NG USONIA
·1959

In the first decades of the twentieth century Wright had applied rationalist methodology to the architectural transformation of the single-family dwelling and public institutions such as office buildings and churches, in the 1930s he applied the same approach to urban planning. During these years, he was formulating a new strain of thought as a result of the turbulent economic and political conditions brought on by the Great Depression. The architect laid out the principles of his ideal community in a model and some text panels, which he exhibited at the International Arts Exposition at Rockefeller Center, New York, in 1935. He called the proposal "Broadacre City" to emphasize the singular point that citizens would live in open space surrounded by light and in direct contact with nature. It examined the general case of a hypothetical four-square-mile section of land including manufacturing, farming, transport, housing, and culture.

Based on the idea of decentralization, Broadacre City assumed that the entire nation would be crisscrossed by great arterial superhighways. It called for a pattern of low-density settlement across the American landscape that would allow every family a minimum of one acre of land, one automobile, and access to telecommunications. Low-density was maintained by having each building—whether public or

private—surrounded by generous plots of parkland or agricultural fields. "Light, air, and prospect" would be made available to everyone, while avoiding high-density or urban development, which Wright felt was an outmoded pattern more suited to the Middle Ages than the machine age. Broadacre City was Wright's critique of traditional cities such as London, Berlin, and New York, which he believed did not benefit from the freedom the automobile introduced to modern living.

Nature was the essential element of his planning scheme: most of the area of the settlement would be given over to farms, private gardens, parkways, and open space. Throughout his childhood in rural Wisconsin, he had been taught that nature was an emblem of a higher moral order. "God is the great mysterious motivator of what we call nature," Wright declared, "and it has often been said by philosophers that nature is the will of God. And I prefer to say that nature is the only body of God we shall ever see."

Wright was unable to carry out his Utopian vision of decentralization on a large scale, given the economic and political reforms it required. As a result, he welcomed opportunities to extend the benefits of his Usonia (a new term coined to stand for United States of North America) to an increasingly mobile American society in the late 1930s. Usonian houses were built in every region

of the nation and whether in Arizona or Michigan, Wright used indigenous materials to anchor the building to its native locale.

In 1936, after several years of investigation into methods to lower the cost of housing, he succeeded in building a $5,000 Usonian house for Herbert and Katherine Jacobs, a young couple with children. In its completed form, the house contained numerous innovations in the areas of plan, structure, construction system, the use of materials, and the relationship between building and landscape. The compact L-shaped plan contained two wings (one for the living room and dining alcove, the other for bedrooms and study), with kitchen and bath at the corner of the L. To lower the cost even further, Wright eliminated the garage by substituting a covered shelter called a carport.

He had singled out conventional construction trades and the unions that were tied to them as the source of rising costs in building. He deconstructed the process step by step and came up with an entirely new systematized approach. It called for the fabrication of a flat concrete pad, embedded with radiant heating elements, as the foundation and finished floor. The house would be constructed in stages from brick fireplaces to wood sandwich walls to framing to glass infill to roofing. He eliminated layers of materials—lathe, plaster, paint, wallpaper, and hangings—for a few simple materials—wood, concrete, and brick—left in their natural color and texture, simply stained or waxed. The total cost included built-in seating, tables, bookshelves, cabinets, and lighting.

The genius of the architectural scheme can be seen in how it introduced so many new ideas to domestic planning. The spatial layout assumed the absence of servants, the importance of the housewife supervising the children, and an informal social life with time relaxing in the garden. The living room was multi-functional: for relaxation and reading by the fireplace, for family dining, and for entertaining large groups with buffet-style meals. The house turned a solid back to the street while opening itself up through French doors onto a generous interior courtyard and adjacent garden. Other innovations included the use of clerestory windows toward the neighbors, for light and ventilation; a flat roof; and the location of all the plumbing at the hinge of the L to cut down on the cost of piping systems. Lighting was minimal; but its ingenious design prefigured the concept of track lighting.

Wright again rethought the Usonian house in the post–World War II era when he was discovered by a new generation of returning war veterans. He responded by significantly improving the 1920s textile block system of concrete construction with a set of guidelines and plans for the do-it-yourself movement. He made the blocks lighter and simpler to manufacture by changing the shape from square to rectangular and by eliminating ornamental pattern in favor of plain blocks that were either solid or open.

In the early 1950s, he received commissions that allowed him to put his theory of the Usonian Automatic concrete block construction to the test. Several large houses can be considered impressive demonstrations of the techniques of the system; but in the smaller houses, some homeowners found the complex and time-consuming fabrication was anything but "automatic." Ultimately, however, years after the memories of the building process had faded, they declared that the results proved more than worth the effort.

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TWO:

ABSTRACTING NATURE 1902–1917

By 1901, Wright had begun a major transformation. The accomplished draftsman was replaced by a master architect, who over time assembled a team of assistants in his Oak Park Studio, and a circle of contractors and artisans with whom he would work on a regular basis—firms like Linden Glass Company and Giannini and Hilgart, the decorative arts firm; and men like Paul Mueller, the builder; Richard Bock, the sculptor; or George Mann Niedecken, the interior architect. It was Wright's skill in organizing a modern practice that allowed him to simultaneously construct dozens and dozens of Prairie houses as well as complete several major public buildings, such as Unity Temple, before World War I.

Many of his clients during this period were successful entrepreneurs, often inventors, such as Darwin D. Martin or Frederick C. Robie; some were independent women with artistic or spiritualist leanings, for example, Susan Lawrence Dana or Queene Ferry Coonley; most were politically and religiously conservative. However, they did not live in an insular world of class-consciousness, and thus chose their architect not to elevate their social status but to better their way of life.

Wright's imagination was consumed by an ideal vision of architecture at one with nature, but his sites were most often within the regularized grid of an outlying suburb instead of off in Arcadia. The majority were in the Midwest —many of them in Chicago communities such as River Forest, Highland Park, or Riverside. The essential point of Wright's doctrine—to open the house to "light, air, and prospect"—fit these locations ideally, giving their owners a serene retreat from the encroaching noise and congestion of the city.

At this period of Wright's career, the spatial plan of the Prairie house was more important than structural innovation. By analyzing the functional components of the single family dwelling, he went from what he called "the general to the particular." For instance, he categorized the public spaces (living, dining, and library) as primary and the service spaces (entry, kitchen, pantry, servant's quarters) as secondary Using axial organization and a square grid system as ordering devices, he gave modern expression to the classical principle of hierarchy of spaces.

A major conceptual breakthrough that he made early on was the realization that mechanized heating made it no longer necessary to close rooms off from each other to conserve heat. This discovery led to the open plan in public spaces—for instance, where the living room opened to the dining room on a diagonal—while maintaining compartmentalized rooms for services. With the hearth no longer used as the

major source of heat, Wright was free to liberate it from the wall and use it as a freestanding vertical plane in space as he did at the Robie House, for instance. By treating the fireplace as a solid screen that defined but did not enclose space, he created the free plan of Modern architecture.

The other major advance represented by the Prairie house was the rejection of the wall as the traditional solid barrier between inside and outside. Rather, with the Willits House, for example, he broke the wall down into a series of elements such as solid piers, flat planes, and window bands—all geometrically organized by dark wood strips. The wall was now defined as an enclosure of space. Windows were no longer holes punched through a mass, but a light screen filtering sunlight into the interior. The movement outward toward the landscape was amplified by the addition of porches, terraces, flower boxes, and planter urns.

It is clear that by 1901, Wright had gone to school with nature, absorbing his studies of the Midwest prairies, woods, and ponds. His greatest source of inspiration was from the land itself including all aspects of the natural world: wildflowers, leaves, and grasses. The turning point came when he began to incorporate specific characteristics into his architectural language. The straight line of the horizon became the low sheltering roof, the trees and flowers

formed patterns in the art glass windows, and the leaves contributed their autumnal palette to the plaster surfaces.

Wright's transition from deconstructing history to abstracting nature was accomplished partly as a result of his deepening involvement with Japanese art and architecture. The influence of *Japonisme* had intensified after his exposure in the 1880s to *ukiyo-e*, woodblock prints of the seventeenth through nineteenth centuries. Beginning in 1902, Wright began to amass hundreds upon hundreds of woodblock prints, especially the works of Hiroshige and Hokusai, his favorite artists. By the time of his first trip outside the United States, a three-month journey to Japan in 1905, he was a recognized Japanese print authority and one of the leading American collectors.

His passion for Asian art was both personal and professional. Japanese art did not strive to depict figures and objects realistically in three-dimensional space; rather, the *ukiyo-e* artist wished to portray landscapes, plants, and animals in their most generalized characteristics thus elevating them to the level of symbolism. Hokusai's abstractions of birds, fish, and flowers, for instance, suggesting the symbolic significance of specific seasons correspond to Wright's use of nature motifs as the source of a formal language in houses such as the Dana House, where geometric figures are based on the sumac shrub and the butterfly.

In March 1908, Wright summarized his domestic design philosophy in an essay, "In the Cause of Architecture," as follows: reduce the number of rooms to the essential; integrate all openings and ornament to structure; incorporate fixtures, pictures, and furniture into the building fabric; orient the house to the horizontal line of the prairie; choose colors of the earth, especially autumnal hues; leave materials natural, no applied paint; reject prevailing styles of the day. This article was amply illustrated with eighty-seven illustrations.

In 1910 Wright, dissatisfied with the printing quality of the 1908 article, embarked on a more ambitious publishing venture. He contracted with the Berlin publishing house Wasmuth Verlag to bring out two publications featuring his Oak Park Studio work: *Ausgeführte Bauten und Entwürfe* (Executed Buildings and Designs), a deluxe edition of hand-drawn plans and perspectives in two volumes, and *Ausgeführte Bauten* (Executed Buildings), an inexpensive book of photos. The works have been called "the most influential architectural books in the twentieth century." They were neither a work of theory, nor a manifesto in the conventional sense, but through their illustrations they served that purpose. ❖

THREE:

MATERIALS AS METAPHORS 1918–1936

If the early part of the twentieth century was a period of invention when Wright laid down many of the ideas, types, and elements that would inform his architectural vocabulary, the 1920s was a period of transition in which he explored the expressive qualities of regionalism and primitivism. Just as the Prairie houses were being studied in Europe for their universal application to the needs of modern housing, Wright set out on a journey of self-discovery that took him geographically and imaginatively a great distance from the work of the Oak Park Studio. Direct contact with Japanese culture and the landscapes of the Far West—California and Arizona—inspired him to use materials as metaphors for place.

Prior to 1911, Wright's architecture was based on an analysis of function as much as abstraction. But after departing Oak Park he frequently created unique houses usually for himself or favored clients that were poetic interpretations of materials indigenous to the site expressing his deeply held belief that the natural world was sacred. His work of the following years reflected a new duality: a reliance on industrial methods of building—reinforced concrete as a material and standardized units as a building system—and an aesthetic that emphasized the fleeting beauty found in organic materials as they weather, and even decay. At the heart of this contradiction is the issue of nature, a Western ethos that values dominance and control versus an Eastern tendency that seeks to achieve harmony with natural elements and forces.

A combination of modern structural methods and regional identity had actually preoccupied him with the design and construction of the Imperial Hotel in Tokyo, a commission that was initiated in 1911 and continued until 1922. An abstract cube would have violated the spirit of Japan, so Wright chose to design the hotel as a tribute to the Asian civilization that he had come to revere. While he utilized some of his most sophisticated techniques of industrial construction—a reinforced concrete frame resting on a "floating" foundation of concrete piles—he also introduced oya, an indigenous lava stone, to tie the building to its native land. Ironically, while the Prairie houses had more to do with the lightness of Japanese villas, the Imperial Hotel with the solidity of its massive form, profusion of ornate decoration, and mysterious dim interiors was reminiscent of an ancient Chinese Imperial Palace.

If the Imperial Hotel was designed as a unique response to a foreign context, the 1920s textile-block houses were strictly ideological: an individual interpretation of the industrial idea of standardization. Wright's goal was to provide a custom-designed, fireproof dwelling filled with

space and light; but to reduce the overall cost to the client, he introduced the machine-age concept of a standard unit and the radical notion of unskilled labor. His solution was a 16-inch-square concrete block with semi-circular grooves on four sides. To reduce the weight, the blocks were made concave, 3½ inches thick on their edges and 1½ inches in the middle. When placed end upon end and row over row, the grooves formed a cage of circular hollow channels, horizontally and vertically, throughout the wall. Slender steel rebar, measuring ¼ inch, was placed in these channels, which were filled with grout—resulting in a solid monolithic wall. The essential grid of crisscrossed reinforced steel bars is what led to the title "textile block."

In keeping with his vision of the building growing up and out of the ground like a plant, he called for decomposed granite taken directly from the site to be mixed with Portland cement and water to create a dry mix. Workers, who in 1924 were paid by the piece (15 cents for each plain block), made the units by hand tamping the mix into a mold.

The walls were double wythe—the blocks used on the exterior and interior, both patterned and plain faces, creating one inch of air space for drainage in between. The two layers were tied together with wire. Although a traditional masonry wall such as brick depends on a visible

mortar bed for cohesion of its assembled units, Wright completely eliminated the use of mortar.

Although the buildings were built of concrete they often impart a patina of age as if the material was decomposing and returning back to nature from which it came. This attitude derives from a strain of Japanese aesthetics with its origins in Zen Buddhism and its embrace of death and the transience of all things, but it has always been a source of consternation for Western critics for whom durability and permanence are taken for granted in architecture.

During this period Wright would simultaneously address both Modernism with its Western bias in science and reason, and Japanese aesthetics, grounded in attitudes about nature worship and intuition, increasingly synthesizing the two views in one work thereby creating an architecture that was startlingly new and extraordinary.

No work exemplifies this more than the country house for Liliane and Edgar J. Kaufmann, Fallingwater. The existing natural features—a stream, broken rock ledges, a two-tiered waterfall, large boulders, a profusion of oaks and rhododendrons—created an ideal setting for a twentieth century villa in a water garden. In form and materials, Fallingwater is both complex and contradictory. It combines coarse variegated limestone laid up in courses to mimic the rock ledges below with daring cantilevered balconies of smooth reinforced concrete. While the house appears to grow up out of its site, at the same time its commanding presence declares itself a man-made object. It is both organic and industrial. It romanticizes nature while romanticizing technology. No work is more expressive of Wright's synthesis of his adopted Eastern viewpoint and his inherited Western values. ◆

FIVE:

LEAVING A LEGACY 1948–1959

During the post–World War II building boom, as Frank Lloyd Wright entered his late eighties, he finally had the opportunity to concentrate on monumental public buildings because his studio was swamped with jobs of all kinds. The final years provided him with commissions for sacred architecture, for example, Beth Sholom Synagogue and the Annunciation Greek Orthodox Church; and a modern art museum for the collector Solomon R. Guggenheim; but, in addition, he, at last, was recognized by an American government and given the job to design a civic center in northern California. The Marin County Civic Center allowed him to realize in built form beliefs about democracy that had been central tenets of three of his most important books, *The Disappearing City* (1932), *When Democracy Builds* (1945), and *The Living City* (1957). The masterworks of this period bring to fruition formal ideas and sophisticated engineering theories that he had explored as far back as the 1920s.

Beth Sholom Synagogue stands on a slight rise in Elkins Park, Pennsylvania, not far from Philadelphia. It is a prominent landmark in the neighborhood with its luminous walls glowing against the sky, and with its prominent seven-branched menorots visible on the three main ridges of its roof. A sandwich wall—glass panels outside and fiberglass panels inside—creates a translucent skin that makes the building appear to be filled with light, an effect that is intensified when it is viewed from the exterior at night. The six vertical planes rise up to create an irregular hexagon, a shape that evokes a mountain, indeed, the holy mountain of Mt. Sinai, a potent symbol for the Jewish people. It is necessary to go back to Wright's unbuilt projects of the 1920s to find anything comparable—his daring 1928 design for a Steel Cathedral for one hundred thousand people.

While Beth Sholom was still in construction, Wright received the commission for the Annunciation Greek Orthodox Church to stand on a flat site in the suburbs of Milwaukee, Wisconsin. His enthusiasm for the subject was linked to his early passionate interest in ancient Byzantine churches such as Hagia Sophia in Istanbul, a building that to Wright was transcendent with its resplendent dome and gold-leaf mosaic ceilings. Like Beth Sholom, the symbolic form of the Greek Orthodox Church was made possible by his mastery of advanced structural engineering, in this case, reinforced concrete rib and shell construction.

