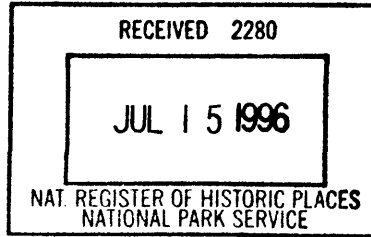


United States Department of the Interior
National Park Service



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 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name POLYCHROME HISTORIC DISTRICT

other names/site number M:32-5

2. Location

street & number 9900,9904 Colesville Rd.;9919,9923,9925 Sutherland Rd. N/A not for publication

city or town Silver Spring N/A vicinity

state Maryland code MD county Montgomery code 031 zip code 20901

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.)

STATE HISTORIC PRESERVATION OFFICER

Signature of certifying official/Title

Date

State of 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 certifying official/Title

Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

- 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:)

Signature of the Keeper

Date of Action

8/29/96

5. Classification

Ownership of Property
(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property
(Check only one box)

- building(s)
- district
- site
- structure
- object

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

Contributing	Noncontributing	
6	0	buildings
		sites
		structures
		objects
6	0	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

DOMESTIC/secondary structure

Current Functions
(Enter categories from instructions)

DOMESTIC/single dwelling

DOMESTIC/secondary structure

7. Description

Architectural Classification
(Enter categories from instructions)

MODERN MOVEMENT/Art Deco

Materials
(Enter categories from instructions)

foundation Concrete

walls Concrete

roof Stone/Slate;Asphalt

other _____

Narrative Description

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

SEE CONTINUATION SHEET NO. 1

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.
- 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 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 of age or achieved significance within the past 50 years.

Narrative Statement of Significance

SEE CONTINUATION SHEET NO. 13

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

9. Major Bibliographical References

SEE CONTINUATION SHEET NO. 26

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 # _____

Areas of Significance

(Enter categories from instructions)

ARCHITECTURE

Period of Significance

1934-1935

Significant Dates

1934

1935

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Earley, John Joseph, Builder

Kennedy, J.R., Architect (Polychrome I)

Primary location of additional data:

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

Name of repository:

Maryland-National Capital Park and Planning Commission, Silver Spring, MD

10. Geographical Data

Acreage of Property approximately 1.1 acres
USGS quad: Kensington, MD

UTM References

(Place additional UTM references on a continuation sheet.)

1	1 8	3 2 5 4 9 0	4 3 2 0 5 2 0
	Zone	Easting	Northing
2			

3			
	Zone	Easting	Northing
4			

See continuation sheet

Verbal Boundary Description SEE CONTINUATION SHEET NO. 25
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification SEE CONTINUATION SHEET NO. 25
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Constance Peterson Terry

organization Private Consultant date 1 August 1995

street & number 11113 Swansfield Road telephone Office (301) 495-4616

city or town Columbia state MD zip code 21044

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 the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name SEE CONTINUATION SHEET NO. 29

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. 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.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 1

DESCRIPTION SUMMARY:

The five Art Deco-style single-family detached Polychrome houses are located on contiguous lots with adjoining back yards in a middle class suburban residential neighborhood characterized by mature trees and plantings. They were built in 1934 and 1935 by John Joseph Earley, a master craftsman, on lots ranging in size from 7,360 to 10,150 sq. ft. Each of the houses is clad with two-inch-thick precast mosaic concrete panels assembled on site and anchored to a wood frame. Polychrome I, the prototype, was designed in collaboration with J. R. Kennedy, a Washington, D.C. architect. It is a one-story house with a detached one car garage of similar design and materials. Polychrome II adjoins Polychrome I to the north. It is one story with a loft room over a one car attached garage. Both of these houses face east and front on Colesville Road, a major thoroughfare. The three remaining Polychrome houses face west and front on Sutherland Road, an interior subdivision street paralleling Colesville Road one block to the west. Each is two stories in height with an attached carport. The three two-story houses are identical in design and floor plan and differ only in exterior color. All five houses are in very good to excellent condition, with no discernable diminishing of the brilliant exterior polychrome walls. The houses have been in continuous use as single family residences on their original sites since construction and have undergone minimal alteration. The Polychrome houses are documented in the book, Yesterday's Houses of Tomorrow, published in 1991.

