1. NAME OF PROPERTY

Historic Name: Jacobs, Herbert and Katherine, Second House

Other Name/Site Number:

2. LOCATION

Street & Number: 3995 Shawn Trail Not for publication:__

City/Town: Madison Vicinity:__

State: Wisconsin County: Dane Code: 025 Zip Code: 53562

3. CLASSIFICATION

Ownership of Property		Category of Property	
Private:	X	Building(s):	X
Public-Local:		District:	
Public-State:		Site:	
Public-Federal:		Structure:	
		Object:	

Number of Resources within Property

Contributing	Noncontributing	
1	1	buildings
		sites
		structures
		objects
1	1	Total

Number of Contributing Resources Previously Listed in the National Register: 1

Name of Related Multiple Property Listing:

4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria.

Signature of Certifying Official

Date

State or Federal Agency and Bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria.

Signature of Commenting or Other Official

Date

State or Federal Agency and Bureau

5. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:

___ Entered in the National Register
___ Determined eligible for the National Register
___ Determined not eligible for the National Register
___ Removed from the National Register
___ Other (explain): _____

Signature of Keeper

Date of Action

6. FUNCTION OR USE

Historic: Domestic Sub: Single Dwelling

Current: Domestic Sub: Single Dwelling

7. DESCRIPTION

Architectural Classification: Modern Movement: Wrightian

Materials:

Foundation: Concrete; crushed rock
Walls: Stone, wood
Roof: Tar and Gravel
Other: Glass

Describe Present and Historic Physical Appearance.

Historic Physical Appearance

The second house that Frank Lloyd Wright designed for Herbert and Katherine Jacobs differs from their first house and from the many houses that followed in its footsteps by not having its masonry walls built on the concrete slab, which serves as its floor. Its stone walls were too heavy. Instead Wright designed deep foundations for them to rest on; however, he did not use traditional footings. Jacobs, who dug the foundations for the walls by hand, says he made them five feet deep, then filled them with crushed rock and tamped it down. Wright's idea here, as it had been for Usonians built entirely on a mat of concrete laid over gravel, was that any water which found its way into the foundations would drain away and not freeze. In addition to the deep footings under the stone walls, the drawings call for 8 inches of crushed rock under the 3 ½-inch thick concrete slab. The only walls that would rest on the slab were the ones that separated the fixed panels and doors making up the glass wall of the south front. This wall supported not only about half the weight of the roof but also part of the weight of the recessed second floor. To support the south wall, Wright's drawings show footings under the part of the slab on which the mullions would stand. The wall consisted of eight mullions, each 1 ½ inches by 5 ½ inches in plan, spaced 6 feet apart, except for the ones at the ends, which were only 3 feet from the short stone walls at either side of the south front. On either side of each mullion and behind it, inside the house, Wright specified an additional vertical member. The ones on the sides of the mullions were to be 1 ½ by 3 inches in plan, those behind the mullions, 3/4-inch by 5 inches. The frames of the doors and windows, which measured 1 3/4 inches deep and 4 inches wide, were attached to the central bundle of vertical pieces. Thus, beginning with the outer surface of the 2x6, the wall stepped down 2 ½ inches to the side pieces, then 2 1/4 inches to the faces of the window and door frames. It is probable that the entire wood bundle, plus the fixed window frames and perhaps even the plate glass in them, assisted the center mullions in carrying the load of the roof and part of the second floor. Even so, it was quite a load for so little wood to support, but this was the way Wright designed the wooden structural elements of his buildings–over and over again.

Unlike the Jacobses' first house, the concrete slab did not extend beyond the glass wall to form a terrace, though it protrudes just far enough to support the outer edges of the exposed parts of the mullions. Instead Wright called for a terrace of stone six feet wide to be laid over 8 inches of crushed rock with a deeper footing of gravel at its outer edge, its upper surface even with the top of the slab. Apparently Jacobs did not follow the drawings for the terrace: "Instead of a concrete foundation [the drawings actually call for gravel], we simply laid down a bed of sand and fitted the four-inch-thick stones loosely together, pouring grout in the cracks between them."[1] According to Jacobs, the system worked well and the stones of the terrace never heaved.

The architect also wanted the cement mix of the slab to be colored, presumably in the Cherokee Red that Wright specified for the slabs in most of his houses after the first Jacobs house. Jacobs simply calls it a "red color" and tells us that his concrete contractor was unable to get "a

[1] Herbert Jacobs, *Building with Frank Lloyd Wright, An Illustrated Memoir* (San Franciso: Chronicle Books, 1978), p. 112.

satisfactory mix with the color, and that idea had to be abandoned."[2]

Photographs of the original front wall suggest that the vertical mullions between windows and doors were notched on the front and back sides at the 9-foot level in order to receive appropriately notched horizontal boards laid between the mullions to separate the doors and fixed windows below from the fixed glass panels above. These were details that Jacobs and his carpenter had to figure out themselves as the working drawings show doors and fixed glass panels that extend from the bottom to the top of the wall. All the glass was single pane 1/4-inch plate glass culled from old store fronts. Jacobs had the carpenter reduce the height of the doors at either end of the wall, which he believed would be the most used, to 6 feet 6 inches and build ventilating transoms above them. The doors opened outward.

The stone walls were laid in mortar in projecting and receding courses to mimic the faces of local Wisconsin limestone where exposed along rivers and other outcrops. All joints were deeply raked by Katherine Jacobs. In most places the masons laid an inner and outer wall, bound together every so often by metal straps and large stones. Where the walls were hollow and one side was exposed to the weather, the masons filled them with vermiculate for insulation.

