NPS Form 10-900
United States Department of the Interior
National Park Service

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NOV 13 2015

National Register of Historic Places
National Park Service

OMB No. 1024-0018

937

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

1. Name of Property

Historic name Beal, George Malcolm, House

Other names/site number Beal-Charlton House; KHRI #045-3508

Name of related Multiple Property Listing Historic Resources of Lawrence, Kansas (Amended)

2. Location

Street & number 1624 Indiana St. [ ] not for publication

City or town Lawrence [ ] vicinity

State Kansas Code KS County Douglas Code 045 Zip code 66044

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this _x_ 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 _x_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___ national ___ statewide _x_ local Applicable National Register Criteria: ___ A _x_ B _x_ C ___ D

Patrick Zollner 11-9-15

Signature of certifying official/Title Patrick Zollner, Deputy SHPO Date

Kansas State Historical Society

State or Federal agency/bureau or Tribal Government

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

Signature of commenting official Date

Title State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

_X_ 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:) _____

Alexis Abernathy 12/29/15

Signature of the Keeper Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply.)

X	private
	public - Local
	public - State
	public - Federal

Category of Property
(Check only **one** box.)

X	building(s)
	district
	site
	structure
	object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
1	0	buildings
1	0	sites
0	0	structures
0	0	objects
2	**0**	**Total**

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions.)

DOMESTIC / Single Dwelling

Current Functions
(Enter categories from instructions.)

DOMESTIC / Single Dwelling

7. Description

Architectural Classification
(Enter categories from instructions.)

Modern Movement: Usonian

Materials
(Enter categories from instructions.)

foundation: Concrete
walls: Wood
roof: Asphalt slab
other:

Narrative Description

Summary

The George Malcolm Beal House, 1624 Indiana St., Lawrence, Douglas County Kansas, is a single-story, two-bedroom house located at the southeastern corner of the University of Kansas (K.U.) campus. Designed in 1950 by K.U. architecture professor George Beal, the house is an outstanding local example of Usonian organic architecture. Expanding upon Frank Lloyd Wright's Usonian principles, Beal based the design of his passive-solar house around site-specific heliodon measurements, which calculated the sun angles and shadows throughout the year. The wooden sandwich-wall construction of this L-shaped house sits atop a poured concrete foundation and includes a shed roof, a stepped hearth, and a south-facing window wall. This nomination includes the house itself as well as the site on which it is built due to the site's influence on the house's design. The Beal House remains relatively unchanged since its construction, retaining what K.U. emeritus architectural historian Dennis Domer praises as "very high historic integrity."[1]

Elaboration

The Beal House (Photo 1) is located in a neighborhood named University Place at the southeastern corner of the University of Kansas main campus and about one mile to the southwest of downtown Lawrence (Figures 1 & 2). This neighborhood is bounded by the area below Sunnyside Avenue to the north, Allen Field House to the west, 19th Street to the south, and Veteran's Park to the east.[2] The neighborhood is characterized by early 20th century single-family houses, including Craftsman bungalows, American Foursquares, National Folk houses, and later Colonial Revivals.

Site

The rectangular parcel on which the house is constructed occupies approximately 1/3 of an acre on the lower southern slope of Mount Oread.[3] The topography gently slopes 15' from the northeast corner to the southwest corner of the parcel (Figure 3). Indiana Street is the western boundary; property lines, distinguished by a wooden privacy fence and vegetation, make up the northern, eastern, and southern boundaries. Across Indiana Street to the west is a block-long grassy hill in the shape of a triangle. Views from the house include tracery views of century-old white pines just south of the property line (Photos 2 & 3).

The house is centered (east-west) toward the north of the lot (Figure 2). In the northwest corner of the lot, a driveway leads from the street to the carport on the north side of the house; this driveway is composed of two concrete strips on either side of a crushed-stone strip (Photo 4).[4] A concrete sidewalk parallels Indiana Street, separated from the street by a grassy strip. The 1950 site plan shows a row of elm trees planted in this strip; a few of these trees remain. The space between the sidewalk and the west elevation of the house is a lawn with a few ornamental trees near the house.

Two concrete terraces extend from the house. Both create smoothly transitional extensions between the house and surrounding grounds, a key Usonian concept. At the southwest corner of the house, a 25' long x 11'-6" wide terrace extends from the living room and is partially hidden by a historic wooden fence that

[1] Dennis Domer, personal conversation with owner/author, John Charlton.

[2] The park was so named in 1947 for the veteran temporary housing there after World War II. Another temporary veteran housing development was built on what is now the student parking lot just west of Sunflower Drive, the main southern entry to campus.

[3] Mount Oread has an elevation of 1037 feet and houses the majority of the University of Kansas's main campus. By contrast, downtown Lawrence is at an average elevation of 850 feet.

[4] The 1950 site plan indicates this driveway was to be crushed stone; the current configuration has been extant since at least 1971.

provides privacy from the street (Photos 1 & 5). The fence is supported by a concrete wall base on the slope on the west and south. A contemporary plant grouping is to the east of the terrace (Figure 5 & Photo 25). The second terrace is accessed from a door on the east side of the house. This outdoor space is 10' wide and angles 45° from the southeast corner of the house, extending 25'. A set of six steps leads from the terrace up to the yard on the north side of the terrace (Photo 6).

House

Designed in 1950 and completed in 1951, the Beal House is comprised of the elements and grammar of Frank Lloyd Wright's Usonians, including an L-shaped plan with carport, a massive stepped central hearth, sandwich-wall structural system, and red concrete slab floor with radiant gravity heating. However the most unique innovative feature of the house is the heliodon-engineered angle of the cantilevered roof, which distinguishes it from Wright's Usonian houses.

The 1,614-sf redwood-clad house sits on a gently sloping site and faces south. From the street the house appears wedge-shaped with a shed roof that sweeps upward from near ground level on the north side, where it frames the single carport and tool shed, to high projecting eaves on the south façade (Photo 7). The roof's slope and extended overhang with exposed framing imparts a thoroughly modern expression of materials. This expression is also emphasized by the Usonian sandwich-wall system. The walls are prefabricated (or site built) walls of board-and-batten 'sandwiched' on the front and back of plywood sheets with rolled-felt paper insulation. They were then set upon the concrete house base and attached to the frame; corners are mitered (Photo 8). This system was part of the construction techniques used in Wright's Usonian designs.