It was an ironic turn of events that Wright's grandest monumental design would be built in New York City, the subject of many of his fiercest diatribes against high-density urbanism. There is nothing quite like the Guggenheim Museum in

any of Wright's oeuvre, certainly not any of his public buildings of the 1950s, the reason being that the commission originated in 1943 when he was first approached by Hilla Rebay, the chief art adviser to Solomon R. Guggenheim, part-heir to a huge nineteenth-century mining fortune. Yet there are connections to Wright's early work. Both the bi-nuclear plan and the use of reinforced concrete as the primary material evokes Unity Temple; creating an analogy to an ancient building form—in this case, the ziggurat—recalls the archaic associations of the Imperial Hotel; but the sculptural weight and play of light and space is uniquely its own.

The main rotunda was conceived as a huge upended vessel with a ramp spiraling down from a centrally placed translucent glass dome. The museum visitor was instructed to take the elevator to the top, and then proceed to view the art collection in a downward circular motion, pausing at each level to gain insight and cosmic awareness, thereby arriving back on the ground a more enlightened individual than before. Throughout its thirteen years of design development and three years of construction, the Guggenheim Museum was subject to numerous alterations demanded by the clients and the New York building inspectors. In its completed form, Wright's original idea was intact, but the loss of crucial details is to be regretted.

Toward the end of his life, it seems clear that Wright wanted to leave a visible legacy in the form of government buildings for the capitals of his home states—Wisconsin and Arizona. However, his designs for Monona Terrace in Madison and the "Oasis" State Capitol in Phoenix were both rejected by the political establishment. By contrast, he received a warmer reception when he was asked to do a host of structures including an Administration Building, Hall of Justice, Post Office, Veterans' Auditorium and county fairgrounds in Marin County, California. It was one of the largest concentrations of public buildings in Wright's career, surpassed only by Florida Southern College in Lakeland.

In sympathy with the principles of Broadacre City, the civic center was to be built on acreage bordering a great arterial highway—an enormous site consisting of a series of rolling oak-covered hills adjacent to marshlands. The main structure—combining the Administration Building and the Hall of Justice—was conceived as two bridges spanning the hills and meeting under a domed rotunda. The main organizing feature of the Civic Center was not based on a geometric plaza of axes and grids, but a romantic landscaped setting with one prominent feature: a water course beginning in a central pool beneath the rotunda, spilling over as a stream, and meandering down the hillside until it met a large man-made lagoon that Wright had created from the existing marshlands. He strove to emphasize the natural beauty of the site. He explained to his clients, "The good building is not one that hurts the landscape but is one that makes the landscape more beautiful than it was before that building was built." By April 1959, the master plan had been approved by the clients, with working drawings yet to commence when Wright died. Construction proceeded posthumously on the main building until its completion in 1970.

Throughout his life nature was Wright's great inspiration, but even here he tried to penetrate to general principles. Beyond the particular case of each client's requirements, he strove to construct the ideal form. Toward the end of his life he went beyond such institutions as church, college, and local government to find the archetype. As he becomes more and more a part of the historical record, his modernity means less and less. It is the timelessness of his work that continues to endure.❖

2. The Usonian House

The years 1916-36 could appropriately be dubbed "a period of transition" for Frank Lloyd Wright in which he was seeking new frontiers in architecture far away from the controversy his personal life had provoked in the Midwest. Aside from the Imperial Hotel in Tokyo, Japan (1915-22), and his concrete block houses in California (1920-24), "... this phase of Wright's development is an unfortunate atavism; and it makes more and more pronounced the breach between his work and that which will be pronounced during the coming generation."[1] Domestic commissions were few and commercial projects never got beyond the drafting table. He commented on this in his autobiography by recalling:

> ... Some further work on the cantilever glass and metal skyscraper for Mr. Johnson [A.M. Johnson, Chicago, Illinois] of the National Life Insurance Company (1924), and a study for the automobile objective for Lawrence Strong (1925) [a planetarium accessible by a spiraling roadway in Sugar Loaf, Maryland], these seem to have ended my active period.[2]

Wright's architectural countenance of character was largely maintained by his public speaking, and publications, which provided him with a source of income. His talks at Princeton University in 1930 were published under the title *Modern Architecture, Being the Kahn Lectures for 1930* by Princeton University Press in 1931. The year 1932 presaged a new beginning with the publication of *An Autobiography* and *The Disappearing City*, as well as founding the Taliesin Fellowship at Spring Green, Wisconsin, his boyhood home:

> Many times before, in desperate circumstances (perhaps because of them) came an Idea. I, too, can get a bad idea - but not this time. The now subjective promise came to its object as the idea? No buildings built at the harrowing moment but, capitalizing thirty-five years of past experience, why not build the builders of buildings against the time when buildings might again be built?[3]

> As the plan for the Taliesin Fellowship unfolded I had hoped that apprentices—like the fingers on my hands—would increase not only my own interest and enthusiasm for my work as an architect, but would also widen my capacity to apply it in the field.[4]

The fellowship was formed in the Fall of 1932 when Wright enlisted the eager, agile hands of architectural apprentices to build a scale model of his utopian vision of the "new" American city to be known as Broadacre City. It became a material realization of his attack on what he termed the cultural lag of our society—the city—thus freeing the individual to become self-sufficient on one acre parcels of land in a dwelling designed to be integral with the site. Such an agrarian propriety related to the transcendentalist thought of Ralph Waldo Emerson who Wright greatly admired. Emerson was a believer in the "divine sufficiency of the individual."

The year 1936 served to mark Wright's renaissance and "Second Golden Age" with the design of the Johnson Wax Administration Buiilding in Racine, Wisconsin for Herbert Johnson; "Fallingwater" at Mill Run, Pennsylvania, for Edgar Kaufmann; and the first Usonian House built for Herbert Jacobs in Madison, Wisconsin. The Usonian House was born when Jacobs, a young journalist challenged Wright by asking the architect in 1936 to design a house for him costing five thousand dollars. It was a realistic solution to domestic construction during those difficult economic times. The house utilized low-cost construction techniques: a concrete mat with wrought iron pipes laid underneath for radiant heat; a grid-module plan growing out of a central fireplace and utility core; built-in furniture; and the use of inexpensive building materials assembled on the site helping to defray labor costs. Wright coined the word "Usonian" when he was inspired by Samuel Butler's utopian novel *Erewhon*, which is an anagram for "nowhere." If Butler could concoct interesting words in his novel, why not Wright in his own architectural vernacular? He lent credence to his nomenclature by saying, "... [the architect] must learn ... to fashion his vocabulary for himself and furnish it in a comprehensive way with significant words...[5] Consequently, such words as conglomera, Broadacre, grandomania, and usonian became a working part of the architect's verbal palette. Even one of his apprentices recounted how "... He loved to play with words, often chose them for sound and not always for sense...

His writing really reflected his speaking—wordy, rich, with a grammar of his own invention.[6]

Although the Herbert Jacobs houses played a paramount role in Wright's re-emergence, there is another significant house Wright designed for Abby Beecher Roberts at Marquette, Michigan, the same year. The house can be traced back to 1935 when Mrs. Roberts' daughter Mary, one of Wright's first apprentices, encouraged her mother to help fund an exhibit of Broadacre City at Marquette. Mrs. Roberts was impressed with some of the model homes in the exhibit and asked Wright to design one for her on a piece of property outside Marquette. The Roberts house (Fig. 17) is a one-story structure based on Usonian principles with a four-foot-square grid-module extending out of a central fireplace. The house is constructed of brick with a raised basement negating the use of radiant heat. The living room and Mrs. Roberts' bedroom both have pitched slab roofs which are among the first designed by Wright. They were necessitated by the heavy winter snowfalls in the upper peninsula of Michigan. Underneath the roofs are tall vertical windows that open the interior to the surrounding woods. The living room and terrace, opposite each other, are arranged at a forty-five degree angle to the central axis of the house.

The original projected cost of the house was $10,000, and ended up being $16,500. It was complicated by one of Wright's apprentices, John Lautner, who was to superintend the construction. When Lautner became Mrs. Roberts' son-in-law, their relationship had some impact on the original plans. Wright pointedly brought this to the attention of Mrs. Roberts:

It was not only "just a house" we went in for. But your familiar line was "I am going to live in it and I don't care to educate myself to new ways of life." So where there were idiosyncrasies (they always present themselves as "common sense")—idiosyncrasies won... The building of the Marquette house really set him [John] back rather than forward just because he went into residence there (family again) and lost touch with me...[7]

Then Wright went on to further voice his displeasure with John:

> I am completely in the dark as to what is going on in connection with our work at Marquette and am beginning to suspect it indiscreet to entrust the Superintendence of a Taliesin project to the son-in-law of a client, even when that son-in-law is you and Mrs. Roberts is the client...[8]

Wright was not in control because he was dealing with a client who was as equally strong-minded and opinionated. That also accounts for the house being listed as "unsupervised" in *Frank Lloyd Wright: Writings and Buildings* by Edgar Kaufmann and Sam Raeburn.

Wright's architectural momentum continued to build when he was approached by a group of seven teachers from Michigan State College, the following year, to plan a community of houses for them in Okemos. The houses were arranged around a central farming unit as part of a quasi, self-supporting farming cooperative. It would have become the first small-scale realization of Wright's Broadacre City; however, the project collapsed when the group went to the Federal Housing Authority for financial backing. "Government expert opinion reported 'the walls will not support the roof; floor heating is impractical; the unusual design makes subsequent sales a hazard,' "[9] Ironically, five years later Wright was commissioned by the United States government to plan a housing project for defense plant workers in Pittsfield, Massachusetts. As a result of this encounter, federal housing officials also declared that Wright's influence would later become a major one in postwar housing, both public and private.

Undeterred by the Okemos project's failure, two members of the group, Alma Goetsch and Kathrine Winckler, continued on by asking Wright to design a house for them. Winckler wrote to Wright in 1938:

> The idea of having you build a house is not a new one to us. We have talked about it for years, but not until the Jacobs house appeared did we dream that heaven was within reach. I knocked on the door of the Jacobs' house so many times last summer that I finally became apologetic about it. All my life I have resented the little holes in walls that people call windows and as I stood in the Jacobs' bedroom I realiz-

ed what it must mean to step out of bed in the morning and see earth and trees and sky all at once. I grew up in Madison [Wisconsin) and love hills and water. The knoll on our land seems to be the nearest thing to a hill that can be found hereabouts.[10]

With this statement Winckler reconfirmed all the principles Wright believed in—"The Usonian House aims to be a natural performance, one that is integral with site, to environment, to the life of the inhabitants, integral with the nature of the materials... Into this new integrity, once there, those who live in it take root and grow,,,"[11]

Completed in the fall of 1940, the Goetsch-Winckler house is a visual testament to Wright's Usonian vision. The pronounced horizontality of the house is emphasized by a flat roof defined by fascia lining the perimeter (Fig. 18). Underneath, planes of brick intersect and extend defining the interior and exterior space. The dramatic cantilevered extension of the roof over the carport is re-enforced by the use of a steel beam insuring the horizontal line of the house. With these elements of design and construction there is a marked similarity to the Robie house in Chicago.

Broad expanses of windows open to the east and west integrating the interior with the surroundings and also contributing to the pavilion-like appearance of the house. A second level of clerestory windows wraps around three sides of the living room allowing more light to expand the interior space. Based on Usonian principles, the dwelling rests on a concrete mat, with integral radiant heat, and a four-foot-square module which Wright advocated as the human scale in building proportion. The walls were preassembled utilizing a sandwich technique with an interior core of plywood covered with vapor-lock building paper used as insulation which was then covered with the interior and exterior boards. The ensemble is held together with brass screws. The east side of the house has a span of French doors with one serving as the entry. The framing of the doors serves as vertical counterpoints to the otherwise strong horizontal line of the house.

Although the amount of money Misses Goetsch and Winckler indicated they could afford to pay for the house was $5,000, undoubtedly based on the original projected cost of the Jacobs house, the final cost of the house

was $9,200. This, of course, was a continual problem that confronted many of Wright's projects—cost overruns. However, it didn't thwart the determination of these two devoted clients to live in one of his houses. In those hard economic times Kathrine Winckler borrowed the money from her mother to make the house become a reality.

Wright implicated the builder, Harold Turner:

> ... I am surprised that after giving Turner another chance he would take liberties with the design. We put so much careful study into these little buildings in every detail that it doesn't take much to spoil them for us.[12]

Ann Garrison, one of the original members of the group, remembers being on the site with Turner and observing, "He would look at Wright's plans and chuckle saying, 'He doesn't mean that;' and scratch it out going on to do something quite different. I think he felt toward Wright that he was a marvelously inspired visionary but that he didn't know much about the practicalities of construction."[13]

Obviously irritated by Wright's accusation, Misses Goetsch and Winckler responded in a terse letter: "We are at a loss to comprehend how you arrived at your understanding of what has been done here, since you have neither seen the house or any photographs of it...[14]

And Turner further responded to Wright's accusations with a letter:

> ... After framing the 27 ft. long rafters over the living room, I found it was necessary to double every other one and install a 3/8 x 10 flitch plate. The roof was *first* constructed as shown on the plan but after completion and after the center supports moved away, the center sagged nearly four inches. Yes, the carpentry was and is well done.
>
> This light change is about the only *bad* thing I have done to your house so far—and it works—today the roof has one foot of snow on it and it is still snowing.

... It is hard for me to conceive what measure of joy it would bring, if you could translate me into a mere positive person, instead of tossing me relentlessly aside and only reveal me to client after client as something untested and negative "what a man does, that he has" and decent, clean, honest and straight work is *my* way to do work as befitteth a man...[15]

Wright was the designer, but Turner was the master-builder who "took liberties" to make the house work as a viable structure. In spite of their occasional differences, Wright must have had faith in Turner because he would build two more significant houses for the architect in Michigan.

The confrontation was later mollified when Misses Goetsch and Winckler wrote: "... We are still making discoveries which amaze us, new patterns of light and shadow... new reasons for blessing the architect who has given us so much joy."[16] The Goetsch-Winckler house came to be recognized as one of Wright's most gracious, small Usonian Houses.

One of the unbuilt houses for the Okemos group was to be for Alexis Panshin and his family (Fig. 19). Based on the rectangular module, it was designed to have a hexagonal living room area with an extended bedroom wing framed by an open terrace. Mrs. Panshin's observations, upon meeting Wright, provide not only insight into the project but the architect's character as well:

> We became interested through our friendship with several people in the art department at what was then Michigan State College, especially the Brauners.[17] The idea of what Mr. Wright termed Usonia Two had been born, the land bought, a parcel north of the little country road called Mt. Hope, and division had been made when we joined the group. Perhaps we were the last, since we got the area next to the road.
>
> As I recall, we had not yet met Mr. Wright when he designed our house. We visited him later at Taliesin. All I now remember from the visit was his fighting with his sister at the breakfast table over her insistence that a kitchen should NOT be open to the rest of the house,

> my fascination with his freely using his wide cravat in place of a napkin, and his impatience with consideration of cost as his ideas grew more fanciful. He dreamed of having a zoo inside the circle of houses...[18]

The zoo probably had more to do with farm animals as part of the agrarian character of the community. Wright's disappointment in the failure of the project is revealed in a letter he wrote to Edgar Kaufmann Sr.:

> I hope this letter won't make you mad or anything like that but... I've been driven by the failure of the Lansing group of professors to get money—(seven houses for which we can yet get only 30% preliminary for, although all the plans are made) to see what I can do to tide over the emergency created in the Fellowship by their failure. As one can hope I've been going over the work for you...[19]

With this opening paragraph, Wright then went on to ask Kaufmann for more money because of extra work the fellowship had encountered while building Kaufmann's weekend retreat at Mill Run, Pennsylvania''Fallingwater.'' Even the big projects which made the small ones possible, were beset with financial problems. Wright was extremely disappointed in the failure of the Okemos project because it would have been the first realization of his Utopian vision—Broadacre City.

□□□

1. Lewis Mumford, ''Frank Lloyd Wright and The New Pioneers,'' *Architectural Record*, April, 1929, pp. 414-16.

2. Frank Lloyd Wright, *An Autobiography*, Duell, Sloan, and Pearce, N.Y., 1943, p. 303.

3. Ibid, p. 389.

4. Ibid, p. 399.

5. Frank Lloyd Wright, ''In the Cause of Architecture.'' *Architectural Record*, March, 1908, pp. 4-5.

3. Usonian Expansion

In the 1940s, Frank Lloyd Wright expanded upon the design of his Usonian House. Concrete block resurfaced as a building material reinstating what Wright had used on his Los Angeles houses of the 1920s. More attention was given to exterior detail, along with a variety of rooflines, further enriching the Usonian vernacular. Often challenged by the limited budgets of his clients, Wright still managed to produce several outstanding houses in Michigan. They received visual attention in the January, 1948 issue of *Architectural Forum*, featuring Wright's work. The magazine also included two planned communities at Galesburg and Kalamazoo which together became recognized as a modified realization of his Broadacre City project. Other houses Wright designed in Michigan during this decade would make a lasting impression on American domestic architecture.