The roof was flat and sloped to the north, that is toward the berm into which rain water was to drip through 2-inch long pipes penetrating the deck near its northern edge. Its top, according to the drawings, was to be tar and gravel laid over a 2-inch thick plank sheathing. Supporting the roof and part of the second floor were rafters consisting of 2-inch by 6-inch boards, their northern edges beginning at the stone wall of the berm and ending either on the stone walls that returned 6 feet at either end of the house on its south side or at each of the 2-inch by 6-inch mullions supporting the glass wall in the center of the south front. To strengthen them, Wright specified that a 1-inch by 12-inch board was to be spiked on either side of each rafter. Steel rods were suspended from the center board of selected rafters about 10 feet forward of the north wall to assist in supporting the second floor, which stopped short of the south wall. Wright's system was to tie together every three of the second floor joists with wooden cross beams, then support these units only with rods run through the outer two joists. Furthermore, because of the short cantilevers where the second floor passed around the stone tower, he did not specify support rods, nor did he use them in the end bedrooms where the return of the stone wall on the south side provided support for the joists of these full width bedrooms. This meant that only seven rods were called for to support the floor of the middle three bedrooms. The result was that the rods, when inserted and the second floor built, appear in early photographs to be grouped in pairs with a space between each pair. Needless to say, the joists of the second floor were laid directly under the rafters, and both the rafters and joists were located directly above the radial lines troweled into the concrete pad every 6 degrees. These lines radiated from a point in the garden about 28 feet beyond the front wall.

In fact, the overall plan is a complete semi-circle of 180 degrees; however, the first 30 degrees on each side of the house is given over first to large flower boxes, then to two two-story boxes built into the berm. The boxes are exposed on the side facing the garden. The one on the left is empty; the one on the right contains a closet which opens into the tunnel. Then there is the

---

[2] Jacobs, *Building with Frank Lloyd Wright*, p. 108.

tunnel itself on the right side and an open space matching it on the left, the latter ending at the stone wall of the berm. The open area on the left is covered by the long overhangs of the roof. Along the glass wall, the roof overhangs 5 feet, but at either side of the house the overhangs approach 10 feet. In framing these overhangs, Wright had the good sense not to trust wooden rafters alone but bolted them to thin steel plates, called flitch plates, to assist in resisting deflection.

The house proper is 120 degrees in width. Along its centerline this works out to an interior width of approximately 80 feet. Its circular form is interrupted by a stone tower, 18 feet in outside diameter, dividing the ground floor into a large 54-foot wide living-dining room on the left, an approximately 10-foot wide passage around the protruding tower, and a 14-foot wide kitchen on the right. The depth of the kitchen and living rooms is 17 feet, except where each lose depth to the returns of the stone wall.

A staircase rises along the curving inner south wall of the imbedded tower. At grade, the rest of the tower is given over to the furnaces and other mechanical equipment and, on the second floor, to a large bathroom. On the ground floor the utility room opens into a room without windows, designed and added by Jacobs during construction, which ends at a door opening into the tunnel. Jacobs called the room a root cellar, but its purpose was to serve as a mud room where he could change out of his work clothing before entering the house. Jacobs also altered the plan of the bathroom by building a closet for the master bedroom along the wooden wall the bathroom shares with the stairway and by adding a door through the tower wall that connects the closet with the master bedroom. Wright's plans do not call for either. A skylight illuminates the bathroom and staircase.

When built, the second floor was completely open from one end to the other except where the tower protrudes into it. It is essentially a balcony supported at its outer edge by the stone wall and towards its inner edge by steel rods suspended from the rafters. The balcony ends at a 3-foot high parapet, about 3 ½ feet from the glass wall. Along the back wall of the house the balcony is illuminated by a continuous row of windows, interrupted by the tower, each about 2 feet high, which are hinged to open inward. There is a vertical window in the northwest corner of the west bedroom that continues in the same corner of the living room below it. These windows are also hinged for ventilation. The joists supporting the balcony are 2x6s spiked to a 2x4 laid between them. The floors are 2-inch planking fitted with splines to hold them together and resist warping. The ceilings of the first and second floors are open, revealing the joists and rafters and the undersides of the floor and roof boards.

In due time, Jacobs subdivided the western part of the second floor into four bedrooms by building the board walls specified by Wright between the bedrooms and across the inner side of the middle three. The walls were made of 12-inch wide boards overlapped 3 inches and screwed together and installed at a 30 degree angle to the floor. At the corners they wrap around and hide the steel hangers. These angular walls leave a triangular opening between the rooms the height of the windows. The Jacobses used curtains for doors.

Heat was provided by iron pipes laid in gravel beneath the slab of the ground floor. Jacobs thought it functioned well though he and his family seemed fond of wearing sweaters in cool

weather. There was no heat on the second floor, but eventually Jacobs installed a radiator in the bathroom. In winter the family worked in the living room and used the bedrooms only for sleeping.

Before constructing the house, Jacobs built a barn of cement blocks. When Wright saw it he told him to plaster it. Later Jacobs added a carport to its east side and again at Wright's suggestion–insistence perhaps–Jacobs improved the visual character of the flat roofs of barn and carport by adding Wrightian overhangs. The building, however, is non-contributing to the nomination.

Present Physical Appearance.

When the Jacobses moved to California in 1962, where Herbert would teach on the Berkeley campus of the University of California, they sold their house to a young history professor at the University of Wisconsin, William R. Taylor. The Taylors divorced and moved out of the house in 1968. For the next thirteen years the house was rented to a succession of students, and during these years the house deteriorated badly. "No one was to blame," their son Bill Taylor told the *Capital Times* in 1983, "the problem was that the expertise and the amount of money needed to keep it up were simply beyond the means of my mother." The former Mrs. Taylor sold the house to her son in 1983. According to Whitney Gould, reporter for the *Capital Times*, Taylor

> "faced an awesome rebuilding task. The window and door frames were rotting out, a casualty of the condensation that dripped from the single-pane glass. The radiant heating system beneath the concrete floors had broken down. Underwritten by bank loans and help from his stepfather, Taylor engaged contractor John Freiburger and Associates to put the house back together again. They rebuilt the window frames and installed energy-efficient triple-pane glass; doubled the house's structural supports; replaced rotten fascia; insulated the roof; installed a new heating system. . . . When Freiburger's crew had finished the exterior work . . . Taylor began to tackle the interior on his own. He rearranged five small, dark upstairs bedrooms into three roomier spaces and installed five skylights to brighten things up. . . . 'It was a real labor of love, fixing this place,' says Taylor, who has invested more than $50,000 and more time and energy than he cares to count in reconstructing a house that cost about $25,000 to build. 'I am exhausted.'"

Eventually Taylor sold the house to its present owners, Dr. John Moore and his wife Elizabeth, who work in the Chemistry Department at the University of Wisconsin–Madison.

