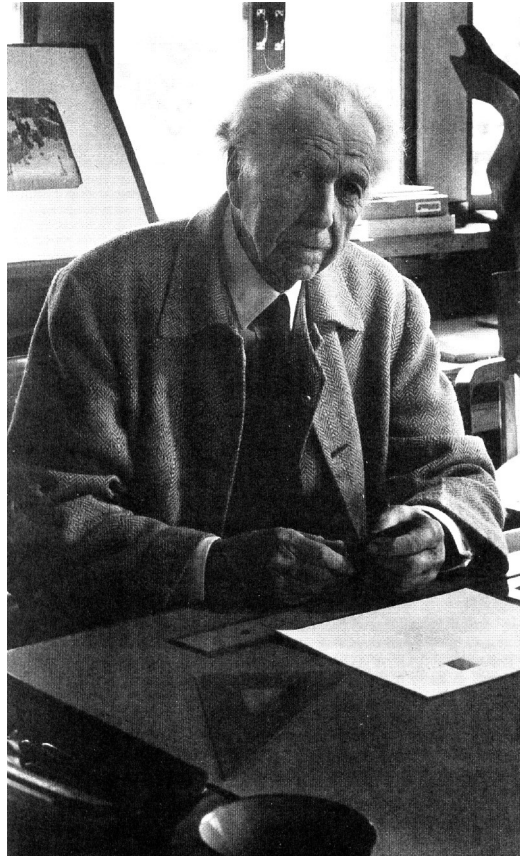


# *An Historical View of Frank Lloyd Wright's Usonian Concept*

*What was it? What were the cost-reductive strategies?  
Was he successful?*



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*the usonian homes of frank Lloyd wright*

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# Introduction

Usonia was a term invented by Frank Lloyd Wright in the early 1900's. There is much speculation as to where this term came from and how he invented the word, what his ideas were and ultimately how he interpreted this word to practical architecture. This document will attempt to discuss how Frank Lloyd Wright came to use this term as well as how he applied this term to architecture. In addition, an attempt will be made to show how this term applied as a concept to create a cost-effective residence.

In short, the term Usonia gave way to a warm open design of a small house with convenience, economy, and comfort. But the concept did not stop there. In addition to architectural design, there is the intent of feeling. To Frank Lloyd Wright the Usonian House had a beating heart, forever fluctuating in time and in motion. The spaces melded together to become one allowing for greater functionality. These spaces contained built-in furniture and were made of an easy construction method. Together with these simplified design strategies they allowed for the deletion of extraneous spaces.

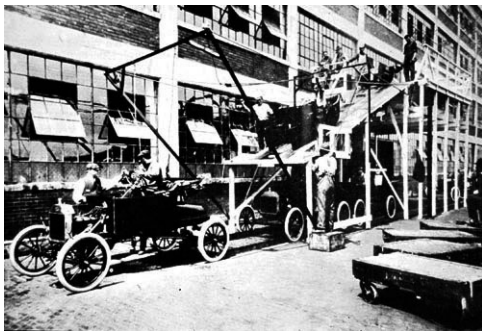


Fig. 1: Henry Ford's Model T Assembly Line

Frank Lloyd Wright incorporated a module in the construction of the Usonian House. There is also a hint of an assembly line. This assembly line was used just as it was in Henry Ford's Model T plant (Fig. 1). The line was a way to assemble the building, effectively and cheap. As the Usonian House concept devolved and Frank

Lloyd Wright's Taliesin West came into being, Wright would actually send apprentices to the site to assist in the building construction. This allowed for reduced cost of construction in addition to the training of the future of architectural designers.

In addition to the Usonian House as a separate element, it was part of the larger Broad-Acre City



project. However, Broad-Acre City was more of a utopian society lacking in a realistic form. It included not only homes but also all the facilities that create a community; programmatic elements such as shopping centers, religious institutions, educational facilities and service operations. The Usonian House was an abstracted view of just the residences that could be found in Broad-Acre City. It is important to note that Broad-Acre City was never constructed whereas many Usonian Houses in their singularity were. This statement is not to belittle the concept of Broad-Acre City, for it taught architecture and Frank Lloyd Wright many things. It was however, a purely theoretical construct that led to simplification and ultimately the Usonian House.

# The Term Usonia

As stated earlier there are many possible explanations as to where Frank Lloyd Wright came up with the word Usonia. Some of these explanations are that when on a European trip, the Europeans actually wanted the U.S.A. or United States of America to change their acronym to USONA. This was so as not to confuse the United States with South Africa. Or, it could've been just a random name created by Frank Lloyd Wright for this reconstructed America. Regardless of the birth of the name, it meant something for both new and old architecture.

Frank Lloyd Wright felt the needed to redefine America using old Jeffersonian ideals. But to Frank Lloyd Wright it went a bit further than the construction of Montessori Schools, developments such as the University of Virginia, or even buildings in the form of the Pantheon, the type of architecture Frank Lloyd Wright intended to create would be both economic as well as cultural. Buildings constructed under this philosophy would require less bank loans if any, create more democracy in life, and can show the influence of Thoreau's Walden, written in 1854, on Frank Lloyd Wright. These influences are individualism, observing of nature, and expansion of knowledge.

There was also the idea of organic architecture. However, it was not just a building that used materials that came only from earth and sits in a way that relates to earth. Frank Lloyd Wright wanted more, he wanted a building that lived and breathed. Frank Lloyd Wright once said, "out of the ground and into the light" (Two Lecture on Architecture 185). He felt that the building should work together in both; the site it is built and the people it is built for. This would make every Usonian House different and that was exactly what Frank Lloyd Wright wanted. It would also create an evolution over time in both form and concept. This wasn't completely a new idea for Frank Lloyd Wright; it touched upon ideas that Frank Lloyd Wright came up with years before. In early 1908, Frank Lloyd Wright began to feel that houses should resemble their owner. It was also in the early 1900's, that Frank Lloyd Wright felt all the spaces of a building should flow around a central space.

In Frank Lloyd Wright's Prairie Houses this space was the dining room and all subsequent spaces revolved around it. By 1937, and the beginning of the Usonian Housing era, the space changed, in fact the dining room was removed entirely. The new hub of the home became the kitchen and everything in-house revolved around it (Fig. 2). The servants of the house were moved nearer the kitchen.

