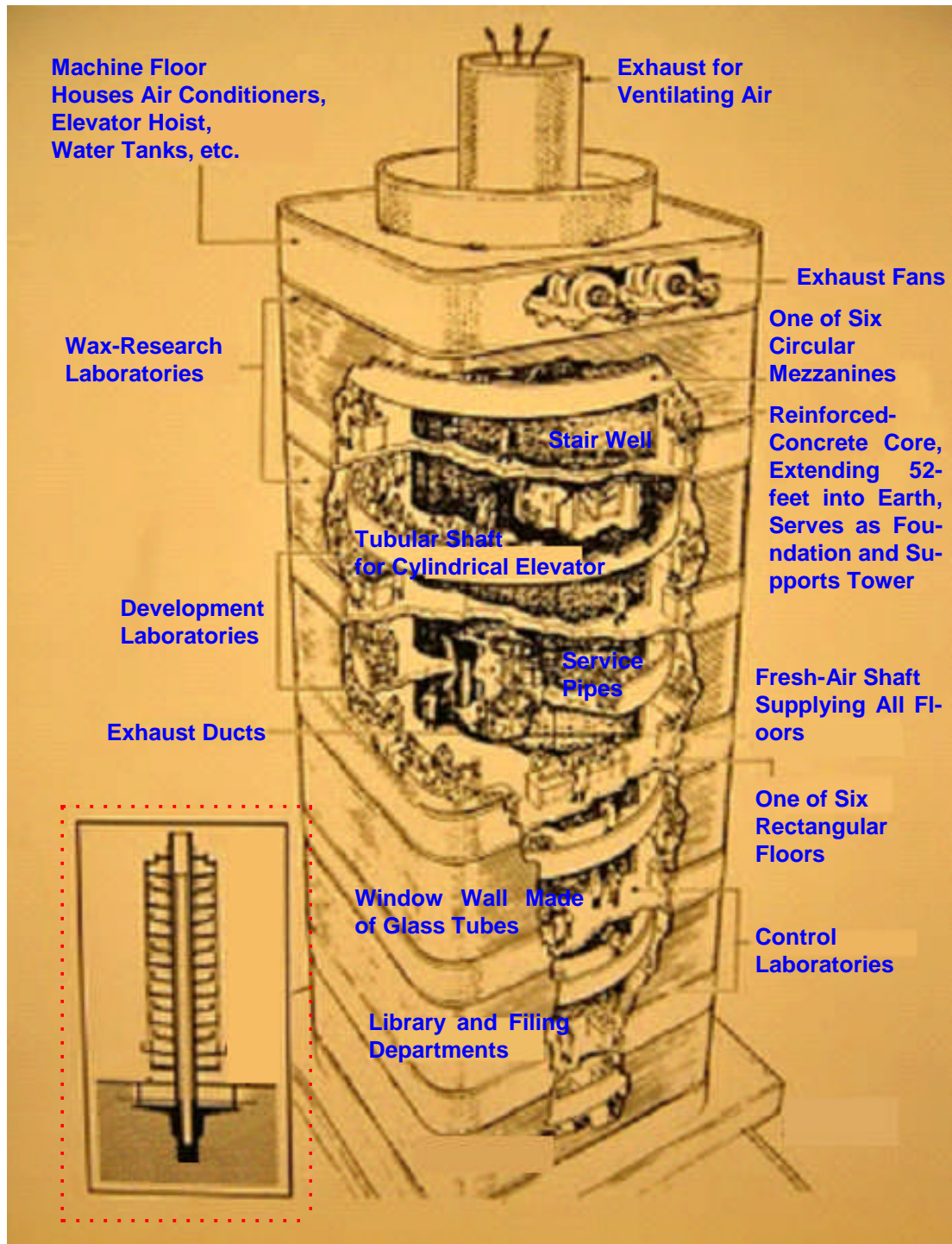






**Above & Left: caption: “Second and Third-story addition over the East Wing of Research Tower Courtyard, designed in 1961 by Taliesin Associated Architects. Pleading austerity, the Johnson Company insisted on substituting corrugated sheets of *Plexiglass* for the *Pyrex* tubing. The remainder of the exterior was executed in the same materials as the original buildings.”** 324

# **Just Like a Tree**

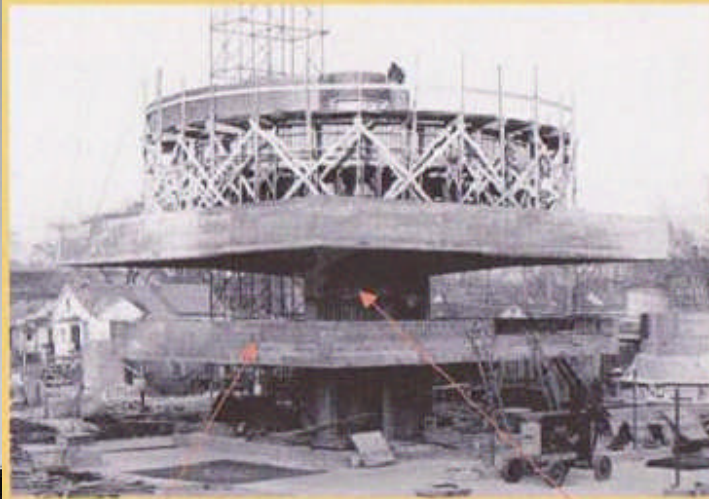


**“...A 15-story research laboratory for S.C. Johnson Wax & Son, the wax-making firm, it looks something like an oversized chimney, but actually is more closely related to a tree. The foundation and load-bearing frame is a reinforced-concrete core, like a tree trunk, that extends 52-feet down into the ground and rises 156-feet into the air...”**

**Popular Mechanics, Jan. 1950**  
**Left: cut-away section through tower (vertical section in caption)**

The foundation of the Research Tower is a fifty-four foot deep “tap-root” that is reminiscent in section of the capitals of the “Dendriform” columns in the earlier Administration Building. The foundation of the tower begins as a broad, flat disk on a “petal” acting as a spread footing that stabilizes the nineteen-foot shaft at the bottom of the foundation. This shaft acts only in absorbing the compressive forces of the structure and is made of poured-in-place un-reinforced concrete. No formwork was used in the pouring in order that the concrete would bond better with the surrounding soil. The core of the tower, from which all the floors and mezzanines are hung, was the most difficult portion of the building to construct. It is through this element of the structure that all service and utility chases must pass as well as the stairwell and elevator. The 1,600 square-foot floors and 1,100 square-foot round mezzanines are supported solely by the central core. The hollow floor slabs are thick where they join the central support and thin at their extremes, reflecting where and how the loads and stresses are acting on the structure. The facade of the Research Tower is a non-structural skin of materials chosen to integrate with the Administration Building. The *Cherokee Red* brick forms a thin, decorative veneer which covers over the edges of the concrete floors. To complete the skin, FLW used *Pyrex* glass tubing laid row upon row on metal racks with vinyl gaskets and caulking between. Aside from live, dead, wind and seismic loads, the structure was also designed to take into account the event of an explosion which could occur in one of the laboratories.





Cantilevered floors:

Forty foot wide

Reinforced steel sheets and bars

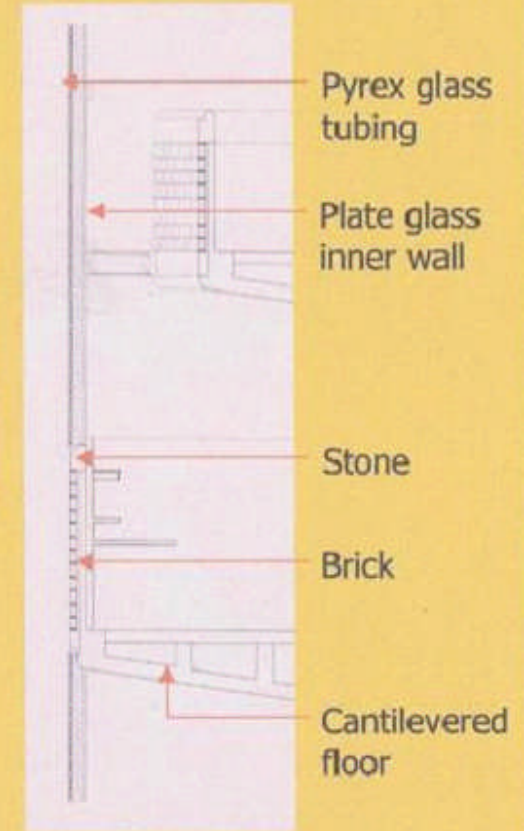
Hollow floor slabs for pipe work and conduit

Central core:

