NPS Form 10-900
Oct. 1990

OMB No. 10024-0018

NATIONAL REGISTER
LISTED

JUN 27 2007

United States Department of the Interior
National Park Service

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 *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A) Complete each item by marking "x" in the appropriate box or by entering the information requested. If an 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 entries and narrative items on continuation sheets (NPS Form 10-9000a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

Historic name Double Hyperbolic Paraboloid House

Other name/site number Dean, Donald, House

2. Location

Street & number 934 West 21st Street ☐ not for publication

City or town Lawrence ☐ vicinity

State Kansas Code KS County Douglas Code 045 Zip code 66046

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant ☐ nationally ☒ statewide ☐ locally. (☐ See continuation sheet for additional comments.)

Patrick Zollner 5/14/07

Patrick Zollner, Deputy State Historic Preservation Officer Date

Kansas State Historical Society

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See continuation sheet for additional Comments.)

Signature of commenting official /Title Date

State or Federal agency and bureau

4. National Park Service Certification

I herby certify that the property is | Signature of the Keeper | Date of Action

☐ entered in the National Register.
☐ See continuation sheet.
☐ determined eligible for the National Register
☐ See continuation sheet.
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other, (explain:)

Double Hyperbolic Paraboloid House
Name of Property

Douglas County, Kansas
County and State

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		buildings
		sites
		structures
		objects
1		total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

n/a

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/Other

Materials
(Enter categories from instructions)

Foundation: Concrete
Walls: Concrete

Roof: Wood; Asphalt; Rubber

Other:

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

Double Hyperbolic Paraboloid House
Name of Property

Douglas County, Kansas
County and State

8. Statement of Significance

Applicable National Register Criteria
(Mark "X" in one or more boxes for the criteria qualifying the property for National Register

- ☐ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history
- ☐ **B** Property is associated with the lives of persons significant in our past.
- ☒ **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 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 it 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 of age or achieved significance within the past 50 years

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

Areas of Significance
(Enter categories from instructions)

Architecture
Engineering

Period of Significance

1956

Significant Dates

1956

Significant Person
(Complete if Criterion B is marked above)

n/a

Cultural Affiliation

n/a

Architect/Builder

Dean, Donald Dr.
Strode, William

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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 #

Primary location of additional data:

- ☒ State Historic Preservation Office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Name of repository:

Kansas State Historical Society

Double Hyperbolic Paraboloid House
Name of Property

Douglas County, Kansas
County and State

10. Geographical Data

Acreage of Property less then one acre

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	15	305288	4313036
2			
3			
4			

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

Name/title Tom Harper

Organization n/a Date January 21, 2007

Street & number 2152 Owens Lane Telephone 785-218-6351

City or town Lawrence State Kansas Zip code 66046

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps
A **USGS map** (7.5 or 15 minute series) indicating the property's location.
A **sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs
Representative **black and white photographs** of the property.

Additional items
(Check with SHPO or FPO for any additional items)

Property Owner

Name Randy Masten and Kathleen King Masten

Street & number 1416 E. Wright Circle Telephone 202-306-5040

City or town Bolling Air Force Base D - Washington State DC Zip code 20032

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. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 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 Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503

NARRATIVE DESCRIPTION

The Double Hyperbolic Paraboloid[1] House (named for its unique roof shape) resides on a corner lot in the Centennial Neighborhood south of the University of Kansas. The address is 934 West 21st Street Lawrence, Kansas. It is truly a unique home. The current owner summed it up prior to her purchase; "it's a work of art and we get to live in it." It has been a flash point for discussion since 1956 when Dr. Donald Dean decided to construct the home for his primary residence demonstrating the economic feasibility of such a home. Standing at the northeast corner of the lot looking at the house it appears as a huge ship cutting through the suburban Lawrence landscape.