It was the only space completely defined aside from a bedroom, which was a concession made for privacy. But, it was not defined by four walls but by the elements that make it up: the sink, the stove, the refrigerator, etc. Frank Lloyd Wright felt that this made a common sense building because most of the time people are in their house once you subtract sleep is to eat. Frank Lloyd Wright said, "the reality of a home was to be found in the spaces

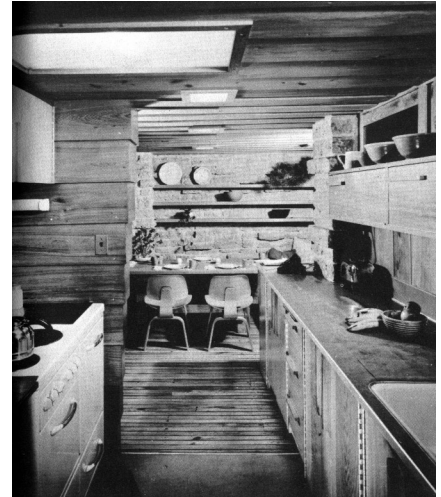


Fig. 2: Pew House Workspace

enclose by the roof and walls, not by the roof and walls themselves" (The Natural House 220). What he means is that the function of room far outweighs the things used to create it.

Usonia was essentially a way of building and the houses created from it were as such Usonian. This way of building included not only the aforementioned revolving around the kitchen but, open plan living areas, small bedrooms with many closets, the loss of dirty closets, horizontal orientation with the subtraction of stairs, simplification with modest mechanical systems, a homey feeling due to all the pieces working together, spatial zoning as opposed to walls, and the dissolving of traditional pre World War I American Housing values including the removal of the basement and the desire for insincerity in truth. Frank Lloyd Wright felt that American houses lied about things; they had neither a sense of cohesion nor a sense of space. His goal was to change this. His first attempt in the early 1930's was the Broad-Acre City project, however this was an impractical Usonia and ultimately left him on the road to the Usonian House. Another project that preceded the Usonian House and played a role in its idea, was the Zoned House of 1934, this was an attempt to define spaces by their character not by walls.

In addition to the spaces created and the built house was the idea of the assembly line. This idea or mass production in housing, as we say today, was an adaptation of Henry Ford's Model T assembly line. Frank Lloyd Wright would send apprentices from his Taliesin West facility to assist the client with construction of the House. This idea was one that would revolutionize the building industry. Although an architect was needed to design the home almost anyone could be part of its construction. It also opened the door for another idea in Usonian house. This idea is that once the building is built, it could still grow, as if it were alive. Like the ever-expanding universe, as a family would evolve over time so would the house. In years to come the client could actually renovate change its form on his or her own (Sergeant 22). However, in a study performed in the 1980's most houses were still in the family of their original owners and many of them were often untouched in form.

Another American problem that was going on in this time, one that Frank Lloyd Wright felt was also worthy of his study, was the building of homes at a moderate cost for the average man while still keeping artistic excellence and originality. Frank Lloyd Wright was traditionally thought to be a rich man's architect, but this was found to be untrue. Frank Lloyd Wright thought the home should show whom it was constructed for and not pretend to be the home of the rich man (Fig.3). The home



Fig. 3: Traditional North American Housing

should display the average man behind it. Truth in architecture thus became apparent. Through the evolution of the Usonian House not only in its five types, which we shall discuss later, but through the way it revolved around the client and the site, lead to unique appearances in every application. This evolution allowed for a lack of consistency between the

houses, the relation to the style thus becomes the adaptation of the theoretical construct, not in their outward appearance.

This appearance change was not a new idea, but relates to the old idea of the primitive hut. This type of building was constructed within and between the trees and made of the trees. The Usonian House similarly was constructed naturally using the external elements in home. Frank Lloyd Wright once said, “external conditions that tear down the building also tear down the human body” (The Natural House 175). What we can take from this, is that how the building and the person inside of it is one in the same. An example of this would be the way pictures and furniture were incorporated not just in to the design but into the construction of the building itself. This turns out to be the opposite of the International Style that Frank Lloyd Wright also studied. The difference being that in the International Style the building did not look aesthetically like the nature it was within and was completely devoid of it.

The high point in the maturation of the Usonian House occurred between the years of 1936 and 1941. It was during this time that Frank Lloyd Wright created the most important Usonian houses as well as perfected the concept of the Usonian House. It was also during this time that Frank Lloyd Wright changed the way housing architecture in America was perceived. Today the uses of these types of houses can be found on the outskirts of towns, in what we now call Exurbia.

# Materials and Construction

In the early part of the 20th century from approximately 1915 to 1917, Frank Lloyd Wright worked on the American Ready Cut System. This system, which began its work at Taliesin West, was a system that was comprised of 966 drawings of details and specifications. In this system the client working with Frank Lloyd Wright would go through the drawings, pick the pieces and the design strategy that he or she wanted. Due to the number of drawings there was a great variety in size and design approach, and the building would then be planned. Each piece of lumber was then pre cut at the factory to the exact size and specifications and shipped to the site wherever that may be. At the site, from the pieces that were picked and delivered the building would then be constructed according to an ordered fashion dictated by the drawings that came with them. This system, although revolutionary, was not perfect. It was however a thrust in the right direction for Frank Lloyd Wright and his design career.

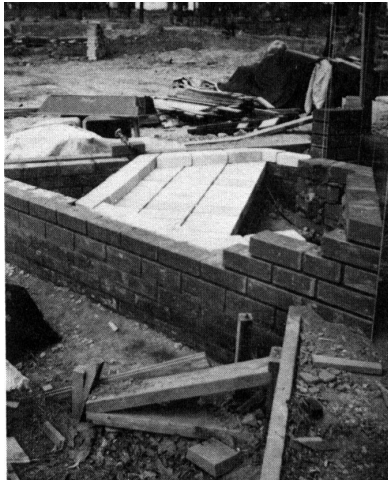
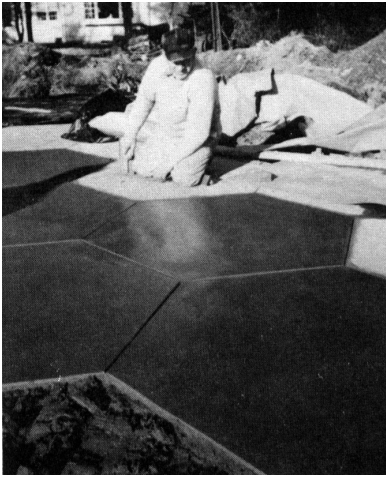
The Usonian system as said before, invented in the early to mid 1930's was a system that falls into the category of Post-Industrialized Craft. What this means is that the building strategy uses the advantages of the Industrial Revolution, in this case, the modular system and combines them with a craft system of production and assembly. This allowed for Frank Lloyd Wright's change in forms and the final product appearing to grow as well as the ease of design and construction by using pieces that fit together in a model. Ultimately and it is perhaps the downfall to the Usonian system, was that Frank Lloyd Wright modified the standard components and created a closed system. What this means, is that Frank Lloyd Wright took pieces of standard dimensions and modified how they work together. An example of this is the Board and Batten Wall (Fig. 4) as a composite wall made of different pieces of wood laminated together in the Usonian House. It was however a true colors system, as it would be easy to recreate the components for later construction or renovation. We can say that Frank Lloyd Wright designed the wood construction system with