Fourteen foot wide

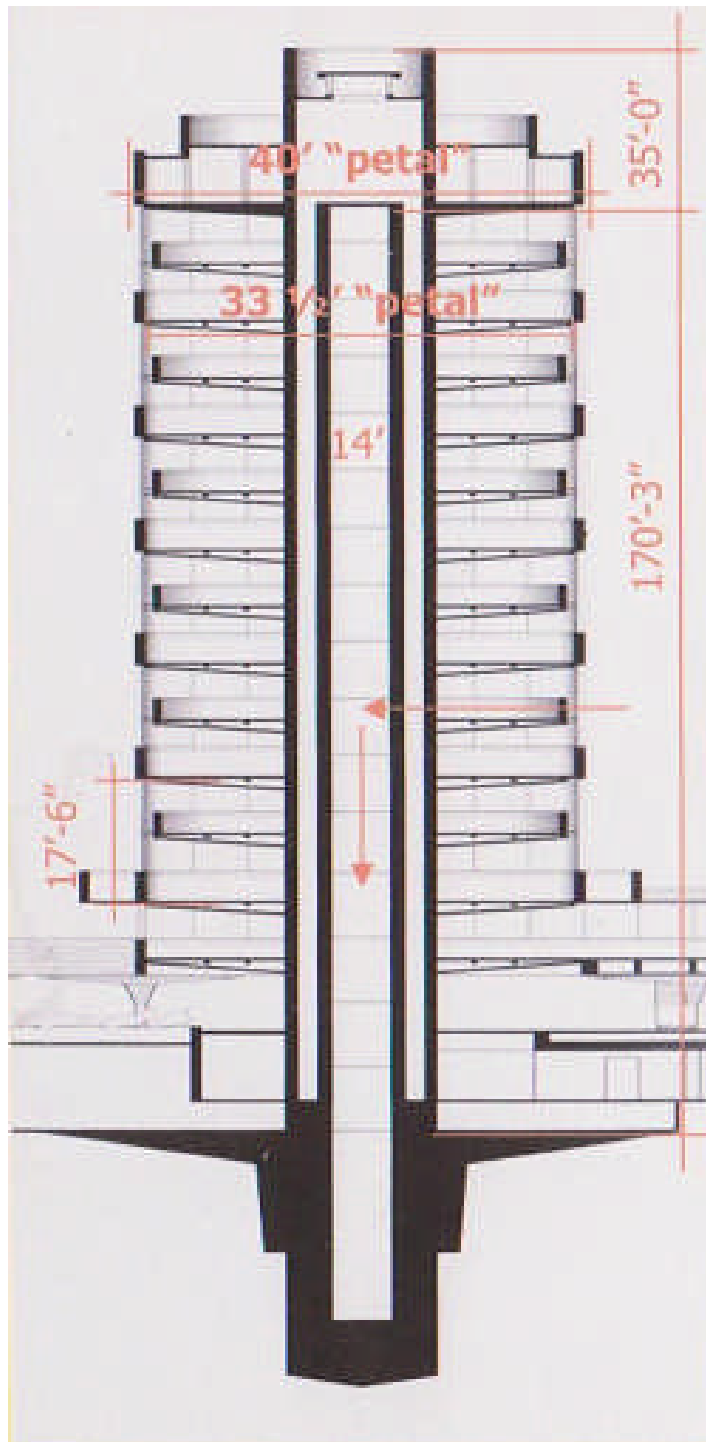
Circulation, Services, Utilities

Reinforced concrete walls 7"-10" thick

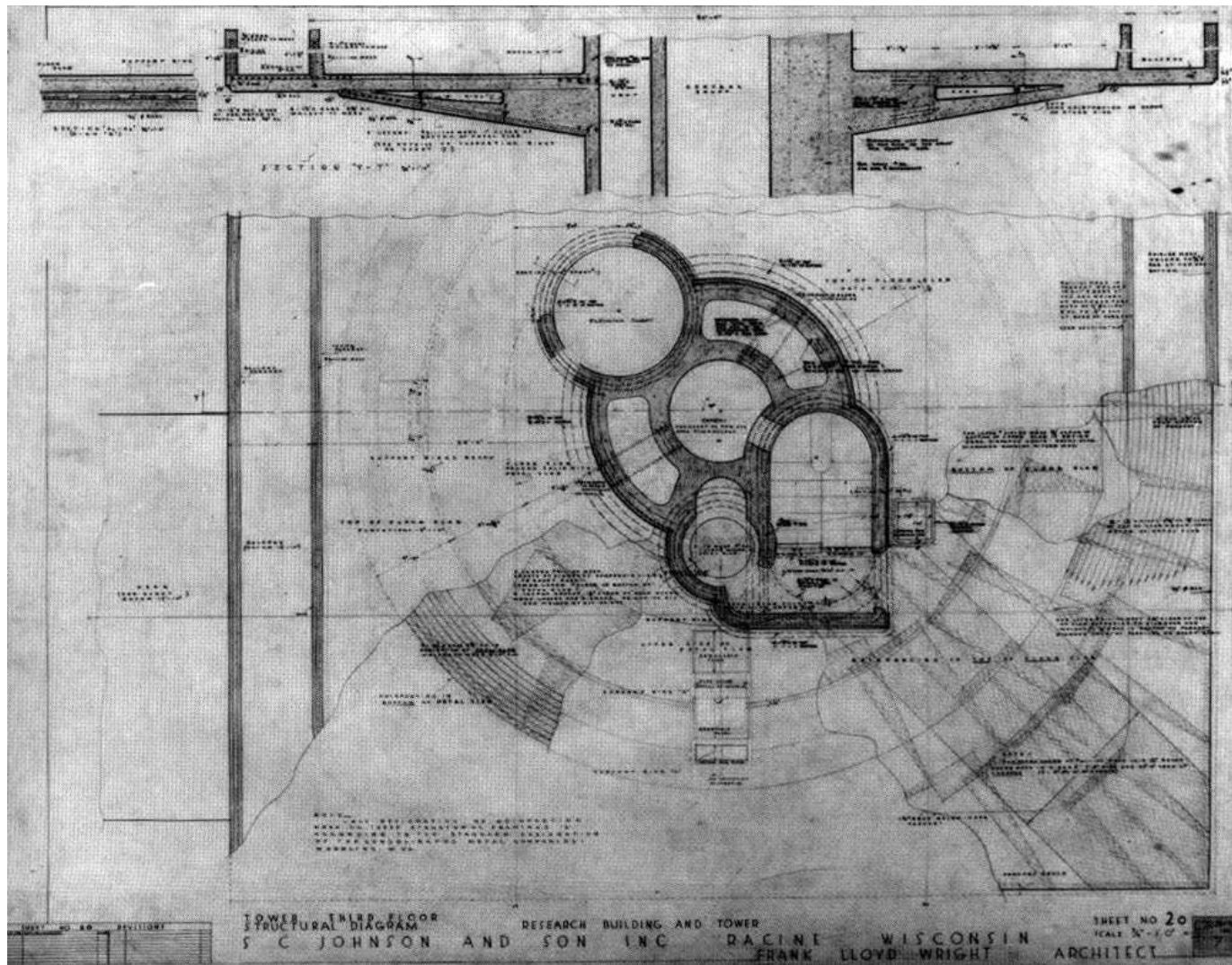


**Left: caption: "Exterior, Base of Tower Showing Support System."** The approximately fourteen-foot wide core, with walls of only seven to ten inches thick, needed to be constructed with great precision as well as strength. The steel reinforcing rods and wire mesh that reinforce the concrete was so densely packed that tiny pea gravel aggregate had to be used so the concrete would fill completely. During construction of the cantilevered floors, the lower layer was poured into formwork and then cured. On top of this, the pipes and conduits servicing the research facilities were laid, over which steel sheets and a framework of reinforcing bars were welded in place to handle radial stresses and shear. Finally, 328 the concrete floor was poured and troweled smooth.

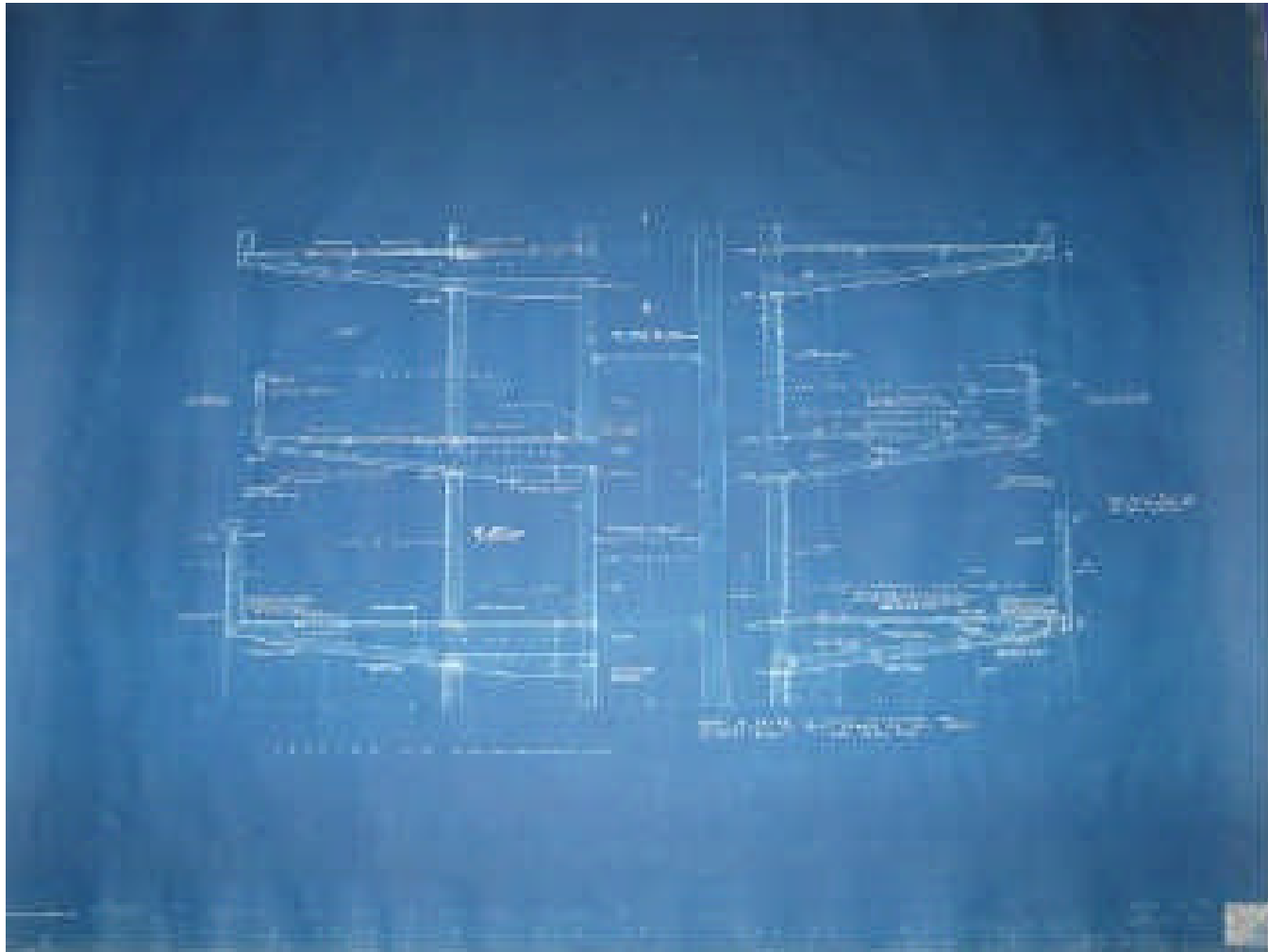




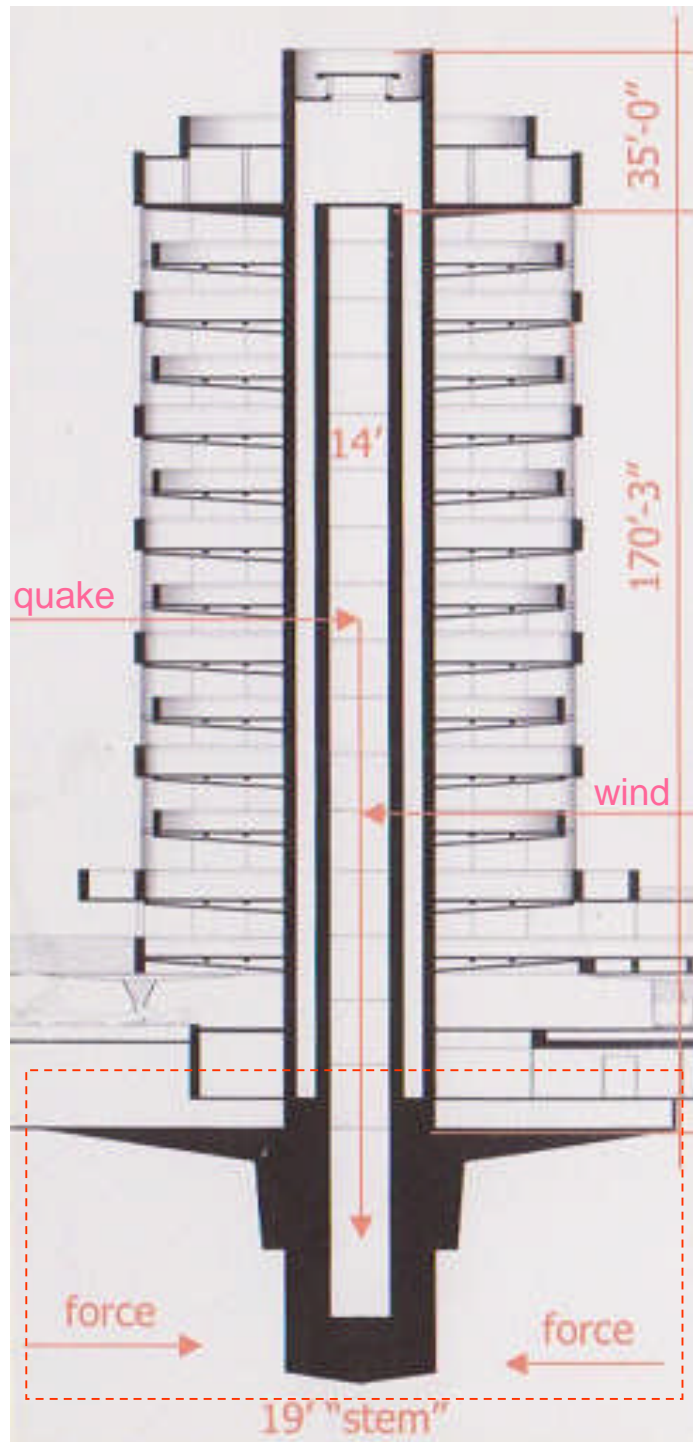
**Left:** caption: “Vertical Loading. Stepping pattern distributes loads outside to inside. Central core receives greatest load. Cantilevered floors are tapered and mimics stepping pattern load distribution.” The construction of the tower with its floors cantilevered from a central core makes the distribution of vertical loading fairly simple. The round, central core of the building protrudes through the roof and is the highest part of the building. All the loads are eventually carried over to and down through this main member and a surrounding circular element of smaller dimension. Below that lies the top floor. These three top elements create a “stepping pattern” in section, going from tallest in the middle to shortest on the outside. Therefore, the greatest amount of load is in the center, the least on the outer edge. Since the further from the center the load is, the more likely the cantilever will become unstable, whereas the closer the load is to the centroid, the less likely it will produce a dynamic load. Another crucial member involved in transferring vertical loads is the shape of the floors. Near the centroid, they are thick, and at the outer edges, they taper into a thin slab. This shape has to do with the dead-load of the structure itself and creates an even stress throughout the length of the floor. The greatest dead-load of each floor slab is near the central core and the least dead-load is at the outer edge/s.