In 1940, a group of 22 low-income families formed Cooperative Homesteads with the desire to make a post-depression dream become a reality—that of individual home ownership. The group members had earnings too high to qualify for federally subsidized housing but too low to afford the housing they wanted. After seeing the success of some cooperative movements in the United States, the group realized their dream was attainable if they pooled their resources and purchased 120 acres of land in semi-rural Madison Heights outside Detroit. With a pioneering spirit, they planned on building their houses as a group effort. Building materials could be bought collectively to help reduce expenses. The anticipated cost for each house was to be close to $1,600.00. Aaron Green, an apprentice to Wright, had taken leave from the Taliesin Fellowship to study the cooperative movement in the northeastern United States and Canada. He met with the group and encouraged them to enlist Wright as the architect for the project. Thereafter, Green became the supervisor of the project and explained on the building site: ''...These are not going to be primitive homes. They are going to include the best of the old traditions, with a natural use of materials. Rather than cover up the physical material, this will be used in the design.''[1] The method of construction called for berm-type construction (Fig. 20):

> The berm-type house, with walls of earth, is practical—nice form of building anywhere: north, south, east, or west—depending upon the soil and climate as well as the nature of the site. If your site contains a lot of boulders or rock ledges it is impossible. In the berm-type house the bulldozer comes along, pushes the dirt up against the outsides of the building as high as you want it to go and you may carry the earth banking as far around the structure as you please. Here you have good insulation—great protection from the elements; a possible economy, too, because you do not have to finish any outside below the window level. You do not have to finish the inside walls either if not so inclined. I think it an excellent form for certain regions and conditions. An actual economy and preservation of the landscape.[2]

The origin of berm-type construction can be traced to the treeless plains where it was used by the Mandan and Arikaree Indian tribes of the upper Missouri River region and the Pawnee tribes farther south. There they built villages of huge domelike houses which were buried under a thick mound of hard-packed earth. Later, the early plains settlers adapted sod blocks for house construction much as the eastern frontiersmen had used logs.[3] During his seasonal commutes between Taliesin West in Arizona and Taliesin North in Wisconsin, Wright must have passed through this area and saw some of these sod houses which he deemed a practical form of construction that was indigenous to the area. Subsequently, the berm materialized as a low-cost structural solution for the Cooperative Homesteads project. This same construction technique was used by Wright in the design of the second Herbert Jacobs house in Middleton, Wisconsin (1948) and the Thomas Keys house in Rochester, Minnesota (1951), but the Madison Heights houses were the first.

Construction began by shoveling the earth on the site and packing it into re-usable wooden forms. The composition of the soil was considered ideal, consisting of 70 percent sand and 30 percent clay. The remaining areas, where the dirt had been removed, were planned as sunken gardens that facilitated drainage in a heavy downpour. Concrete piers would support the rafters of the large hip roofs. Modest in size, the houses were planned on a longitudinal axis with a concrete slab and radiant heat, a four-foot square module, central utility core and two bedrooms. One of

the advantages of the modular-unit system was that it allowed for further expansion while still adhering to the original design.

In a letter dated December 4, 1941, one of the group members, Jim Smith, wrote to Aaron Green that "... It would seem that a workshop in which we can efficiently fabricate our building should receive first consideration, but we will see what is decided at the next meeting, December 7th."[4] That day of infamy marked the United States entry into the Second World War and the ultimate demise of Cooperative Homesteads. Work continued into the fall of 1942 with many of the members working in factories on defense projects; however, they eventually were called off to war and the project collapsed.

The same year as the Cooperative Homesteads venture another project was designed by Wright—a house for Gregor Affleck in Bloomfield Hills. Affleck was born in Chicago and raised in Muscoda, Wisconsin near Wright's homestead in Spring Green. One of Affleck's relatives was a secretary to Wright. These connections helped to nurture a relationship that would subsequently become architect-client. Affleck graduated from the University of Wisconsin in chemical engineering and later migrated to Detroit. In 1940, Affleck asked Wright to design a house for him. As with many other clients, Wright told his client to buy a piece of land nobody else wanted and he would design the house. Thereafter, Affleck purchased several acres of land including a wooded ravine. Wright's plan called for a house that became "of" the site like one of nature's outcroppings.

Construction began in April of 1941 under the supervision of Harold Turner. In a progress report to Wright, Turner wrote:

> ... The Afflecks are thrilled with the progress. Both are inexhaustible admirers of you, your house design and how beautifully the house fits the location.
>
> We have lots of visitors [some of whom were from Cooperative Homesteads] and Mr. Affleck's joy spills over so spontaneously that I believe your name and work is getting in the mind of the total population of the state...[5]

The Affleck house (Fig. 21) typifies the Usonian House with an L-shaped plan defined by a square grid-module and the bedroom wing perpendicular to the living area. It is also termed a "raised Usonian" due to a lower level containing a utility area and two small rooms burrowed into the side of the ravine. The living room, on the main level, along with an extending cantilevered deck are supported by I-beams resting on a massive brick pier that anchors the house to the site (Fig. 22). Mr. and Mrs. Affleck saw illustrations of Wright's "Fallingwater" in Mill Run, Pennsylvania (1936) and fell in love with its soaring decks and integration with the surroundings. Built out of more natural materials, the Affleck house can be considered a small-scale "Fallingwater."

The entry hall, open above with a skylight, leads into the 40-foot long combination living and dining room. French doors define two walls of the living room and open onto the surrounding terrace. The doors are framed by studs four feet on center relating to the four-foot square grid-module. The parapets of the terrace are slanted downward and inward on the outside adding visual interest to the rectilinear lines of the house. Harold Turner, the builder, once again proved himself a master-carpenter as he did with the Goetsch-Winckler house. He carefully mitered and fitted all the cypress boards together much like a cabinet maker. The Affleck house can be considered an architectural tour-de-force of carpentry.

"Nearly ten thousand names appear on the guest register that the Afflecks kept while they lived in the home; they welcomed visitors who wanted to see and talk about the house. 'I'll never forget the morning two busloads of Japanese students knocked on the front door to ask whether they could walk through the house.' said Mary Lutomski [Affleck's daughter]."[6] Turner's observations about visitors during the construction became a daily ritual after the house was completed.

The Affleck house marks a new direction for the Usonian House—one that is grander in scale and proportion for a client beyond moderate means and recalls some of Wright's clients during the "First Golden Age."

Also in 1941, Wright designed a house for Carl Wall in Plymouth. Its incubation goes back to Wall's student years at Olivet College. There he

was introduced to the architect's work by the president of the college, Joseph Brewer, who was a champion of the arts. When Wall was newly married, he expressed a desire to build a Wright house whereupon Brewer took the initiative and wrote a letter to Wright on Wall's behalf. As a result, the Walls were invited to Taliesin to meet with Wright and discuss their plans. Upon their arrival, the architect exclaimed, ''Why, your're just children!''[7] Carl was 24, his wife Margaret 22, and Wright 74. Obviously impressed with their youth, Wright included a note with the preliminary plans saying he had ''... designed a young romantic house for two young romantic people.''[8]

The house Wright planned for the Walls (Fig. 23) blends into the gently rolling landscape. A hexagonal-shaped grass terrace, outside the living room, is supported by an outward slanting brick retaining wall. The wall has a series of horizontal ridges that step up to complement the lines of the house. Built in 1942, it is Wright's first Michigan house based on the diamond-shaped module (Fig. 24). Wright often preferred to incorporate this module into houses built on sloping sites. The projecting angles served to anchor the house to the site by cutting into the landscape. The multiple arrangement of the modules served to form a hexagon incorporating the living room and the kitchen-utility areas as well as defining the guest-servant wing. Wright lent further meaning to these configuarations when he named the house ''Snowflake.'' He said, ''Crystals are proof of nature's matchless architectural principle. All this I see as the architect's palette... Materials! What a resource.''[9] The Wall house is a materialization of that principle.

Wall originally requested a house costing around $12,000.00. The final figure was between $35,000.00 and $40,000.00 ! Inflated building costs were a problem that beset many of Wright's clients, running two or three times over the original estimates. What did Wright know about building costs? He wasn't a builder; he was an architect. However, with an empathic client like Wall, willing to accept the added costs, the house was built.

In 1946, Wright designed a house for Erling Brauner (Fig. 25) who, like his fellow members of the original Okemos group—Kathrine Winckler and Alma Goetsch—chose to build in the same area. Also based on Usonian

principles of design, the Brauner house is a contemporary adaptation of the Prairie House. The floorplan incorporates rectangular modules that define the living area and bedroom wing both of which extend into the landscape. Ribbons of casement windows are placed under the shallow, overhanging hip roof. The house is constructed of commercial concrete blocks. Wright once said to Brauner, ''Let's bring the lowly concrete up out of the basement where it can be seen.'' There are also perforated blocks that were fabricated on the site. They define the wall supporting the roof extension over the carport and also the adjoining wall defining the bedroom hall.

The following year came the Amy Alpaugh house in Northport. The conception of the house goes back to March of 1945 when Wright was invited by fellow architect-friend Eliel Saarinen to give a talk at the Cranbrook Academy of Art in Bloomfield Hills. There Wright invoked his audience to action by saying, ''Work, work, work, night and day.'' Amy, then a student at Cranbrook, was inspired by Wright's philosophy of architecture. She told her mother, who was planning to build a house in Northport, to enlist Wright as the architect. Taking the matter into her own hands, Amy arranged to meet Wright that summer at the Plaza Hotel in New York City where he was doing the preliminary plans for the Solomon Guggenheim Museum. She got lost in the hotel lobby in a maze of mirrors, and finally found Wright as he was stepping off the elevator. He told her she was five minutes late and spoke to her briefly.

Amy followed up with a letter to Wright on June 22, 1945:

> We have property for a home and we would like you to be the architect. The money restrictions are such that we would understand if you didn't accept.
>
> The land is 40 acres in section 28 of Lelanau County, Northport, Michigan. It is one large hill with woods to the north and a beautiful view in the other three directions. To the west is Lake Michigan and the Manitou Islands; south, ten or more miles of rolling farm land; east, Grand Traverse Bay. We are having a roadway built along the west line, through the trees and breaking out on top of the hill.

> Talking it over we thought it might be better to have two buildings as there are so many things to house. Mother and I would like a studio connected with our bedrooms, hers for weaving and mine for sculpture. Being a prolific person she has two goats and would like to raise chickens. She also enjoys gardening and has in mind a greenhouse. We thought it might be better to divide the house in two parts. One being directly on top of the hill for the living and dining room. That would get the full view with the bedroom studios to the north.
>
> At this time our finances are limited to $7,000. We are willing to sacrifice the main living home for the utility building—animals and such. Then we could save the main house and build it later. We would like plans for both buildings so they will belong together when eventually built.[10]

With this request, Wright designed two dwellings connected by a porte cochere-like structure serving as a covered walkway and entry into a gravel motor court. The design incorporated pitched slab roofs at a thirty degree angle over tall vertical windows lending a dramatic view of the lake in a southern and westerly direction (Fig. 26). The buildings were obliquely arranged to each other because of the topography of the land. Typical of Wright's Usonian Houses, they utilized natural materials of brick with native ash and oak woods, a central fireplace, built-in furniture, and radiant heat under the concrete slab incorporating square modules. The plan for the smaller of the two houses was completed in August of 1947 (Fig. 27) with an estimated cost of $15,000.00. The Alpaughs were obviously undeterred by the five digit number; construction began in the spring of 1948 and the house was completed that fall. The final cost was $47,616.07[11] far exceeding the $7,000.00 the client originally said was available in 1945. One-fourth of the total amount involved carpentry, suggesting a complex structure which took the local carpenters more time to resolve even under the guidance of a Taliesin apprentice. Undoubtedly, the apprentice had little experience in construction—learning the hard way on the job at the owner's expense. With this inexperience, a structural detail must have gone unnoticed as the slab roof blew off in a 60-mile-per-hour gale wind off Lake Michigan leaving Mrs. Alpaugh terrified and helpless when she was

alone in the house. Her son, Bill, in a letter to Wright, dated December 10, 1948, wrote: "... Corrective measures are imperative before further damage is done..."[12] Wright, on the defensive, wrote back a week later:

> ... Admitting that accidents do happen even in the best regulated families—then think of ours—If the framing had been properly put together I cannot believe the roof would come loose. Out of some 549 structures this is the first time so either there is an extraordinary situation of which we should have been informed or something was lacking in the execution. We are sorry it happened will do what we can to make all secure.[13]

In order to help smooth out the situation, Wright offered to share in the cost of correcting the problem—a first in which he assumed some personal responsibility. It is not surprising that the second building, which would have later functioned as the main house, went unbuilt consumed by the expenses of the first.

During the years of the Second World War, another cooperative group, like the one in Madison Heights, was formed in Galesburg. They were a group of friends, some with the Upjohn Company in Kalamazoo. Realizing they could do better buying land as a group than individually, they pooled their gas ration coupons and drove around the countryside looking for land. Some members of the group, however, felt that Galesburg was too far out and sought land closer to Kalamazoo. In the meantime, Lillian Meyer, one of the members of the Galesburg group, initiated the preliminary stages of their project with a letter to Frank Lloyd Wright at Taliesin in Wisconsin. She wrote on October 29, 1946:

> ...Our group consists of five families who have purchased 71 acres of rolling land... ten miles from downtown Kalamazoo. The surrounding country is similar to yours at Spring Green. We plan to expand eventually to fifteen families.
>
> ... I hope you will be interested in doing our houses and site. We are all enthusiastic and will be keenly disappointed if we can not have a Wright house. I hope we shall hear from you soon.[14]

The following year the splinter group of Galesburg bought 47 acres of land in Kalamazoo to be called Parkwyn village (Fig. 28). They followed the example of Galesburg and also sought Wright to plan their community of homes. The masterplans Wright conceived for the two communities called for the houses to be situated on circular lots with intervening spaces of low growing plants that provided privacy for the residents. The Parkwyn group was later forced to square off their lots when the FHA refused financing for such a radical idea. On November 2, 1947, Wright was invited to give a lecture in Kalamazoo sponsored by the Art Center and the Galesburg and Parkwyn groups. To an audience of over 1,000 people, he espoused his philosophy of architecture and how it can affect the lives of people with a "new harmony within ourselves" and "a different way of thinking about life." Coincidentally the same attitude was taking place in the lives of the members at Galesburg-Parkwyn—a new way of living.

The amount of money the members felt they could afford to pay for their houses at Galesburg and Parkwyn was $12,000.00; however, when Wright sent the preliminary drawings for the first houses to be built, his estimated cost was $20,000.00. This provoked one of the members who wrote to Wright saying: "They are rich man's houses and far beyond our means." The matter was resolved with a figure of $15,000.00 by using concrete block in the construction. Member participation in building the houses also served to reduce the building costs. This experience serves to qualify the extent of Wright's involvement in many of his projects. He not only designed the houses, but was expected to come up with reasonable building cost estimates, and, when deemed too expensive to find a solution to reduce them. This is one of the unrecognized features that characterized Frank Lloyd Wright—an architect of design ingenuity, and, sometimes cost analyst. In order to enhance the nondescript concrete block to be used, the group decided they wanted to incorporate textile design into blocks. After visiting Wright at Taliesin West, Robert Levin, Secretary of the Parkwyn group, wrote:

> ...On my return those of us who are working together on the textile blocks got together to discuss the current status of our project. We decided that it would help us greatly to have examples of the molds

used on the Florida Southern [College] buildings [begun in 1940], so that we could get our special molds built faster. We believe we have a good mold for the standard blocks, and are obtaining bids for its construction.[15]

Construction began in the spring of 1949 on the first houses: Robert Levin and Ward McCartney at Parkwyn; Samuel Eppstein, Eric Pratt, and David Weisblat at Galesburg. The Levin, McCartney, and Weisblat houses are based on the L-shaped Usonian plan whereas the Pratt and Eppstein houses are longitudinal. The houses have different rooflines: Eppstein and Pratt are flat; McCartney and Weisblat hipped; and Levin has a pitched slab. The grid-module design, allowed for later additions to accommodate growing families. The Levin house (Fig. 29), built first, rests on a gently sloping hill with a projecting living room framed by a pitched slab roof and tall vertical windows oriented to the view. A raised terrace outside the living room has a screened enclosure which Wright originally opposed. "Use more fly spray," he said, yet later acquiesced with a design for an enclosure made out of plumbing pipe. The Ward McCartney house (Fig. 30) is perhaps the most dramatic Usonian House designed by Wright at Parkwyn Village. The shallow hip roof has acute 14-degree angles that make up the roof pitch on two of the three corners of the house. It is the second Usonian House in Michigan to use the diamond-shaped module. One razor-sharp eave is cantilevered 18 feet, from heel to toe, almost attempting to touch the adjoining slope. Due to the acute angles and unsupported weight, the roof of the house began to disengage itself from the utility core. McCartney, a dentist, was literally trying to keep a roof over his head while building up a practice. The matter was resolved with steel cables tying the rafters to the central core.