Fig. 4: Typical Board and Batten Construction



sufficient tolerances for flexibility (Figs. 5-12).



Figs. 5-10: Typical Construction Process of a Usonian House

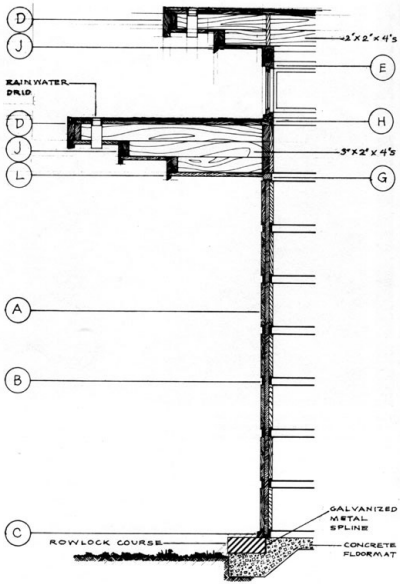
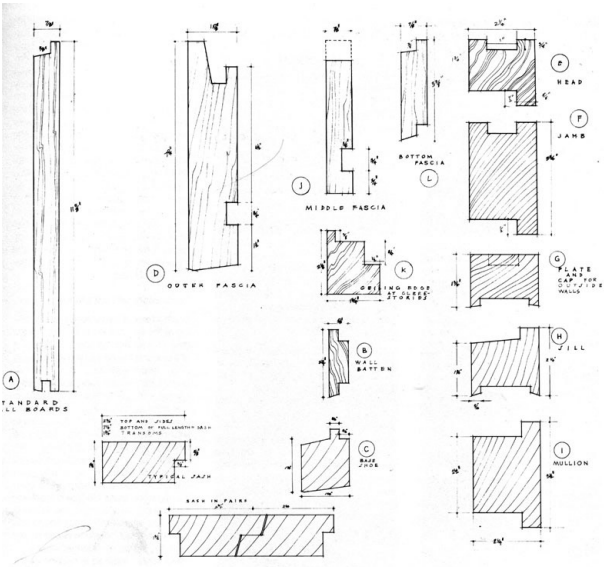


Fig. 11: Typical Usonian Wall Section

Fig. 12: Typical Usonian Wall Details



The interesting twist to the Usonian system is that although Frank Lloyd Wright wanted to revolutionize American Housing construction, his ideas were old and came from the East. The concept of organic architecture which to Frank Lloyd Wright comprised of elements growing from the ground into their final form hiding the joints that bound them, materials of natural colors creating cooled shaded interiors, and materials which retain more energy thus becoming more efficient were new to the United States of America, but old to the world as a whole. Another aspect that came from the West was the construction method. This method was Japanese in origin, it was to build the roofs and load bearing masonry first, thus creating a sheltered environment to work. Once that was completed the walls and windows filled in after.

Part of the Usonian System's genius was the planning innovations it incorporated. Some of these are variable low-cost construction with centralized services and the kitchen as the focal point of the plan. The kitchen was laid out as an efficient ship's galley with high walls and clearstory windows to keep odors out and light in. Another innovation was street privacy allowing for the building to be anywhere on the site, even adjacent to the street line, while still restricting views to the inside of the house. The maximization of the garden area was another gesture Frank Lloyd Wright implemented, as he did



Fig. 13: Men constructing house

not want to make the garden the residual space left over after the building was built. He actually decided where the garden would be and put that in the initial design. Another as stated

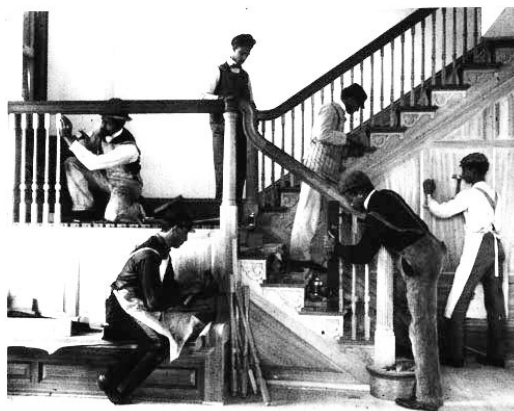


Fig. 14: Skilled craftsmen assembling stairs

earlier, was having the clients and apprentices assist in the building cut construction costs (Figs. 13-14). House components such as furniture, pictures,



and bric-a-brac can be included in the construction and the use of the open plan, leading to less interior construction work and more freedom in design. The revealing of the true nature of the materials, relieved the work needed to apply finishes such as plastering, trims, paint, etc. This immediately led to the creation of another innovation; the revealing of the way a building was constructed allowing the building to tell a story, its story. The combining of services for the building such as heating, lighting, sanitation, and structure into one element not only helped cut costs but also made the building easy to construct. It also allowed for a new way of thinking about the placement of these elements. Lastly, and perhaps one of the most important innovations of the Usonian House and one that cannot be stated enough, was that the building was never finished, throughout time it would retain the ability of being changed.