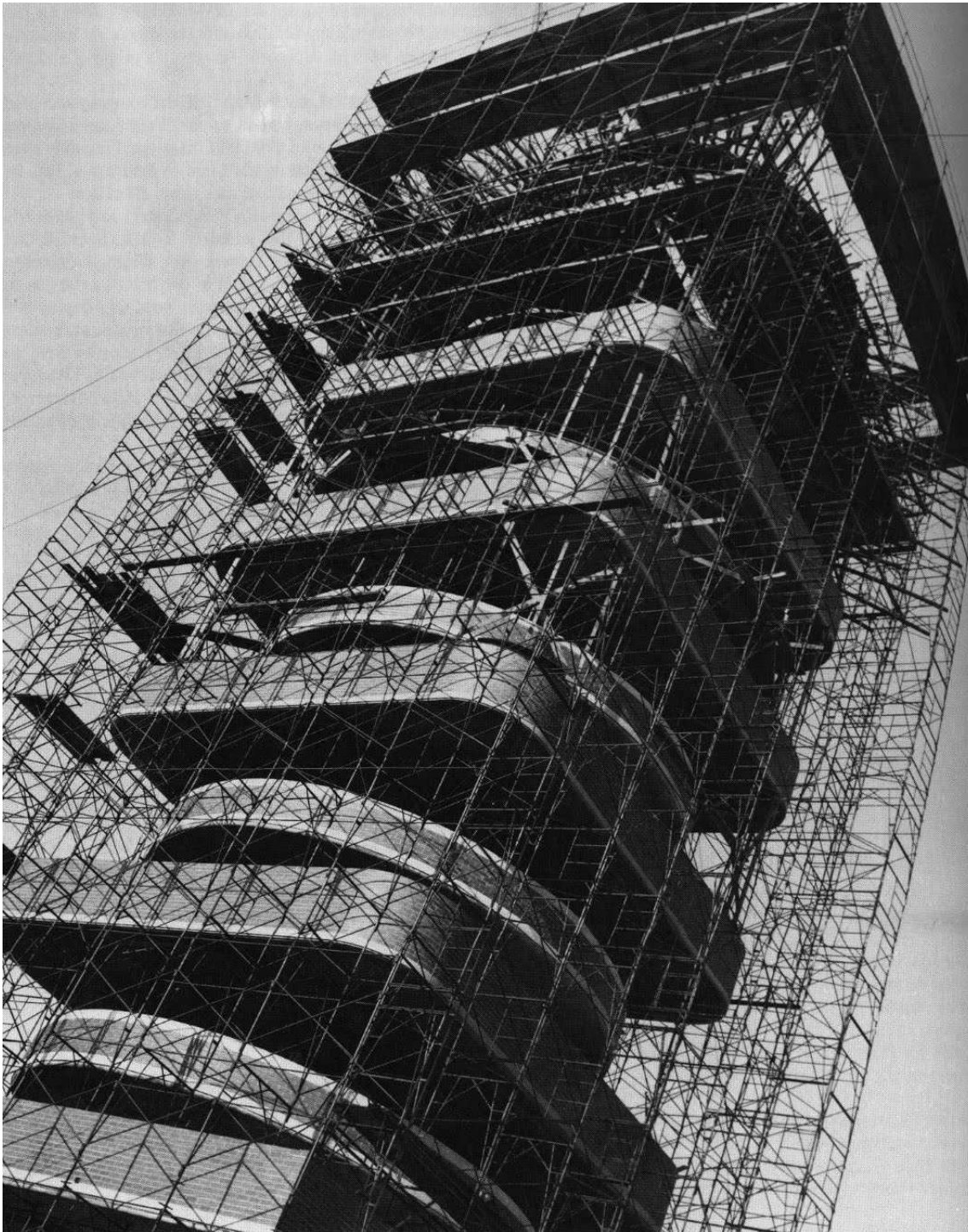
**Above:** caption: “Tower Third Floor Structural Diagram.” All of the vertical loads are transferred through the cantilevered floors and down through the central core of the building. This central core continues down through the earth and is the deepest portion of the foundation. Thus, this strong, vertical central axis is the stabilizing element of the structural system. All loads are carried over to it and down through it into the foundation and out through the ground.”



# State of Equilibrium



**Left:** caption: “Lateral Loading. Free-standing structure. Foundation resists wind and earthquakes. No formwork in ‘stem’ so concrete could bond with soil.” As with the vertical loading, the path of lateral loads is also relatively simple, for it involves only a few members. The tower, being tall and slender, seems vulnerable to the lateral forces of wind or seismic disturbance. Since the outer skin is non-structural, it does not participate in resisting either lateral or vertical loads. The tower is a free-standing structure and therefore its resistance to lateral loads such as wind and earthquakes must reside in the formation and structure of the foundation. At the foundation is found a large Dendriform-shaped column. The top plate, which acts as a spread footing, is an important member when considering the results of lateral loading. Not only does this plate distribute vertical loads, but it provides a balance and helps stabilize the large central core from tipping or swaying laterally. When a lateral load acts on the tower, the spread footing will push against the soil that is packed above it, and the pressure of that soil acting down resists the bending moment created by the force. The lateral load and the foundation footing create a couple and the force of the soil acting upon the spread footing create a couple in the opposite direction, keeping the tower in a state of equilibrium.

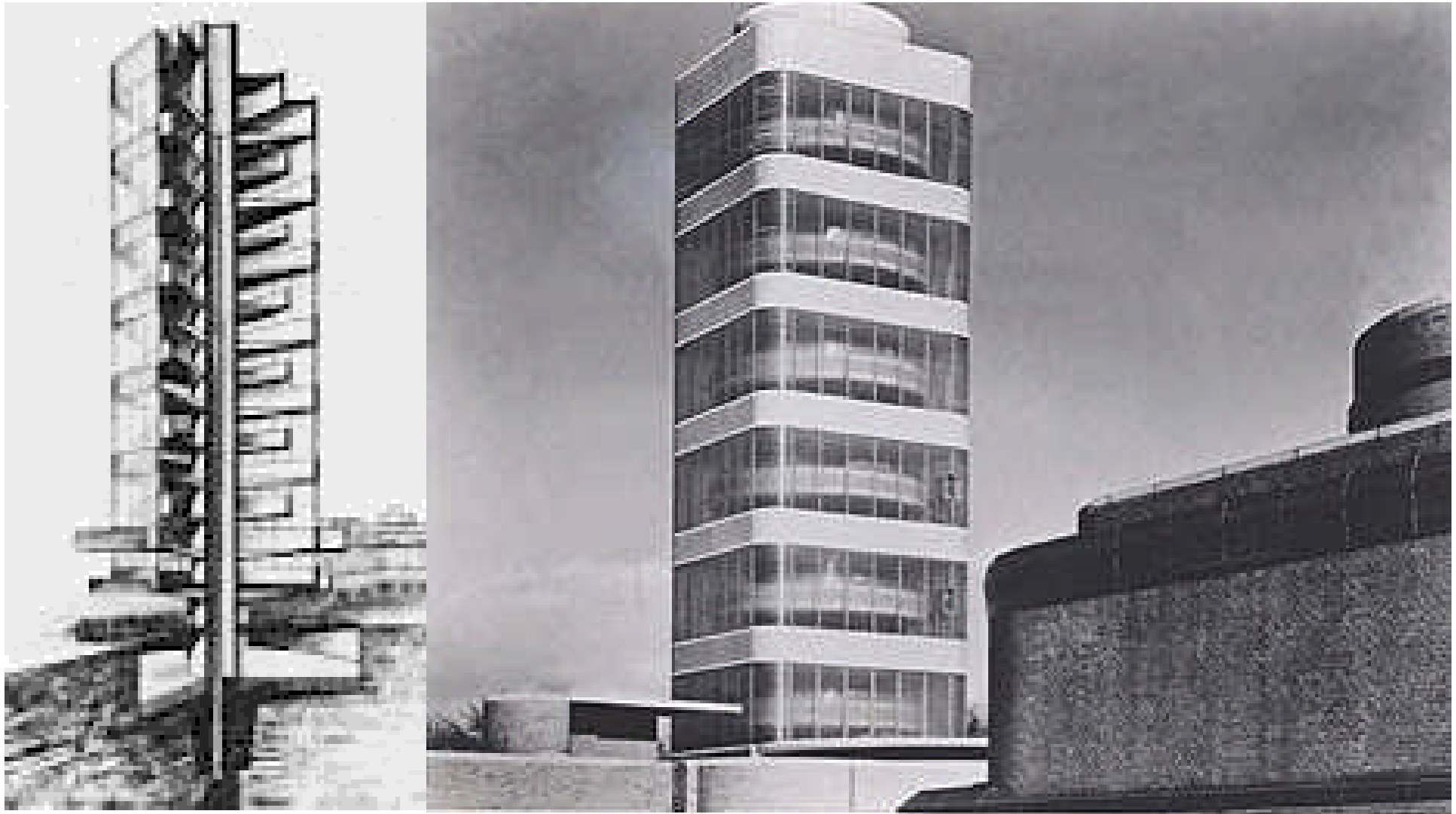


***“...There are two types of working floors: a circular mezzanine balcony over-looks a rectangular, full-width floor. Both types are unobstructed, open to all the light from the huge window walls...”***

***Popular Mechanics, January 1950***

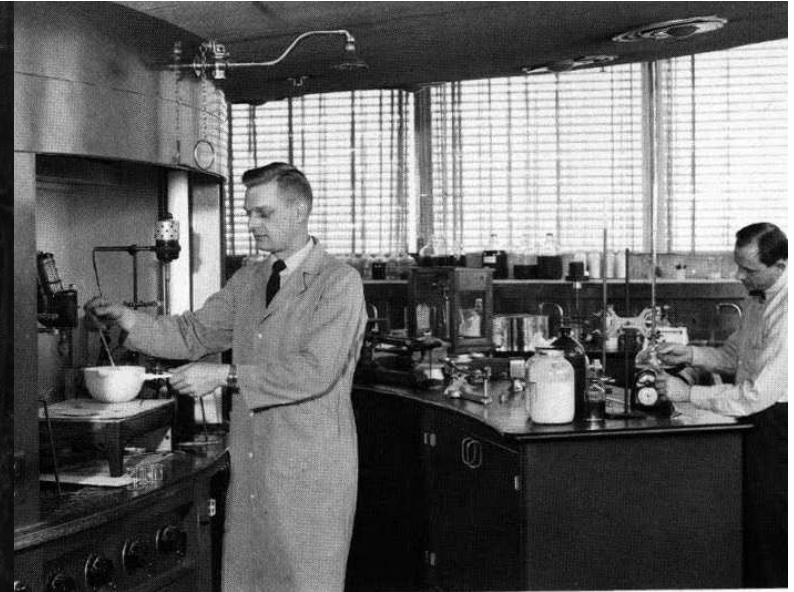
***Above & Left: caption: “June 14, 1949: The Tower looks like a child’s giant stacking toy, as alternating square and round floors hang from the core. The walls would not be load-bearing, so their construction followed that of the cantilevered floors.”***





***“...The working floors are supported by cantilevers from the core, like branches from a tree trunk. The outside walls are ‘curtain’ walls – they don’t support the building, but merely keep bad weather out. They are mainly two-story-high windows separated by bands of brick. The windows, made of glass tubing, are unbroken by sash...”***