Like Parkwyn, the design emphasis of the houses at Galesburg is on horizontality relating them to their sites. The plan of the Samuel Eppstein house follows a longitudinal axis which extends outward to become a raised, circular grass terrace supported by a concrete block wall. The abstract design of the perforated textile blocks on the Eppstein house is a variegated play of horizontal lines (Fig. 31). The wide fascia of overlapping boards on the Pratt house (Fig. 32) is complemented by bands of windows underneath, together creating a strong horizontal composition.

A second roof defines the projecting living-dining area that intersects with the longitudinal axis of the bedroom wing. Here the interpenetration of masses recalls Wright's Prairie Houses of "the First Golden Age." The David Weisblat house (Fig. 33) is burrowed into a slope with the roof almost touching the ground and makes the structure look like it is growing out of the site.

The Galesburg and Parkwyn projects became small-scale realizations of Wright's Broadacre City of 1932:

> He imagined man living on spacious land in the forests, meadows, hills and prairies but gathering in park-like central areas for work, play, and study. The freedom provided by the automobile would allow him to live in close contact with nature and yet work in convenient centralized areas... He planned for each citizen spacious acreage, in which healthy living and exposures to nature's beauty would encourage a new American culture.[16]

William Wesley Peters, vice-president of the Frank Lloyd Wright Foundation, in a tribute to the Galesburg-Parkwyn groups, said, "... These two projects were always dear to Frank Lloyd Wright and the fact that through the concerted efforts of respected individual clients the projects actually came into being meant much to him.[17] Wright's Broadacre City was finally realized in Michigan.

In September of 1946, Melvyn Maxwell Smith commissioned Frank Lloyd Wright to design his new home in Bloomfield Hills. Such an endeavor dates back to Smith's college days when he saw examples of the architect's work in a humanities class. His enthusiasm had been picqued and he later found examples in the January, 1938 issue of *Architectural Forum* devoted to the creative efforts of Wright in the mid-thirties. Also, "... It was filled with quotations from Thoreau and Whitman and others who were prime motivators of the Master's psyche."[18] One quotation by Thoreau served as a primary source of inspiration and motivation to Smith—"A rich man is he whose needs are few." These words could be used as a literary metaphor applicable to Wright's modest-size Usonian House—one that Smith would build for himself. In December, 1946, he received the general

plans and drawings followed by the working plans in June, 1947. Afterwards, Smith received building estimates and found they were three or four times over Wright's estimate. Discouraged by the possibility of not seeing his dream become a reality, he went to Wright explaining the setback. The architect advised Smith to become his own contractor with the advantage of buying materials at cost. Subsequently, following Wright's suggestion, he studied the plans for two years in order to familiarize himself with the rudiments of building. Construction of the house began in 1949 and was completed in 1950.

The Smith house (Fig. 34) is a reworking of the Herbert Jacobs house (1936). It is L-shaped with the living and bedroom wings defined by a rectangular grid-module extending out from the utility core. Unlike the more modest Jacobs house, the details of the Smith house are richer. The canted fascia

boards have a projecting belt course of corbels and the eaves a trellis configuration with inset lights (Fig. 35). Patterned, perforated boards are used for the clerestory windows on the north side of the structure which is tucked into a hillock (Fig. 36) serving as an insulation barrier in winter. When Smith was initially examining the elevation drawings with Wright at Taliesin North, he noticed that the second level of clerestory windows, on the front of the house, terminated at the utility core. He pointed this out to Wright by asking, "Why not continue the windows through the core?" Wright stood for a minute, tapping his pencil on the drafting board, and turned to Mrs. Smith commenting, "Your husband would have made a fine architect."[19] This is one of the few times when a client of Wright collaborated on the design of his own house. There was a camaraderie between Wright and Smith that was long lasting, as there was with many other Michigan clients establishing a symbiotic relationship that encouraged a Usonian expansion.

□□□

1. *The Detroit News*, October 11, 1942, p. 18.

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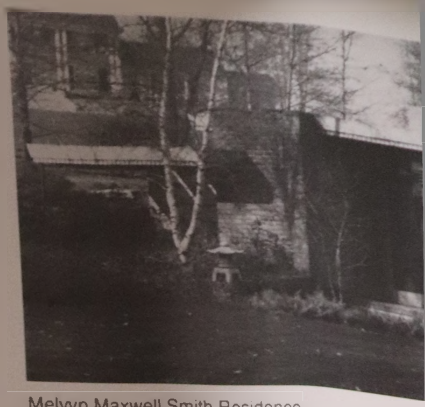
Sara and **Melvyn Maxwell Smith** Residence (1946)

Bloomfield Hills, Michigan

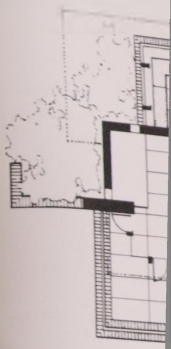
Addition to bedroom wing by Taliesin Associated Architects



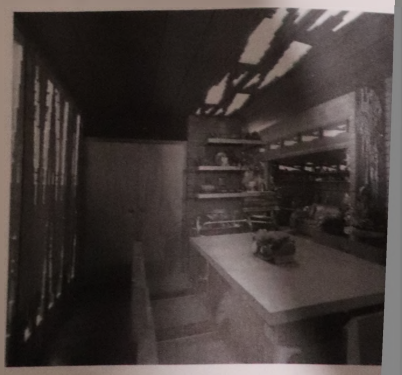
Melvyn Maxwell Smith Residence

Mel Smith saw photos of Taliesin in 1938. He read the Detroit Public Library's collection on Wright and became enamored with the 1938 *Architectural Forum* issue on Wright. Mel and Sara were married in 1940; the war took him away, but upon his discharge in 1946, he found a cheap site and sent photographs and a topographic survey of the site to Wright. The plans arrived in December.

Estimates were beyond the teachers' salaries, and so Mel acted as his own contractor, poured over the plans, and learned the techniques necessary to Usonian construction. Eventually construction was started, took thirteen months, and the Smiths occupied their home in May 1950. Mel, told that red Tidewater cypress was impossible to come by, had obtained 14,000 board feet at 27¢ per running foot after an initial quote of 67¢. This and other cost savings were but one expression of Thoreau's philosophy, as stated by Sara, "Make yourself rich by making your wants full." Wright would turn this on its head with "Give me the luxuries of life, the necessities will take care of themselves," similarly expressed by Oscar Wilde, and expressed as "Give us the luxuries of life, and we will dispense with its necessaries" by Oliver Wendell Holmes, which itself is a variation on Plutarch's philosophy.

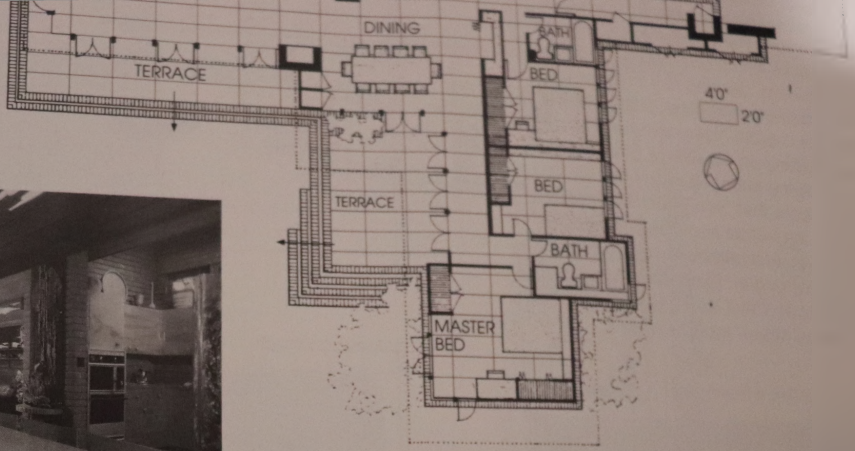


View from dining area into living room

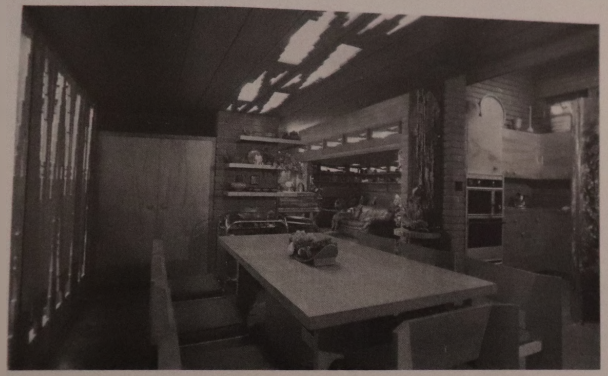


In this typical Usonian **L**-plan structure brick and cypress board and sunk batten comprise the basic construction materials. The 2-by-4-foot rectangular unit module is laid out in line with the living room, the same as the first Usonian **L** design (S.234); gravity heat in the concrete slab is of standard Usonian type. Structural steel supports the carport cantilever. The house is oriented to take advantage of site and sun. Construction supervision was by John deKoven Hill. The Smith house was enlarged by the Taliesin Associated Architects in 1969–70. The house is here shown in its original form; the addition was to the end of the bedroom wing.

This house arguably ends the era of board-and-batten Usonian houses. Board and sunk batten was not an inherent part [illegible] design. Rather, [illegible] wood and insul[illegible] sup[illegible]



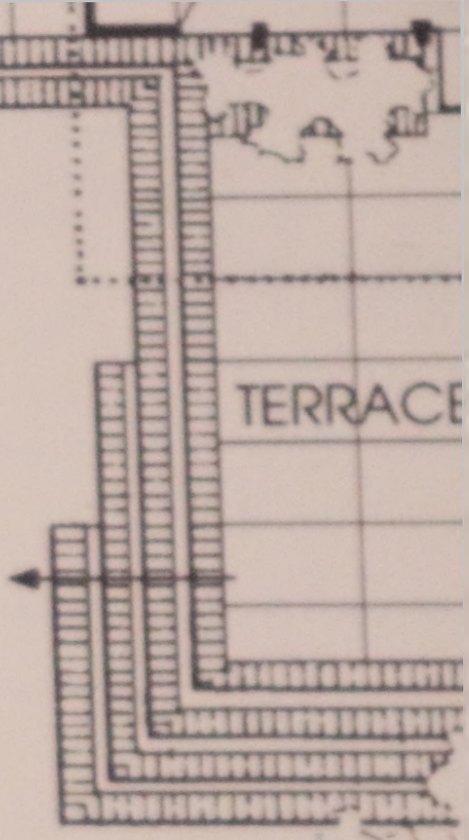
View from dining area into living room



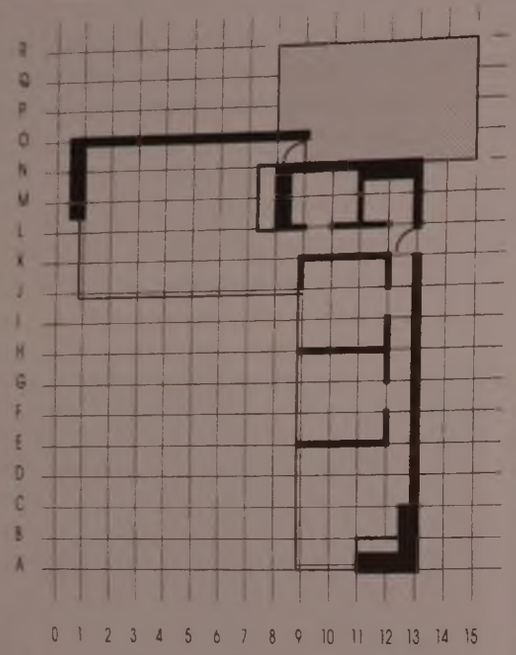
form; the addition was to the end of the bedroom wing.

This house arguably ends the era of board-and-batten Usonian houses. Board and sunk batten was not an inherent part of Usonian design. Rather, the thin sandwich of wood and insulation that provided non-load-supporting walls between load-supporting masonry was always an economic, rather than preferred aesthetic, solution to construction, particularly in the Depression. At the end of World War II, with many of his clients gaining special benefits as veterans, others having savings from wartime employment, Wright's suggestion was to build the entire structure in masonry. Thus, we have the "all masonry" Usonian homes of the late forties and early fifties, with wood covering only the interior surface walls. Following the Smith house, board and batten appeared as full walls only in the less expensive Usonians (e.g., Weltzheimer, S.311; Serlin, S.317; Rubin, S.343; and Brandes, S.350).

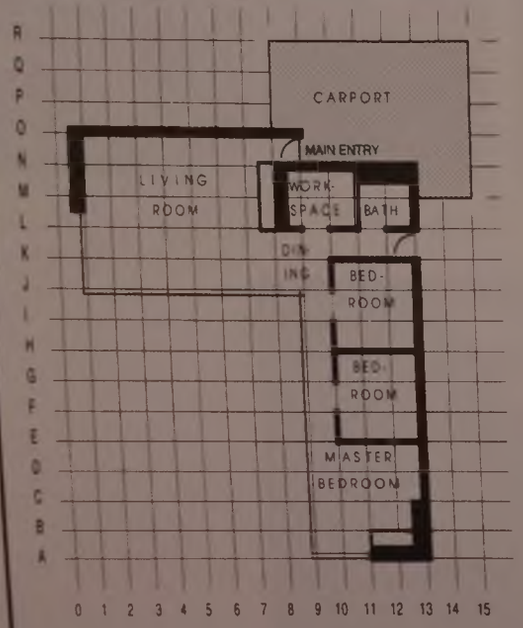
View from dining
area into living room



particularly in the Depression

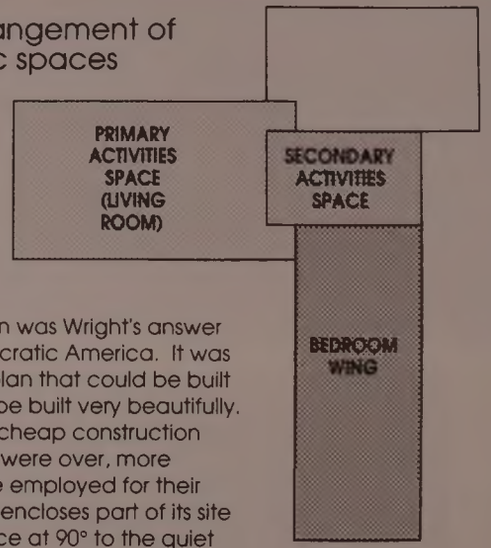


Basic (90°) L plan (with back gallery)



Spaces of an L plan with gallery at inside of L (front gallery)

Tripartite arrangement of domestic spaces



BASICS OF THE L-PLAN USONIAN HOUSE

The L-plan Usonian design was Wright's answer to the dilemma of Democratic America. It was a compact single-story plan that could be built cheaply, but could also be built very beautifully. The Depression required cheap construction but, once it and the war were over, more expensive materials were employed for their beauty. The basic L plan encloses part of its site by placing the living space at 90° to the quiet space.

The basic design principle that brought about the Usonian house is the same as that which Wright had established early in his career. The prime activities space, the living room, dominates the design, but even more so here than in his Prairie works. Secondary activities, the workspace (kitchen) in particular, are allotted minimal space, and the bedrooms, upstairs in early work and Prairie designs, are brought to ground level.

The drawings presented here are simplified, to make design principles all the more obvious.

In the plan at the upper left, similar to the first L-plan Usonian, the Jacobs First Residence (S.234), the main entry leads directly only to the living room, without forks to each of the other activities areas, as was the norm in all Wright's designs. Wright allowed this simplification in his least expensive Usonian designs, though a secondary entrance would lead to these areas and actually provide a common center for pedestrian traffic.

The living room of a Usonian home is its largest space. From the workspace, small enough to do all the work by turning, rather than walking, the housewife has a view down the gallery and can be in the dining or living areas quickly.

Usually there is a fireplace in both the living room and master bedroom, as well as any additional guest bedroom. The utilities space may be at level or located below ground. More than this, details are not shown, for it is space, and how it is organically organized for human habitation, that is our prime concern.