Elsewhere inside, as noted by the *Capital Times*, Taylor had his contractor strengthen the structure. This was done by adding extra boards to the sides of the joists and rafters. On the insides of the glass wall, Taylor installed boards to frame electrically operated rolling shades, a convenience compared with the two-story curtains the Jacobses had used. The wooden members related to the shades are hardly noticeable and do not seem to compromise the integrity of the interior wall. Taylor also added a number of skylights to lighten some of the darker interiors.

The most obvious alteration to the interior was Taylor's rebuilding of the walls of the bedrooms west of the stone tower. He made three rooms out of the four Jacobs had built. In doing so, he

completely eliminated the inner wall of one space so that it now opens directly to the passageway along the inner edge of the second floor. Thus, beginning at the west bedroom, Taylor enlarged it by adding one radial bay. The next space, which now reads as an enlargement of the hall, occupies four radial bays. Then comes another bedroom that now occupies four rather than its original three radial bays. Had the Jacobses called for four instead of five bedrooms, this is probably what Wright would have done. The opening up of one bedroom into the hallway, now measuring approximately 10 by 16 feet and used as an office by the present owners, allows the area to receive light from two sides. It also allows the occupants to look out over the parapet through the glass wall to the landscape far beyond the house. The two support rods, which are now exposed, seem to fit into the open arrangement, defining rather than obstructing the transition between study and hall. If a subsequent owner wanted greater authenticity, the board walls of the study could easily and inexpensively be restored, and if more bedrooms were needed, the original configuration could easily be reconstructed. The changes to the second floor have made the house more liveable and perhaps have promoted its longevity.

Taylor also made changes to the heating and ventilating systems and upgraded the house in other ways that have assured its continued use as a residence. Taylor was concerned when he found that he was burning 3,500 gallons of heating oil every season, at over one dollar a gallon, and still not achieving a reasonably warm interior. An energy audit found that there was a 20% loss through the single pane glass wall, another 20% through the uninsulated 2-inch thick wood roof, another 20% through the insulated wall against the berm, 20% from air infiltration, and another 20% lost through the heated floor. Taylor had the heating system properly drained, but enough water remained in it to freeze and burst some of the pipes. When he had the concrete pad removed to repair the damage, it was discovered that the pipes had been laid in the gravel with no insulation under them. The result was that much of their heat was going down into the gravel rather than up into the house. Furthermore, the gravel had settled creating an air space beneath the concrete pad, which also absorbed heat. Taylor relaid the floor by putting down an insulating barrier, then located the new pipes in the concrete, which allowed him to lower the temperature of the water from about 180 to 135 degrees. This also helped to cut the heating bill. This system still works well but is slow to heat up and cool down.[3] Taylor also installed a hot air furnace and air conditioning and built wood framed channels along the rear walls of the bedrooms, which circulate heated and cooled air through the bedrooms and the living room and kitchen. These channels are also used to house wires of various kinds.

Most of the changes made by Taylor would not be noticed except by the trained eye equipped with photographs of the original. Two, however, are aesthetically displeasing and arrest the attention. Both are color changes from the original.

First, Taylor stained or painted the exterior wooden parts of the glass wall a color approaching black. The dark color of the exterior wall was used because Taylor had the wall (and facia of the overhangs) faced with redwood which, while long lasting, is red rather than the light color of the

[3] Paul Hanna, who was building a Wright-designed house in Palo Alto, California, at the same time the Jacobses built their first house, refused gravity heat and insisted on hot air because he said that by the time the house heated up in the morning, he and his wife would be at work.

original pine boards. When later he had to decide how to subdue the red color of the wood, he stained the redwood a color similar to the dark gray color the pine had assumed by the time he bought the house.

Inside, Taylor also made an alteration at the base of the glass wall. When he rebuilt the under floor heating system and relaid the concrete slab, he ended the slab about four inches from the bottom of the glass wall and filled in the space with black tiles or a similar material, which now form a very noticeable dark band along the wall. He did not pour the replacement slab under or even up to the glass wall in the living room because his contractor wanted to retain the footings under the concrete slab where it passed under and supported the glass wall. Thus the original pad was not destroyed entirely. The part that passed under the glass wall and ended four inches inside the wall was retained. Taylor covered this area along the wall with black slate. The interior black slate is subject to change to a color that is less eye-catching.

The one major change that requires further discussion is the rebuilding of the glass wall. William Taylor actually rebuilt the south wall twice. In the first rebuilding he retained the exterior character of the original wall as Wright had designed it, a wall that was suffering so badly from dry rot that it was not feasible even to reuse parts of it. It was during this rebuilding that he decided to eliminate several pairs of rarely used doors that contributed to heat loss and other problems. At this time he also installed double-pane insulating glass. Three years later the wall had begun to deteriorate again and water was coming through it. An engineering firm that had analyzed the loading of the structure that if he ever expected to be able to weatherproof the glass wall, it would be necessary to simplify the profiles of its exterior wooden members. At that time he had the wall rebuilt, reusing the insulating glass of the second wall while covering the complex exterior profiles to simplify their surfaces. This seems to have solved the problem. To retard heat loss, his consultants recommended expensive triple glazed insulating glass in place of the original single pane plate glass. There was an attempt to recall the original wall to the extent possible given the changes contemplated.

The short doors at either end and one pair of tall doors just to the right of the center line were retained. To give the effect of the original doors just to the left of the centerline, where a pair of doors had existed, a fixed panel was subdivided into two parts. The two remaining original pairs of doors with fixed panels were also replaced. (Two of the replaced doors originally opened across the ends of the circular pool; whether Jacobs ever used them is unclear.) The resulting divisions are not disturbing visually nor do they seem to compromise Wright's concept. In fact, Wright actually provided two schemes for subdividing the wall, one in the preliminary drawings and another in the working drawings. Jacobs used elements of both in building the glass wall while also lowering the height of the doors at the sides of the wall.