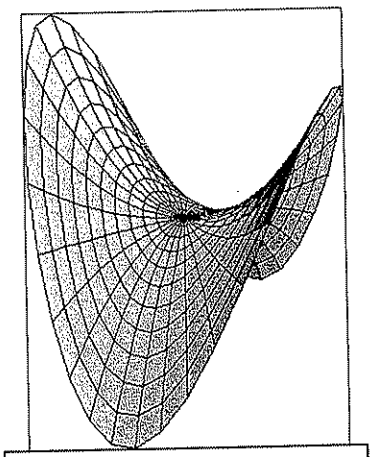


Figure 1. Hyperbolic Paraboloid

Setting

The south-facing house is located at the northeast corner of 21st Street and Alabama approximately 1 mile south of the University of Kansas in the post World War II-Centennial Neighborhood. The homes that surround the residence are predominately ranch style homes.

Exterior

The home is a one-story residence 40' x 80' on a concrete slab. The rooflines are dramatic; soaring towards the sky 25 feet and swooping down to 3 feet where three concrete pillars support the curvaceous paraboloid roof. The roof can be described as a rectangle twisted so it has six corners, three resting on supporting piers and three flaring up and out. The home was thought to be one of the first homes in the United States to utilize a wooden lattice hyperbolic paraboloid roof. The wood for the roof is 1' x 8' Douglas fir. The boards form two perpendicular layers. No rafters were used. The entire roof is suspended by box beam timbers supported by the concrete pillars. Originally, rigid foam glass insulation sprayed with a plastic roofing material protected the lattice structure. The original roof covering was replaced with tar and asphalt; subsequently in the late 1980s due to moisture problems the roof was covered with rolled rubber. The same rolled rubber roof is now keeping the house structurally sound with regular maintenance.

The exterior walls are constructed of haydite block[2] (concrete blocks) and were laid after the roof was constructed resting on the 3 concrete pillars. There are large panes of glass on the south, northwest and

---

[1] American Heritage Dictionary defines *hyperbolic paraboloid* as "a surface of which all sections parallel to one coordinate plane are hyperbolas and all sections parallel to another coordinate plane are parabolas." There are two kinds of paraboloid: elliptic and hyperbolic. The elliptic paraboloid is shaped like a cup and can have a maximum or minimum point. The hyperbolic paraboloid is shaped like a saddle and can have a critical point called a saddle point. See Figure 1.

[2] Stephen Hayde invented and patented the method of making a structural grade lightweight aggregate early in the twentieth century. The process uses a rotary kiln to pyro-process and expand clay, shale or slate. The end product is a strong and durable lightweight aggregate used in numerous types of construction throughout the world. Hayde named the product after himself.

northeast corners of the house that provide abundant natural sunlight. The windows are fixed double-glazed. The northeast corner has a sliding glass door that creates a beautiful transparency between the interior and exterior.

Interior

The front door is located on the south elevation. The carport is located at the southwest corner of the house. The roofline swoops down for a snug fit for an automobile. The master bedroom is located on the northwest corner of the house and is quite private with high windows. There is a back door on the north elevation with a space that opens up to a small / low ceiling space where the two rooflines swoop down to a concrete pillar. The previous owners called this space the "dungeon".

The floor plan was designed by University of Kansas student Allen Long in conjunction with Dr. Dean. As you walk through the front door one notices the sweeping lines of the ceiling constructed of tongue-and-groove pine. The lines lead your eye instantly from where you are standing to the other side of the house. The addition of the tongue-and-groove pine ceiling was created by Bruce Bonebrake approximately 25 years ago after the rolled rubber roof was installed. It is clear the installation of the ceiling took considerable skill and time. The original ceiling material consisted of 12"x 12" acoustic tiles that likely exhibited moisture damage.

The next feature that draws the eye is the 23-foot long brick fireplace. It is the centerpiece of the house and provides a division of space between the living room and dining room. Originally, the fireplace was brick and mortar; at some unknown date it was painted white. The top of the fireplace is oak that looks like typical oak flooring. The oak has not been painted and still retains its golden hue. The living room is a huge space measuring 35' x 23'. The ceiling swoops up to one of its highest points (14 ft) and swoops down to one of its lowest points (4 ft) in the same room. This space is most inspiring and has the sensation of a well designed place of worship.