The Beal Usonian plan is simple and compact, featuring a "polliwog" design resembling a tadpole, with the public areas at the head (west) and private spaces at the tail (east) (Figure 4). A hallway connects the two. At the intersection of the public/private wings is a massive stepped brick fireplace that provides considerable structural support, allowing a free-flowing interior plan.

Access to the interior is not visible from the street but is sheltered on the north elevation by the roof of the single-car carport (Photo 9). A glass-plate front door provides access to the centrally located entry, a model of efficiency, providing easy access to both public and private wings (Photos 10 through 12). To the west of the entry is the kitchen, defined as a "work space" on the architectural plan. This has an L-plan that opens into the dining room to the south, which occupies the northwest corner of the living room (Photo 13). Appointments in the kitchen are in original condition with the exception of the original Formica countertop, which was replaced with another newer Formica countertop. The dining room and living room occupy a single open space, though the ceiling above the dining area is lowered to define it. The glazed south wall of the living room contains a set of French doors that, when open, provide a seamless threshold continuum between inside and outside. Between the east wall of the living room and the west wall of the fireplace is a walkway aligned with the entry (Photos 10 & 14).

Like Wright's Usonian residences, Beal's house has a multifaceted fireplace as the dominant element in the living area (Photo 15). Occupying most of the north wall, this central stepped-hearth fireplace is large enough to contain a small mechanical room on the north side where a contemporary boiler and pump system supplies hot water to the original copper pipe-lined radiant floor heating system.[5] In addition, a large exhaust fan behind the chimney draws air in through screened awning windows and out through a

[5] The floor boiler was upgraded to a computerized system in 2013 when the original mechanical system failed after 63 years of use. Floor pipes in the two bedrooms failed in 2014 and were replaced with hot water radiators connected to the boiler system. The rest of the original house floor gravity system is still in use. The bedroom failure was probably due to foundation ground shifting during years of drought.

ceiling grill near the hearth, cross-venting the entire house in the days before residential air-conditioning (Photo 14).[6]

The private spaces are accessed along a hallway to the immediate east of the entry. Along the north side of the hallway are closets (Photo 12). The first room on the south is a bedroom (Photo 15). The easternmost room was originally designed as Beal's office and drafting studio ("study" on the floor plan); it currently functions as another bedroom (Photo 17). This bedroom has a windowed-door leading to the east concrete terrace (Photo 17 & 18). The hallway terminates on the east at the full bathroom, tucked into the northeast corner of the house (Photos 12 & 19).

Windows are strategically placed throughout the house to maximize privacy and solar heat gain, when needed, and to provide natural light to every space. The hallway and full bathroom have clerestory awning windows on the north side that borrow indirect natural lighting (Photos 12 & 19). The entire south elevation is comprised of wood-framed, floor-to-ceiling fenestration, which includes double-pane clerestory windows, stacked awning windows and large plate-glass windows, accentuating the indoor/outdoor dynamic of the house's design (Photo 20). The double-pane glass in the clerestory windows helps contain gravity heat in winter. Other than a clerestory window at the south end of the west elevation, there is a double-casement window above the sink on the west (public) elevation (Photo 7). The extensive use of glass provides an abundance of natural light in all rooms and gives the house a feeling of lightness, especially when illuminated at night.

Beal's design is organized on a 5'x5' geometric grid, or unit system, throughout the entire house. This grid is expressed in a pulse repetition of squares and rectangular angles – a typical Usonian motif.[7] The structural grid is celebrated in the large exposed redwood cantilevered roof beams and in the columns on the south elevation that define the window bays and support the roof, as well as in the posts supporting the north end of the roof. The scoring pattern of the concrete floor and terraces further defines the grid, as the 5'x5' red floor squares align with the glass French doors, two large middle picture windows, and end rows of vertically-stacked awning window sets in the living room. This grid motif is also expressed in smaller details: there is a large mirror on the wall below an awning window over a 5'x5' squared floor below the sink in the bathroom (Photos 5 & 19).

Interior fixtures and finishes are consistent throughout the house. The concrete floor is painted Cherokee Red, a color carried outside to the south terrace (Photo 21).[8] Wooden interior walls are horizontal board-and-batten of knotty pine and mahogany (Photo 22). Between the redwood roof beams, the ceiling is comprised of horizontal oak planks. Light fixtures are recessed in the ceilings and walls throughout the home. The soft ceiling-reflected florescent lights were also innovative inside Wright-styled wooden cove deck bands. The house was designed with considerable built-in storage, especially along the corridor, and higher cabinets towards the ceiling. The bedrooms also contain adequate built-ins.

Beal adapted other ideas from Wright to make his own Usonian house on Indiana Street. Virtually the entire plumbing and electrical system for the house is hidden, but accessible, inside the fireplace's lower hanging ceiling space. The lower ceiling is encased with plywood, a new pre-fabricated modern building

[6] Besides an outdated window unit in the lower west living room vent window, there is a newly-installed split air unit above the ceiling light in the back bedroom. The compressor unit is on a pad on the back terrace. When the present living room unit fails it could be replaced by a more efficient split window unit which would probably improve both the sight and function there. While there were two window units in 1971 when the Charltons bought the property, Betty Jo Charlton always hated air conditioning, so more was not considered.

[7] Wright's organic term "habit-pattern" described the natural patterns which innately determine all organisms. [See John De Koven Hill, "The Poetry of Structure," *House Beautiful* (November 1955): 247.] Wright also liked to compare his own architectural designs to the musical structures developed in classical symphonies. [See Frank Lloyd Wright, *House Beautiful* (November 1955): 242 & Curtis Besinger, "How Frank Lloyd Wright Used Music," *House Beautiful* (October 1959): 50.]

[8] Cherokee Red was Wright's favorite color.

material at the time. The concrete used for the floors was also a specific type that Wright chose for his Usonian radiant heat systems, as was the copper piping embedded in the concrete to circulate the hot water from the boiler system. The fine grain sand in the concrete helped evenly spread and maintain heat while providing a smooth, tile-like finish.