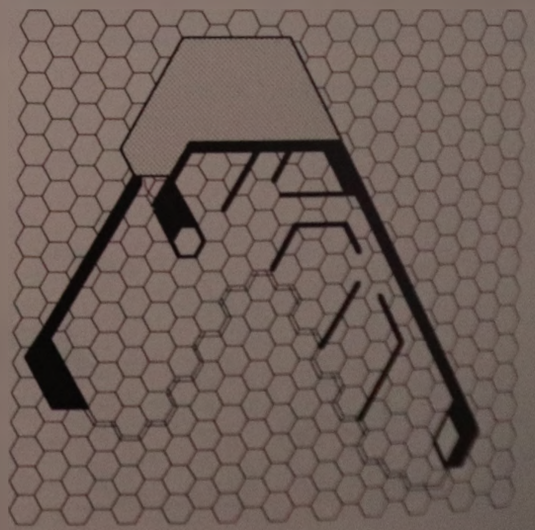
In the drawings of Usonian structures here and those that follow, thinnest lines other than the grid lines represent glazed walls, floor to ceiling (or soffit) doors or windows. Thin lines are room partitions, usually of sandwich wall construction. Thick walls are exterior walls, perhaps with transom-level windows. Thick blocks are the masonry masses from which the roofs are cantilevered.

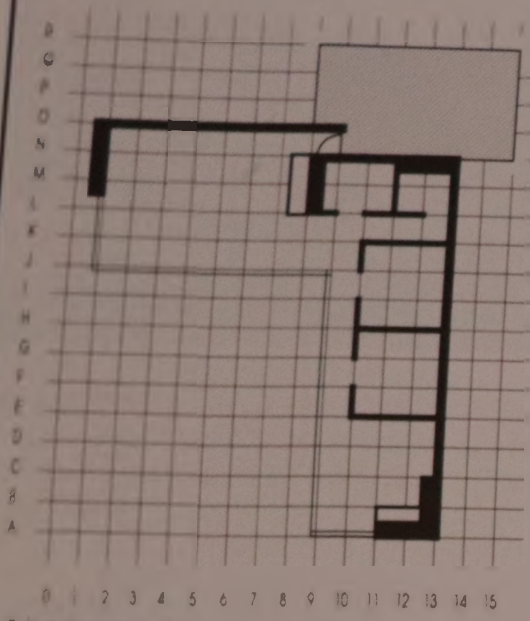
The attempt has been made throughout the Usonian drawings to keep each specific space the same size whatever the unit module or configuration, though the nature of organic design precludes this being made an absolute condition. Throughout all variations, standard elements are kept as regular as is practical, so that underlying design principles may be most easily observed.

Creative detailing, so much a part of Wright's genius, is beyond the scope of these demonstrations of Usonian possibilities. How a simple 90° L can be turned into plans at other angles, or how it can be curved, and how the simple alteration of one area can affect the entire spatial concept is the creative aspect dealt with here.

If a basic 4' dimension is applied to the unit module for each of the Usonian drawings here and following, each module (except some circular segments) would be 16 square feet, yielding in the basic Usonian L plan on the previous page 1552 sq. ft. and in the Hex below, 1568.

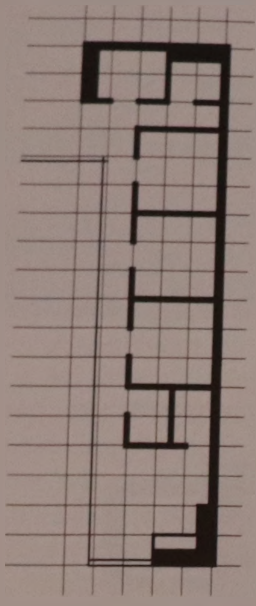
60° Hexagonal plan
(Inside L plan set on hexagonal module)

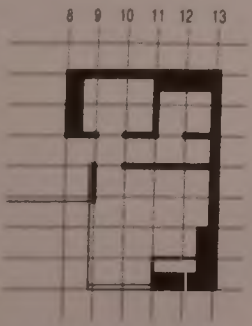




3 bedrooms, 1 bath, a fairly common Usonian arrangement

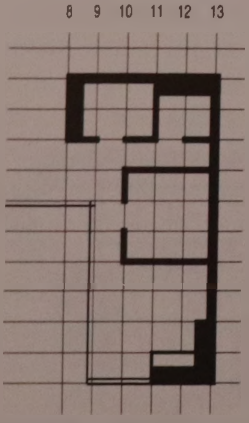
4 bedrooms, 3 baths





1 bedroom, 1 bath

USONIAN BASICS (2)

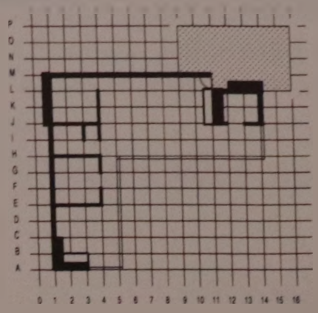


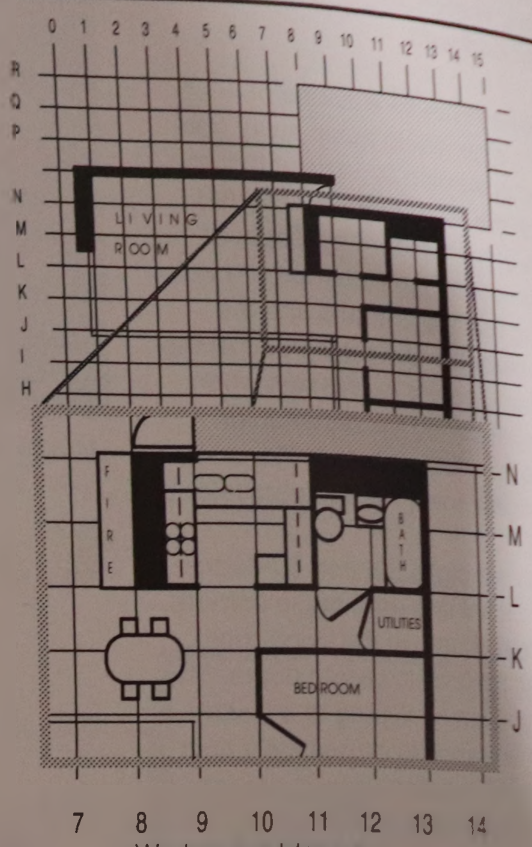
2 bedrooms, 1 bath

USONIAN homes can be built for any size family. The bedroom wing is extended with as many bedrooms as needed for the children, and terminated by the master bedroom. If the family should grow beyond expectations, the wing can be extended. The wall between pairs of rooms can be removed, and bunk beds installed, as another way to accommodate a large family. Yet another arrangement of bedrooms, the cluster plan, is shown with in-line plan variations.

The Usonian L-plan type house is capable of infinite variety. Wright started with an inside (90°) L, then developed an in-line (180°) version of the Usonian house. Further extension to 270° gives an "outside" version of the L. The Prime Activity and Quiet spaces meet at the Workspace, keeping the tripartite arrangement of spaces intact. Wright would, however, try most any possibility; move the bedroom wing to the other side of the living room for instance, even though this plays havoc with tripartite spatial arrangement.

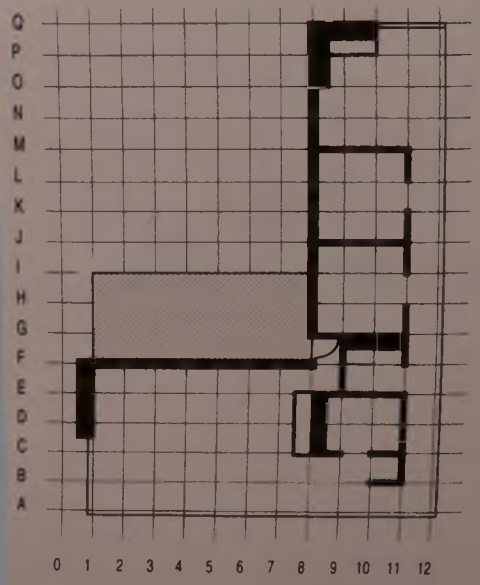
Inside L, Opposed wing variant of the standard L-plan Usonian house (half size)

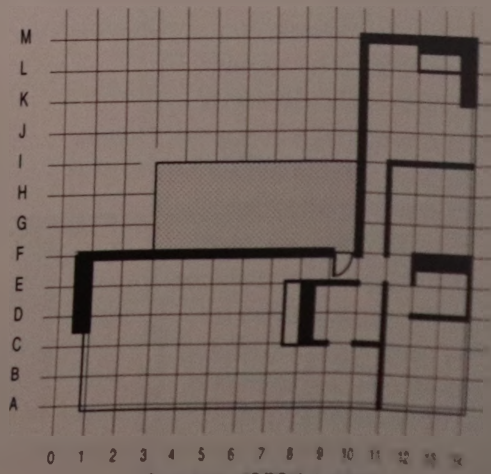




Workspace blow-up

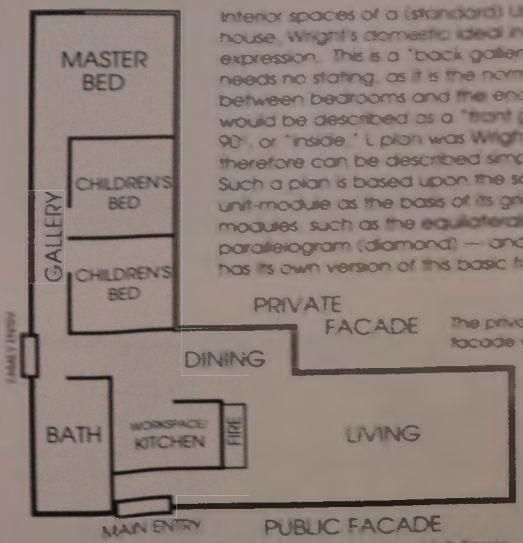
Outside (270°) L plan, front gallery





Outside (270°) L plan (wing offset), with back gallery

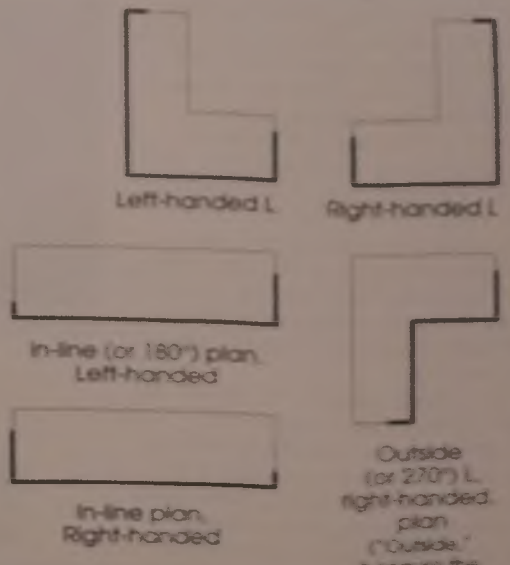
USONIAN VOCABULARY



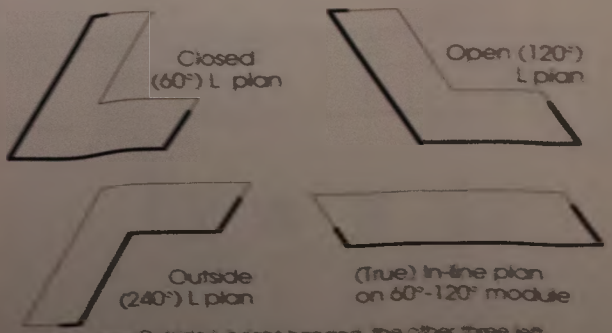
Interior spaces of a (standard) Usonian (90°) L-plan house, Wright's domestic ideal in its most compact expression. This is a "back gallery" plan, which fact needs no stating, as it is the norm. If the gallery were between bedrooms and the enclosed yard space, it would be described as a "front gallery" plan. The 90°, or "inside," L plan was Wright's standard, therefore can be described simply as "Usonian L." Such a plan is based upon the square/rectangle unit-module as the basis of its grid. As to other modules, such as the equilaterals — triangle and parallelogram (diamond) — and the hexagon, each has its own version of this basic format.

The private facade is that facade which faces the part of the site enclosed or protected by the building structure.

The public facade is that facade which faces the public as one approaches the structure.



The equilateral parallelogram and equilateral triangle modules create their own set of types. Due to the nature of the 60° angle, two "inside" types are possible, at 60° and 120°. The 60° plan may therefore be usefully categorized as a "closed," the 120° as an "open," L (cf. the hexagonal-modulated Bazett house, S.259).



The Outside L is right-handed, the other three left.

Quite often, houses opened their views out the end, rather than directly into the private area, creating such interesting variants as "end" in-line, or T, plans. Once Wright saw that the Prairie cruciform/pinwheel design was more suited to wealthy clients than to the needs of the average American, he looked for a perfect statement of his principle of design that would be applicable to all levels of American society. The result of his search was the Usonian principle. In this, the prime space dominated the structure, and all other elements were reduced to their minimum practical expression. Thus, the living room remains a domestic constant, while all other spaces were shrunk, either absolutely, or in proportion to the living room.

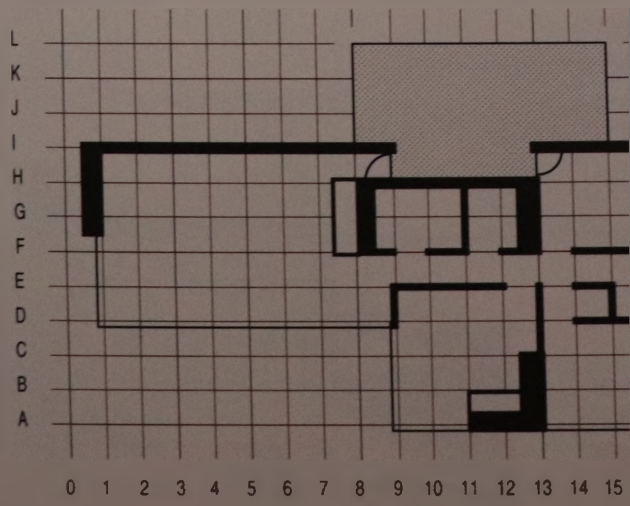
THE IN-LINE PLAN

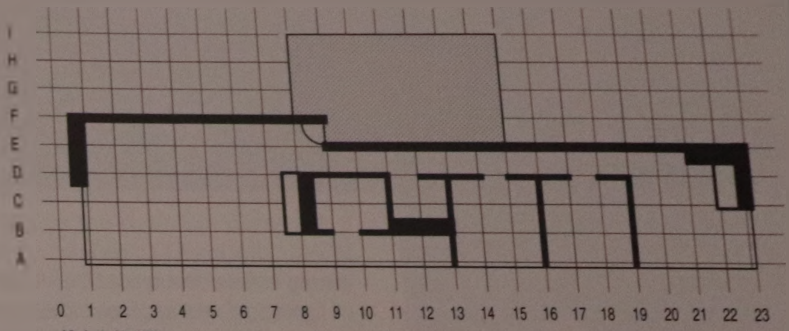
Wright perfected the Usonian L plan in 1936 with the Jacobs First Residence, S.234. Various experiments in plan organization led, in 1939, to the first in-line plan, the Lloyd Lewis Residence, S.265. In this of Wright's many in-line designs, the wing-mirrored plan is used, with the additional variant that has Living-Workspace areas reversed left for right (grids 1-11 turned 11-1) so that the housewife could view the full living room and the gallery of the bedroom wing from her workspace.

To the right are three in-line plans. The "standard" is at the bottom. By simply mirroring the bedroom wing (flipping north for south in this instance) we get the middle version. The top plan is another simple back gallery variation. One difference between the two back-gallery plans is that one has an unbroken private facade, the other an unbroken public facade.

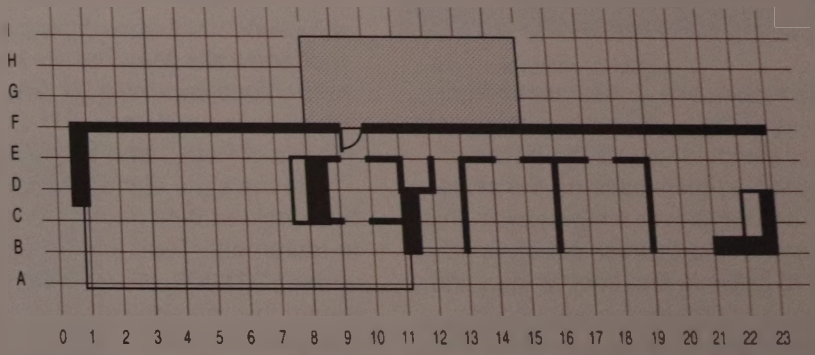
Like the L-plan Usonian, the in-line can be varied in many ways. The bedroom wing can be extended in the same manner as with the L plan.

Below is a particularly economical in-line floor plan; a short gallery is surrounded by bedrooms in a "cluster" arrangement. In this example, this allows a second bathroom between the children's bedrooms. Another variant on this, used in the Pappas residence, S.392, adds a third child's bedroom in the second bathroom+utilities area and extending an additional unit or two beyond.