Where the work seems to have erred is in the redesign of the mullions. Wright had designed a delicately configured wooden framework to hold the door and window frames. As noted, at the lower level the glass of the windows and doors were set in broad frames, 4 inches wide. From there the vertical supports built outward in two levels, the first was 1 1/4 inches from the face of the frames, the second was 4 inches forward of the frames. The wooden parts of the wall thus became delicate members that cast sharp shadows. By contrast, the vertical members were rebuilt as boxes in plan, their outer faces about 4 inches wide, and the glass was set into the sides

of these without frames. The result is that the wall now exudes a more simplified modernistic character than the original delicately sculptured design that Wright had conceived. Whoever redesigned the wall attempted to capture the general configuration and spirit of the openings as they had originally existed while eliminating some of the paired doors and retaining the width and depth of the wooden elements. As a result, the overall integrity of either the wall or the house has not been seriously compromised. The south facing wall still retains enough of its original character that an observer can still appreciate the intended architectural effect. Overall the house remains faithful to Wright's design. In spite of the alterations made by Taylor, the house still embodies Wright's unique concept of a house in the form of a solar hemicycle and retains its integrity.

8. STATEMENT OF SIGNIFICANCE

Certifying official has considered the significance of this property in relation to other properties:
Nationally: X Statewide:__ Locally:__

Applicable National Register Criteria: A__ B__ C__ D__

Criteria Considerations (Exceptions): A__ B__ C__ D__ E__ F__ G__

NHL Criteria: 4

NHL Theme(s): III. Expressing Cultural Values
5. architecture, landscape architecture, and urban design

Areas of Significance: Architecture

Period(s) of Significance: 1946-1948

Significant Dates: 1946-1948

Significant Person(s):

Cultural Affiliation:

Architect/Builder: Frank Lloyd Wright

Historic Contexts: XVI. Architecture
S. Wrightian

State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.

Significance and Justification

When compared to all other work by Frank Lloyd Wright, his second house for Herbert and Katherine Jacobs stands out for a number of reasons, foremost among which is its uniqueness at the time. There was no other building like it by Wright. Although aspects of it can be traced to earlier buildings by Wright, the way the architect combined these and other features produced a house without a peer. He designed an unbuilt house in 1942 for Lloyd Burlingham at El Paso with a plan that consisted of two interpenetrating arcs of circles. He proposed a system for erecting walls of earth to a group of persons to build a community near Detroit with their own labor in 1942. These were never built. In 1938, Wright proposed another house for Ralph Jester that remained a conceptual project until erected at Taliesen West in the 1970s. It consisted of circular rooms arranged around a covered terrace. While these were preludes, the concept for what Wright called the "Solar Hemicycle" first took shape in the second Jacobs house built between 1946-48. A number of other houses and buildings were projected and built along hemi-cycle lines indicating the impact of this design on his later work.[4]

In the Jacobses' first house, every part was related to a modular grid. Set on a heated concrete slab laid over sand, it has board walls and a flat roof and faces the rear yard and garden through walls made of glass doors. The purpose of these latter features, Wright claimed, was to save cost.

For the Jacobses' second house Wright combined these features for use in an entirely different kind of house, a solar house. He used the same elements of the first Jacobs house, perhaps for the same cost effective reasons, though in this case Wright's overall aim was to produce an otherwise expensive artistic house built of stone, concrete, wood and a small amount of metal. (The stonework alone, even though the Jacobses assisted the farmer-masons, who worked only when free from farming chores to save money, still cost $3,000–compared with the total of about $6,000 it cost to build the Jacobses' first house.) From the El Paso house plan Wright borrowed the idea of a house laid out as a segment of a circle, and from the Jester house plan, the use of circles for rooms and subsidiary elements, as in the tower utility and bathroom, the semi-circular fireplace, and the round plunge and garden pools in the Jacobs house. The easily built walls of the Detroit houses became the north berm of the Jacobs house, not to serve as walls but to protect it from north winds and to encourage south winds to lift over the house. The result was the "Solar Hemicycle" house. "Here, 30 years before the 'energy crisis,' was an instructive attempt to develop a 'low-energy' architecture, deriving a lyrical form from the need to obtain maximum solar heat and protection from northern winds."[5]

---

[4] John Sergeant, *Frank Lloyd Wright's Usonian Houses: The Case for Organic Architecture* (New York, NY: Watson- Guptill Publications, 1976), pp. 82-83.

[5] Sergeant, *Frank Lloyd Wright's Usonian Houses*, p. 83.

Wright did extract the idea of making houses in the form of arcs of a circle from the second Jacobs house–though it is more likely he went back to the Lloyd Burlingham design for inspiration–but in none of them did he also incorporate the solar elements–the berm, the two story wall of glass and the south facing glass front. He designed a house in 1950 that was built by Thomas Keys at Rochester, Minnesota, and had a berm on three sides but was clearly not intended to be a solar house.

There were other houses built following hemicycle lines. "These include the Marting house in Akron, Ohio, of 1947, the Meyer house in Galesburg, Michigan, of 1948,[6] the Laurent house in Rockford, Illinois, of 1949, and the Pearce house in Bradbury, California, of 1950."[7] Although not solar, these other attempts "demonstrate Wright's growing interest in a flowing architecture, free from the right angle. This development continued through the reflex curves of his 1953 design for his son, Robert Llewelyn, in Bethesda, Maryland, and the 1950 ramped spiral house for his other son, David, in Phoenix, Arizona, on to the Guggenheim Museum."[8]

The Jacobs II design remained original probably because the house was so complete in itself that even Wright found it difficult to modulate the design for subsequent clients.

> Whatever fresh interest Wright did bring to bear on domestic work in the last decade of his life was applied...to unusual sites or clients who stood out sufficiently to capture his imagination. Increasingly he talked of organic design and the organic home. An organic building arose uniquely from its site, its climate, its client's needs, its budget, and the intent of the client/architect relationship. It became less a repetition of an architectural idea and more an interaction of architect and client's wishes and skills. Some houses began to realize Wright's ideal, formulated in the early years of the century, that there should be as many different types of houses as there are people.[9]

In offerings to E. L. Marting in 1947 and Donald Grover in 1950, Wright did not even try to modify the Jacobs II house design, but simply offered the same design with plan reversed to both of them. The only changes, hardly significant, were the addition of a room in exactly the same location where Jacobs had built his root cellar and a carport next to it. (Neither Martling nor Grover built their Jacobs II houses.)