As we move into individual elements of the construction, it is important note that these specific innovations would not have worked without the above general innovations. We shall start with the implementation of the planning grid. This grid worked both in plan and in section. In plan, it was a 2' x 4' grid, and in section it was a 1'-1" grid. These grids were shown both on the drawings and in the actual building itself. The advantage of this was the easy location of components thus resulting in the easy assembly of the structure. This also allowed for sheet standards to be used that would easily fit in. Today we would associate these standards with elements that we would find in our nearby home



Fig. 15: Standard building supplies from a home renovation store

renovation store (Figs. 15-19). This was not the first time that Frank Lloyd Wright used grids. Grids had appeared in the earlier prairie houses, however the grids there were far larger and more complex not allowing the ease of standard materials to be used. This module idea of component assembly that appeared in the



Figs. 16-19: Tools that can be used by people for construction. Clockwise from left; hammer, miter saw, nail gun, and circular saw

Usonian House could be said to be the start of the do-it-yourself culture that we have today, almost 60 years before its time.

The composite wall system of the Usonian House was a major part of its construction genius. This wall system was comprised of not only opaque but also translucent elements. In North American building construction on-site labor is perhaps one of the most expensive as well as time-consuming parts of the building process. Because of this, it was Frank Lloyd Wright's attempt to minimize the amount of masonry load bearing walls used. He created a sandwich panel wall termed, the Board and Batten. This wall system had a plywood core with a damp-proof membrane and finishing panels on both the inside and outside. According to Frank Lloyd Wright, this system was effective in fire protection as well as insect and rodent protection. It was also effective in maintaining the temperature difference between inside and out even if the enclosure was transparent. Frank Lloyd Wright used large, glazed windows in an effort to open the House to the exterior and allow a temperature change between the two.

The heating system used in the Usonian House was also revolutionary. For starters, the sun supplied the background heat. This is similar to ambient light in the daytime before one turns on a light. This means that the house was always within a reasonable temperature level purely by its exposure to the sun. Additionally, the massive size of the masonry walls and the heavy roots of the floors helped to

prevent extremes in temperatures, in either hot or cold. This is similar to the way that coastal areas have a smaller temperature range than that of their inland counterparts. Frank Lloyd Wright was very against air conditioning; he believed that a house should cool itself. He wasn't against heating, but in an effort to free space in the plan to allow more living, he strove to remove the large radiators that were typically found in North American homes (Fig. 20). He did this by using an in-floor heating

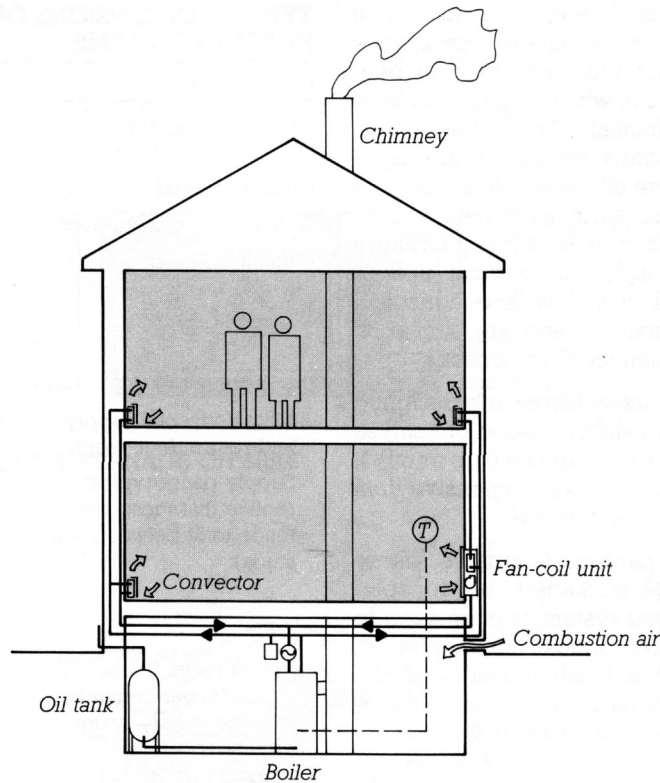


Fig. 20: Typical heating system in homes

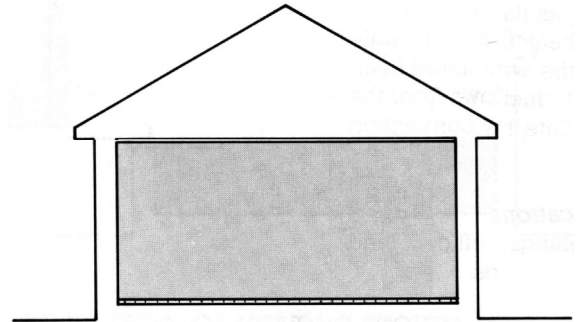


Fig. 21: Infloor heating

system (Fig. 21). This system used steam or hot water piping within the floor slab, which sat upon a gravel bed. What this system did was keep the feet warm and head cool (Fig. 22). This is effective because in a typical heating system, the head is kept warm and the feet are kept cold, but since most of the nerve endings of the body

terminate in the feet keeping them warm is far more effective. Throughout the years there has been much criticism as to the lack of air-conditioning within the structures, but as John Sergeant found out as he visited the Bazett and Hanna Houses, "I found them to be homes that air-conditioned themselves, for the fabric of the building shaded, lit, and insulated itself. These houses expressed a warmth and naturalness for which I was totally unprepared" (28). This combination of under-floor heating and lack of air-conditioning,

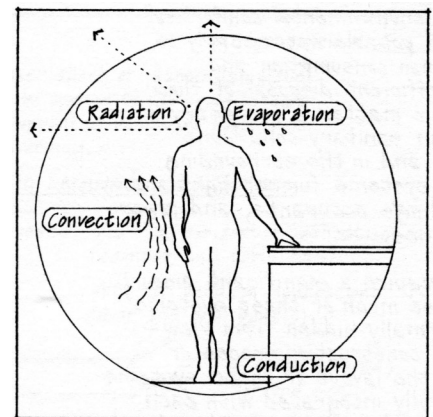


Fig. 22: Heat exchange between building and person

which Frank Lloyd Wright employed, was most effective in the temperate zone of the United States where the Usonian house was first used. As houses were built in other zones they became either slightly too warm or slightly too cold. The last main point in the construction system that we should look at is the electrical and lighting system. This unfortunately was the major shortcoming of the Usonian House. Typically after House was constructed all it had were unfinished bare bulbs and a wiring system that made it difficult to alter. The electrical wires that ran through a Usonian House were not found in exposed conduits nor were they found in covered conduits. They were often found, and the word found is used lightly, within the concrete that was actually poured around them, essentially covering them up. The only accessible wiring were the ends that went to wall outlets or to the unfinished bulbs.