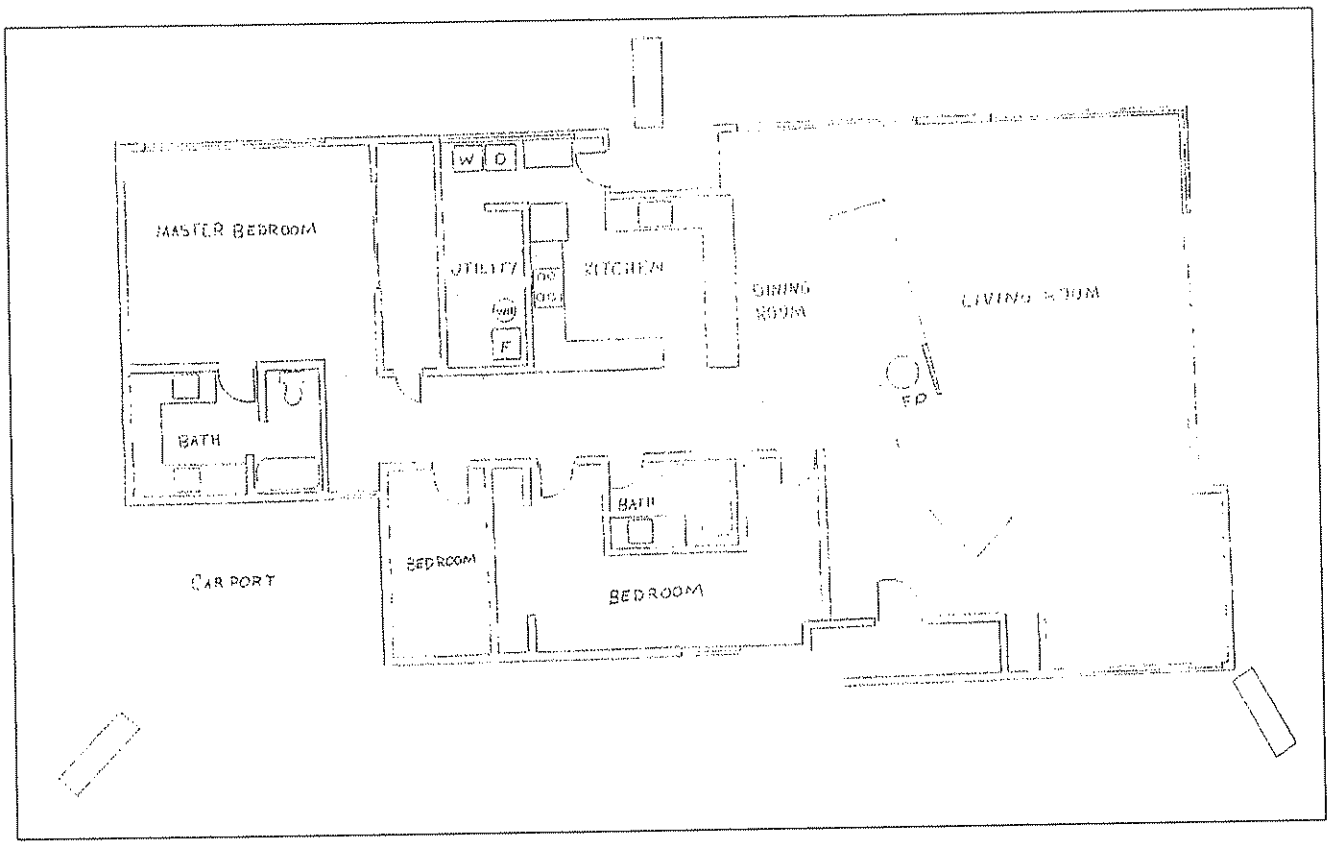
The home has three bedrooms and two full bathrooms. The walls are constructed of painted haydite block, drywall, tile and paneling. Some of the interior walls were constructed to be moveable so one could re-arrange the space to meet changing needs. The only interior wall that extends to the ceiling is the wall separating the master bathroom with the master bedroom. The other interior walls do not extend to the ceiling, which provides exceptional air circulation. The walls in the front bathroom and two bedrooms extend 8 feet and stop, giving an uninterrupted view of the beautiful ceiling. This creates a very open feeling throughout the home.