The second Jacobs house is an incredibly imaginative design. It is equally unique among the houses of Wright's contemporaries. As a house in which Wright took a special interest, he designed it from scratch and entrusted it to clients whom he knew were capable of building the unusual house without deviating significantly from the plans It stands out also as one of Wright's more eloquent aesthetic masterpieces. It is not just any house but belongs with the

---

[6]The Curtis Meyer house in Galesburg, Michigan, although close in design to the Jacobs II house, is not a solar house because its wall of glass faces northeast and there is no berm. In spite of the absence of a berm and the glass wall, William Allin Storrer persists in believing that the Meyer house is a "solar hemicycle," *The Frank Lloyd Wright Companion* (Chicago: The Univ. of Chicago Press, 1993), p. 308.

[7]Sergeant, *Frank Lloyd Wright's Usonian Houses*, p. 83.

[8]Ibid., p. 83.

[9]Ibid., p. 81.

outstanding buildings produced by the fertile mind of the master architect, Frank Lloyd Wright.

As Herbert Jacobs makes abundantly clear in his book, *Building with Frank Lloyd Wright*, the two Jacobs houses were not simply casual works by the great architect Wright. They were, in fact, products of Wright's genuine interest in and increasing friendship with the Jacobses and their children, which began in 1936 to and lasted until his death in 1959. This friendship is partly explained by the chances the Jacobses took in building the two unusual and exceptional houses Wright designed for them a process in which they participated mentally and physically. It helped, of course, that the Jacobses were physically close to Wright's Taliesin, the only one existing when they built their first house. This permitted them to visit Taliesin often so that they became warm friends of Wright and the fellowship, thereby losing their status as mere clients. Indeed, their daughter Susan eventually married into the Taliesin family and went to live in the Wright compounds in Wisconsin and Arizona. Conversely the proximity to Madison allowed Wright to visit the Jacobses from time to time–usually unannounced–and to use their houses to promote his architecture by bringing prospective clients and important persons to see them.

History

In November 1942, Herbert and Katherine Jacobs left their home in Madison, Wisconsin, and moved to a 52-acre farm nine miles west of the city. They had decided to become part-time farmers and thus help the war effort while introducing their children to the joys and hardships of farming, which they hoped would build character and a proper sense of values. To do this the Jacobses had to give up the house that Frank Lloyd Wright designed for them in 1936, the first Usonian as he termed it, a low cost house for the family of moderate means living in the United States of North America, a country which he preferred to call by the acronym, Usonia.

As the Jacobses had been happy living in their Usonian house, they were intent from the beginning to have Wright design another house for them to be built on their farm property as soon as the war was over. To this end, Herbert wrote to Wright about six months after the move, in the spring of 1943, asking the architect to stop by and inspect the site. Wright replied that he would, and in July 1943 he arrived at their farm house. After inspecting their land, he selected a site towards the top of a long sloping field. The background was to be an oak woods. The foreground, towards which the house would look, consisted of rolling hills and valleys south of the site.

By December 1943, Wright had prepared a design for the Jacobses to see, and they journeyed out to Taliesin on December 2 to view it. According to Jacobs, "it was a fitting estate for a country gentleman and his wife and family," but it was not something the Jacobses wanted. What the Jacobses saw was probably the one-story version of Wright's house for M. N. Hein of Chippewa Falls, Wisconsin, redrawn with the name changed to Jacobs.[10] Wright occasionally

[10] See Jacobs, *Building with Frank Lloyd Wright*, pp. 77-79, 88; Bruce Brooks Peiffer, "House for H. M. Hein, Chippewa Falls, Wisconsin, 1943," in *Frank Lloyd Wright Monograph 7: 1942-1950* (Tokyo: A.D.A. Edita, 1988), p. 36, and illustrations 64-66.

resorted to this method in order to move rejected plans when he was especially busy, but one wonders why in 1943, when he had no significant projects underway except the Guggenheim museum, he did not take the trouble to make an original plan suited to the Jacobses, stated needs and appropriate for their property.

Apparently Wright got the message that the Jacobses, who did not know that Wright had been trying to foist an unbuilt house on them, preferred a less expensive house designed specifically for their needs and site. His response on December 11, 1943, to letters sent by the Jacobses after their visit to Taliesin attests to this. On February 8, 1944, they were invited to Taliesin once again to see the drawings for their house. What Wright showed them on Sunday, February 13, 1944, was an entirely new and highly original design that was nothing at all like their first house. "You are getting another 'first'" Wright said. "Here is the answer to the problem of what to build on a hilltop exposed to the full sweep of the wind. In fact, it is suitable for almost any spot in the country where there is good drainage, for the house creates its own site and its own view."[11]

It was to be a most unusual house. In plan it was nothing more than an arc of about 120 degrees. Inside it would be two stories, 14 feet in height, and would spread out along the arc for approximately 88 feet at the rear, or north side, and 60 feet on its front, or south side. Its depth inside was to be 17 feet. The south wall would be all glass, 48 feet in length, divided between doors and fixed panes. The rear and side walls were to be built of stone, the north side largely covered by a sloping berm of earth. It was to be a solar house, Wright explained, one that would turn its sheltered back to the cold north winds and invite the sun in through its wall of south facing glass.

That it was a new concept for Wright seems clear from the difficulty he had finding a suitable name for the new type of house. According to Donald Kalec, the presentation drawings and working drawings 1 though 6 were labeled "solar hemicyclo" [Greek for half circle]. Beginning with sheet 7 the name was changed to "solar hemicycle,"[12] or, a solar house in the form of a half circle. In fact the house proper was actually at its maximum extent only 120 degrees wide; however, if one includes other features such as the outer walls and two large planters, it was a full 180 degrees in width. The idea of a solar house, one designed to receive and store heat from the sun, while insulating itself from the cold, was not original with Wright of course. Architects had been experimenting with solar houses at least since the late 1930s.[13]

Wright took the concept much further by conceiving of the Jacobs house as an arc of a circle, thus allowing the berm on its north side and the stone walls at either end to screen the house

---

[11] Jacobs, *Building with Frank Lloyd Wright*, p. 83.

[12] Donald Kalec, "The Jacobs House II," in Paul Sprague ed., *Frank Lloyd Wright and Madison: Eight Decades of Artistic and Social Interaction* (Madison, WI: Elvehjem Museum of Art, 1990), p. 129.