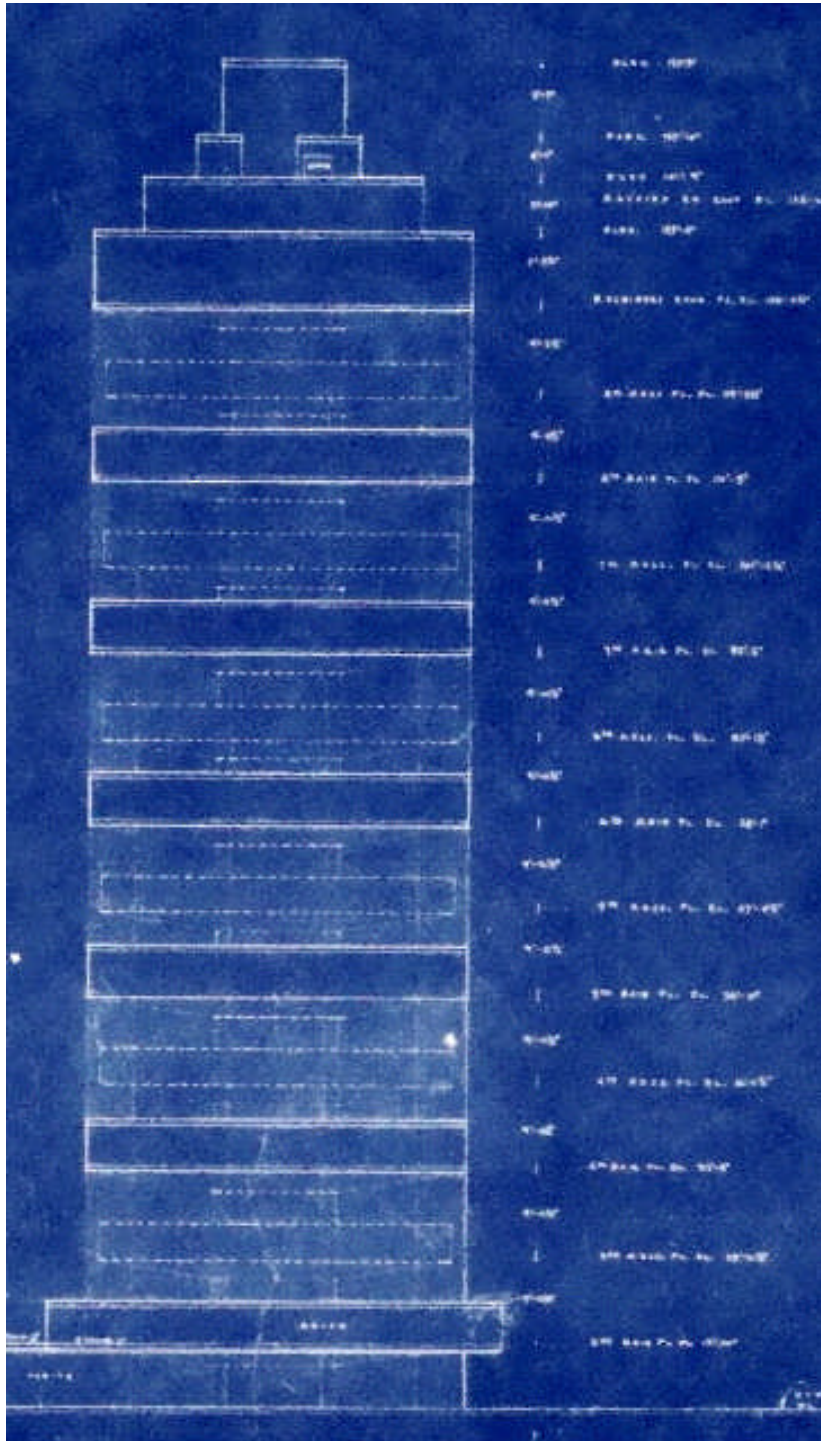
***Popular Mechanics, January 1950***



**Above: SCJ&S chemists at work in the new Research Tower (ca. 1950)**

**Left: an American flag atop the tower upon "Topping-Out"**





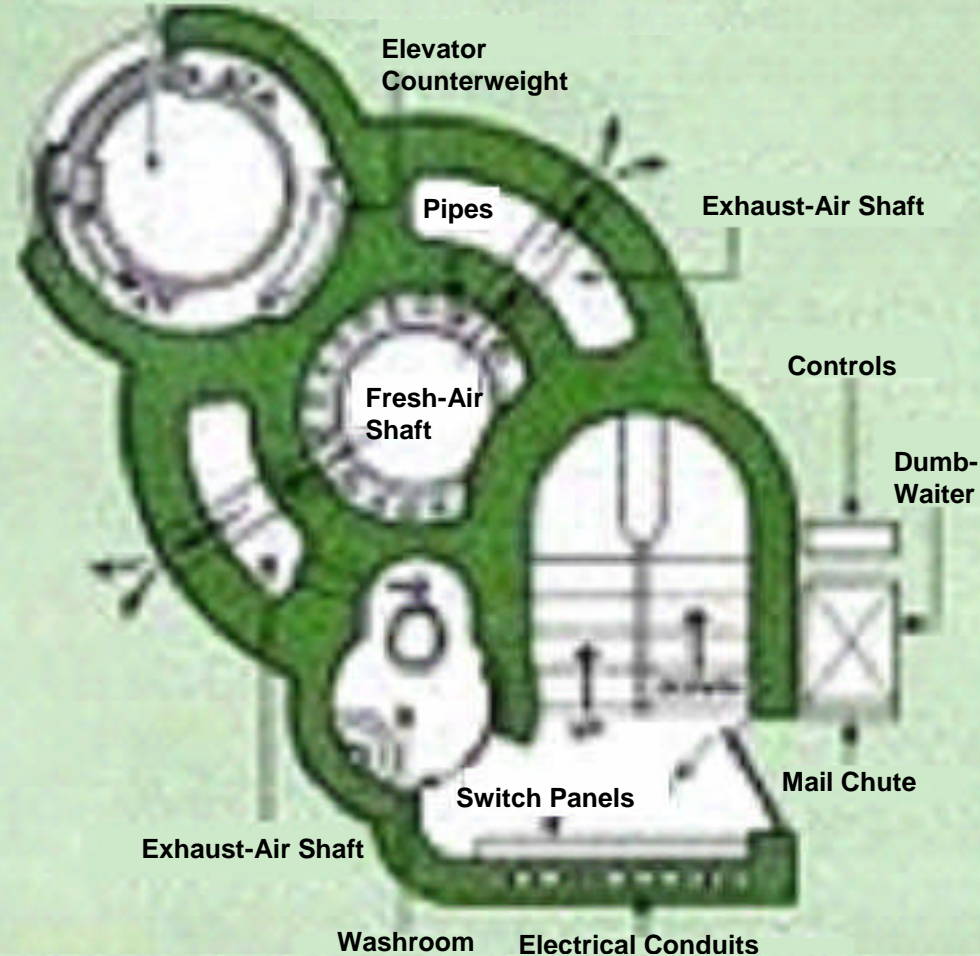
**Above: caption: “SC Johnson Research Tower with the Globe in the foreground. Frank Lloyd Wright envisioned a globe displayed on the SC Johnson campus. The first SC Johnson globe was installed in 1952. Thirty-four years later, employees banded together to present their Chairman, Sam Johnson, with a replacement that still stands today.”**

**Left: caption: “Frank Lloyd Wright East Elevation Research Tower for S.C. Johnson & Son”**



# **Codes & Consequences**

5-FT. Diameter  
Circular Elevator



Above: caption: "Research Tree's Trunk, shown in plan view above will contain all pipes, wires, shafts, and other services for the building." The single 30-inch-wide staircase - more than a foot narrower than the state standard - was/is an obstacle to the Research Tower reopening.

***"...The working floors are supported by cantilevers from the core, like branches from a tree trunk...As in a tree, all supply services are centralized in the core. A large shaft in the center furnishes fresh, conditioned air. Two other shafts on either side take care of exhaust air. Piping for the various laboratory services surround the fresh-air shaft, while lighting and power conduits are enclosed in an outer wall of the core. The core also has a small circular shaft for a cylindrical elevator that can travel all fifteen stories in twenty seconds. The elevator even has circular doors and curved counterweights. Opposite this is the stair well..."***

***Popular Mechanics, Jan. 1950*** 342







***“...he also refused to permit the use of sprinklers throughout the building, on the grounds of their ugliness. The result was that fire insurance on the building could be secured only by the payment of higher than ordinary premiums. Chemical experiments involving combustible materials had to be carried out in another building, and when with the passing of time the number of workers employed in the tower increased, the single set of fire stairs was deemed inadequate. Eventually, the building had to be shut down...”***

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***RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright****

# Poetry in Architecture



***“Twilight travelers to Racine, Wis. last month noticed on its modest skyline what appeared to be an outsize electrical coil, standing on end and lighted from within...What they were seeing was a striking new research tower which S.C. Johnson and Son, Inc., makers of wax products, had just added to their strikingly modern administration offices.”***

***LIFE magazine***

***Left: (postcard) caption: “Twilight View of famous Research and Development Tower at the home of Johnson’s Wax in Racine, Wisconsin”***



***“From my window I have been enjoying the building, especially at night when it gleamed in the moonlight. I have been enjoying it from a purely esthetic standpoint. I have added it to my collection of memorable moonlight scenes. The Coliseum in the moonlight is awe-inspiring; the alps in the moonlight are magnificent; Sorrento in the moonlight is the anteroom to Heaven. The new Johnson tower, in its own way, is as soul-stirring as the Coliseum, the alps, or Sorrento...Just as Beethoven’s Fifth symphony is poetry in music and Corot’s ‘dance of the nymphs’ is poetry in painting, so this building is poetry in architecture.”***

***Margaret Rohan, English Teacher***

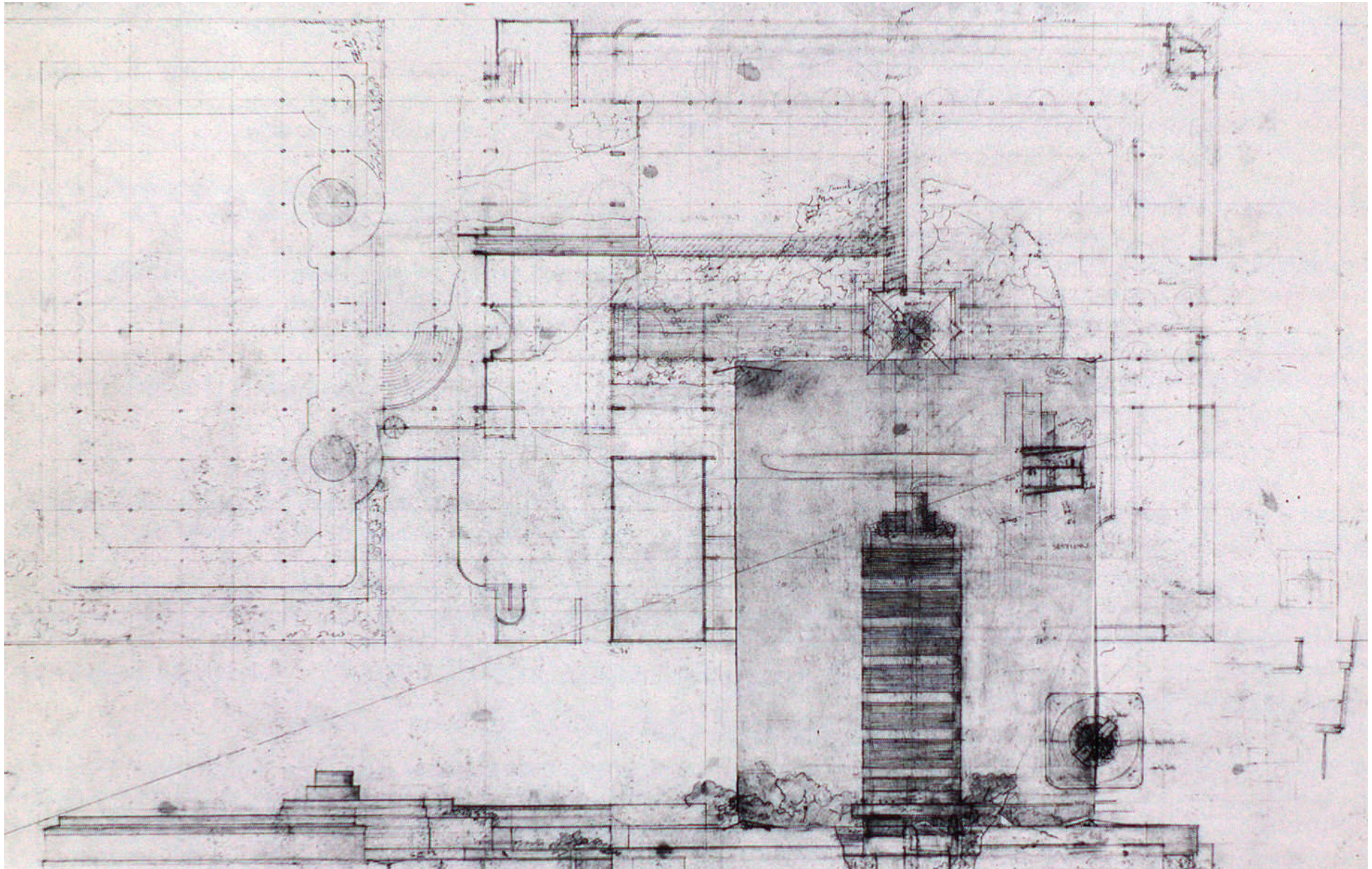
***Left: caption: “Exterior night shot of the modern research tower (Nov. 1950)”***

# **For the Ages**

***“Our family’s long partnership with Frank Lloyd Wright led to these architectural treasures that we’re honored to work in every day. The Research Tower represents the completion of the work that Wright began here in the mid-1930s with our Administration Building. As we have made significant investments in these historic buildings and expanded our free public tour program, including the Tower was the natural next step. We are delighted to welcome visitors from around the world to come to Racine and see Wright’s master-work and give people a look into the Research Tower for the very first time.”***

***Fisk Johnson, SCJ&S President and CEO, May 2013***

**RE: in the middle of an eight-year, \$30 million restoration and conservation plan, SCJ&S announced its intentions to partially open the Research Tower for public tours for the first time. The 15-story structure - on the *National Register of Historic Places*, was closed in 1982. SCJ&S has always opened its FLW-designed buildings on the company’s main campus in Racine, Wis. to the public, gratis - except the Research Tower. FLW had envisioned a tower on the company campus as early as 1936 and included it in some of his early drawings. However, the Administration Building was commissioned that same year and built first. The Research Tower was commissioned in 1944 and opened in 1950.**



**Above: caption: “Preliminary plan and elevation, showing the administration building and tower (ca. 1936)”**



**About fifty people worked in the Research Tower when it opened in 1950. The number grew quickly as SCJ&S began to enter new product markets. By 1958, SCJ&S launched products that became cornerstones of its present-day business. The Research Tower's fifteen floors consisted of offices and various research laboratories including: an engineering lab, paint and enamels research, pilot lab (the intermediate step between the analytical research lab and the factory assembly line) and even an industrial war lab.**