While Beal freely borrowed Wright's Usonian principles, his design took the concept a step further by engineering the roof, using measurements from his heliodon, to create a site-specific house, which is esteemed as Lawrence's best example of Mid-century Modern architecture.[9]

[9] This ranking is based upon a survey done by Lawrence Modern. http://lawrencemodern.com/bakers-dozen/university-place/ Lawrence Modern is a group of professionals dedicated to raising awareness and promoting preservation of midcentury and modern architecture in Lawrence, Kansas.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [ ] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [x] B Property is associated with the lives of persons significant in our past.
- [x] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)
Property is:

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [ ] G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance
Architecture
Engineering

Period of Significance
1950-1968

Significant Dates
1950-1951

Significant Person
(Complete only if Criterion B is marked above.)
Beal, George Malcolm

Cultural Affiliation
N/A

Architect/Builder
Beal, George Malcolm (architect)
Still, Robert (builder)

Period of Significance (justification)
The period of significance, 1950-1968, represents the years George Beal created and resided at this house.

Criteria Considerations (justification)
N/A

Narrative Statement of Significance

Summary

Lawrence's George Malcolm Beal House is nominated to the National Register of Historic Places under the *Historic Resources of Lawrence* as an excellent example of a Single-family Residence: Contemporary House property type. It is nominated under Criterion B for its local association with George Beal, who designed and resided here while shaping the transition of the University of Kansas's architecture program from classical to modern. The Beal House is also nominated under Criterion C for its architecture and engineering. Beal expanded upon Frank Lloyd Wright's Usonian design principles by engineering his house to take full advantage of solar gain in winter and shade in summer with his site-specific calculations for the roof overhang in relation to the nearly all-glass southern elevation. His calculations were derived from an original heliodon astronomical instrument he designed and built for early sustainable design classes at K.U. The house's period of significance currently spans from 1950, the year Beal began designing it, to 1968, when George and Helen Beal moved to the K.U. Sprague retirement apartments on campus. Though her association is outside the period of significance of this nomination, State Representative Betty Jo Charlton resided here from 1971 to 2014. Representative Charlton was the first woman legislator from Lawrence, serving from 1979 until 1994.[10]

Elaboration

Lawrence was settled in 1854, the same year Kansas Territory was established. Nine years later, in 1863, the Kansas Legislature established the University of Kansas, two years after statehood. The core of the campus is still located on the ridge of Mount Oread. University Place, the subdivision in which the Beal House is located, is located on the south slope of Mount Oread.

The development of University Place began with the construction of a large Italianate house at 1645 Louisiana Street, one block east of the Beal House. The brick house was built in the early 1870s for a racehorse breeder, Benjamin F. Akers, and included a long racetrack at the base of the hill extending from now Lawrence High School westward nearly to Naismith Drive.[11] When Aker died in 1880 the property was sold and annexed into the city and platted for development. The district was then called University Place. During the first few decades of the 20th century, the University Place neighborhood filled with residences for the faculty of the growing university on Mount Oread due to its proximity to campus. Before building 1624 Indiana, Professor George Beal and his wife, Helen, lived in a small bungalow in the next block south at 1710 Indiana.[12]

Besides Beal, that area of the neighborhood housed several K.U. architecture faculty members, especially along on Louisiana Street below the Chancellor's Residence. Faculty who resided here include: Goldwin Goldsmith, Stephen Grabow, architects David Evans and Bob Gould, and a more recent house designed by K.U. architecture professor Dan Rockhill. Curtis Besinger, one of Beal's former students and Taliesin Fellow for 16 years, lived on Edgehill Road.

[10] Further elaboration of the house's association with Representative Charlton could merit an amendment to the period of significance in future. Her association with the house will be briefly discussed below.

[11] The 1873 atlas of Douglas County shows the "Training Ground of the Kansas Stud Farm" at this location. F.W. Beers, *Atlas of Douglas Co. Kansas* (New York: F.W. Beers & Co.,1873), 8.

[12] Information found in the George M. Beal Collection, University Archives, PP 179, Kenneth Spencer Research Library, University of Kansas Libraries.

Criterion B: Professor George Malcolm Beal[13]

George Malcolm Beal (1899-1988) was born in Topeka, Kansas, where he attended high school (1914-1918). He served in the U.S. Navy from 1918-1920, then attended the University of Kansas, graduating with a B.S. in architecture and a B.S. in architectural engineering. In 1925 Beal was hired by K.U. as an instructor of architecture. After marrying Helen Rutledge in 1926, the couple moved to Paris, France for Beal to complete a certificate in architecture at the Fontainebleau School of Fine Arts.[14] He returned to K.U. in 1928 as an associate professor of architecture. Beginning in the late 1920s, Beal helped transform the architecture program's focus from Classicism to Modernism. He was the first K.U. architecture professor given permission to teach non-classical courses in 1928. This was the first modern academic teaching nationwide as well, as Columbia University was the next to do this, in 1935.[15]

The 1930s were productive years for Beal. In the summer of 1934, he joined Frank Lloyd Wright in Wisconsin as an honorary Taliesin Fellow, becoming the only known academic architect to do so.[16] In 1936 Beal was appointed full professor of architecture at K.U., and in 1937 he designed the Chewning House, the first all-electric and contemporary house in Lawrence (Figure 6). He developed his Inside-Outside Heliodon in 1938 for his classes at K.U. The next year Beal returned to Taliesin with his former student, architect Curtis Besinger.

Beal reenlisted in the U.S. Navy in 1941, serving in World War II. After the war he returned to K.U. and became chairman of the architecture department in 1945; he held the chairmanship until 1962 when he became director of the university's architectural service. In 1968 the Beals moved from their house on Indiana Street, and George retired in 1970.