As we have now discussed the overall concept, as well as the materials and construction used we shall now move into some houses themselves.

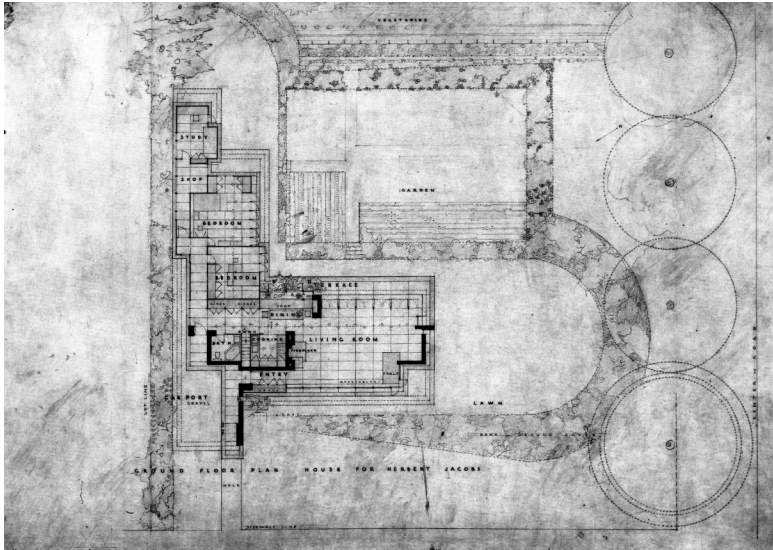
# The Different Usonians

There were five different types of Usonian designs. They were the Polliwog Usonian, the Diagonal Usonian, the In-line Usonian, the Hexagonal Usonian, and the Raised Usonian. These different types of Usonians resemble each other in their concept but differ in their appearance. They were all introduced within five years of Usonian implementation. This does not mean that once a new type was introduced Frank Lloyd Wright stopped using the older types. The invention of the different Usonian is was really an effort to create a building to fit within the location that Frank Lloyd Wright was designing for at a given time.

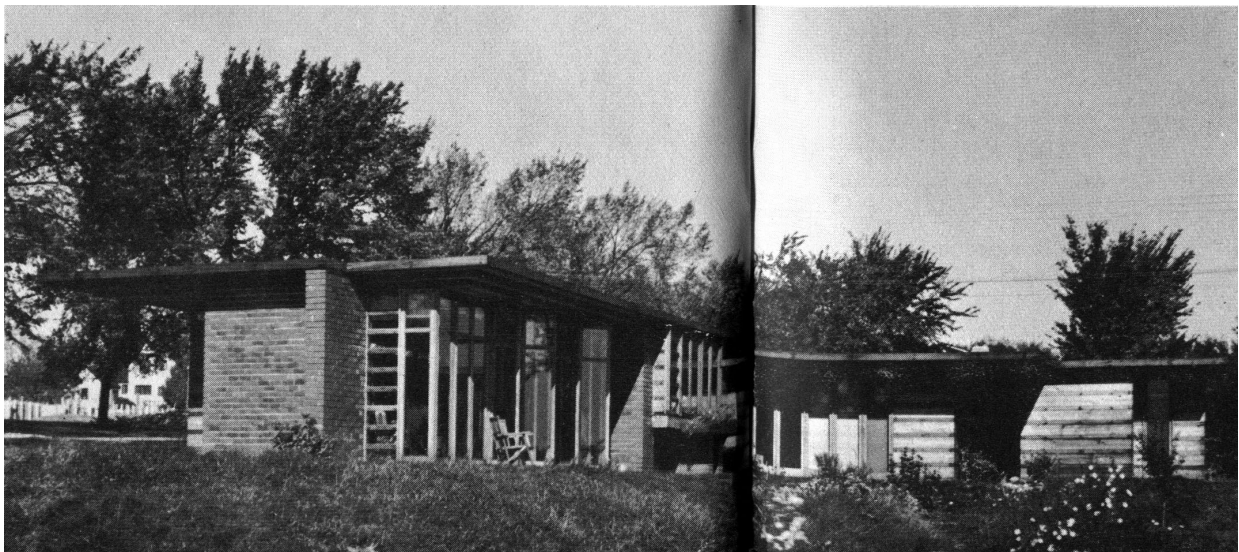
The first type, the Polliwog Usonian, introduced in 1936 with the Jacobs House in Madison (Fig. 23-24), Wisconsin was over shadowed by the construction of Falling Water in Pennsylvania and the Johnson Wax Administration Building. This is unfortunate because at the time of construction this house cost \$5,500. This was considered a marvel compared to traditional American Housing. The Polliwog Usonian was also considered a tadpole design, as it was mostly rectilinear in form. It was the most frequently used design as it was the first one implemented. It was also one that was only used on a flat site as opposed to some of the later designs that allowed Frank Lloyd Wright to build on cliffs. The Jacobs House was 1,500 square feet, as it was placed on a small site adjacent to the street line. It did however; still maintain a high level of street privacy and a large garden space. It incorporated an "L shape" plan that had similar spaces pinwheel around the kitchen. This means that the private spaces such as the bedroom, workshop, and study were at one wing while the open spaces such as the living area, the dining alcove, and terraces were at the other. Each wing was given a special quality. The private wing had one side adjacent to the garden with glazing to allow views. The public wing was given a very large fireplace as was common in most of Frank Lloyd Wright's designs. As the idea of centralized services was used, the kitchen and bathroom were located in the center. A person standing there was essentially in the middle of it all. John Sergeant once wrote, "anyone working in the kitchen was then in a central but open position - an



advance of some sociological significance" (51).