[13]For example, George Fred Keck of Chicago built several houses in the late 1930s with flat roofs designed to hold water, thus assist in cooling the house by evaporation. Perhaps the most interesting solar house by Keck was built in 1941 for Hugh Duncan and published in the August 1943 issue of the *Architectual Forum*. It had a front wall largely of double glazed windows and doors facing south under deep overhangs intended to prevent the summer sun from reaching the walls.

from winds blowing from the northwest through the northeast. Furthermore he conceived of the berm not only as a way of protecting the house from northern winds but as part of a scheme to cause winds from the southwest though south to southeast to blow over the south front of the house rather than on it. His idea was to lower the floor of the house 1½ feet below grade, then excavate a circular garden in front of the house to 4½ feet below grade, thus forming a bowl of dead air which, together with the berm at the rear, would encourage winds from the southern quadrants to lift and blow over the house. The architect even claimed that in windy weather, Jacobs could stand in front of the glass wall and light his pipe with ease. After the house was finished, Jacobs confirmed that Wright's prediction proved true.

Where exactly Wright got his idea for making the house an arc is uncertain. He claimed that it was site specific, in that the idea came to him when studying the site and trying to figure out how to overcome the problem of the cold winds, especially from the southwest in winter, which would impact the south facing glass walls of a solar house. Other writers have supposed that Wright's growing fascination with curving forms lay behind the concept. At the time he designed the Jacobs II house, he was wrestling with his plans for the Guggenheim museum. Perhaps the more direct source was a design a 1943 design he proposed as a house for Lloyd Burlingham in El Paso, Texas, which consisted of two interlocking arcs enclosing a courtyard protecting the inhabitants from the desert wind and dust.[14]

No doubt Wright's use of a berm for the north side of the Jacobs house also was not original, though in his case the idea surely goes back to his project of 1942 prepared for a group of persons wanting to build co-operatively near Detroit.[15] The idea was for the residents to build the walls of their houses themselves from earth made solid by tamping soil into forms. Once the forms were removed, the vertical sides of the earth berms would be plastered and become the inside walls of their houses. In the case of the Detroit clients, Wright apparently was thinking of the berms only as cheap walls that amateurs could build and not as integral parts of a scheme for erecting solar houses.

Whatever Wright's sources, when he brought together a berm, a gradually curving house plan or hemicycle bounded by stone walls on three sides and an immense wall of glass facing south on the fourth, the latter protected by deep overhangs, he created something unknown in his previous work and surely without peer in the work of other architects. In doing so, Wright also combined his solar hemicycle with features that the Jacobses would have recognized. The floor was to be a concrete slab heated by hot water circulated in pipes beneath it. The house was to have a flat roof sloped to drain onto the berm. The glass wall was to consist entirely of doors and fixed panels, all containing glass. The few walls in the house, intended only to enclose the bedrooms, were to be made entirely of boards. High windows, forming a rectangular frieze under the eaves of the north side, were intended to illuminate and ventilate the bedrooms. Wright had used similar windows in the first house he designed for the Jacobses in 1936.

---

[14] "Pottery House" for Lloyd Burlingham, *Frank Lloyd Wright Monograph 7*, pp. 4-5, ill. 5-7.

[15] William Allin Storrer errs in supposing this project goes back to 1938. His reason for dating the project so early is his claim that it was published by the *Architectural Forum* in its January 1938 issue devoted largely to Wright's work, but the Detroit project does not appear in this issue. Instead it is found in the January 1948 issue of *Architectural Forum,* which treats Wright's work from 1938 to 1948. See *The Frank Lloyd Wright Companion*, p.338.

While it is true that these elements were similar, they were not exactly the same. The high windows in the first Jacobs house illuminated the west walls of the living room and north walls of the bedroom hall; here they brought light into the second-story bedrooms. Now the concrete slab was to be laid over gravel and to have color incorporated in the concrete mix. In the new house, the flat roof was also intended to support the inner edge of the second floor, which would stop short of the nearly14-foot high glass wall. The board walls of the bedrooms were to be built of overlapping boards, screwed to each other at their edges, and laid diagonally at an angle of 30 degrees relative to the floor. The positions of the walls were determined by radial lines that Wright wanted inscribed into the concrete pad. The glass doors, continuous in the first Jacobs house, were now to be grouped in pairs.

Whether or not the second Jacobs house actually was laid out on a unit system or module, a feature of the Jacobses' first house, is debatable. It was a method for providing the building with a consistent scale, one that Wright had used as early as 1902. In the first Jacobs house, the device was intended to assist in the construction of the house. Zinc strips inserted into the grid lines troweled into the concrete pad would mate with grooves cut into the bottom of the board walls, and also would show graphically where the brick walls were to be placed. After the first Jacobs house, Wright used the system fairly consistently in the many slab floor buildings he designed. He called for lines to be troweled into the cement slab of the second Jacobs house, but the system there wasn't based on closed units, rectangles, squares, hexagons, or triangles. Instead he proposed scoring radial lines into the concrete, lines running from the center of a circle of which the house was a part, beginning at a center point located about 28 feet directly south of the glass wall. Presumably they gave some guidance to carpenters setting the rafters for the roof, but otherwise it is difficult to see how they helped or simplified construction. Instead, in the second Jacobs house, their job seems to have been largely cerebral, to make clear the system employed in laying out the house.

Other elements were also unusual. The fireplace was round in plan. Also round was a stone tower situated partly within the main part of the house and partly outside of it in the berm. On its south side, within the tower, is the staircase to the second floor. The rest of the tower was devoted to the furnace and laundry on the first floor and a bathroom on the second. To illuminate the stairs and the bathroom, Wright planned a skylight in the ceiling of each. Another smaller circular basin of water, which intersected the glass wall of the living room, was to be half outside and half inside. Wright wanted it to be semi-circular in section, a place for fish that somehow would be able to swim both inside and out.

Wright's solution to the problem of entering the house was equally inventive. Faced with a high berm on the north side, actually the front of the house, he decided to penetrate the berm on the east side of the house with a tunnel. Although a rather Piranesian touch for Wright, it is unlikely that the architect really intended so Baroque an entry. Instead the tunnel seems to have been the accidental result of Wright's wanting to link the house with a barn that Jacobs intended to build north of the house by means of a covered weatherproof passageway. After Jacobs objected to the idea, Wright eliminated all of it except the part that would pass through the berm.