The original color scheme of the kitchen was red & white. The kitchen has been remodeled in a tasteful manner; the original cabinets are intact and have been re-painted. The utility room is located between the kitchen and the master bedroom. It contains the gas furnace, water heater and washer/dryer. The heating/cooling ducts are contained within the concrete slab.

Although the original patents have long since expired, the term "Haydite" is used by several companies in marketing their expanded shale lightweight aggregate. See www.haydite.com/.

As noted above, alterations have taken place over the years. The original outer surface of the roof covering has been replaced with rolled rubber. The acoustic ceiling tiles in the interior were replaced with tongue and groove pine during past roof repairs. The carpet flooring has been replaced with tile and high-end laminate material. In the early 1990s there were several modifications that took place: A loft platform was added to the large bedroom spanning from the south interior wall to the bathroom. This was used as a sleeping space and is now home to a large tropical plant. There was a window in this same bedroom facing south that was replaced with 4" glass blocks. There was a doorway underneath the carport that was also replaced with 4" glass blocks. In each case, the original openings were maintained and not enlarged or downsized. A breezeway was constructed of concrete blocks providing some protection to the front entrance and needed storage space. Some of the windowpanes have been replaced with insulated glass to replace the inefficient single pane glass. A small wood shed sits directly north of the house and measures 14.6 ft x 5.4 ft. It is flush with the north wall of the house and is rectangular in shape. The date of its construction is not known. The roof slopes down from the east to the west with the highest point at 6 feet. It seems to blend in well with the property and provides necessary storage.

The structure remains stable and the overall integrity of the home has been retained.



STATEMENT OF SIGNIFICANCE

The Double Hyperbolic Paraboloid House is eligible for listing in the National Register of Historic Places under Criterion C for its distinctive and experimental construction. It is a rare example of a particular building method for a single-family residence with the use of a wooden hyperbolic roof structure. During its construction some called it the first innovation in home building in 50 years, others referred to it as a fantastic departure from the conventional. Dr. Donald Dean believed it to be the "House of Tomorrow" due to its economical construction. A *Kansas City Star* article dated August 26, 1956 states "it's safe to say the unique home is now one of the most talked about housing units in the country". The home has been featured in numerous publications and in 1992 the Lawrence Preservation Alliance featured it on a tour of one of the most unusual buildings in Lawrence. Although there is at least one other example of a hyperbolic paraboloid structure that serves as a church in Ulysses, Kansas, no other residences of this design are known to exist in Kansas.

Context

The home is located on the northeast corner of 21st Street and Alabama approximately 1 mile south of the University of Kansas in the Centennial Neighborhood. The neighborhood was developed shortly after World War II. The demand for affordable housing was great due to GI's attending the University of Kansas. The U.S. Census illustrates this fact: In 1940 the Census estimated 14,390 people residing in Lawrence compared to the 1950 Census of 23,351 – a dramatic increase of 62.3 % in just 10 years.

The homes that surround the Paraboloid are predominately ranch style homes with the exception of the street directly south of the Paraboloid. Owens Lane is a cul-de-sac with 10 custom mid-century homes residing on a former 10-acre farmstead that was developed in 1951 and was named, Owens Addition. The fact that Owens Addition was nearby could have been influential to Dean's decision to build on this site in addition to the close proximity of the University of Kansas.

The demand for housing after World War II was great, and of equal concern was the cost of housing. Dean was familiar with concrete paraboloid roofs that had been constructed in Mexico by well known architect Felix Candela where labor and materials were less expensive. Dean believed higher labor costs would make the concrete paraboloid roof financially unfeasible for mass production in the U.S., so he experimented with wood lattice as his basic material for the roof construction. Dean believed the design was adaptable to volume building. He estimated two or three carpenters could build a hyperbolic paraboloid roof the size of his home in three or four days using plywood sheets for one dollar per square foot. The interior and exterior walls could be pre-fabricated.