During his tenure at K.U., Beal taught modern architecture and hired modernist professors there once he became Department Chair. He left a legacy of students who became faculty and local and regional modernist architects including: John C. Morley, Dana Dowd, Robert Hess, Warren Heylman, Warren Corman, Richard Peters, among others, who designed most of Lawrence's best Mid-Century Modern houses.[17]

Besides Modernism, Beal's research and application of solar energy in architecture and engineering led K.U. into contemporary concepts of sustainability. In the preface of a 1957 essay published in the *K.U. Bulletin of Engineering and Architecture*, Beal wrote:

> The utilization and control of sunlight in and around buildings, park and recreational areas and out on the highway is of growing importance to all of us. Sunlight, or lack of it, establishes for man in his daily round of activities positive or negative values in health, in economy and in the basic emotional and intellectual delights of living. In order to aid this expanding desire that people have to make more understanding use of the sun's energy, this review of the development of sun machines is presented with special attention given to the Inside-Outside Heliodon that was designed and built at the University of Kansas for use in the Department of Architecture.[18]

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[13] Records of all of Beal's career activities are available at: George M. Beal Collection, University Archives, PP 179, Kenneth Spencer Research Library, University of Kansas Libraries.

[14] Not to be confused with the centuries-old École des Beaux-Arts in Paris, the Fontainebleau School of Fine Arts was founded in 1923. More information is found at the school's website: http://www.fontainebleauschools.org/history/index.html (accessed July 30, 2015).

[15] John Sergeant, *Frank Lloyd Wright's Usonian Houses: The Case for Organic Architecture*, (New York: Witney Library of Design, 1976), 119.

[16] Ibid., 100; the Beal Collection contains letters between Beal and Wright from the spring 1934 indicating his fellowship occurred in the summer 1934.

[17] Examples of these houses are available at Lawrence Modern's website, http://lawrencemodern.com/bakers-dozen/ (Accessed 07/28/2015).

[18] George Malcolm Beal, "Natural Light and the Inside-Outside Heliodon," *The Bulletin of Engineering and Architecture* 38 (Lawrence, Kansas: University of Kansas Publications, 1957), preface.

Beal was referring to the device he designed for teaching, which he also used in the design of his house at 1624 Indiana St.

Beal was fascinated with harnessing the sun's energy. In 1931 his architecture classes developed a set of charts that measured the seasonal variations of the sun's movement. These sun charts were used to calculate the eave depths for his 1935 Chewning House in Lawrence. His fascination with solar energy led him to develop a design for what he called the "Inside-Outside Heliodon," which was a solar simulator for architectural scale models (Figure 7). In his account of his invention, Beal credits an earlier British model, the Dutton-Beckett Heliodon (1931). Beal's heliodon innovation, besides more modern design and portability, included an adjustable mirror below the glass-top table, supporting the model to see light going inside as well as on the outside of the model, hence the Inside/Outside Heliodon. Previous heliodons did not have this feature to measure light going inside the model. He finished his designs in 1938 and got support from K.U. to build his own model in 1939. He soon began receiving inquiries about his plans from academics around the country, first from Texas A&M and Lawrence College in Wisconsin in 1940. His design was described in *Architectural Forum* in 1941 as the first of its type of heliodon.[19] He received inquiries about it from Harvard and Princeton in 1941 as well as from the University of Oregon. After returning to K.U. from the war he continued receiving correspondence about it from Notre Dame and the University of California in 1949, Universities of Florida and Colorado in 1949 and 1952, Iowa State and University of Michigan, and Johns Hopkins in 1953, and another drawings request from Roorkee, India in 1955. He also provided drawings on request from the Building and Civil Engineering Department in Nottingham, England in 1959. Beal wrote *Natural Light and the Inside-Outside Heliodon* in 1956, including his calculations, plans and photographs and copyrighted it as a University of Kansas publication in 1957. His home at 1624 Indiana was the only house he built using his heliodon.

Criterion C: Architecture & Engineering

Using his own innovations, George Beal adapted Frank Lloyd Wright's organic architecture principles to create the best, if only, example of Usonian architecture in Lawrence.[20] The Usonian house was Wright's own response to his earlier Prairie houses, "for while Wright wished to reshape domestic architecture totally and to make this new 'democratic' architecture available to the middle classes, what he was actually being called on to do was to design isolated homes of wealthy businessmen."[21] Writing in his 1932 autobiography, Wright describes his Usonian house by first stating what it was not:

> Now what can be eliminated? These:
> 1. Visible roofs are expensive and unnecessary, though desirable.
> 2. A garage no longer necessary as cars are made. A carport will do, with liberal overhead shelter, walls on two sides. Detroit still had the livery-stable mind. It believed a car must be stabled - no longer.
> 3. The old-fashioned basement, except for a fuel and heater space, always a plague spot. A steam-warmed mat four inches thick laid directly on the gravel or broken stone filling, the walls set upon the same, is better.
> 4. Interior "trim" no longer necessary.
> 5. No radiators, no light fixtures. We will heat the house the "hypocaust" way, gravity heat, make the wiring system itself the light fixtures, light upon and down the rooms. Light will thus be indirect, except for a few outlets for floor lamps.

[19] *Architectural Forum* 74 (June 1941): 68.

[20] Sources are mixed on the root of this word. John Sergeant, in his book *Frank Lloyd Wright's Usonian Houses*, says, "The name 'Usonia' presents a slight mystery. … It has been suggested that Wright picked up the name on his first European trip in 1910 when there was talk of calling the U.S.A. 'U-S-O-N-A,' to avoid confusion with the new Union of South Africa" (16). Architectural historian Leland Roth states that Usonian is a "term [Wright] coined from *USA* to express a broad domestic American agrarianism" (*American Architecture: A History* 387).

[21] Leland M. Roth, *American Architecture: A History* (Boulder: Westview Press, 2001), 385 & 387.