**The Research Tower was closed in 1982 when SCJ&S opened a new research facility on the main campus. SCJ&S retained offices on the second floor, but abandoned the labs due to safety concerns (i.e. scientists worked with flammable chemicals and gases, the elevator only holds four people and only one person can fit the width of the single, winding staircase). As early as the 1970s, SCJ&S sought out ways to make the Research Tower safer, including an external staircase. But it was determined that it would compromise FLW's original design.**



**In January 2013, SCJ&S began preparing to open the third floor and third mezzanine for free public tours. This included installing a new heating-cooling system, restoring lighting (to resemble the original light fixtures) and reinstalling some of the original cabinet faces. The tower will retain its original flooring and built-in cabinets and fixtures. The interiors were originally painted FLW's signature *Cherokee Red*, but later each floor was partially repainted a different color to distinguish one floor from another. However, as part of the restoration, the third floor and its mezzanine were repainted their original Cherokee Red. Tours 353 were expected to commence by mid-2014.**



The SCJ&S Research Tower, at 153-feet tall, is only about 4-feet shorter than the *Racine County Courthouse*, making it a prominent structure in the city and county. In FLW's early letters concerning the Research Tower, he envisioned a radio mast at the top so that SCJ&S could broadcast "good tidings" year-round. Like the organ for the Administration Building's *Great Workroom*, it was never realized. FLW originally envisioned a first floor with a glassed-in reception area, but later opted for a more dramatic design that exposes the tower's core. Each floor and mezzanine has a bathroom (the doors were made of curved metal, attached to a track that can slide to an open and/or closed position). In case of accidents, each floor included an emergency shower. The tower's central core (extending 54-feet below ground) consists of three shafts: one for the elevator; one for air ducts (and other mechanical uses) and a third for the stairs. Pipes extended up through the core's central shaft to supply laboratories with gas, compressed air, carbon dioxide, nitrogen and steam. SCJ&S spends up to \$6 million annually on maintenance and upkeep of the FLW buildings on its corporate campus, including the Research Tower.



# Part 7

# Prairie House Deluxe

# **Of the Prairie**

***“...Wright called Wingspread the last of the Prairie Houses...True, the setting of Wingspread is a landscape of rolling meadows, interrupted here and there by adroitly planted clumps of pine, while the settings of most of Wright’s turn-of-the-century Prairie Houses were comparatively cramped suburban lots and therefore not authentically of the prairie at all; nevertheless, ‘Prairie House’ evokes a sense of ground-hugging simplicity of form and, within that form, the prospect of an equal simplicity in the conduct of life...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



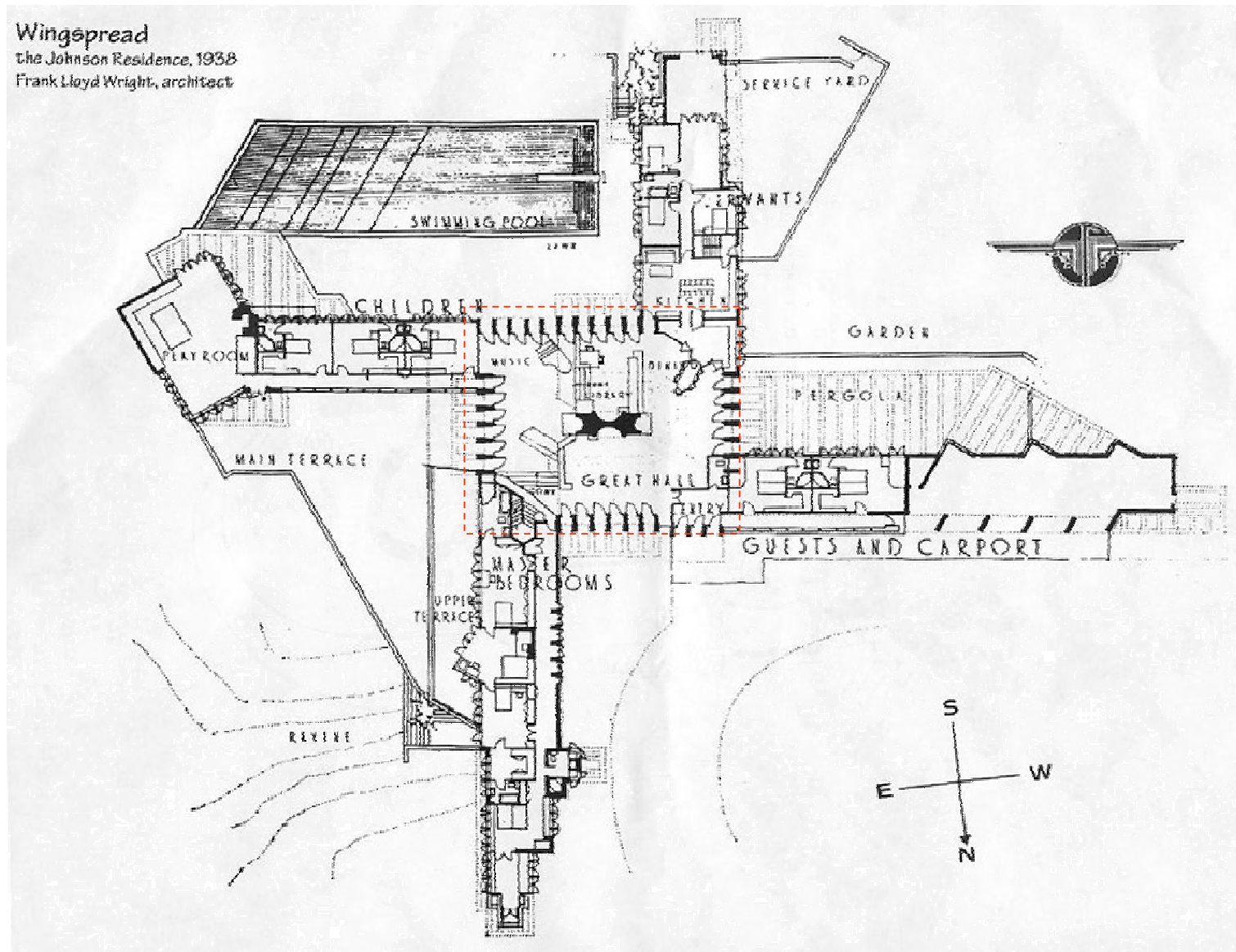


***“...A few miles from Racine, President Herbert Johnson has let Wright build him a house which lies along the prairie in four slim wings. A huge chimney with fireplaces on four sides is in the focal living room...”***

***TIME magazine, January 17<sup>th</sup> 1938***

***“...In the case of the Johnson Wax Administration Building, one marvels at the comparative good nature with which his clients put up with Wright’s manifestations of ‘genius at work.’ Indeed, so much under Wright’s spell was Hib Johnson that, having commissioned the building, he proceeded to commission a private residence as well, to be erected on a stretch of open fields that he owned not far from the shore of Lake Michigan. Johnson had been married and divorced and was now marrying for a second time; he and his wife would be bringing a couple of children apiece to the new house, which must therefore be ample. The house was a simpler matter to design and build than the Administration Building, but was subject to the same provoking delays and consequent increased costs...”***

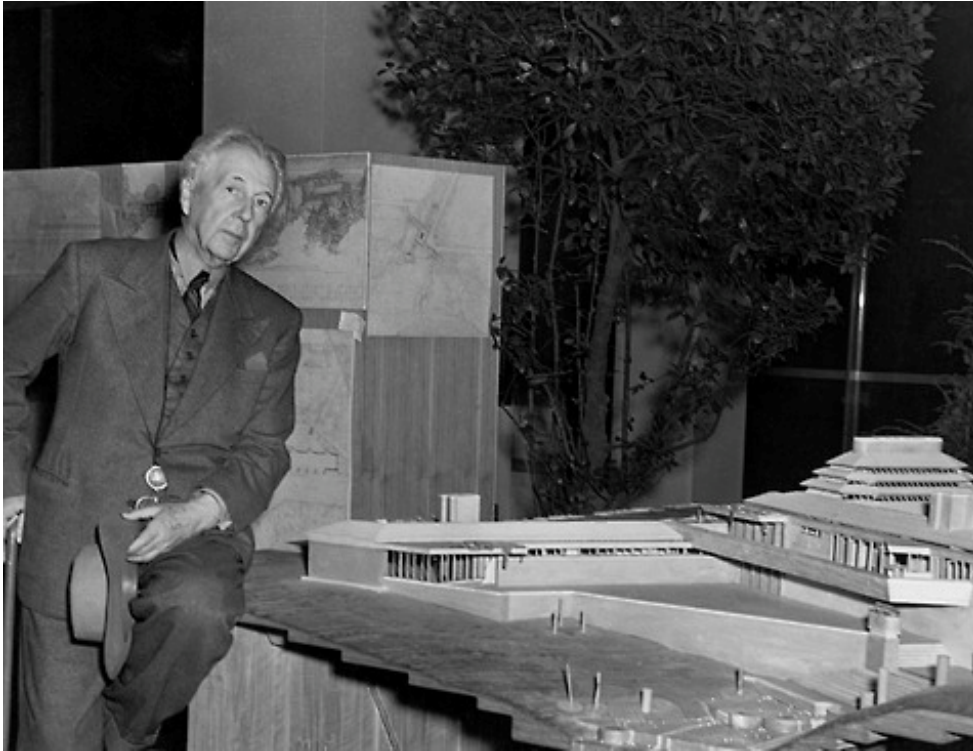
**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



**Above:** Main Floor Plan. Shaped like a four-winged pinwheel, the 14K-square-foot house balances grand spaces for social gatherings in the *Great Hall* (Central Core) with smaller, more intimate spaces in the bedroom wings.

***“...Wingspread evokes something very different; it is an exceedingly large mansion, having a floor area of fourteen thousand square feet...A true folly, it imposes itself upon its site instead of accommodating to it. Wright may well have sensed this (to him) unwelcome fact, since he took care to praise Wingspread for the opposite reason: he boasted that its presence improved the site, giving it a charm that it lacked when it was merely so much untampered-with nature...”***

**RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright***



Set in a thirty-acre property with a wooded ravine and a series of ponds and lagoons, *Wingspread* fans-out generously across its gently rolling site – a site that FLW found “not at all stimulating before the house went up.” Even more-so than many of FLW’s earlier *Prairie Houses*, its four wings stretch out eccentrically to embrace the Wisconsin prairie. Its primary materials: limestone, brick, stucco and wood, tie the house to the earth. The Johnson family lived at Wingspread for twenty years in what would be the last and largest of FLW’s many Prairie houses.

Left: FLW with a model of Wingspread (ca. 1938)

***“...I have, as you know, given my personal attention to every little matter of minutest detail in both buildings. To me, neither structure is just a building. Each one is a life in itself, one for the life that is your business life, and one for your personal life.”***

***Frank Lloyd Wright***

**RE: excerpt from a letter to *Hib Johnson* after he received a letter from him complaining about cost overruns for *Wingspread*. While *Wingspread* was under construction, Johnson’s wife died. He seriously considered abandoning the project, but FLW insisted it be completed for the sake of their children and as a memorial gesture; he agreed to finish it and would live in it for twenty years. The house was something much grander than what Johnson had in mind and just like the Administration Building, the roof leaked profusely.**

***“...An incurable esthete, Wright approaches his buildings as though they were poems or symphonies instead of mere houses. Some clients have even come to doubt whether it is they who own their symphonic masterpieces or Frank Lloyd Wright...Wright can be roused to a towering fury by clients who insist on defacing his masterpieces with the wrong kind of interior appointments. His stature as a great architectural poet has also given him a very lofty view of the problem of roofs that leak. One client, Herbert F. Johnson, Jr. of Racine, Wis., was proudly entertaining friends at a dinner in honor of his brand-new Frank Lloyd Wright house when rain from a leaky roof began spattering in a steady stream on his head. Furious, he called Wright on the telephone, demanding that something be done. Wright was undismayed. ‘Why don’t you move your chair a little bit to one side?’ he suggested. As a matter of fact, Wright’s own winter home near Phoenix, Ariz., has a truly poetic roof of stretched white canvas that leaks copiously whenever it rains. His unsympathetic rancher neighbors delight in visiting him during rainstorms just to see the great man cower with Olympian dignity in fireplaces and other apertures, keeping out of the wet...”***

***LIFE magazine, August 12<sup>th</sup> 1946***

**I am Pleased with the Work**



***“As I have told you on many occasions, I am pleased with the work, the buildings are going to be beautiful and practical and true creations, but the cost and time element make things embarrassing for me, to say the least...”***

***H.F. Johnson***

**RE: excerpt from a letter (in response) to FLW**

# Entrance





**Above L&R: entrance. Guests and Carport wing on the right, Master Bedroom on the left**

**Left: grounds light fixture (highlighted in photo/s above) and bronze statue on grounds**

# Central Core



**Left T&B: at the center of this front view of the house is the Central Core (highlighted) with the bedroom wing to the left and guest room/garage wing on the right. Atop of the central core is one of the most distinctive features of the house; an observation cupola FLW added for the children to be able to watch their father's plane approach when he returned from trips. The brick was the same used in the Administration Building.**





**Above L&R**: the front doors opened into the living room of the house with one of the five fireplaces in the central chimney column and a built-in (foam rubber) sofa. FLW liked built-in furniture and also designed much of the rest of the furniture for the house.