During the 1950s the nation was eager for a "modern" way of living which included new styles of construction in addition to appliances/objects that would make life more enjoyable and efficient. Equally important was building homes in an economical manner. The infamous porcelain enameled, all metal,

pre-fabricated Lustron Homes created by Carl Strandlund, a Chicago engineer is a good example of addressing the housing shortage with cost saving volume production. It was the beginning of the "Modern Age" and anything was possible. Perhaps it is with this attitude that Dean embarked on the construction of the Double Hyperbolic Paraboloid House that would become a controversial home that continues to draw attention in the community.

Property History

The Double Hyperbolic Paraboloid House was constructed by Dr. Donald Dean and his senior students from KU's School of Engineering & Architecture in the summer and fall of 1956. It was completed in November 1956 and was the primary residence for Dean, his wife Jewel and son Philip until the summer of 1960 when Dean accepted a position at the University of Delaware.

Dean's inspiration to construct the home was first manifested in April of 1956 when the students of Architecture and Engineering at the University of Kansas constructed one of the first hyperbolic paraboloid homes designed with a structural wood lattice. The 20' x 20' model was constructed and displayed on campus for the 1956 University of Kansas Engineering Exposition and larger research project studying the use of wooden structural lattices in the form of a hyperbolic paraboloid. It was a cooperative research project sponsored by the Douglas Fir Plywood Association and was under the direction of Willard Strode, Associate Professor of Architectural Engineering and Donald L. Dean, Associate Professor of Civil Engineering.

According to the June 1958 Bulletin of Engineering and Architecture, the purpose of the project was to "demonstrate the feasibility of this type of construction, to give students an introduction to full-scale research, and to check qualitatively the adequacy of the design methods."[3] The model structure was subjected to both uniform and concentrated load tests to prove the feasibility of future home building. The article concludes about the project, "It is felt that the data compiled serves to validate the sufficiency of the design procedures herein outlined."[4]

Judging from local newspaper accounts, the construction of the house was somewhat controversial. "Some protested it as too radical, others admired the graceful lines of the roof," proclaimed a *Lawrence Journal-World* writer. "Still others have been enthusiastic about the efficiency of the structure itself, without regard to the aesthetic effect. 'I can't say much for most of these outlandish experimental designs, but I think they really have something in this hyperbolic paraboloid,' one local builder commented recently."[5] Upon the home's completion, another article ran in the Lawrence newspaper highlighting the home's uniqueness. "The most outstanding thing about the controversial house is the

[3] Willard Strode and Donald L. Dean, "Design, Construction and Testing of a Plywood Hyperbolic Paraboloid Lattice Structure," In *The Bulletin of Engineering and Architecture*, 41 (Lawrence: University of Kansas Publications), June 1958, p. 5.
[4] Ibid., p. 16.
[5] *Lawrence Journal-World*, 23 June 1956.

roof. Geometrically, it's a hyperbolic paraboloid, a rectangle twisted into a shape resembling a butterfly – with two corners flared high into the air and the other two resting on the ground." Dean said, "'We have had so many people commenting on the low corners and the awkward space caused by them that we started judging them by the vehemence of their comments.'" He added, "'Many people think the house was built only to attract attention, and it isn't practical. But that idea is far from the truth.'"[6]

Architecture & Engineering Significance

The Double Hyperbolic Paraboloid House is an example of unique, distinctive and experimental architectural construction. The period immediately following World War II was an era of experimentation for house construction, materials, and design. According to Virginia and Lee McAlester, "Most domestic building ceased between 1941 and 1945 as the United States prepared for and fought World War II. When construction resumed in 1946, houses based on historical precedent were largely abandoned in favor of new variations of the modern styles that had only begun to flourish in the pre-war years." These styles included Minimal Traditional, Ranch, Split-Level, and Contemporary.[7]

McAlester suggests that there have been "few basic changes in house construction since the development of balloon framing in the mid-19th century and the perfection of masonry veneering in the early 20th, as a look at any new housing development under construction will confirm. Many attempts have been made to change this by introducing new building techniques."[8] The Double Hyperbolic Paraboloid House in Lawrence, Kansas, is an example of an attempt to develop a new and economically feasible housing type – in the same vein as the Dymaxion House[9] and Lustron Houses.[10] While the double hyperbolic paraboloid building plan and style has proven its feasibility over 50 years, it didn't exactly become a popular building type. Most houses built in the 1950s and '60s were built with wood framing and often employed brick or stone veneer.