6. Furniture, pictures and bric-a-brac unnecessary because walls can be made to include them or be them.
7. No painting at all. Wood best preserves itself. A casting of clear resinous oil would be enough. Only the floor mat of concrete squares needs waxing.
8. No plastering in the building.
9. No gutters, no downspouts.[22]

The Usonian house was Wright's experiment in creating mass-produced, inexpensive housing for his utopian Broadacre City. As architectural historian Leland Roth writes:

> During the lean years of the Depression Wright set about to devise a new social system in which all citizens lived on the land, in compact model houses that fully incorporated mechanized prefabrication, thus making them available to all. Between 1931 and 1935 this visionary Broadacre City took shape. Broadacre City had individual single-family houses on one-acre sites, with scattered industries and public services made accessible by automobile. A detailed color model of Broadacre City and some of its individual component buildings was exhibited during the 1930s and discussed in print. What Wright had succeeded in doing was merging the agrarian Jefferson myth with a growing pervasive desire to escape the city, and, though he had little to do with it directly, after the Second World War his Broadacre City became a sprawling reality around every major urban area….[23]

As previously mentioned, Beal became a Taliesin Fellow in Wisconsin in 1934 during the time Wright was completing his first Usonian designs, the first of which was the 1936 Herbert Jacobs House (Figure 8). The two remained friends and professional colleagues until Wright's death in 1959.

As an engineer, as well as an architect, Beal expanded on Wright's organic philosophy and aesthetic by scientifically calculating how to incorporate the indoor-outdoor interface into architecture. Nowhere is this more evident than in his house at 1642 Indiana. The Beals purchased the property while residing at 1710 before World War II. One can imagine Beal walking from this older house to his office in Marvin Hall every day, looking at his lot just above the great white pine trees below the southern slope and visualizing his future house. One can also imagine the discussions of his future house while hosting the Wrights and the Taliesin Fellowship as they migrated back and forth each year between Wisconsin and Arizona. Beal knew Wright's first imperative of organic architecture, "the character of the site is the beginning of architecture" and also his dictum, "organic architecture improves its site."[24] For Beal this site allowed him to design a house by implementing his own heliodon design.

While Beal closely followed Wright's Usonian principles described above, the use of his heliodon significantly improved the house's utility. Beal's heliodon tracked the sun's path over the house throughout the year. In contrast to Wright's flat roofs, Beal applied a shed roof to his house not only for its structural simplicity but also to address solar concerns. While Wright often took advantage of southern exposure for solar gain when the property sites allowed it, his usage of sunlight was always primarily for aesthetic and philosophical enhancement of his organic indoor-outdoor design. Beal's shed roof was highly engineered to allow for the sun's path to track across inside the clerestory windows of the southern exposure during its winter crescent for the fullest solar gain to his house. His cantilevered, overhanging southern roof also shaded the entire house during the sun's zenith in the hot Kansas summers. The low eave of the shed toward the north, minimizes the building's surface area and heat loss. In a 1979 interview with the *K.U. Alumni Magazine*, Beal

[22] Frank Lloyd Wright, *An Autobiography* (London, England: Longmans, Green & Co., 1932), 516-517.

[23] Roth, *American Architecture*, 387. Many of Wright's designs were publicized in *House Beautiful* after World War II and significantly, though indirectly, impacted the way Americans live today; although, his Taliesin Studios built only 65 Usonians nationwide [Frank Lloyd Wright, *Architectural Forum* 88 (January 1948): 65].

[24] John de Koven Hill, "The Character of the Site is the Beginning of Architecture," *House Beautiful* 98 (November 1955): 248-49.

recalled many winter days when "the boiler was never switched on — the sun was heating the house."[25] Beal's use of the heliodon was a unique and important advance on Wright's organic design principles.

Unique among all other Usonians, the Beal House client was the architect – the only Usonian house ever so designed and built as such anywhere, extant or not.[26] Being his own architect allowed Beal to apply Wright's Usonian principles without compromise. One could say his larger kitchen than the usual Wright 'work space' may have been a concession to his wife, Helen's, wishes.[27] Beal's house is a unique hybrid of Wright's Usonian principles designed by an architectural-engineering teacher who knew them as originally intended by Wright.

Robert Still, Builder

The Beal House was built by Lawrence master craftsman Robert Still. Still enrolled in architecture at K.U. in 1939 with George Beal on the faculty, but shortly after the start of World War II, he enlisted in the U.S. Navy. After the war, Still worked in his father's contract business in Lawrence and later returned to K.U. to complete his B.S. in architecture in 1969. He became architectural project manager for the construction of Kansas City International Airport. He was also assistant director for the City of Lawrence Urban Renewal Project and an Improvement Analyst for K.U.'s Facilities Planning department until he retired in 1987. His custom Lawrence houses were locally known as "Still-Built." As Wright promoted for his Usonian owners to be involved with building their homes, George Beal was closely involved during his house building. As he told the future owner Betty Jo Charlton, he "personally selected each board of lumber" that went into the construction of 1624 Indiana. It is all on view, both inside and outside.[28]

State Representative Betty Jo Charlton

The Beal House was also the home of Lawrence's first woman State Legislator, Betty Jo Charlton, from 1971 until her death in July 2014. Robert and Betty Jo Charlton are credited with the foresight to purchase the house and maintain it while not changing the original features Beal designed and built (Figure 9). Its present condition is mainly due to Betty Jo's diligent care and appreciation for it.[29]

Betty Jo came to Lawrence after work drafting for Boeing in Wichita, Kansas during World War II. She enrolled as one of the first women in the K.U. Engineering School, so she knew about George Beal there. She was hired by Glenn Charlton at Charlton Insurance Agency as his secretary and met his son, Robert, there upon his return from military service during the war. They married and had two sons, interrupting her degree. Betty Jo eventually returned to K.U. to finish her B.A. and complete a M.A. in political science. She became active in local politics and helped revitalize the Douglas County Democratic Party from over a century of moribund state.

In 1979 she was appointed to fill a vacated seat in the Kansas House by Governor John Carlin and served seven more terms before retiring in 1994. During her tenure in Topeka she was an original sponsor of the Kansas Land Trust Act while on the Energy & Natural Resources Committee, gained a Turnpike exit at Lecompton, Kansas while on the Transportation Committee, and became the senior minority member of the

[25] "A Professor Becomes a Prophet," *Kansas Alumni* 78 (November 1979): 29.
[26] With the exception of the Beal House, all Usonians were designed by Wright.
[27] The Beals' kitchen was large compared to other Usonian kitchens (work spaces) in much larger houses.
[28] Nimz, Dale, *Historic Resources of Lawrence, Douglas County, Kansas,* Amended Submission (Topeka: Kansas Historical Society, 2013), E-22.
[29] Mrs. Charlton visited George Beal at the Sprague apartments after his wife, Helen, died to learn more about the house design and construction. He gave her his blueprints for it, which are now with the house and also in Beal's archive in K.U. Spencer Library. It was her original intention to nominate the house to the National Register of Historic Places.