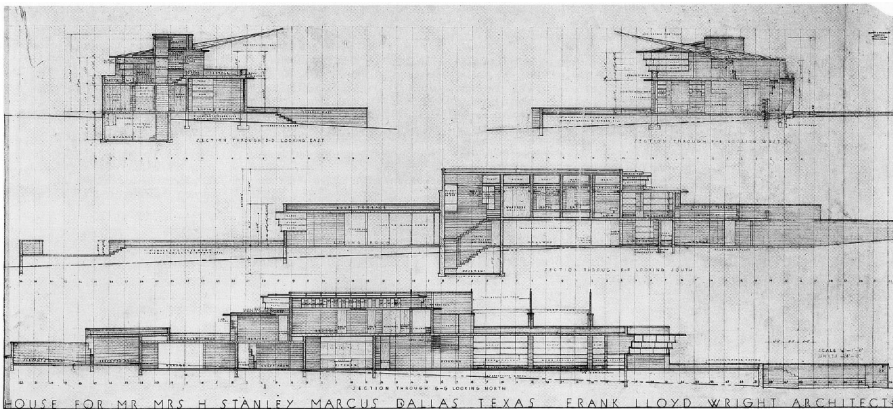
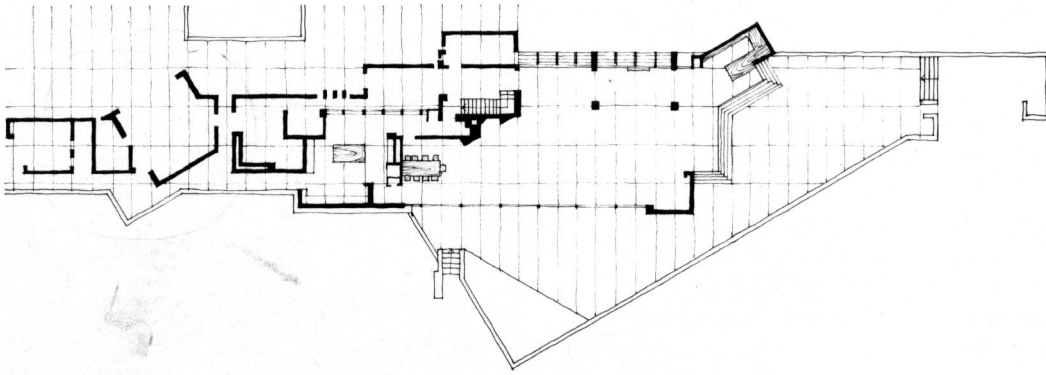


Figs. 23-24: Jacobs House plan (left) and Jacobs House view from garden.

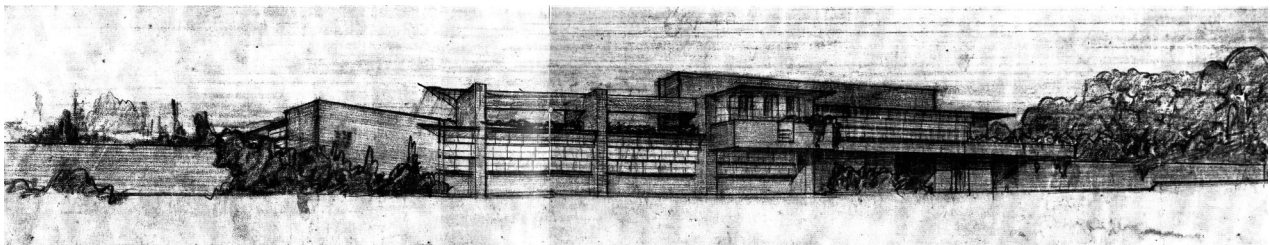


The second type, the Diagonal Usonian, was basically a Polliwog Usonian with diagonal elements. The diagonal elements were not meant to incorporate a different grid form from the Polliwog such as the hexagonal grid used in Frank Lloyd Wright's earlier Prairie Houses. The geometry change was introduced to show potential zoning changes in the house. For example, the difference between the public and private zones or the service and serviced zones. The Marcus House (Figs. 25-27), built 1937 in Dallas, Texas, was the earliest of the diagonals. It contained a long horizontal plan with a very generous living area to give views of the outside Dallas landscape. This Usonian incorporated natural air-conditioning that was created by allowing airflow through the house from the ends by screened windows to the

central chimney. The car entry pattern was set up at a 45-degree angle to the house. This was due in part to the site's angle of entry from the street. This angle was then picked up by the living elements. The study and terrace as well as the line of the fireplace wall that is always a noticeable element in Frank Lloyd Wright designs all touched upon this 45-degree angle, setting these spaces apart from the purely orthogonal.



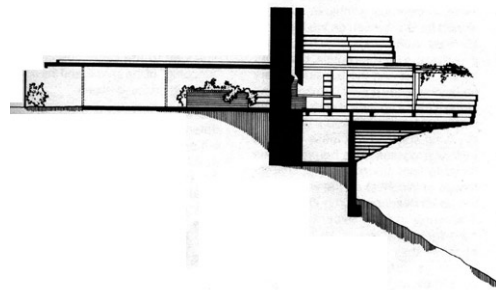
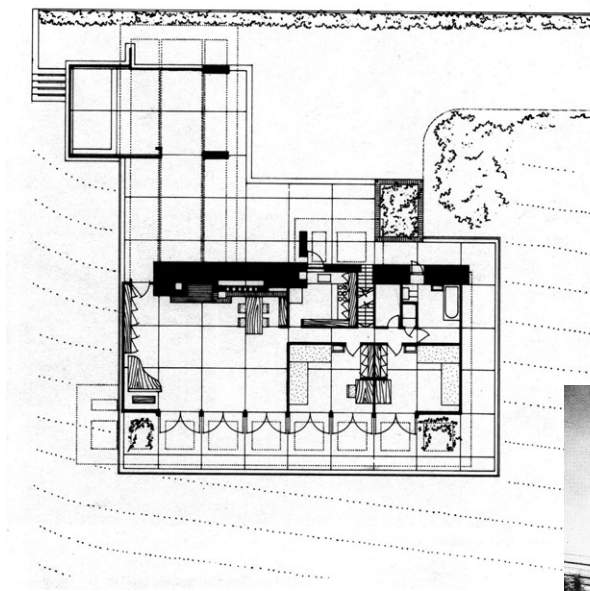
Figs. 25-27: Marcus House; plan (above), sections (left), and elevation (below)