Hyperbolic paraboloid roofs were being used in the United States, Mexico, and Europe when Dean began construction of his home. A well-known architect to employ this building style in the United States and Mexico was Mexican architect Felix Candela who designed a number of factories, warehouses, markets,

---

[6] *Lawrence Journal-World*, 23 November 1956.
[7] Virginia and Lee McAlester, *A Field Guide to American Houses* (New York: Alfred A. Knopf, 2000), 477.
[8] Ibid, 485.
[9] The post-World War II Dymaxion House was developed by inventor Buckminster Fuller to address several failures he perceived with existing homebuilding techniques. Fuller designed several different versions of the house at different times, but they were factory-manufactured kits, assembled on site, and intended to be suitable for any site or environment and to use resources efficiently. One important design consideration was ease of shipment and assembly.
[10] In 1947, Chicago industrialist and inventor Carl Strandlund obtained a multi-million-dollar Reconstruction Finance Corporation loan to manufacture steel houses with porcelain-enamel-coated panels. The steel in the houses was an original design, including both steel framing and steel interior walls and ceiling. The promise of steel included sturdier construction, reduced maintenance, and ease of pre-fabrication. In addition, the houses were pitched as rodent-proof, fireproof, lightning-proof, rustproof and maintenance-free.

and even residences using hyperbolic paraboloid roofs.[11] However, his roof designs were constructed from reinforced lightweight concrete. Dean, with economic feasibility in mind, experimented with models using a wood lattice roof system in hopes of keeping labor and material costs down. He then constructed his house using the same method.

House and Home magazine considered the economic feasibility of this home. "Is a hyperbolic paraboloid house an answer to rising building costs? Dr. Donald Dean…thinks it is. His exhibit No. 1: an HP house with 2,700 sq. ft. of living area, built in Lawrence, Kan. for about $18,000 – including a $1,500 lot, wall-to-wall carpet in the living room, partitions, dishwasher, stove and furnace. Cost per sq. ft.: $6.70."[12] The house indeed proved its economical feasibility with a cost of $18,000 partly furnished, and, according to the February 1957 issue of *Fortune Magazine*, it had as much finished floor space as the conventional $36,000 house.

Because of its uniqueness, this house does not fit neatly into any architectural category. For the purposes of National Register documentation, this property is classified as Modern – Other. McAlester describes houses within this classification as "one-of-a-kind" structures whose architects or residents "simply want a house that is different."[13] However, the property also exhibits characteristics of the less formal style known as Googie architecture that was common in 1950s and '60s – particularly in California and Florida. According to author Alan Hess in his book *Googie: Fifties Coffee Shop Architecture*, the origin of the name "Googie" goes back to 1949 when architect John Lautner designed a coffee shop by the name of "Googie's", which had distinctive architectural characteristics. What many now know as Googie architecture incoporporates many futuristic characteristics. For instance, a characteristic of Googie architecture is the upswept or parabolic roof that seems to "ignore gravity altogether,"[14] much like that of the nominated Lawrence residence.

Regardless of its architectural classification, the house retains its historic physical integrity and stands as a fine example of a post-World War II experimental residential building type.

Dr. Donald Dean, C.E.

Dean received a B.S degree in 1949 and a M.S. degree in 1951 from the Missouri School of Mines. He earned his Ph.D. from the University of Michigan in 1955. His doctoral research concerned factors in the design of radio and television towers. He arrived at the University of Kansas in 1955 as an associate professor of Civil Engineering. He was the Assistant Dean of Engineering and later became the Dean of

---

[11] For additional information on Felix Candela see: "Mexico City Architect Establishes Link Here" *New York Times (1857-Current file)*; Sep 27, 1966; ProQuest Historical Newspapers The New York Times (1851-2003) pg. 96. "Felix Candela: Architect of Shells" *TIME* Sep 8, 1958.
[12] "Is this the mass production house of tomorrow?" *House and Home* magazine (April 1957).
[13] McAlester, 485.
[14] Haskell, Douglas. "Googie Architecture." *House and Home*, February 1952. Accessed online at www.spaceagecity.com/googie/.