House Appropriations Committee, which approved all final annual State budgets, including K.U.'s. Her legislative record is public and her own files are archived at the Kansas Historical Society in Topeka. In 2001 the Kansas House issued a commendation, introduced by the Lawrence Republican Representative, Tom Sloan, for her service there over those many years.

During the Charltons ownership of the Beal House, K.U. architecture professors requested her to allow their students to tour 1624 Indiana and see the Usonian architecture in its precisely articulated form. Betty Jo readily granted them access to the house and grounds. When she was serving in Topeka during yearly legislative sessions, she left a typed house description and history for the students to read as they toured around outside and viewed the interior through the open southern glass walls. Occasionally students returned to request purchase rights to the property, which she always politely declined.

Betty Jo was also involved locally, besides at her own home, with the Lawrence Preservation Alliance as an original supporter and as a board member for the Douglas County Historical Society at the Watkins Museum in downtown Lawrence for many years. Her last years were spent curating 1624 Indiana as its owner and receiving visits from many Douglas County Democratic office holders and candidates coming there for advice and her endorsement. She died at age 91 in her home as she wished. Her obituaries include testaments by political figures, like former Governor Kathleen Sebelius, Senator Marci Francisco, and fellow Lawrence Representatives, Barbara Ballard and Tom Sloan. They also included university tributes from Professors Francis Heller, James Seaver, and former Chancellor Gene Budig.[30] The Beal house is now owned, maintained and lived in by her oldest son, John Robert Charlton, who is committed to preserving the house as George Beal designed it.

Summary

The Beal House is an outstanding example of Usonian architecture in Lawrence, Kansas. Using his own heliodon design, Beal's site-specific design expanded on Wright's organic philosophy and aesthetic by scientifically calculating how to incorporate the indoor-outdoor interface into architecture. Beal designed and built this house while Chair of the Architecture Department at the University of Kansas where he influenced the transition of the program from Classicism to Modernism. His house remains intact with the original integrity left by George Beal in 1951.

[30] Cremation Center of Kansas City, "Obituary for Betty Jo Charlton" (July 2014), available at: http://www.cremationcenterkc.com/betty-jo-charlton/ (Accessed July 30, 2015).

9. Major Bibliographical References

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Previous documentation on file (NPS):

____preliminary determination of individual listing (36 CFR 67 has been requested)
____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 # _____
____recorded by Historic American Landscape Survey # _____

Primary location of additional data:

_X_State Historic Preservation Office
____Other State agency
____Federal agency
____Local government
_X_University
____Other
Name of repository: **Kansas Historical Society**
University of Kansas, Spencer Library

Historic Resources Survey Number (if assigned): _____n/a_____

10. Geographical Data

Acreage of Property Less than one acre

Provide latitude/longitude coordinates OR UTM coordinates.
(Place additional coordinates on a continuation page.)

Latitude/Longitude Coordinates
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)

1 38.954335 -95.242671

Verbal Boundary Description (describe the boundaries of the property)
The boundaries of the site include the entire 1/3-acre parcel described as: SOUTH LAWRENCE DESCRIPTIONS BEG 139.5 FT W OF NE COR LT E BLK 1 UNIVERSITY PL N 100 FT W 142.5 FT S 100 FT E 142.5 FT

Boundary Justification (explain why the boundaries were selected)
Because the site was integral to the house's design, the entire parcel is included in the nomination.

11. Form Prepared By

name/title John Charlton (owner) with Amanda Loughlin (KSHS)

organization Owner date June 2015

street & number 1624 Indiana St. telephone (785) 393-0321

city or town Lawrence state KS zip code 66044

e-mail charlton@ku.edu

Property Owner: (complete this item at the request of the SHPO or FPO)

name Same as above

street & number _____ telephone _____

city or town _____ state _____ zip code _____

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Additional Documentation

Submit the following items with the completed form:

Photographs

Photograph Log

Name of Property: **Beal House**

City or Vicinity: **Lawrence**

County: **Douglas** State: **Kansas**

Photographer: **John Charlton (JC) & Amanda Loughlin (AL)**

Date Photographed: **February 2015 (JC) & August 2015 (AL)**

Description of Photograph(s) and number, include description of view indicating direction of camera:

01 of 25: Looking NE at west and partial south elevation, showing terrace and roof overhang (JC).
02 of 25: Looking SE from Indiana St., showing house in landscape context and white pines (JC).
03 of 25: Living room, view WSW, showing window configuration and tracery views of pine trees (JC).
04 of 25: Driveway on west side of house (AL).
05 of 25: South terrace, looking north towards house (AL).
06 of 25: East terrace steps, looking north (AL).
07 of 25: West elevation (JC).
08 of 25: Construction detail of mitered corner (AL).
09 of 25: North elevation, showing entry door on right and integral tool shed on left (AL).
10 of 25: View south into living room from entry (AL).
11 of 25: View east into kitchen from entry (AL).
12 of 25: View west from entry into hallway (AL).
13 of 25: View west from east wall of living room; dining area located at right in background (JC).
14 of 25: View north from living room to entry; exhaust grill visible in ceiling (AL).
15 of 25: South face of fireplace in living room (JC).
16 of 25: West bedroom, looking SW; built-ins along window wall (JC).
17 of 25: East bedroom/Beal's office, looking SE; exterior door visible on left (JC).
18 of 25: East elevation (AL).
19 of 25: Bathroom, looking NE (JC).
20 of 25: South elevation, looking NW (JC).
21 of 25: Scoring detail in living room floor (AL).
22 of 25: Typical interior wall surface detail (AL).
23 of 25: Looking west at south elevation in winter (JC).
24 of 25: Looking west at south elevation in summer (AL).
25 of 25: Looking west at yard to south of house (AL).

Figure 1. 2015 Aerial image, showing Beal House to southeast of K.U. campus (Google Maps).