The solution, while interesting, never did solve the problem of making clear to the visitor just

where the entrance was located. Even today, after passing through the lugubrious tunnel and coming out on the terrace overlooking the garden, the visitor is faced with deciding which, if any, of the doors in the glass wall is actually the entrance. Furthermore, the inhabitants suffer by finding themselves often disturbed without notice while enjoying their private ground floor living space by the inquiring eyes of the unannounced visitor. The present owners have partially solved the problem by placing an illuminated doorbell in the tunnel next to a door that leads to their utility room. This was not a new problem for Wright, who in rejecting the formality of classical design, which usually located the front door in the center of entrance front, often presented his clients with the problem of finding their front door. Perhaps the best known example is Wright's Robie house of 1908, where visitors are often unable to find the front door. When pointed out to them, they marvel at its unexpected location.

The interior was to be largely open. Wright planned only two doors, one for the bathroom and the other for the utility room. On the ground floor, the kitchen on the east side was to be partially separated from the living-dining room by the intruding round wall of the tower. Otherwise the space was completely open on the ground floor. It also connected with the space of the second floor by way of an open vertical shaft 14 feet high and about 3½ feet wide, defined by the glass wall and the parapet of the second floor passageway. Bedrooms at each end were the width of the house (15 feet for the western room since its southern side was reduced by a 3-foot thick wall of stone). The master bedroom above the kitchen was partly limited to 15 feet by the same 3- foot wall but then expanded to the full inside width of 17 feet. The other three bedrooms west of the tower were 10 feet deep and varied in width from 13 to 15 feet. The Jacobses covered the entrances to all five bedrooms with curtains.

The house was much larger than the Jacobses' first house, which was about 1,550 square feet. Because the house is curvilinear, it is difficult to determine its exact size. The distance along the curving centerline of the house from inside wall to inside wall is about 80 feet and if that figure is multiplied by the inside width of the house, we get roughly 1,360 square feet, only a bit smaller than the total area of the first Jacobs house. Because the second floor was to be only a partial floor, its square footage was less, about 1,050 square feet. Add to this the portion of the tower beyond the north wall of the main structure on two floors, about 240 square feet, and the total becomes approximately 2,650 square feet.

The Jacobses liked the plan and ordered working drawings. They paid the first installment of $250 of Wright's fee towards the end of March 1944. Then they waited. Wright finally showed up some two and one-half years later on August 23, 1946, to stake out the location of the new house and lay out the road to it. Even so, the Jacobses still had no plans. In fact, Jacobs never does say exactly when preliminary plans or working drawings arrived, only that he eventually received two sets of plans. On October 14, 1946, a few of Wright's apprentices arrived with a bulldozer to hollow out the sunken garden in front of the house, move the earth from the house site and pile it up for later use in the berm, and build a road to the house.

Digging the foundations fell to Jacobs because there was insufficient distance between the soil stored for the berm and the sunken garden to use machinery. He did the work in his spare time between October 1946 and January 1947. He then shoveled several tons of crushed rock in and tamped it down. After that he had to locate a suitable stone quarry and stone masons, having

decided to become his own general contractor. Meanwhile Wright sent several apprentices in mid-June to stake the house. Jacobs found a suitable mason to lay the stone walls who arrived August 14, 1947, with a few helpers, worked for two days, then vanished. The mason returned at the end of October to work another day, saying when he left, that he would be back first thing in the spring. It was not until the last week in March 1948 that the masons reappeared; and thereafter the progress of construction moved forward at a reasonable pace. By then five years had passed since Wright showed the Jacobses the plans for their house and they had ordered working drawings.

Just before the masons reappeared, Wright disappeared from the Jacobses lives. He had been offended by a trivial remark Jacobs made in his amusing account of his experiences after moving to the country, called *We Chose the Country*. To Wright, who misunderstood Jacobs's text, it was a major affront and all contact was promptly terminated. The result was that the Jacobses were left to build the house alone. The loss of Wright did have one positive effect. It allowed them to make minor changes when they built the house without fear of being lectured by the architect. He had designed a large fish tank, partly inside and partly outside, but the Jacobses wanted a plunge pool outside like the one they had seen when they visited Fallingwater. So they built a deep pool outside for that purpose and separated it by a concrete wall from a shallow pool for plants inside. On the working drawings, Wright had changed the glass doors, which opened into the garden from their original 9 feet as shown in the preliminary drawings to 13 feet 6 inches. The Jacobses thought this height to be excessive, so Herbert Jacobs had them made the original height except for the single doors at each end of the wall. As those doors were expected to be the most used, Jacobs cut them down to a height of 6 feet 6 inches so that the children could easily open and close them. In arranging the doors, however, he followed the working drawings. Wright had changed from a continuous range of doors across the south wall to paired doors mixed with fixed pane windows. The rhythm of the doors and windows was one door, pair of doors, fixed glass, pair of doors, fixed glass, pair of doors, fixed glass, pair of doors, and one door. Each door was to be 3 feet wide and each glass panel 6 feet wide, for a total length of 48 feet. In the transom over the doors and windows, Jacobs returned to the preliminary drawings for guidance. There Wright had planned to have a fixed pane of glass above every pair of doors.

After their late March beginning, the stone masons worked diligently and had the walls completed at the end of June 1948. Katherine took over raking the joints between the stones, a chore the masons did not like and which slowed them down. Every evening after work, Herbert moved and piled stone for the masons. Meanwhile, motivated by their unrealistic expectations for an early completion of the house, the Jacobses sold their farm house and some acreage around it, intending to move into the new house on or before July 1. When it finally became apparent that the house would not be ready for them by that date, Jacobs decided to add a room to the house, one that he had wanted for a back entry where he could shed his work clothing and clean up before entering the house but which Wright had not provided. In studying the plans, he discovered that such a room could be built between the tower, kitchen and tunnel and, when finished with a fourth wall of concrete block and a floor and roof of concrete, it would not be visible from the outside when covered by the berm. It would open at one end into the utility room in the tower and at the other end into the tunnel. Jacobs' immediate purpose for building the room was to provide a place for the family to live while the house was being finished. On

July 8 they moved into the new room, which Jacobs preferred to call the "root cellar," and into the utility room and the bathroom, which also were finished. Work continued on the house. When the inner edge of the second floor received its parapet at the end of August, the Jacobses moved into the house proper even though it was not fully enclosed until the end of September.