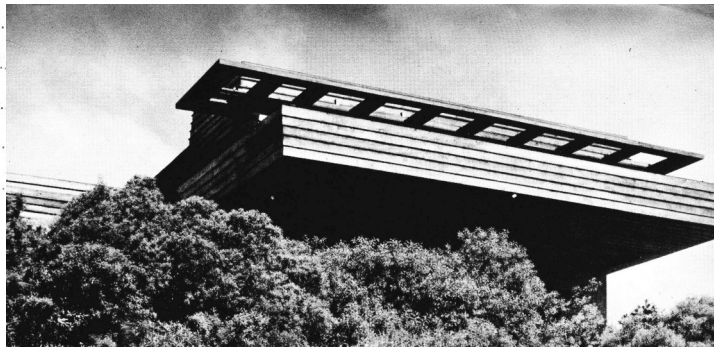
The third type of Usonian House was the In-line Usonian. This type is typically a single block plan similar to the Polliwog design but shorter in its circulation routes and having a smaller perimeter. The Sturges House (Figs. 28-31) built in 1939 in Brentwood Heights, California was an extremely compact design where the living area acted as the circulation space to the bedrooms. The key parts of this design



were the large terraces offering a southward view of Los Angeles. This building bearing some resemblance to the ideas of Falling Water was perched on a hill with a two-thirds cantilever off the side. Once again, similar to Falling Water was the use of large masonry masses at the rear of the house for support to the hill. Here the Board and Batten system was altered to allow for additional stability. The plywood core was omitted from the system below the roofline and replaced with studs. This allowed the exterior panels to lap each other for support. Above the roofline, the battens went inward in a special drip batten formation. This essentially tied back the lower portion of the House with the upper portion.



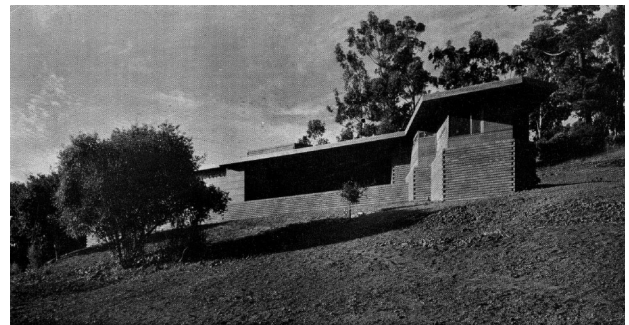
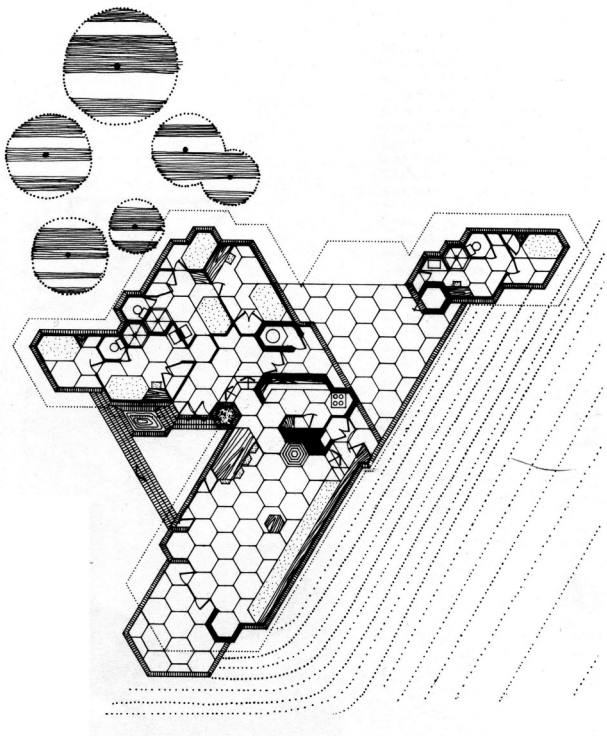
Figs. 28-30: Sturges House; plan (above), sections (above right), and elevation (right)



The fourth type, the Hexagonal Usonian was reminiscent of the Prairie House design with its hexagonal grid. This grid, as Frank Lloyd Wright felt in his initial designs, allowed for more spaces as different angles could be used. Perhaps even the spirit of a circular plan, which ultimately would be the most efficient, is the reason the hexagonal was always a favorite of Frank Lloyd Wright. The Bazett House (Figs. 31-32) built in 1940 in Hillsborough, California was one of Frank Lloyd Wright's most interesting hexagon designs. This house was essentially hexagonal version of the original Polliwog.

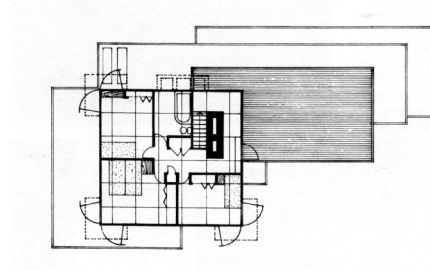
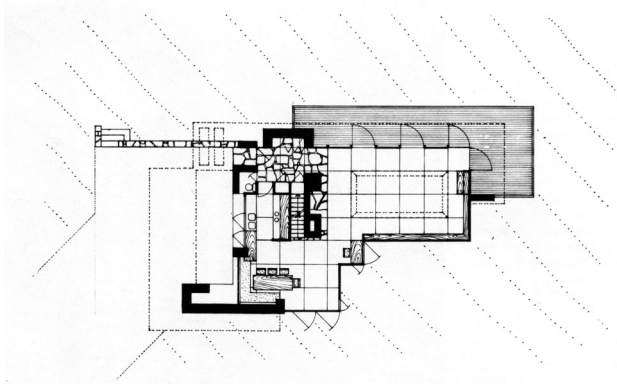


The 60-degree angle made by the hexagon thus created the two wings that wrapped around the corner of the garden. In this version of the Usonian, unlike the Jacobs House, the living space is the one that now contains the large glass wall overlooking the garden space. In addition, the living space also includes a large 20-foot built in seat within the wall. Using the hexagon in the divide between the bedrooms and the living space, Frank Lloyd Wright was able to conceal storage and washing facilities that are almost unnoticeable to the naked eye.



Figs. 31-32: Bazett House; plan (left) and elevation (above)

The last Usonian design, the fifth type, was the Raised Usonian. This is a broad type as it simply covers all Usonians that were lifted off the ground. They were typically used and found on a ravine's edge or near water. The Pew House (Figs. 33-35) built 1940, back in Madison, Wisconsin where the Usonian project began was one of the early raised Usonians. The site for this house was a narrow one, and the house actually sat diagonally on it in order to differentiate itself from its neighbors. It contained two floors with living spaces on the lower and bedrooms on the upper. Upon approaching the house, it is noticed that it actually frames a view of the site and of the ravine. In this building, Frank Lloyd Wright incorporated steel within the walls in an effort to increase stability and lower costs. The



Figs. 33-35: Pew House; ground floor plan (above left), second floor plan (above), and elevation (left)

workspace was small and efficient and had access to the front door and carport. This allowed for the easy loading and unloading of packages. The living space on the lower floor leads to a generously sized terrace and view. This terrace is the key aspect of the design as is noticed by all parts of the house terminating near it. This makes the small house successful in its design by opening it to the outside world.