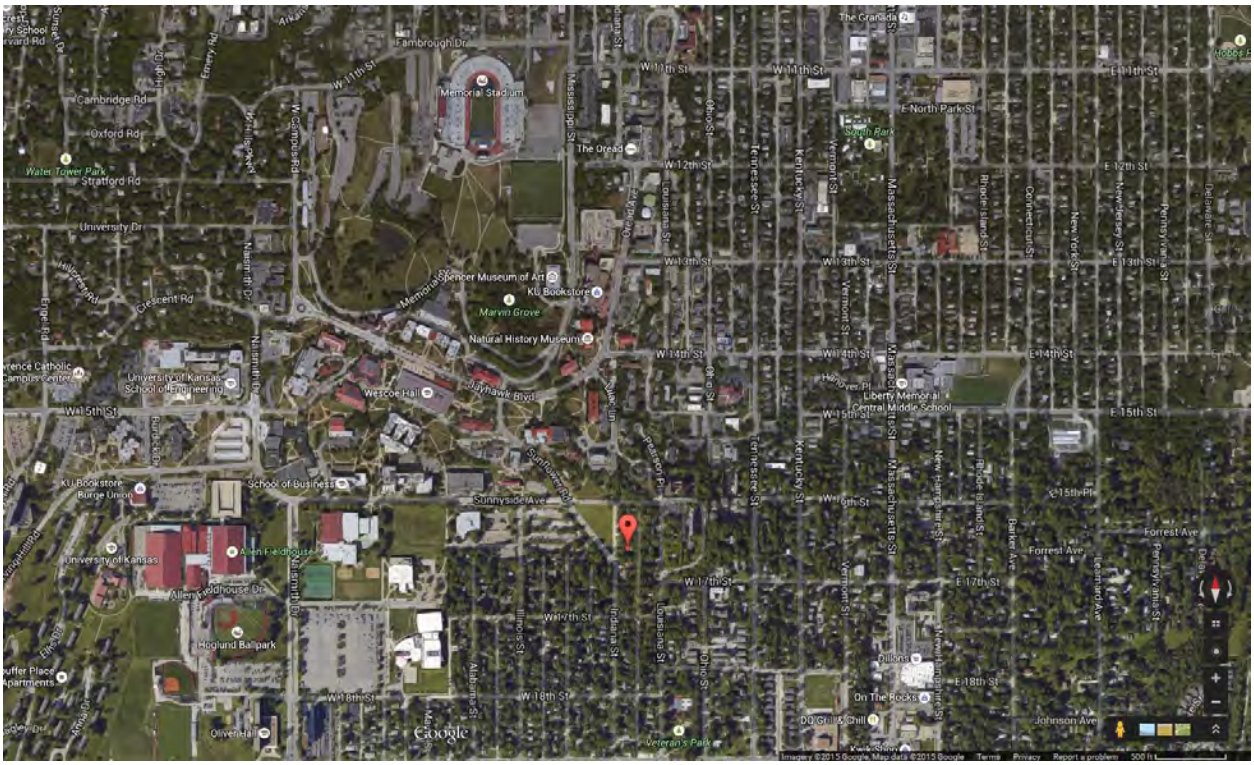

Figure 2. 2015 Aerial image of parcel (Douglas County, Kansas, GIS online). North is up.

Figure 3. Site Plan. February 1950. Larger version available from Lawrence Modern: http://lawrencemodern.com/bakers-dozen/university-place/architectural-drawings/ The white pines to the south are still extant.