**Left**: to the right of the living room was the dining area. The table, designed by FLW, could be drawn back into the kitchen through the wall, to be reset with each successive course of a meal, then pushed back out to serve the guests.



# **A Remarkable Invitation**



***“...It was to Johnson’s daughter Karen that Wright once extended a remarkable invitation. Visiting Wingspread, he fell ill after lunch and mistook indigestion for a mortal heart attack. He lay down on a couch in the living room, composed himself, beckoned to Karen, and said splendidly, ‘Come and watch how a great man dies’...”***

***RE: excerpt from *Many Masks: A Life of Frank Lloyd Wright****



**Above: fine sculpture adjoining fireplace**

**Left: the *Great Hall***



**Above & Left: from the center rises Wingspread's 30-foot-high chimney, with five fireplaces on three levels. The chimney of warm brick is complemented by expanses of oak veneer, and bathed in the changing light from overhead and from the floor-to-ceiling windows that surround the *Great Hall*. At night the living room glows like a fire-filled lantern.**





**Above & Left: FLW loved fireplaces and designed some unusual ones for *Wingspread*. Though some were not very practical, the dining area fireplace appears to have gotten some use. The spherical caldron was used for warming wine (similar to the one in Fallingwater's LR fireplace)**



**Above: Fallingwater's living room fireplace with spherical caldron (highlighted)**

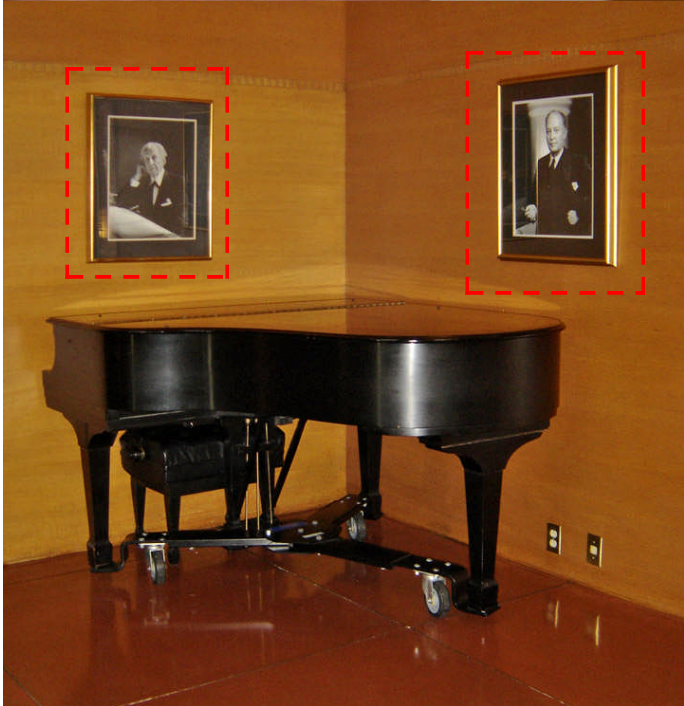
**Left: Wingspread's retractable dining room table. Guests found it discomfoting thus, it was used only once.**



**Above: Library Sitting Area fireplace**

**Left: Library sitting area, looking toward the Main Terrace**





**Top Left: Music Room sitting area**  
**Top Right: Music Room windows**  
**Left: Music Room piano. Note portraits of FLW (left) and *H.F. Johnson* (right) on the adjoining wall/s (highlighted)**



**Above: Main Terrace**  
**Left: doors to the Main Terrace**







**Above Top: Mezzanine (Upper) Level**  
**Above Bottom: Mezzanine Level lounge**  
**Left: stairway to the Mezz-  
anine Level**





**Above: view of the living room showing the Mezzanine Level and some of the clerestory windows**

**Left: the most spectacular fireplace in *Wingspread* was on the mezzanine level. This more than ten-foot tall vertical fireplace was used only once. The burning logs collapsed and fell to the floor of the room. To the left of the fireplace is the spiral stairway leading to the observation cupola.**







**Above: clerestory windows around Central Core**

**Left: stairs from the Mezzanine Level to the Observation Cupola. The clerestory windows that run all the way around the Central Core structure flood light into the spaces below.**



**Above: view of Cupola (a/k/a “Crow’s Nest”) and weather vane**  
**Left: spiral stairway to the Crow’s Nest**





**Above: view of the Central Core from the Garden (Cupola highlighted)**  
**Left: reverse view showing the Garden (highlighted) from the Cupola**



# **Guest & Carport Wing**



# **Kitchen Wing**





**NOTE: grape vines were used for external shading**

# **Children's Wing**



# **Master Bedroom Wing**











# The Foundation



***“In the village of Wind Point, which touches the northeast corner of Racine, there stands a lighthouse on the shore of Lake Michigan. A short distance away is a building called Wingspread – it too is a lighthouse of sorts, casting a beam of light which penetrates the darkness of ignorance shrouding a true understanding of man and the universe in which he lives.”***

***Wisconsin Tails and Trails, Autumn 1964***

**RE: “Wingspread” was one of FLW’s best known homes. Originally built as a home for the *H.F. Johnson* family and was completed in 1939. In 1959, it was donated to *The Johnson Foundation* for use as an educational conference center.**

***“There seems to be unanimous opinion, among those best informed, that this building of Mr. Wright’s carries with it a quality – rare to conference centers generally – of inspiration and of a relaxed atmosphere. Mr. Wright, whom I always considered a close friend, was of the opinion that environment was one of the great factors which influenced the fuller development of human beings. I am sure he felt environment influenced their behavior towards the ultimate in being creative and as distinguished from being imaginative...”***

**RE: excerpt from Hib Johnson’s June 1961 dedication speech. Shortly after FLW’s death in April 1959, Johnson decided to use *Wingspread* for a philanthropic purpose. After three years of alterations which included turning the five-car garage into offices and the children’s playroom into a large conference room, the *Wingspread Conference Center of The Johnson Foundation* was in business.**

***Wingspread* was given to *The Johnson Foundation* in 1959 as an educational and conference center. A formal dedication ceremony was held on June 24<sup>th</sup> 1961 at which *Olgivanna Lloyd Wright* gave a brief speech. Since 1960, the fireplaces have been the gathering spots for men, women and young people who come to *Wingspread* conferences from around the world. They come as guests of *The Johnson Foundation* to meet, plan and share ideas that will make a difference on behalf of the public good. *National Public Radio*, the *National Endowment for the Arts* and the initial blueprint for arms control all had their roots in *Wingspread* conferences. *Wingspread* was designated as a *National Historic Landmark* in 1990 by the *National Park Service*.**



***“...A creative man, however, has to use his imagination to create, and in every sense of the word Wright was a great creative man. He showed me how a creative architect works and how valuable he can be toward the development of individuals or toward a society’s culture and science...In the spirit of Frank Lloyd Wright, we will seek to stir and foster the creative nature of a free people, which is so enjoyable, and at the same time so essential, to their continued and expanding freedom.”***

**RE: excerpt from Hib Johnson’s June 1961 dedication speech for the  
*Wingspread Conference Center***

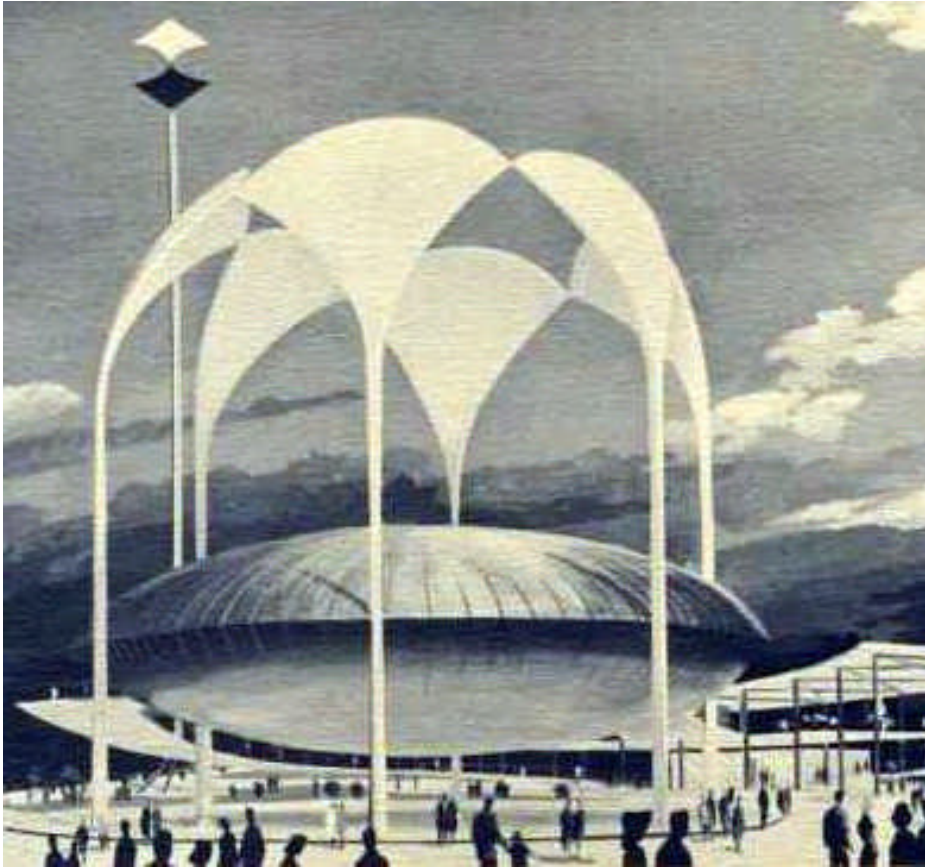


# Part 8

## **An On-Going Legacy**

# **The Golden Rondelle**





***“Soaring 80-foot columns that arch over and suspend a giant disc 90 feet in diameter are the most dramatic features of the Johnson’s Wax pavilion for the 1964-1965 New York World’s Fair. The huge disc, sheathed in gold anodized aluminum, will contain a 500-seat theater.”***

***1964 New York World’s Fair Official Guide Book***



***“This pavilion, a great gold disk which seems to float 24-feet above the ground, is supported by its surrounding columns. It houses a 500-seat theater in which a documentary movie dramatizes the theme of brotherhood. An exhibition area at ground level offers a climbing contraption for the entertainment of children, a home care information center and a shoeshine center that provides free shines. On the ground floor is a display which shows the wide range of materials man has used as floors, from marble to teakwood. Pavilion guides are foreign students. Admission: free.”***

***1964 New York World's Fair Official Guide Book***

***Left: Golden Rondelle pamphlet cover***



*“The soaring superstructure of the Golden Rondelle is a graceful white form made up of six 90-foot petals that arch inward to form a partial canopy. A golden disc, 90-feet in diameter and containing the air-conditioned 500-seat theater, is suspended from the six columns 24-feet over a sunken reflecting pool. An adjacent companion building, in the form of a curving double-decked promenade, contains the educational and entertaining exhibit features.”*

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*1964 New York World's Fair Official Guide Book*

**To Be Alive!**



***“TO BE ALIVE.’ This sensitive 18-minute color movie, produced by Francis Thompson, whose documentaries have won many awards, uses three projectors, as many screens, and stereophonic sound to show the daily lives of people around the world. They grow up, fall in love, work, play and grow old, demonstrating that ‘men everywhere share at the deepest level the same drives, dreams, foibles’...”***

***1964 New York World’s Fair Official Guide Book***

**Above: caption: “A boat race in dugout canoes in Nigeria; in this scene all three screens are filled with a single panoramic view, 36 feet wide”**

**Below: caption: “A teenage dance in suburbia, U.S.A. provided these scenes; three different images are projected at the same time on the three-part screen”**





**Above: caption: “Alexander Hammid and Francis Thompson, producers of the show, ‘To Be Alive!,’ found that the Golden Rondelle Theater was nearly acoustically perfect. Size of the three screens is indicated by the three hostesses standing in front of them.”**



***“More than five million people stood and waited, sometimes in the pouring rain, sometimes for as long as two hours. Many of these returned to stand in line again and again. ‘To Be Alive!’ was universally acclaimed as the outstanding attraction at the New York World’s Fair.”***

***1964 New York World’s Fair Official Guide Book***

**Above: film narration: “Another day. In the rush I’m swept away.”**

**Left: film narration: “Every day I set out on a voyage of discovery. And though I sometimes sank, that way I learned to swim.”**

# 'To Be Alive' Is Hit At the World's Fair

*By Chet Di Mauro*

NEW YORK (UPI) —One of the most popular and talked-about features of the World's Fair is a film called "To Be Alive," shown continuously at the Johnson's Wax pavilion.