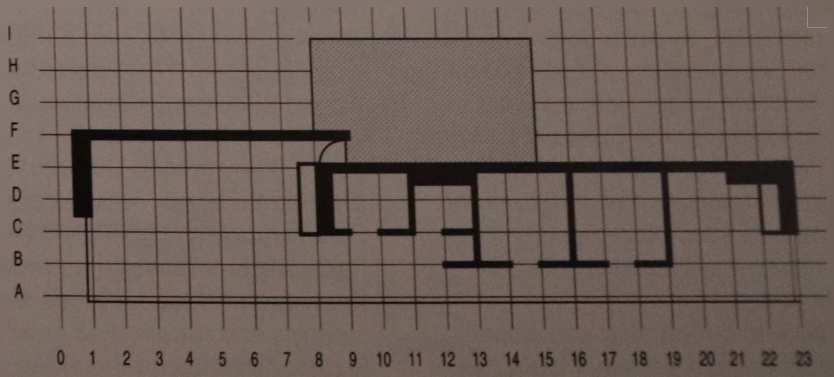




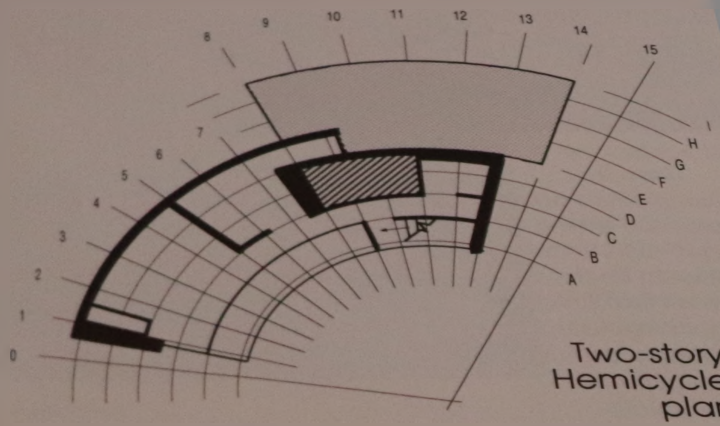
IN-LINE plan, back gallery



IN-LINE plan, wing mirrored (version with back gallery)



Standard IN-LINE (180°) plan with front gallery

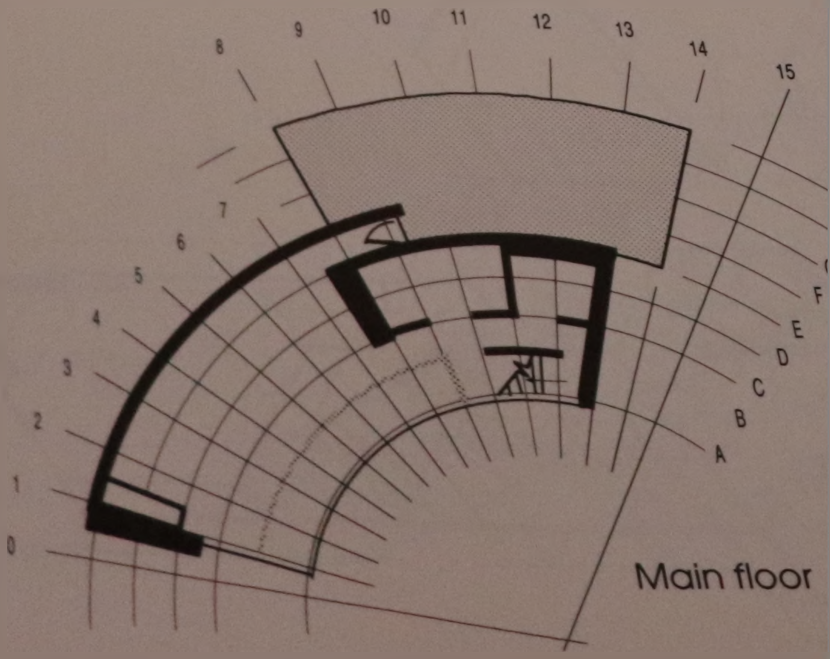


Two-story Hemicycle plan

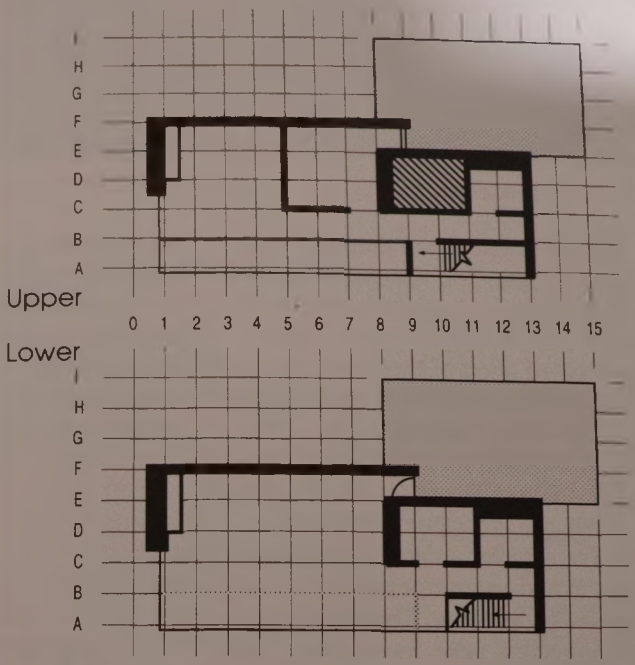
Upper floor with balcony over living room

THE SOLAR HEMICYCLE

Wright's first Solar Hemicycle, S.283, was the second design by the architect for client Herbert Jacobs. The concave curve of the windowall took advantage of the movement of the sun. Here we have shown an attached carport, though the Jacobs design had none as the public facade was set into a berm to reduce heat loss during cold Wisconsin winters.



Main floor



Two-Story In-line plan 2 bedroom, 2 bath

Though many people think of Usonian design as limited to single-story structures, Usonia began, by Wright's own statement, with the multistory California block houses. The Schwartz house, S.271, is a two story Usonian design, as are many of the Solar Hemicycles (cf. S.283, S.297, S.358, S.359). Single-story hemicycles may have concave (cf. S.319, S.320, S.360) or convex (cf. S.357) private facades, though the public facades were always convex.

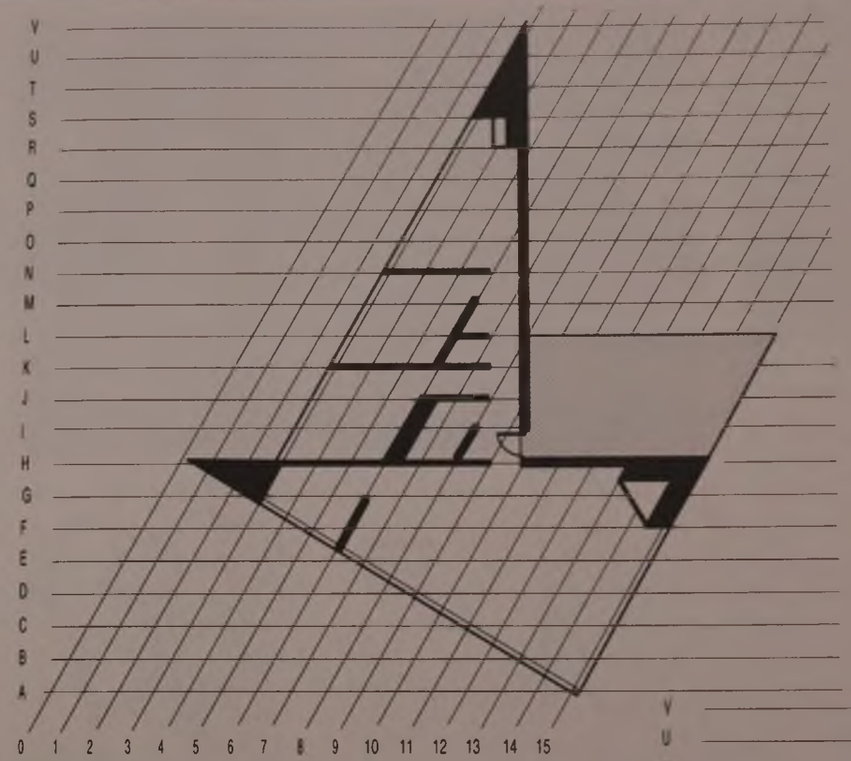
A solar equivalent in rectilinear format is, of course, possible. Consider the problem of a plot of land too shallow for an L, too short for an In-line. Fold the bedroom wing over the main floor living room and workspace, *voilà*, a two-story in-line plan, with upper floor recessed as in the Solar Hemicycle (cf. S.379). With a high living room ceiling on a single-floor design such as the Lovness residence, S.291, gains much the same solar advantages.

Many variants of the hemicycle and two-story in-line shown here are possible. To reveal relationships to other examples of Usonian design, the entry is set on the public facade side, the stairs on the private facade wall; in actual Wright designs, most stairs were to one side of the main entry area.

That Wright enjoyed his T square and triangles is key to many of his most creative designs. Take two 30-60 triangles, resting the short edge of the smaller on the hypotenuse of the other, such that the two hypotenuses form a 120° angle. The two plans shown here follow this approach to design. Compare the 30-60 Outside L plan with master bedroom in the main wing, below, to the McCartney second stage design, S.299A.

THE 30-60° PLAN

(270° L, back-gallery plan; main spaces conformed to 30-60 triangle, on equilateral parallelogram module)

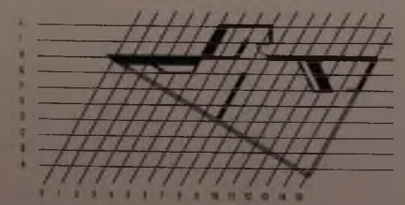


30-60 Outside L plan

Master bedroom at end of Gallery in wing

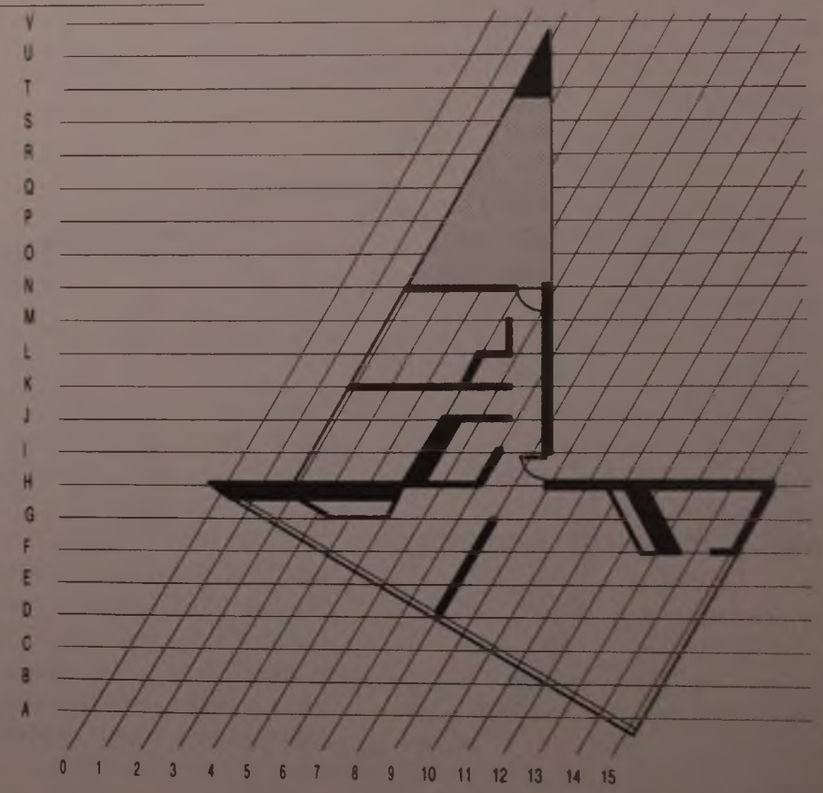
Wright's original idea for the 30-60° triangle utilized a single triangle only, as a "one-room" cottage, for Maginel Wright Barney, his sister. One possibility which could be developed into a larger building, by addition of a wing beyond the bath room, is shown below. The Anthony house, S.315, has the master bed room in the main unit, as below or at right. Its bedroom is laid out on an inverted grid, so does not conform to the 30-60° idea.

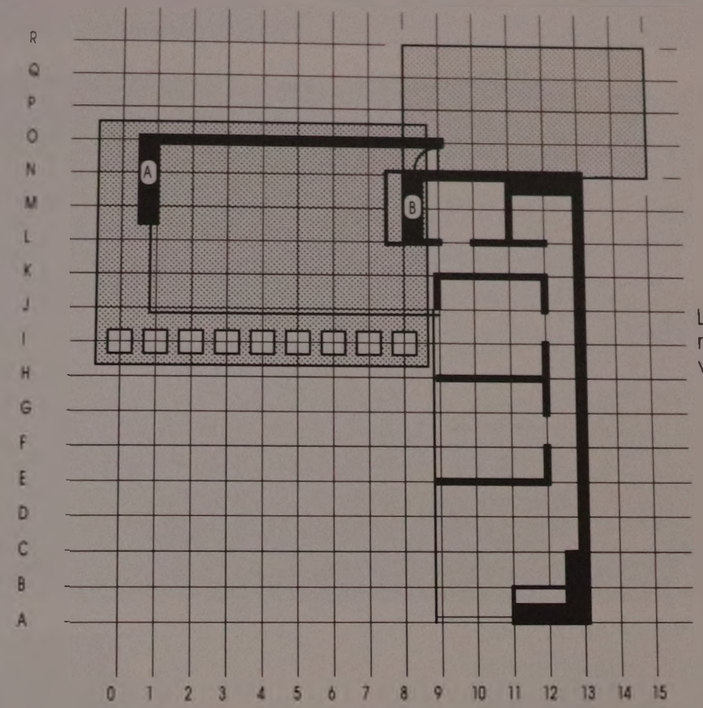
"One-room cottage" from 30-60° triangle (half size)



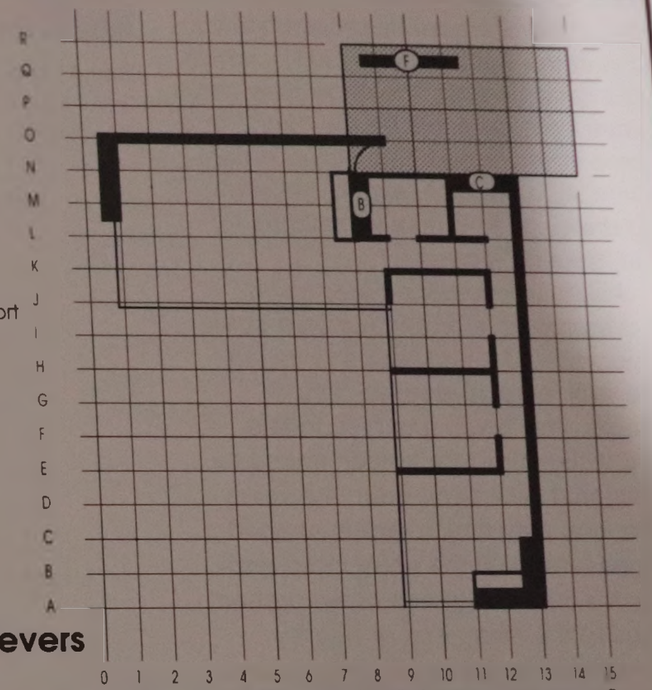
30-60 Outside L plan

Master bedroom in main unit





The living room wing roof is cantilevered from masonry masses A and B. The overhang is pierced in squares 2/3 the module.

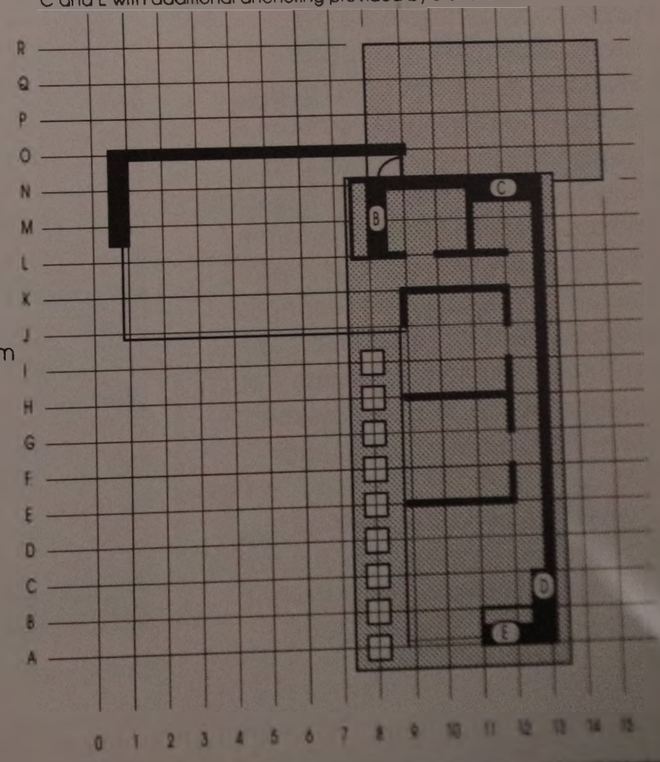


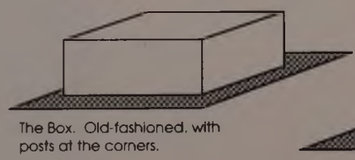
The carport roof is cantilevered primarily from masonry masses B and C with further support from a carport-only masonry mass such as F, which would also add to the privacy of the entry.