So far we have covered the concept the Usonian House, its materials and construction, and the five types of Usonians. This ultimately concludes all we need to know about the Usonian design and its strategy. The next section will retouch some of the key points to show its money saving methods.

# Key Cost Reductive Strategies

Now that we visited the history of the term Usonia, the materials and the methods of the construction of the Usonian Houses, and individual houses themselves; will revisit the key cost reduction strategies of the Usonian system. As it is impossible to completely know how much each individual item lessened the overall construction cost in comparison to traditional North American Housing construction, I will try to use a logical assumption as to their advantages on the overall price of the building.

The simplest and most logical move was when Frank Lloyd Wright cut the larger extraneous costs of field labor by allowing the client and apprentices to assemble the building, the price tag then dropped dramatically. He did not however stop there, the removal of a large basement with the exception of a small space for laundry facilities and fuel storage surely seems to be a drastic reduction in the overall cost of the building, as large amounts of earth no longer needed to be excavated there was also no need for large foundation walls. Similarly, Frank Lloyd Wright minimalized the use of masonry construction, this was because skilled masons are expensive and the masonry elements they construct are equally as expensive and the clients or apprentices would be unable to do the work themselves. Also, His initial design idea of building a house with only a single floor would surely have cut the costs due to the subtraction of stairs from the structure. Additionally, the single floor design allowed for less load bearing walls on the ground floor. The roof system that Frank Lloyd Wright employed was a flat roof, he chose this simply because it use less materials. In addition to saving money by using fewer materials, Frank Lloyd Wright also chose to use laminated 2"x4" pieces instead of expensive 2"x12" pieces of lumber.

The module that Frank Lloyd Wright used from standard building materials was another aspect that greatly reduced construction cost. These materials are arbitrarily made and available for anyone. The non-specificity and mass production greatly cuts their cost. Along with using materials that conform to this module Frank Lloyd Wright also employed materials with certain thermal qualities.

He looked for materials that were both good for heating and good for cooling. These materials thus allowed Frank Lloyd Wright to eliminate air conditioning and large amounts of heating in his designs.

In addition to needing less heat, Frank Lloyd Wright also wanted to use less space for the heating elements. He achieved this by implementing an under floor heating system. This cut the cost of the building by eliminating radiators and radiator covers. By incorporating the heating in the building's floor Frank Lloyd Wright opened more space to be used by the people who occupied the house. Also incorporated in the construction were the extras that make a structure home. Within the walls one could find built-in chairs and even a hint of artwork. The inclusion of these bric-a-brac elements reduced the building cost because once the building was completed the clients did not have to go out and buy them. This made the enclosure system a functional element beyond inside/outside separation.

The spatial zoning concept incorporated in the plan and section reduced cost because of the need for less interior walls. This spatial zoning allows for greater efficiency in the plans as it reduces the amount of wasted space that costs money to construct. With the elimination of wasted spaces on the inside of the house, Frank Lloyd Wright also felt that since cars were becoming mainstream in society as well as becoming sturdier than their initial appearance, garages were no longer needed. He replaced the expensive box with a covered carport. By removing the walls he saved money. On a lesser note his initial non-usage of fancy light fixtures saved money. He also found that it was not necessary for extras such as gutters or downspouts on the exterior of the house with the flat roof system he used (Wright, *The Natural House* 73).

When put all together, these strategies and ideas are what made the Usonian Houses efficient, elegant places to live while still making them some of the most affordable homes ever constructed. Frank Lloyd Wright was successful in creating his American Utopia each time he built a piece of his American Usonia. The difference between the two is that utopia is a long-lived concept of a place and Usonia was the vehicle to get there.

## Works Cited

Sergeant, John. Frank Lloyd Wright's Usonian Houses: The Case for Organic Architecture. New York: Watson-Guption Publications, 1976

Wright, Frank L. The Natural House. New York: Horizon Press, 1954

Wright, Frank L. Two Lectures on Architecture. Chicago: The Art Institute, 1931



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# Bibliography

- Costantino, Maria. Frank Lloyd Wright: Design. London: Saturn Books Ltd., 1995
- Forsee, Aylesa. Frank Lloyd Wright: Rebel in Concrete. Philadelphia: Macrae Smith Company, 1959
- Frampton, Kenneth. "The Usonian Legacy." Architectural Review. 182.1090 (1987): 26-31
- Hart, Spencer. Frank Lloyd Wright. Greenwich, CT: Brompton Books Corp., 1993
- Hertz, David M. Frank Lloyd Wright: In Word and Form. New York: G. K. Hall & Co., 1995
- Hitchcock, Henry-Russel. Frank Lloyd Wright on Architecture: Selected Writings 1894-1940. New York: Duell, Sloan and Pearce, 1942.
- Morse-Fortier, Leonard J. "Frank Lloyd Wright's Usonian Automatic Building System: Lessons and Limitations in a Lost Paradigm." Journal of Architectural and Planning Research 11 (1994): 274-92
- Pfeiffer, Bruce B. Frank Lloyd Wright: Drawings. New York: Harry H. Abrams Inc., 1996
- Pfeiffer, Bruce B, and Gerald Norland. eds. Frank Lloyd Wright: In the Realm of Ideas. Carbondale: Southern Illinois University Press, 1988
- Sergeant, John. Frank Lloyd Wright's Usonian Houses: The Case for Organic Architecture. New York: Watson-Guptill Publications, 1976
- Smith, Norris K. Frank Lloyd Wright: A Study in Architectural Content. Englewood Cliffs, NJ: Prentice Hall, 1966
- Storrer, William A. The Architecture of Frank Lloyd Wright. Cambridge: The Massachusetts Institute of Technology, 1974.
- Twombly, Robert C. Frank Lloyd Wright: His Life and His Architecture. New York: John Wiley & Sons, 1979
- Wright, Frank L. In the Cause of Architecture. New York: McGraw Hill, 1975.
- Wright, Frank L. The Natural House. New York: Horizon Press, 1954
- Wright, Frank L. Two Lectures on Architecture. Chicago: The Art Institute, 1931