The film attempts to shatter misguided concepts that limit the visions and experience of man. At the same time, it says that life can be an express train leaving daily for "horizons unlimited."

The style of the movie holds true to its message. The motion picture as an art form was exploited fully by producer Francis Thompson and co-director Alexander Hamid to produce this 18-minute film.

Employing a technique in which three 35-mm cameras project images on three giant screens, the producers

at times use the combination to present a single panoramic view, and at other times three separate images in juxtaposition to make a point.

The result is a harmonious blending of ideas and a near-perfect continuity of story-telling that explains man in nature and nature in man.

The color film tells the story of discovery of self and nature through the eyes of innocence — children of all races and men-children.

It deals with the man-made world and the God-made world, demanding and appearing to get a spiritual, intellectual and physical response from its audience.

In pinpointing the singular experience, it succeeds in capturing the universal experience.





***“It says it (its theme) with such a rush of pleasure and movement, it stays so close to the very texture of life, it shows the glories of such ordinary moments, that it becomes an extraordinary stimulant”***

***New York Herald Tribune***

***“Johnson Wax...has provided an unusual approach in goodwill with its ‘To Be Alive!’ which seems to be a milestone in the commercial picture field.”***

***Variety***

***“...a masterpiece that might as easily win Festival prizes as it will delight a World’s Fair audience.”***

***New York Post***

# **After the Fair**



***“...Even before the fair closed our company was faced with a decision on what to do with the film and our Golden Rondelle after the fair. From the heavy volume of mail that poured into Racine and the tremendous popularity and success of the film at the fair, it was obvious ‘To Be Alive!’ was much too important and valuable to gather dust on some shelf after the fair...”***

***Johnson Wax Company magazine (early 1966)***

***Left T&B: caption: “Within this circular colonnade is a gold disc, 30-feet thick in the center, containing a theater. Suspended 24-feet off the ground, it is reached by a ramp.”***

# Johnson WAX

## GOLDEN RONDELLE



***“After four years of planning and two seasons of public exhibition, the New York World's Fair is over. But the fair will long be remembered as one of the greatest spectacles and achievements of this century - a billion dollar tribute to man's imagination, ingenuity and desire for knowledge and understanding. The bright lights, color, excitement and splendor that attracted more than 51 million persons are gone. Most of the 175 pavilions and structures which dotted the fairgrounds have been demolished. All that remains from the glory of the fair are the stainless steel Unisphere, symbol of the fair, the Port Authority building with its heliport, the New York City pavilion, the Federal building and the New York State pavilion dominated by its giant towers. The 646 acres that comprised the fair are some day to be transformed into a huge park and recreation center for the City of New York. Other buildings have been sold and moved. The Wisconsin state pavilion was brought to Wisconsin where it was sold to a radio station in the northern part of the state. The Austrian A-building and the Lowenbrau Gardens will be used at New England ski resorts. The beautiful Spanish pavilion, considered one of the finest buildings at the fair, is moving to St. Louis where it will be part of the civic center area surrounding the recently completed Westward Arch...”***

***Johnson Wax Company magazine (early 1966)***

***“...Our company also took steps to preserve some of the flavor and excitement of the world’s fair when on December 8, 1965, the board of directors authorized bringing the Golden Rondelle theater to Racine. Working with Taliesin Associated Architects, drawings and ideas were worked and reworked until a suitable overall design was selected that will make the theater building compatible with our existing Frank Lloyd Wright structures. The theater building will be constructed on the southwest corner of 14th and Franklin Streets, in Racine, one block north from our Administration and Research Center...”***

***Johnson Wax Company magazine (early 1966)***



***“...The soaring 90-foot petals which supported the theater at the World’s Fair will not be used. Instead, the theater disk will be supported 8 feet off the ground by six masonry pillars set well under the outside rim of the disk. Entrance will be through a two story foyer and reception area built on the southwest rim of the theater. Full length glass doors on the first level will invite visitors to enter. The masonry facing on the pillars, entrance foyer and exit area will be of the familiar Cherokee red brick to blend in with the existing architectural elements of our Administration and Research Center. The exterior of the theater will be covered with plywood panels and gold anodized aluminum sheeting. The building will be as completely self-sufficient as other Racine buildings. It will have its own heating, air-conditioning, water and sewer systems, and will not be connected to our existing buildings in any way...”***

***Johnson Wax Company magazine (early 1966)***

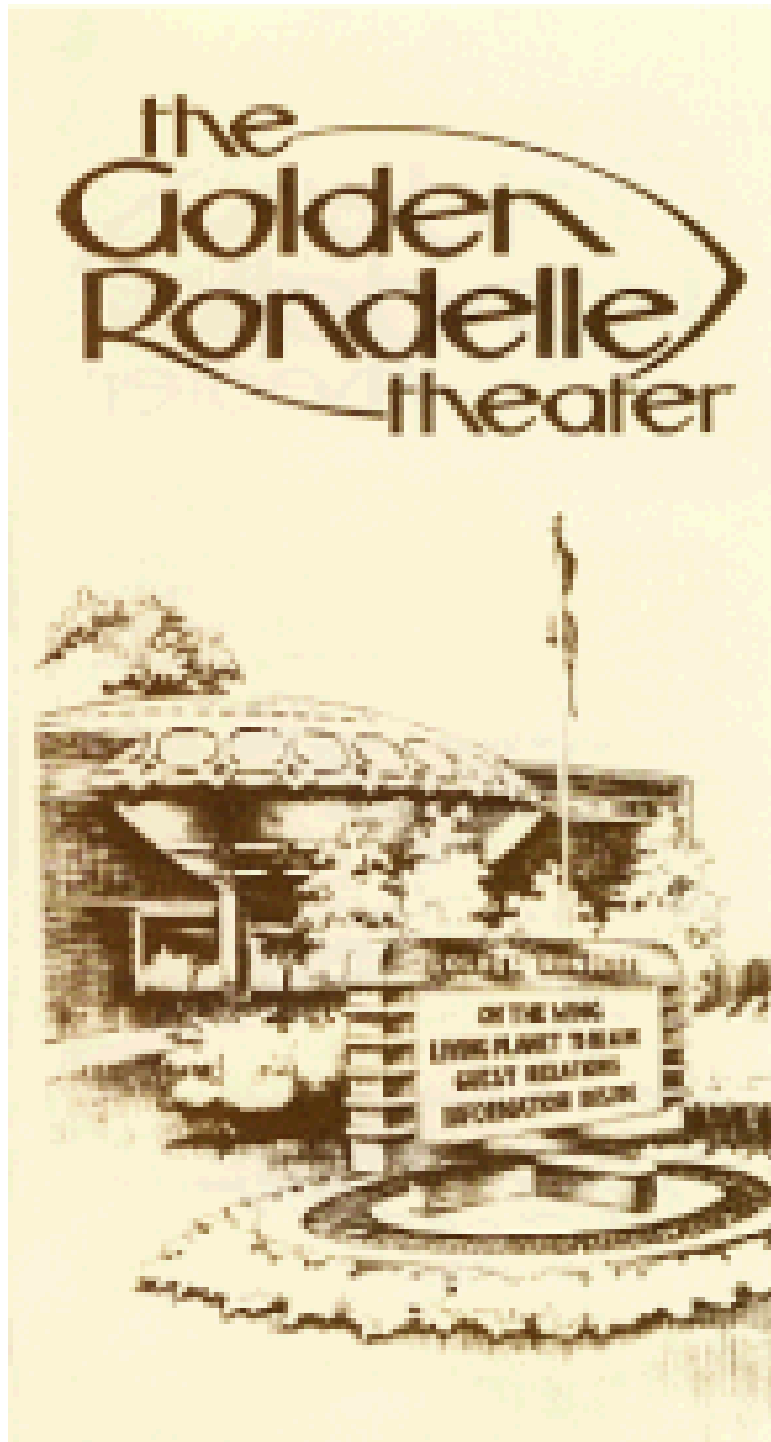
**Above: caption: “This rendering by Staff Architect John Halama shows what the Golden Rondelle theater building will look like when completed late in 1966”**



***“...A wide stairway and an elevator will bring visitors to the theater entrance on the second floor of the reception foyer. From the floor of the theater eleven slightly curved rows of comfortable theater seats will rise towards the back giving all visitors a clear, unobstructed view of the screens and stage area. There will be no center aisle. The only access to the seats will be from the two sides. More than 300 tons of specially shaped structural steel will be brought to Racine for use on the new building. Many of these beams were formed specially for the Golden Rondelle to conform to the contour of the curved disk...”***

***Johnson Wax Company magazine (early 1966)***

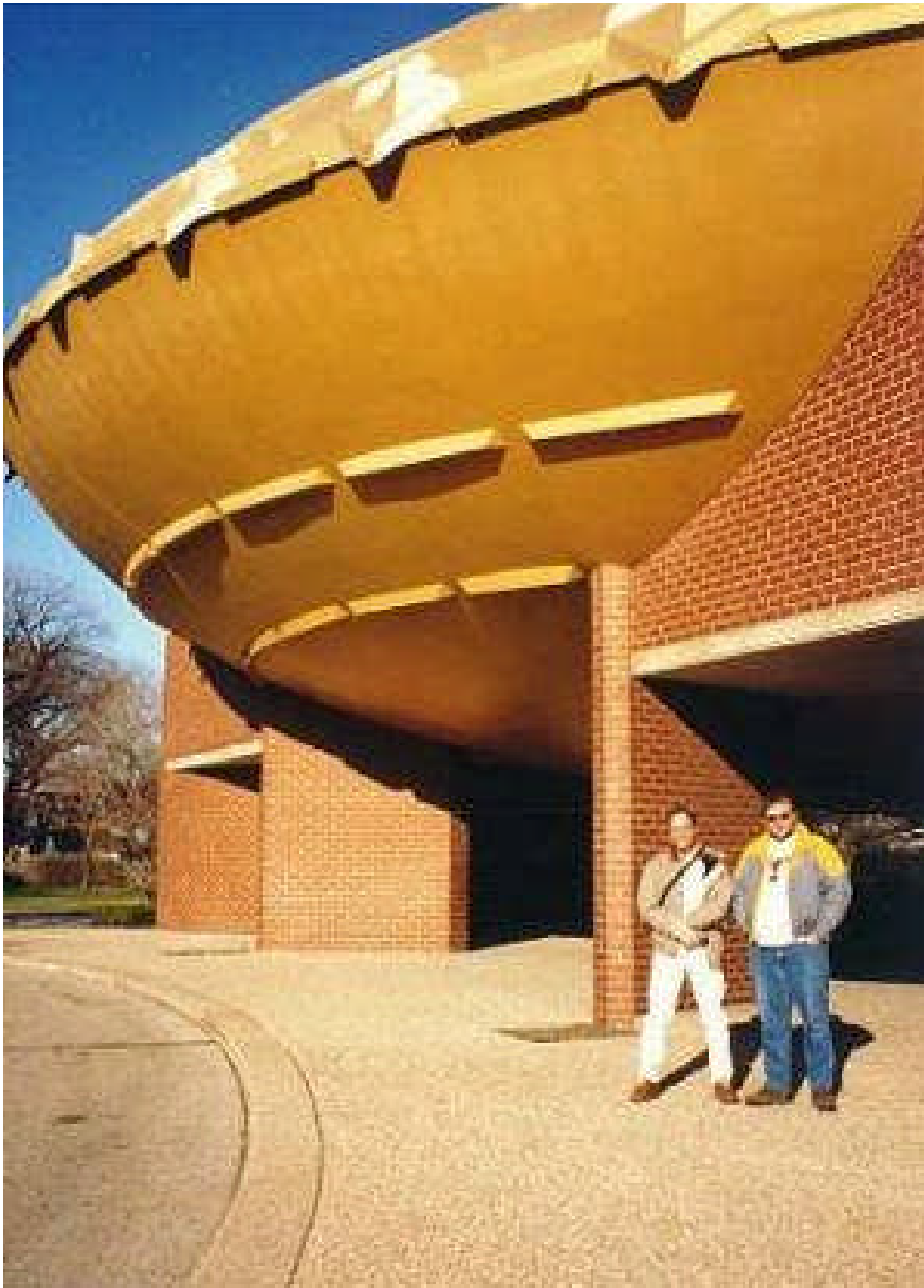
***Above L&R: caption: “The “Golden Rondelle,” which was the company’s exhibit at the 1964 NY World’s Fair was returned to Racine after the fair and Taliesin designed this new building in the style of the original building to incorporate it as a theater in a visitors center”***