Civil Engineering. In 1960, he left the University of Kansas and his Double Hyperbolic Paraboloid House to become the Chairman of the Department of Civil Engineering at the University of Delaware. He subsequently taught in the civil engineering department at North Carolina State University. He moved again to become the Dean of the School of Engineering at Illinois Institute of Technology. Dr. Dean subsequently moved to Sarasota, Florida and was the owner/founder of Pyramid Electronics. He died in 1995 of Leukemia. He is survived by his wife Jewel and son Phillip who live in Missouri. His daughter Cynthia Dean Elliott is currently living in Sarasota, Florida.

Through interviews with Phillip and Cynthia, this author was informed that Dr. Dean did not build or design any other homes in his career. He was involved with the design of bridges and towers. He enjoyed his role as a professor and was respected by his peers and students alike. His daughter shared with me that he was always very proud of the home he created in Lawrence and would be thrilled to know it is being considered for the National Register of Historic Places. It seems the Double Hyperbolic Paraboloid House was the "crown jewel" of Dr. Dean's career.

BIBLIOGRAPHY

American Heritage Dictionary.

Fortune magazine. February 1957.

Harden, Amber R. "Project #3" Unpublished paper, ARCH 600, University of Kansas, 10 November 1997.

Haskell, Douglas. "Googie Architecture." *House and Home*, February 1952. Accessed online at www.spaceagecity.com/googie/.

House and Home. April 1957.

Kansas City Star, 26 August 1956; 23 December 1956.

Lawrence Journal World, 23 June 1956; 23 November 1956; 14 May1957.

McAlester, Virginia, and Lee McAlester. *A Field Guide to American Houses*. New York: Alfred A. Knopf, 2000.

Strode, Willard, and Donald L. Dean. "Design, Construction and Testing of a Plywood Hyperbolic Paraboloid Lattice Structure." In *The Bulletin of Engineering and Architecture*, 41. Lawrence: University of Kansas Publications, 1958.

University Daily Kansan, 7 October1957; 26 February 1960.

Wylie, Hugh J. Associated Press Article published in the *Louisville (KY) Currier*, 5 January 1957.

Yoe, Tom. "Biographical Data, Dr. Donald Lee Dean." K.U. News Bureau, 1959.

VERBAL BOUNDARY DESCRIPTION

The nominated property is located at 934 West 21st Street in the Schaake Subdivision, Block 3, Lot 8. The lot is 137' x 75'.