L plan cantilevers

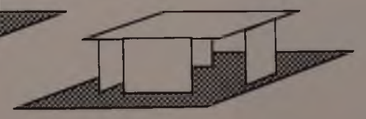
These L-plan cantilevers are based on a three bedroom L Plan with back gallery.

The bedroom wing roof is cantilevered primarily from masonry masses C and E with additional anchoring provided by B and D.



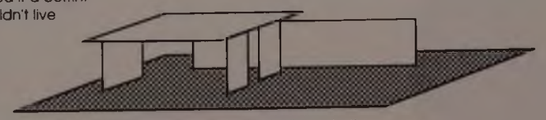


The Box. Old-fashioned, with posts at the corners.

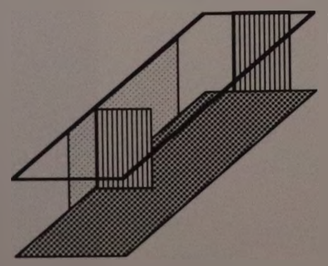


SOME call it a house, particularly when it has a picture window. WRIGHT called it a coffin. PEOPLE shouldn't live in boxes.

Moving the supports but a short distance from the corners creates short cantilevers.

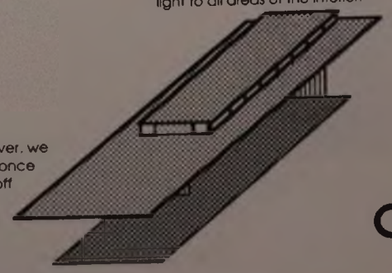


Using the cantilever fully opens the building to its surroundings. A whole new sense of space is gained.



The basic cantilever admits light at the corners, opening the structure to the surroundings.

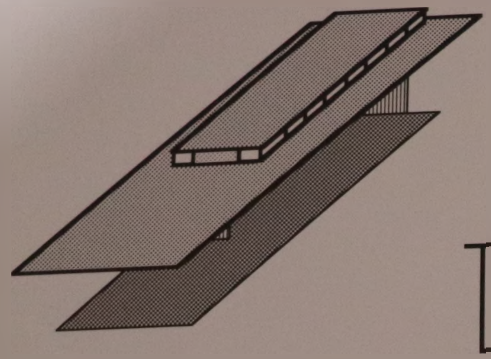
Further extension of the cantilever provides shelter, while a clerestory admits light to all areas of the interior.



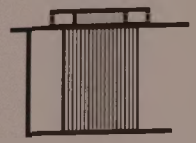
By employing the cantilever, we create glass walls where once the view had been shut off from the indweller. This changes the box into a home open to its site.

THE USONIAN CANTILEVER

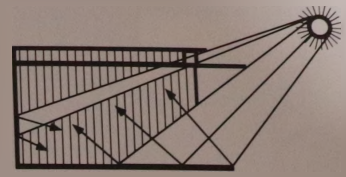
LIGHTING WITH A CLERESTORY

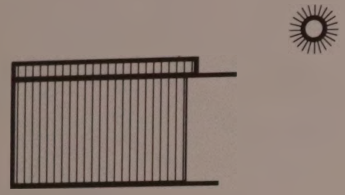


CLERESTORIES can be multisided, and were often so in the Prairie era.



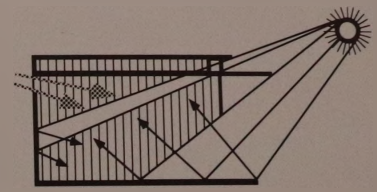
Each of these direct light sources provides scattered light further into the interior.

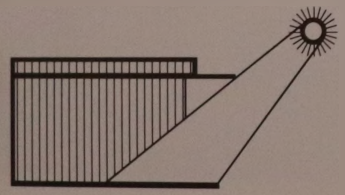




Usonian houses were most often highly asymmetrical. The private facade was angled so as to take advantage of the sun and the site view.

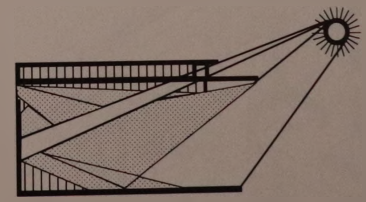
A transom-level window to the skylit backside of the structure brings light into the darkest part of the room.

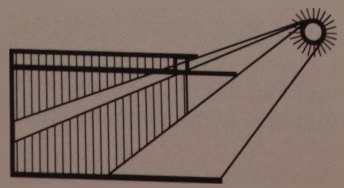




In the Usonian era, Wright used broad overhangs to shield interior spaces from the heat and light of direct sun. Direct sunlight could enter the windowall, but was shielded at and above eye level.

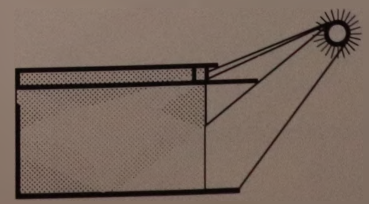
Direct, reflected, and indirect light mix, filling the room with far more light than was possible in a typical American home with its outside-wall only windows.





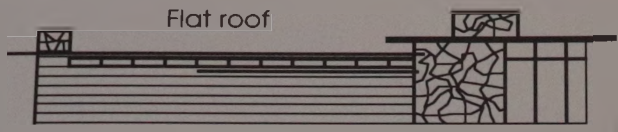
Without supplementation, direct light through the windowall would fail to illuminate the deeper recesses of the structure. A clerestory helps correct for this, providing a narrow band of light reaching deep into the structure.

The room fills with light that is soft, yet bright enough that supplemental lighting becomes necessary only when the sun sets.

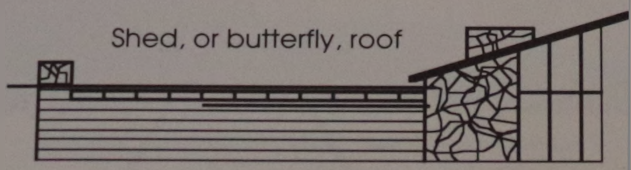


USONIAN ROOF TYPES

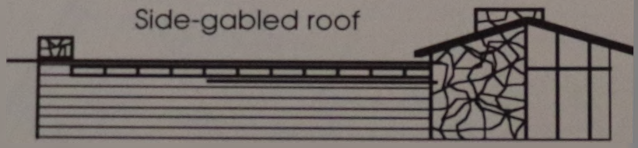
Flat roof



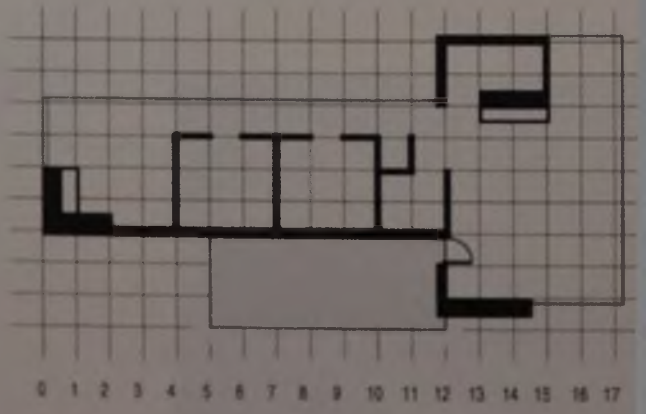
Shed, or butterfly, roof



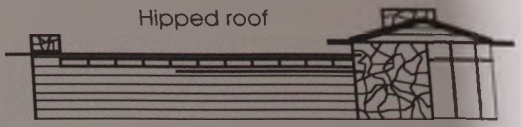
Side-gabled roof



T plan (outside)

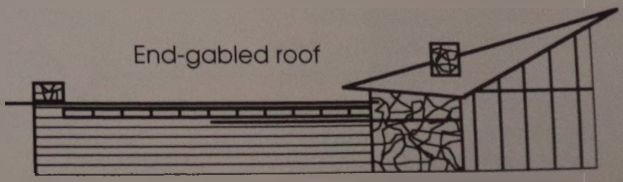


Hipped roof

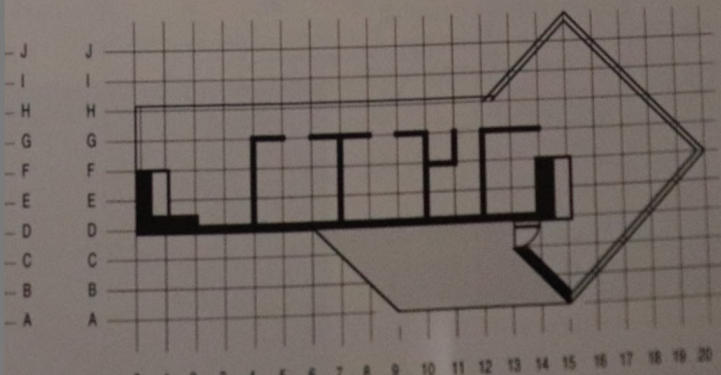


ROOF TYPES may be related to the lifestyle of the indweller, directly, or by contrast. The butterfly, or shed, roof provides the most open view, projecting an outgoing personality. The hipped roof, also common in Prairie designs, is noted for its strong sense of shelter, almost cavelike in its protective character. The side-gabled roof suggests shelter also, but considerably less openness than its cousin, the end-gabled version. The flat roof is essentially neutral in personality.

End-gabled roof



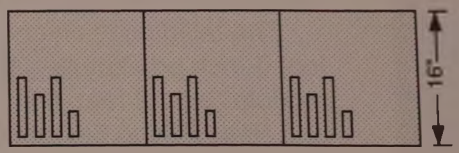
45° T plan



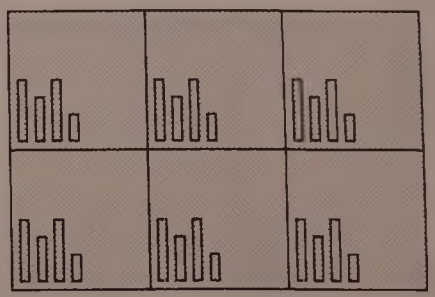
Living room

TEXTILE BLOCK

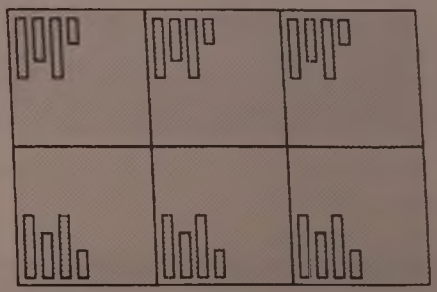
A textile block is 16" square. "Textile," because individual blocks, with surface patterns, are "woven" together by steel rods in edge reveals, into which the grouting is poured. Thus, there is no visible mortar line as with brick or stone. The art of combining the micro pattern(s) of individual blocks into a macro pattern of a wall surface made textile block a favorite masonry material with Wright for his Usonian designs.



6 rows of brick, plus mortar, equals the 16" vertical unit. Raking the horizontal grout, and coloring it, emphasizes the horizontal, in brick or stone.

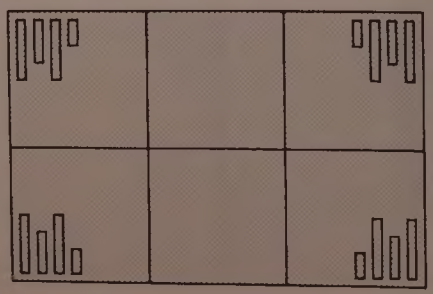


This 4' wide section uses the standard 3 blocks, thus dividing an even unit into odd groups, which provides more interest than division of even by even, 4 x 4.

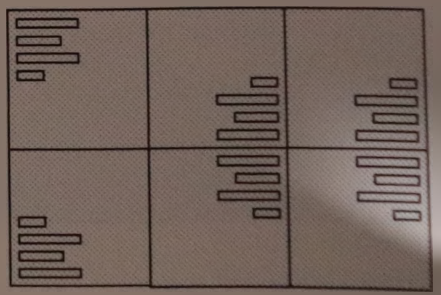


This section uses the standard 3 blocks, with the lower row inverted. This requires two molds, one the mirror of the other.

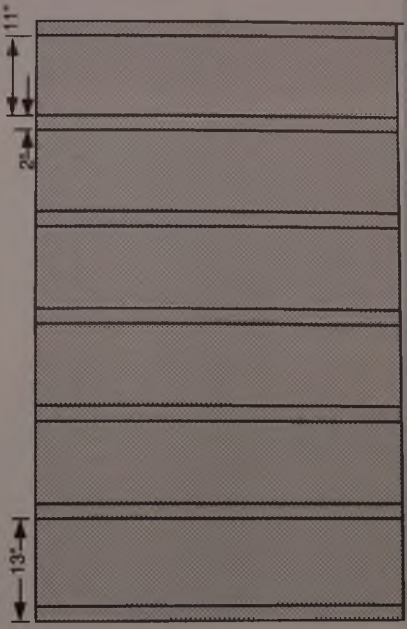
A wall of 16" x 16" textile blocks. Here, the middle block is plain, and the blocks at either end are rotated to provide a frame.



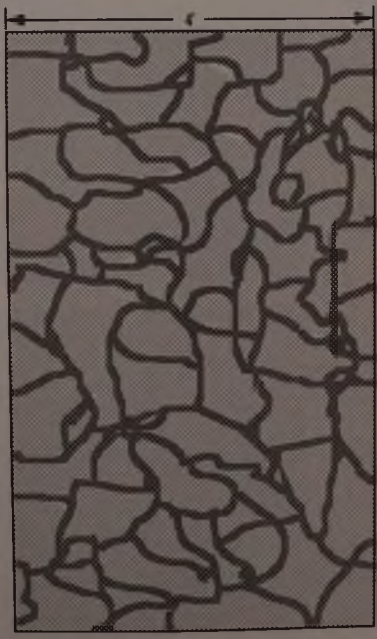
A great variety of macro patterns is available from a basic pattern and its mirror image.



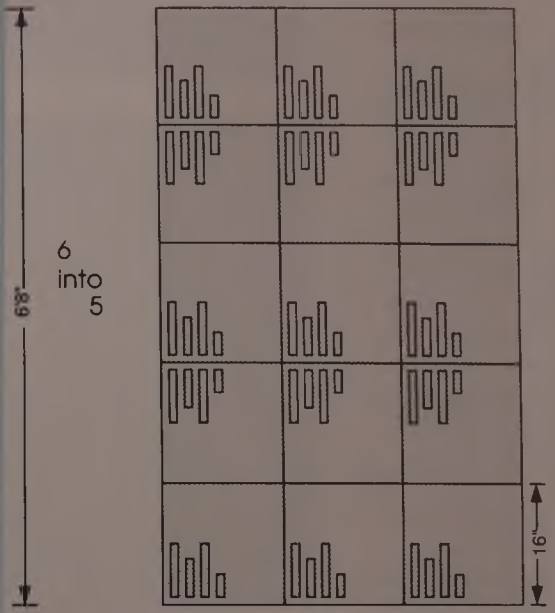
In constructing a wall of board and (sunk) battens, the vertical unit is 13"; 1" + 11" (1x12) + 1". With a shoe and header each of 2", a standard floor-to-ceiling height of 6' 8" is achieved. This rationalizes 6 B&B units into 5 16" masonry units.

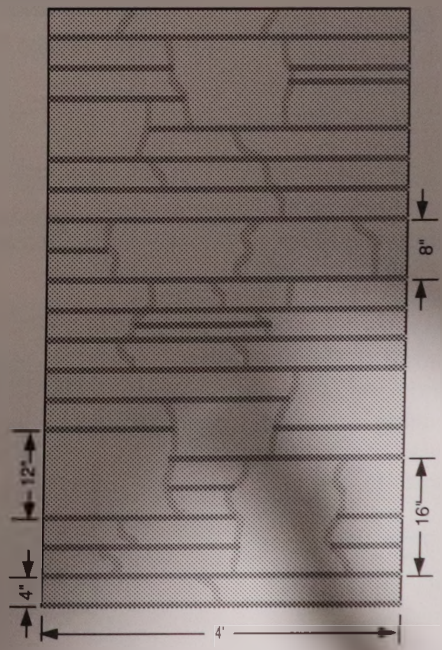


In Desert masonry (rubblestone wall) construction, the pattern is essentially, and desirably, random.