***“...Just as the outside of the theater will be different than what it was at the fair, the interior also has been changed considerably. Special attention has been given to redesigning elements of the interior to make the theater suitable for a wide variety of employee and civic meetings, including orientation programs, sales meetings, lectures, panel discussions, visual presentations of any kind and even small music groups. Seating capacity will be 319, down from the 550 at the fair. Plans call for replacing the plank seats used at the fair with new upholstered theater type seats. At least half of these will have fold-away writing arms, like those used in schools, to enable persons to write or take notes without difficulty. The projection booth will be equipped with the special 35mm synchronized projectors to show ‘To Be Alive!’ in its original form on a regularly scheduled basis as part of the public relations tour program. The booth also will contain a 16mm movie projector, slide projectors and a variety of other audio-visual aids to make it a complete projection facility geared to handle many assignments...”***  
**Johnson Wax Company magazine (early 1966)**







**Left:** entry to *The Golden Rondelle Theater*

**Above:** theater interior (top) 433  
and projection booth (bottom)



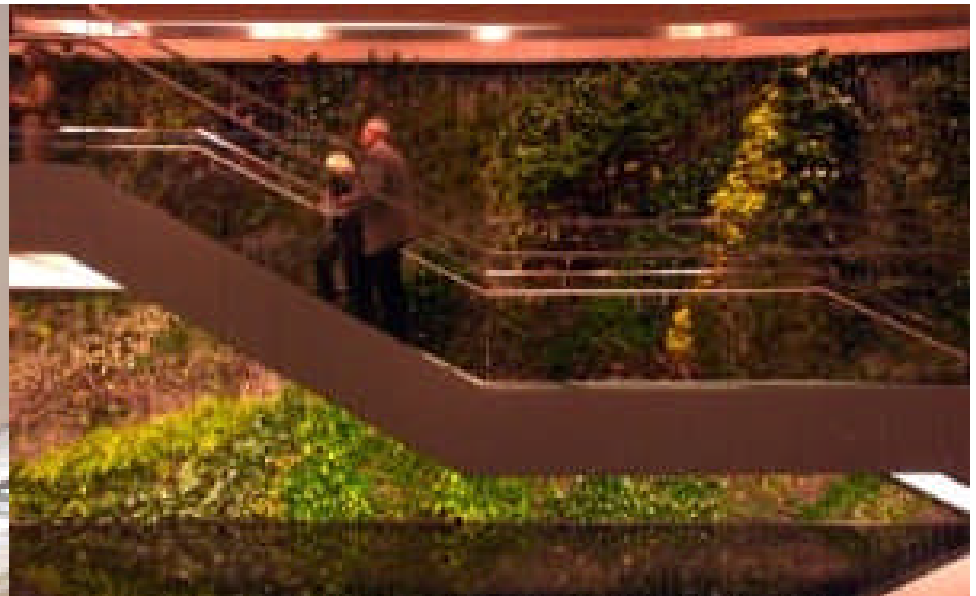
***“...When work is completed on the Golden Rondelle theater building in late 1966, it will mark the addition of another significant architectural attraction to our Racine headquarters. Our company’s fantastic success at the New York World’s Fair prompted return of the Golden Rondelle theater to Racine. From a show that began as a question mark, our film ‘To Be Alive!’ became the sleeper of the fair and then the acknowledged hit of the exposition...”***

***Johnson Wax Company magazine (early 1966)***

***RE: The Golden Rondelle Theater was dedicated in July 1967. It stands at the corner of 14th and Franklin Street/s, on the south-side of Racine, Wisconsin (by car, approximately one-hour north of Chicago and one-half hour south of Milwaukee - on the western shore of Lake Michigan).***



# Fortaleza Hall



In addition to the original Administration Building, Research Tower and Roundell Theater, the SCJ&S campus has an interesting new building: “Fortaleza Hall,” designed by renowned architect *Norman Foster* and his firm, London-based *Foster + Partners*. The firm’s other projects include the *Museum of Fine Arts* in *Boston* and *Wembley Stadium* in *London*. *Fortaleza* is the name of the city in northeast *Brazil* where the key ingredient for *Johnson Wax* was discovered. The building was finished in 2010 and symbolizes the spirit of adventure and the life and work of the third and fourth CEO’s who traveled to *Brazil* to ensure the company could continue to procure the special wax they used. Inside, an airplane hangs suspended over a Polyconic mosaic map (left) and there’s a vertical garden 49 by 18-feet high featuring 79 species of South American plants. 437





***Fortaleza Hall*** is a celebration of the 15K-mile flight made to Brazil by ***H.F. Johnson, Jr.*** in 1935, in his search for a source of natural wax, which he found in the ***Car-nauba*** palm tree (top). Comprising two companion buildings, the project's goal was to continue the tradition of inspired architectural patronage on the FLW campus in Racine, Wis. H.F. Johnson, Jr. had traveled to Brazil in a ***Sikorsky-38*** amphibious plane. Sixty-three years later, his son ***Sam Johnson*** retraced that flight in a replica of the plane. In commemoration of those two historic flights, Fortaleza Hall provides a permanent home for the replica aircraft (bottom, highlighted) and tells the story of its flight, while the ***Community Building*** gives the campus a new social focus with a range of staff facilities including restaurants, shops and a gymnasium.





An initial master-planning study of the campus revealed the ideal development site adjacent to FLW's Administration Building and Research Tower. The new buildings anchor an area conceived as a "Town Square." The highly transparent Fortaleza Hall displays the aircraft to the campus, which contrasts with the more solid and internalized FLW buildings. The oval form is designed to give a 360-degree view of the suspended *Sikorsky-38*, below which an etched mural depicting the *Car-nauba* rainforest and a wooden floor mosaic evoke the spirit of the expedition (top left). The Community Building – conceived as a gathering place for SCJ&S staff – provides a more solid visual counterpoint that is close in spirit to a college "Commons." Defined by its load-bearing *Kasota Stone* walls, which echo the brick masonry of FLW's buildings, it is essentially a rectangular building that is concave on one side to embrace the form of Fortaleza Hall. The two buildings are linked by a glazed entrance atrium that contains a green wall, a water wall and reflecting pool. An undercroft connects the space to the matrix of tunnels that form the principal communications network through the campus.

# **The FLW Library**

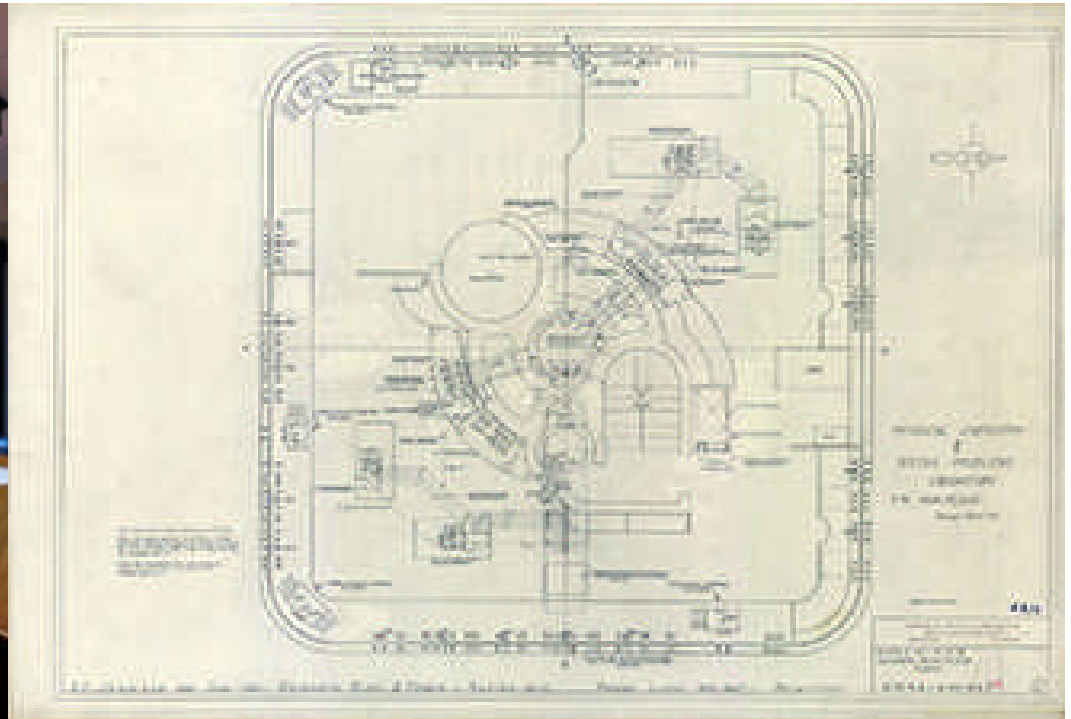


***“Tucked away inside the new Fortaleza Hall on the SC Johnson campus is a special new place dedicated to one of the world’s most famous architects. The 22- by 22-foot room is the Frank Lloyd Wright Library and Reading Room. It focuses not on Wright’s entire career but rather his Racine projects and connections...To build the collection, SCJ obtained the library’s hundreds of Wright artifacts from its internal archives and by working with the Frank Lloyd Wright Foundation...”***

***The Journal Times, January 23<sup>rd</sup> 2010***

**Left: caption: “A new building is being planned to display the replica of a plane used to explore South America in the 30s looking for carnauba wax”**

**Right: caption: “The Frank Lloyd Wright Library and Reading Room in Fortaleza Hall on the SC Johnson campus”**



**The *Frank Lloyd Wright Research Library* (left) - one of the largest collections in the country focused on FLW's unique contributions to a single community - features more than 300 books, 250 digital drawings and blueprints (original Research Tower plan, at right), an original FLW desk and a three-legged chair from the Administration Building. The collection also includes:**

- 54 magazines and bound publications;
- 40 small pamphlets and clippings;
- 125 digital interior, exterior and construction photos;;
- 140 digital reproductions of letters, and;
- 18 videos.

# **A Remarkable Story**



***“Fortaleza Hall has given us a unique opportunity to work alongside one of the finest Modern buildings in the world – The SC Johnson building – and to tell a remarkable story of adventure and discovery. H.F. Johnson Jr.’s decision to commission Frank Lloyd Wright was an inspiring act of architectural patronage, as was the brief that we were given to design both Fortaleza Hall and its companion, The Commons. This project celebrates a family of architectural patrons, a remarkable company, a pioneering spirit and a historic journey.”***

***Norman Foster, Foster + Partners, London***



# **Statement of Significance**



### **Statement of Significance:**

Frank Lloyd Wright's Depression-era design for the Johnson Wax Company's Administration Building and Research Tower was so radical that local building commissioners refused to approve it without a test. At issue were Wright's novel "mushroom" columns, intended to carry loads varying from 2 to 12 tons. When a sample was built and withstood a load of 60 tons, the permit was granted. One of three notable commissions executed by the architect during the Depression, these structures employ a highly original system of cantilever-slab construction in a classic of modern office design. Frank Lloyd Wright's imaginative approach to structure is seen in his use of rounded "organic" forms, and in the T-shaped columns and "tree-like" tower. The complex, which opened in 1939, continues to serve its original functions, and still contains original furnishings that Wright designed. Widely published, it was recognized for its importance even before it was completed, and helped the architect to gain a number of commissions.

A corner section of glass tubes on the 7th floor NW corner got sucked out during a large wind storm. It was immediately secured and has been put back in place. The Kasota Stone ledge that the glass tubes sit on was being pulled out in various corners and sides. Steel plates and anchor bolts have been installed on all Kasota stones on all floors to secure them in place to eliminate future problems. Other recent projects included the replacement of the cypress terrace patio, tuck-pointing and cleaning of exterior brick, and painting of interior walls. The HVAC system was replaced in 2004.

***National Historic Landmarks Program***



***“...There is no question that Wright’s design helped define the Johnson company. When a Johnson executive asked where the sign would be on the new building, Robert Mosher, a Wright apprentice, replied with a question of his own, ‘Does the Washington Monument have a sign on it?’ Tafel says that according to H.F. Johnson Jr., ‘during its first year, the \$750,000 building brought in \$5 million in publicity’...”***

***The Journal Times, May 12<sup>th</sup> 2002***

The Administration and Research Center of S. C. Johnson & Son, Inc.  
in Racine, Wisconsin — designed by Frank Lloyd Wright