BOUNDARY JUSTIFICATION

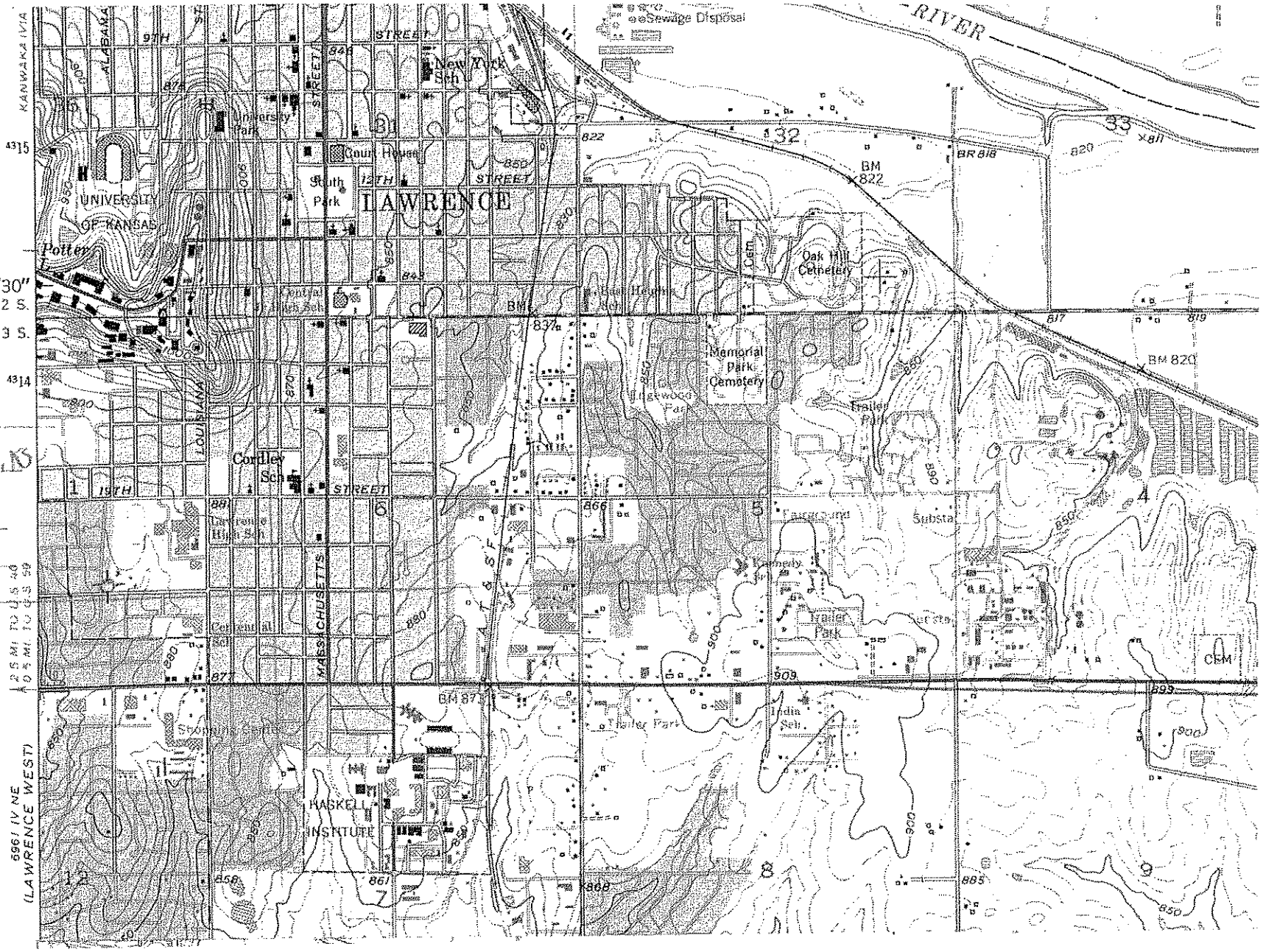
The nominated property includes the entire lot historically associated with the house.

PHOTOGRAPIC INFORMATION

Property Name: Double Hyperbolic Paraboloid House
Location: 934 West 21st Street, Lawrence, Douglas County, KS
Photographer: Sarah J. Martin
Date: 29 March 2007

The above information applies to the following photographs:

Photo 1: South (front) elevation along 21st Street, facing N
Photo 2: Southwest corner, facing NE
Photo 3: Garage overhang, facing N
Photo 4: Front entrance on south elevation, facing NE
Photo 5: Northwest corner, facing SE
Photo 6: Concrete roof base support at southwest corner, facing S
Photo 7: Southeast corner, facing NW
Photo 8: East (side) elevation, facing NW
Photo 9: Northeast corner, facing SW
Photo 10: North (rear) elevation, facing SW
Photo 11: Interior, front entrance and doorway to bedroom, facing S
Photo 12: Interior, fireplace in living room, facing NW
Photo 13: Interior, fireplace in living room showing separation from kitchen and rest of house, facing SW
Photo 14: Interior, kitchen and hallway, facing W
Photo 15: Interior, bedroom, facing W
Photo 16: Interior, bathroom off of the master bedroom, facing W
Photo 17: Interior, master bedroom, facing N
Photo 18: Interior, hallway, facing E



DOUBLE HYPERBOLIC
PARABOLOID HOUSE

LAWRENCE, DOUGLAS CO, KS

15 : 305288E
4313036N