Wright reappeared just after that. He was spotted standing at the edge of the sunken garden looking at the house. Invited in, he toured the house, had a piece of apple pie, and left without ever mentioning the eight month estrangement, perhaps relieved, Jacobs thought, to find the house had been built without significant deviations from his plans. Before leaving, he volunteered his bulldozer and an apprentice to push the berm up against the house and taper it properly. "From that day on," writes Jacobs, "we received help and encouragement from Wright in finishing the house. In fact he became so proud of the house that he made it a test for some of his new clients: if they didn't like the Jacobs house, he turned them off!"[16]

Jacobs continued outfitting the house in his spare time. The biggest job was to build all of the wooden walls of the bedrooms. It was a difficult task that required installing boards at a 30 degree angle to the floor, then screwing them together at their edges. At the corners of the rooms, the boards had to be made to wrap around and disguise the support rods. The walls were not finished until after Christmas 1948. It was also Jacobs' job to build and install the screens for the doors and windows and to build the kitchen cabinets. Following Wright's plans, Jacobs's carpenter built some of the furniture for the living room and dining area, and Jacobs built the rest except for some chairs that he purchased. Wright's design for the dining room table languished until 1958 when Jacobs finally found time to build it.

It is curious that after providing detailed statistics relating to the cost of his first house, Jacobs had little to say about the cost of his second house in his book, *Building with Frank Lloyd Wright.* In the beginning, he seems to have believed that Wright would be able to design another house for him that would cost $5,000, even though the first had really cost about $6,000 with an extra bedroom and proper artistic ceilings. Once Jacobs decided to become his own contractor and began to interview tradesmen, he must have realized that the new house, even with his and his wife's labor and free earth-moving by Taliesin apprentices, was going to be a lot more expensive. He sought and finally managed to secure a mortgage for $15,000 sometime in 1948, well after construction had begun. Jacobs intimates that at the time he was in fairly good financial condition because his salary was now much higher than it had been in the 1930s, and because he had profited by selling the farm and some of its land. The new house was quite a bit larger and built of expensive stone, which cost Jacobs some $3,000, so one can only assume that the total was more than the mortgage of $15,000, perhaps as much as $20,000, a tidy sum for the period. Of course, Jacobs got what he paid for, an artistic stone-and-glass solar house by American's foremost architect. Even if the house was a bit unusual, Jacobs apparently felt it well worth the expenditure.

[16] Jacobs, *Building with Frank Lloyd Wright*, p. 116.

9. MAJOR BIBLIOGRAPHICAL REFERENCES

The two most important published sources are:

Jacobs, Herbert. *Building with Frank Lloyd Wright: An Illustrated Memoir.* San Francisco: Chronicle Books, 1978.

Kalec, Donald. "The Jacobs House II," in Paul Sprague, ed., *Frank Lloyd Wright and Madison: Eight Decades of Artistic and Social Interaction.* Madison, WI: Elvehjem Museum of Art, 1990, pp. 127-134.

Documents:

The Frank Lloyd Wright Memorial Archives, Taliesin West
The Burnham Library, The Art Institute of Chicago

A book which ties all of the Usonian houses together is:

Sergeant, John. *Frank Lloyd Wright's Usonian Houses: the Case for Organic Architecture.* New York: Watson-Guptill, 1976.

The book suffers–through no fault of the author–by having been written before the archive at Taliesin West was opened to scholars.

For photographs and drawings:

Pfeiffer, Bruce Brooks. *Frank Lloyd Wright Monograph 7: 1942-1950.* Tokyo: A.S.A. Edita, 1988, pp. 51-57.

On the renovation of the house see:

William Taylor at **www.inmadcity.com/solarhemicyclo/**

There are, of course, many other mentions of the Jacobses and their house in the enormous and growing literature on Wright.

Previous documentation on file (NPS):

__ Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
_X_ Previously Listed in the National Register.
__ Previously Determined Eligible by the National Register.
__ Designated a National Historic Landmark.
__ Recorded by Historic American Buildings Survey: #
__ Recorded by Historic American Engineering Record: #

Primary Location of Additional Data:

_X_ State Historic Preservation Office
_X_ Other State Agency The State Historical Society of Wisconsin
__ Federal Agency
__ Local Government
__ University
__ Other (Specify Repository):

10. GEOGRAPHICAL DATA

Acreage of Property: 2.75

UTM References:	**Zone**	**Easting**	**Northing**
	16	293620	4771910

Verbal Boundary Description:

Certified Survey Map No. 5030 as recorded in Dane County Register of Deeds in Vol. 22, Page 250 of Certified Surveys, Lot 2 and 3 and part of 4, described as follows:

Beginning at the NE corner of Lot 4
Then South 00 degrees 37 minutes 19 seconds West 150 ft.
Then North 88 degrees 46 minutes 39 seconds West 306.60 ft.
Then North 00 degrees 35 minutes 41 seconds East 137.90 ft.
Then North 88 degrees 55 minutes 07 seconds East 306.95 ft.
To Point of Beginning.

Parcel Number: 0708-222-0103-7

Boundary Justification:

The boundary of the Herbert Jacobs Second House includes the house and the current lot associated with the property. Two parcels of land north of the house, that were part of the original lot, have been sold. These lots have been excluded from the boundary because new houses have been constructed on the lots.

11. FORM PREPARED BY

Name/Title: Paul Sprague
Professor Emeritus of Architectural History
The University of Wisconsin–Milwaukee

Address: 6245 Bertram Drive
Rockledge, FL 32955

Telephone: 321-690-6943

Date: July 21, 2001

Edited by: Carolyn Pitts and Patty Henry
National Park Service
National Historic Landmarks Survey
1849 C St., N.W.
Room NC-400
Washington, DC 20240

Telephone: (215) 597-8875 (202) 354-2216

DESIGNATED A NATIONAL HISTORIC LANDMARK
July 31, 2003