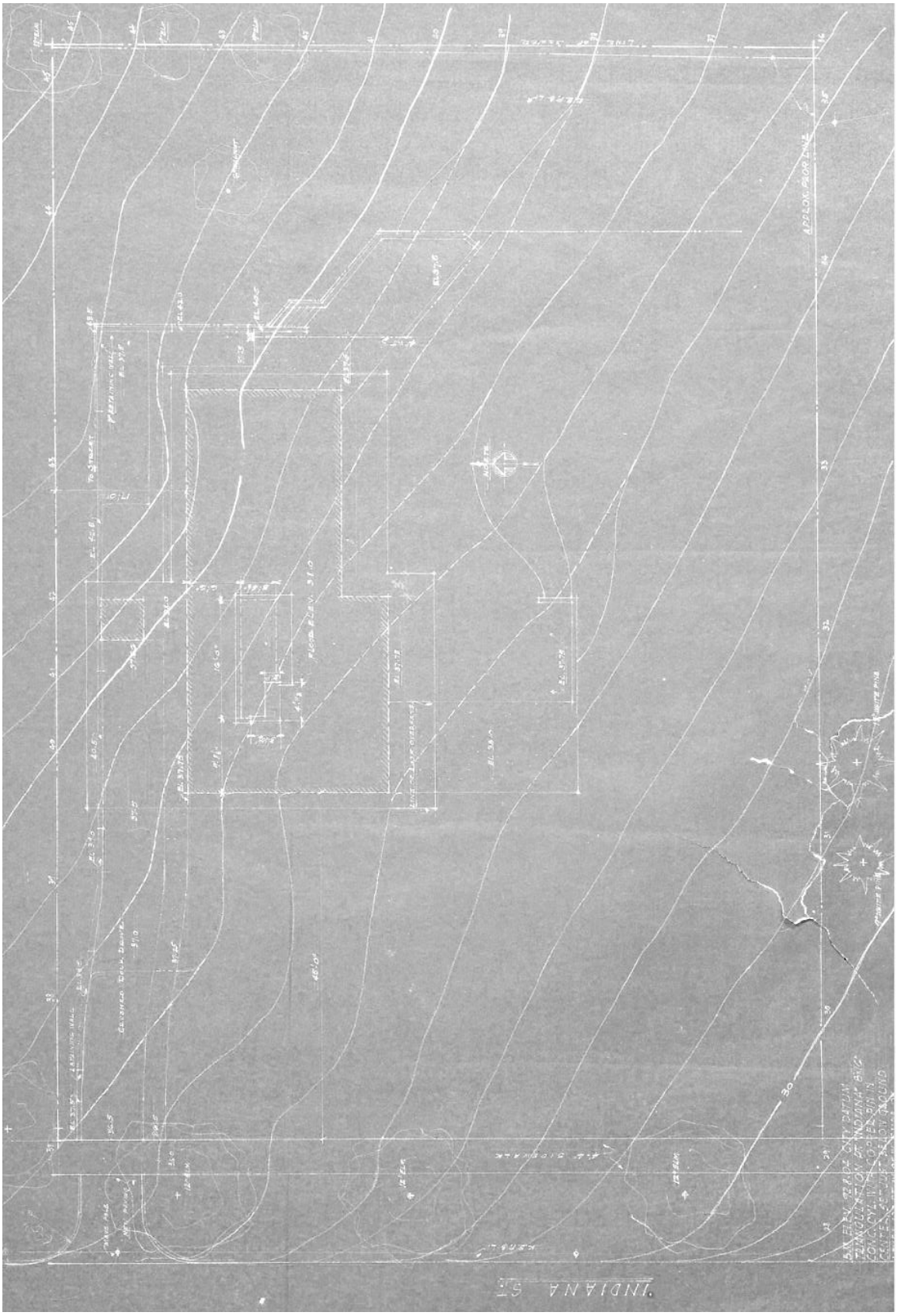

Figure 4. Floor Plan. February 1950. Larger version available from Lawrence Modern: http://lawrencemodern.com/bakers-dozen/university-place/architectural-drawings/

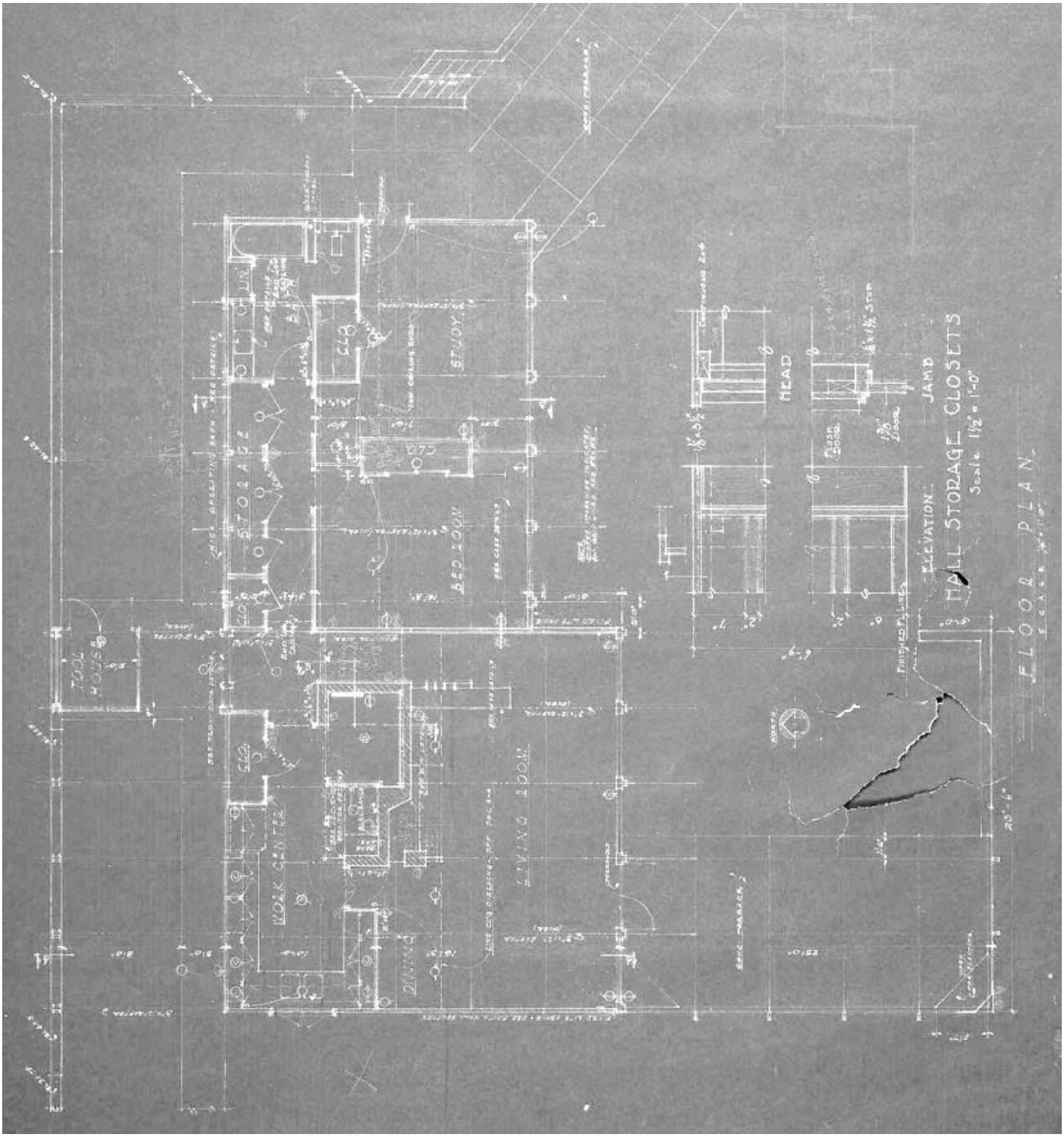

Figure 5. 1951 view of south terrace without plantings (photo provided by owner).

Figure 6. Chewning House. 1937. Designed by George Beal. Photo from Lawrence Modern.

Figure 7. George Beal demonstrating his Inside-Outside Heliodon, 1953. Photo from: http://lawrencemodern.com/bakers-dozen/university-place/heliodon/.

Figure 8. Herbert Jacobs House designed by Frank Lloyd Wright. Photographer: James Steakley, 2009. Accessed from https://commons.wikimedia.org/wiki/File:First_Jacobs_House_back.jpg (Accessed 07/28/2015).

Figure 9. South elevation in 2014 (top) and 1951 (bottom). Top image by John Charlton; bottom image from Lawrence Modern (http://lawrencemodern.com/bakers-dozen/university-place/post-construction-photos/).

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