THE VERTICAL UNIT SYSTEM





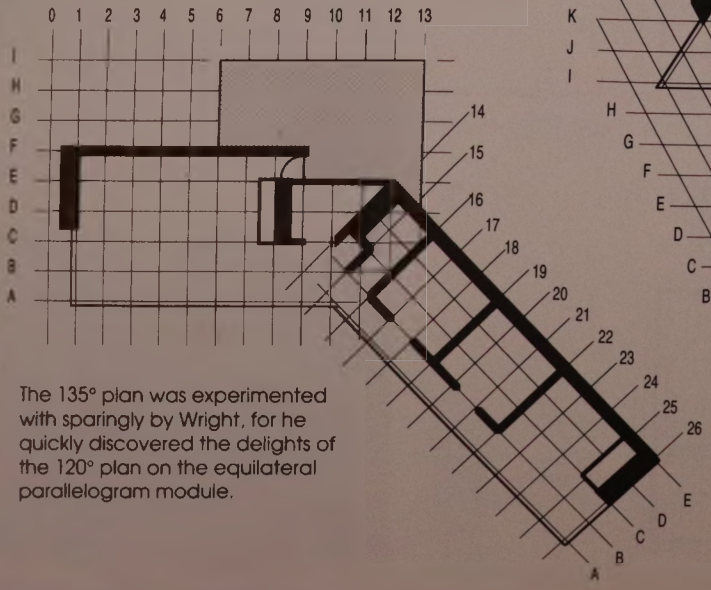
To make stone fit a 16" vertical unit, it is cut 1/2" less than multiples of 2". Mortar supplies the correction.

THE EQUILATERAL PARALLELOGRAM MODULE

Two L-plan Usonian designs were on the Taliesin drafting boards at the same time, the first Jacobs, S.234, and the Hanna, S.235. Original drawings show the Jacobs to have first been done on a 2' square, later redrawn to a 2 x 4' rectangle, while the Hanna was done on a hexagon with 26" side (45° altitude).

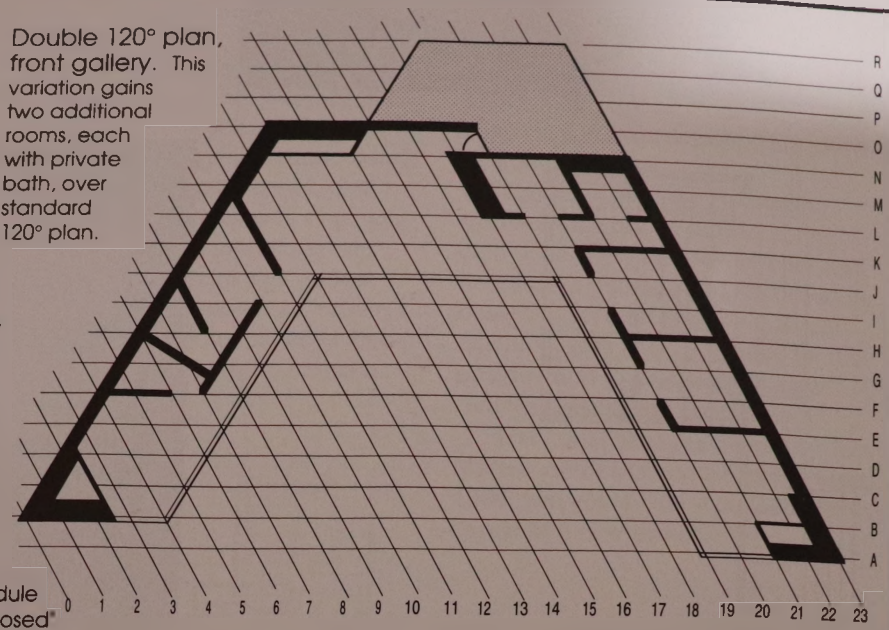
The hexagonal unit is time-consuming to draw while the equilateral parallelogram of 60° and 120° is simple and can accommodate anything that would otherwise require the hex. This module is popularly called a "diamond," and is easily drawn with the 30–60° traingle.

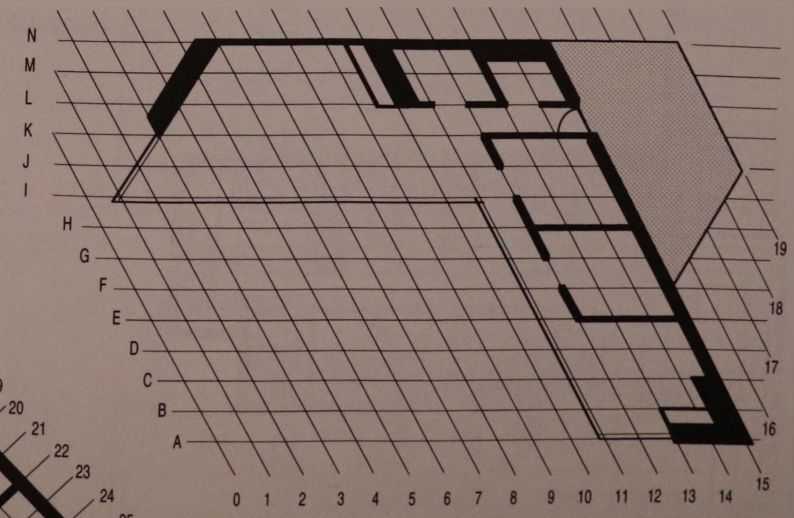
120° plans on the equilateral parallelogram module should be called an "open," as opposed to a "closed" 60°, L, and the 240° plans would equate to the 270°, or outside, L. Plans employing interlocked grids of square units would be open Ls at 135° and Outside Ls at 225°. A 45° closed L is possible, but hardly practical.



The 135° plan was experimented with sparingly by Wright, for he quickly discovered the delights of the 120° plan on the equilateral parallelogram module.

Double 120° plan, front gallery. This variation gains two additional rooms, each with private bath, over standard 120° plan.





Standard (single-wing) 120° plan, front gallery.

Note the variation shown for the carport which, of course, could be located as in the double 120°. This calls for a single entry and fireplace in its usual place, back-to-back with the workspace. It would also require an additional support for the carport cantilever.

by its living room, 24 feet square between pillars capped by a hipped roof, modeled on the Hillside assembly room at Taliesin only without a mezzanine. Those pillars are among the few clues to break the ambiguity of the spatial orientation of this magnificent room, with its view of Long Island Sound over a swimming pool to the north, over lawn to the east.

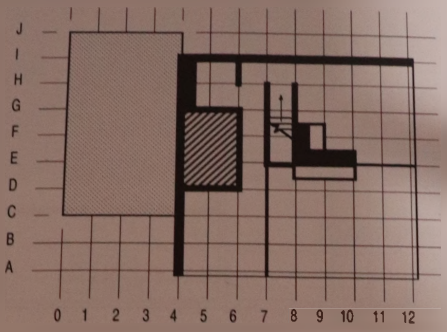
Detailing is lavish and construction of high quality. Philippine mahogany (ribbon-stripped) plywood was cut and both flitch- and sequence-matched so that the grain mates at all joints, horizontal and vertical. Due to local restrictions, the roof is of random-thickness slate rather than the copper Wright intended. The fascia, however, is copper, with each 8-inch section cut and stamped in Brooklyn, then soldered to its neighbor on site. Floors are flagstone, which makes the 4-foot unit apparent principally where cabinetry or window mullions articulate the space. The stone, hand-chipped to rectangular proportions, is granite from Yonkers, New York, and is laid with horizontal mortar deeply raked, vertical at the stone surface.

The original dining space was in an alcove at the rear of the living room in what may be seen as an in-line plan with the workspace behind the fireplace. In the original plan, there were three bedrooms, each with full bath, with a study and dressing room complementing the master bedroom. For privacy on exclusive North Manursing Island, the carport had to be an enclosed garage, extended further into a tool shed and caretaker's quarters.

John H. Howe drew the original plans, Morton H. Delson the working drawings. John deKoven Hill designed the interior. A rug specifically designed for this house was refused by Hollman, so Wright took it for use in the Taliesin

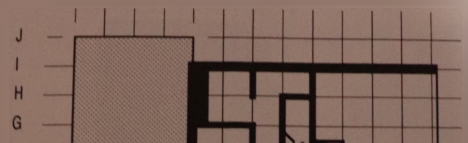
SQUARE PLANS

Two-story square



Upper with balcony over living room

Lower

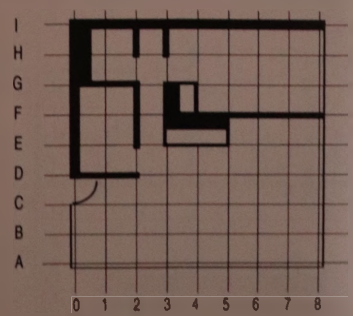


Master bedroom either down or upstairs. 2 bathrooms

Looking for ways to reduce a house plan to its most compact expression can be an endless pursuit. One attempt was the two-story square or, in its built version, a three-story cube, with full basement including a "play" or family room; see S.412.

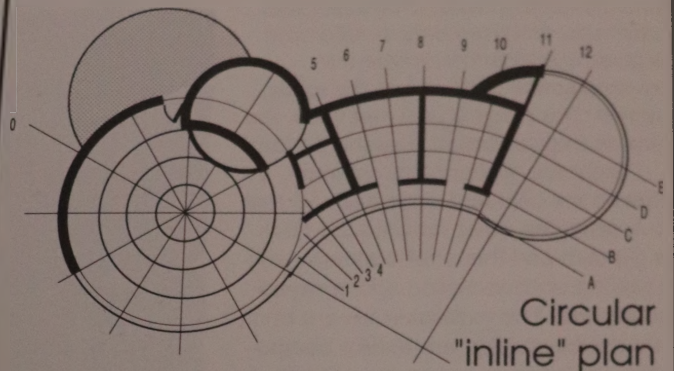
Single-story one-bedroom "square"

For a single-story one-bedroom cottage, a very compact arrangement can be obtained; this is particularly elegant if one does not encumber it with a carport. A variant of this becomes the "one-room" cottage; see S.430.



noting that redwood pole roof supports were replaced with structurally more reliable Douglas fir. The building is usually open during weekdays.

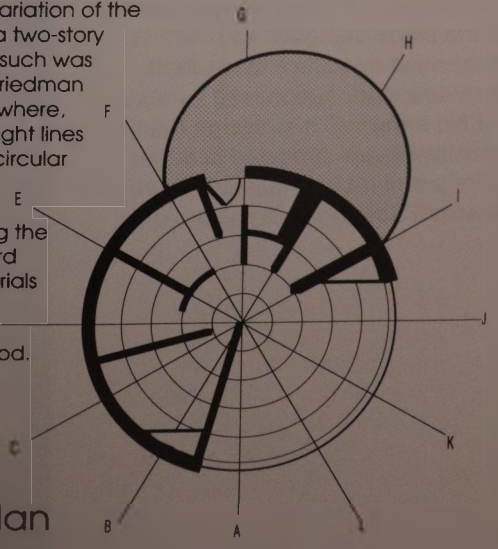
EXTENDING GEOMETRY TO CIRCLES



Circular "inline" plan

That plywood sheets could be soaked in water, then bent into curved surfaces, helped suggest the use of the circle for organization of space. Many materials do not curve as nicely as plywood. The lack of a perfect curved surface could be disguised in the Second Jacobs Residence, S.283, by use of stone, but not in the Meyers Residence, S.297, which employs concrete block. Each of these is of two story hemicycle plan. Here we show two single-story structures using circles and circular segments. Compare the circular inline plan with Lykes, S.433.

One logical variation of the circle plan is a two-story version. One such was built, the Sol Friedman house, S.316, where, however, straight lines connect the circular module lines between the radii, revealing the use of standard building materials rather than curved plywood.



Circle plan

would integrate the beauty of the indoors and outdoors *and* be within the affordable reach of ordinary people. At the same time, it was a house tailored to the individual's needs. Wright had designed his first Usonian home in response to the challenge from a journalist named Herbert Jacobs in Madison, Wisconsin. Wright had done it so masterfully that it became a model for many other Usonian houses that followed. The Jacobs' house in Madison, the one Smithy had referred to when he first spoke to Frank Lloyd Wright, was built in the shape of an L, with a central kitchen work area and abundant natural light provided by banks of floor-to-ceiling windows oriented to the back of the house, with minimal windows facing the road at the front.

Like the Jacobs' House, the Smith house also was designed with what Wright called "zones" for living. In the living zone were the living and dining areas—configured not as separate rooms, but rather open spaces that flowed into each other. There were two family bedrooms and a guest bedroom in the sleeping zone. And the utility zone contained the kitchen in the core part of the house, pivotal to the living zone. The house had sleek, distinctly Japanese lines, and like the Jacobs' and other Usonian homes, it did not have a "street presence" with dec-

orative features in the front. Indeed, from the front, the house looked low-slung and simple, ornamented only with small functional windows around the top to let in light. In the back, however, glorious floor-to-ceiling windows opened to the gently sloping hill, the marshes, the pond, the trees and the rest of nature's garden. This was in keeping with Wright's sense of organic architecture, relating the building to the site of the natural landscape, where the interior and the exterior are unified. In the Smiths' case, Wright had it planned so that the house would tuck into a hillock of the landscape.

Instead of having a garage, the house would have a carport, and instead of pitched-roof, the house would have a wide and flat overhanging roof made from a simple, insulated slab that contained a ventilation system. Wright had no use for basements, and so the house would be built on another slab, equipped with a new kind of central heating—a hot-water radiant system. This system was produced by hot water pipes embedded in a drained bed of sand and cinders under the concrete slab floors. The circulation of hot water below the floors would warm the entire house, and light coming in at certain angles through the windows during the winter would add solar heat.

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Instead of having a garage, the house would have a carport, and instead of pitched-roof, the house would have a wide and flat overhanging roof made from a simple, insulated slab that contained a ventilation system. Wright had no use for basements, and so the house would be built on another slab, equipped with a new kind of central heating—a hot-water radiant system. This system was produced by hot water pipes embedded in a drained bed of sand and cinders under the concrete slab floors. The circulation of hot water below the floors would warm the entire house, and light coming in at certain angles through the windows during the winter would add solar heat.

Wright designed what were essentially prefabricated walls using three layers of board and two of tar paper, wanting the house to be built with every possible labor- and money-saving shortcut. Other pages of the plan showed how the house would be finished inside with a board and batten wall system of cypress panels screwed together. While the plan was cost-effective, it retained all of the essential attributes of a Frank Lloyd Wright design—the sense of spatial surprise when walking in from relative darkness to an abundance of light, with meticulous attention to aesthetic details and the use of natural light. A changing mural of nature would be provided by the floor-to-ceiling windows that ran across the back and wrapped around corners of the house.

For Sara, the plans were exciting, and she looked on with curiosity and interest as Smithy explained the layout and the concepts of a Usonian home. For Smithy, however, the plans were more than fascinating and exciting; they were the dream he had been carrying inside of him for years. The papers he held in his hands were key to elevating the

meaning of his existence. Smithy sat riveted hour after hour, studying the details, thinking, smiling, frowning, jotting down notes to himself.

In April, Smithy received another letter from Frank Lloyd Wright's secretary at Taliesin West:

Dear Mr. Smith:
The drawings for your house were mailed to you on March 26th and we trust you received them safely. We have never been able to unravel the mystery of what became of them after they were sent to us from Taliesen, but I believe they must have been misaddressed. We are extremely sorry for the delay involved.

Smithy wrote back a long handwritten letter that began:

Dear Mr. Wright,
The preliminary studies for our house infinitely please us. We appreciate with much regard the general plan of house and lot, which appears to be most suitable for the site. The proposed cost of twenty thousand dollars also is acceptable should it not range beyond that. Your conception has helped us to realize more vividly the house we want to call 'My Haven.'

Smithy asked several questions and enclosed a check for six hundred dollars, the first three percent of Wright's architectural fee.

In early May, 1947, Frank Lloyd Wright wrote:

Dear Mr. and Mrs. Smith:
Thank you. We are glad you like the house. In order to proceed with the working drawings we shall need the preliminary sketches. When you are ready kindly mail them to us at Spring Green. We shall be there after the 15th of May. All of your suggestions shall have careful attention.
Sincerely yours,
Frank Lloyd Wright, Taliesin West, Scottsdale, Arizona.