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United States Department of the Interior
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National Register of Historic Places
Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 2

GENERAL DESCRIPTION:

The building material that defines the distinctive Art Deco architecture of all of the Polychrome houses is known as "mosaic concrete." It is an architectural medium developed by John J. Earley in which aggregates (including quartzes), ceramics, and vitreous enamels of varying colors and sizes are blended under a precise formula to produce almost limitless color tones. The cement paste is brushed away from the surface of the panels, allowing the brilliant spots of color to combine visually in the manner of Impressionist or pointillist paintings.¹ The slabs for the Polychrome houses were cast face downward in flat shallow molds, open at the back to allow access to the materials in the mold. Excess water used in the mix was extracted from the concrete by absorption.² Typically, designs and patterns were created by securing sheet materials of proper shape and thickness to the bottom of the mold, or by constructing plastic dams to separate color work until the concrete achieved its initial "set."³

Polychrome I, completed in 1934, is a single-story five-room house consisting of a main block running north and south, with a small wing on the north end of the main block extending east. The foundation is of poured-in-place concrete. The exterior walls are comprised of 32 two-inch-thick precast mosaic concrete panels, each four to eight feet wide and nine feet high. Metal casement window and door frames were imbedded in the panels before casting. The panels are attached to a conventional wood frame and anchored to the foundation by U-shaped hangers threaded with reinforcing rods, with reinforced concrete columns cast in place behind each joint. The main panels are pink-beige in color, the result of exposing surface aggregates of red jasperite. Corner panels are buff-colored and are in the form of fluted pilasters. Window and door surrounds are also buff-colored, with a cobalt blue panel set under each window. A decorative frieze, consisting of a red and black zigzag and arrow pattern topped by a cobalt blue band, surrounds the entire building. The front door is flanked by fluted buff-colored aggregate pilasters edged in cobalt blue. Above the door is an elliptical fluted concrete slab covering a ceiling light. The wooden door is painted red and is inset with three square mosaic concrete panels in an

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United States Department of the Interior
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National Register of Historic Places
Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 3

intricate red and black design. The door sill and the sidewalks leading to the door are decorated at the edges with small red and blue geometric patterns. The hipped roof is clad with slate shingles and extends over an open back porch, which is supported by three monumental columns. On the roof over the main block is a precast mosaic concrete chimney decorated with geometric designs in cobalt blue, red, and black.⁴

Interior ornamentation includes a precast concrete mosaic fireplace and ceiling-high mantel, decorated in geometric patterns and flanked by fluted pilasters. In addition, the windows are trimmed on the interior with a band of cobalt blue, cast as an integral part of the exterior panels.⁵

The detached one-car garage sits parallel to the rear property line and is reached by a driveway on the south side of the lot. The garage was built in 1934 in the same manner as the house and is a contributing resource. The mosaic concrete panels of the garage complement the pink-beige hue of the house but are without ornamentation. The hipped roof is slate shingle.

There have been no exterior alterations to the house or the garage and both are in very good condition.

Polychrome II, next door to Polychrome I, was completed in 1935. It is a one-story six-room house consisting of a main block running north to south, an attached garage extending beyond the north end of the main block to the west, and a small wing at the south end of the front elevation facing east. The gable roof, originally tiled, is now clad with asphalt shingles. There is a loft room over the one-car attached garage. The materials and method of construction are the same as those used in Polychrome I. The concrete mosaic panels have built-in corner returns. Red jasperite is the dominant color of the exposed aggregate, giving the exterior surface a rosy-pink hue. There are three large metalframe porthole windows, two in the front overlooking an open porch, and one at the rear on the west wall of the living room. The circular frames are inset with standard casement windows. The front porch is partially enclosed by a low concrete mosaic wall with decorative geometric inserts in deep red. The same decorative wall treatment is used on a small porch

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United States Department of the Interior
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**National Register of Historic Places
Continuation Sheet**

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

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at a side door on the north side of the house. A driveway runs along the north property line to the entrance of the attached garage, which faces north. Large decorative mosaic concrete planters are affixed to the south and west walls of the wing attached to the south end of the main block.

Interior ornamentation includes a mosaic concrete fireplace mantel decorated with narrow bands of arrows in blue and red. The three porthole windows are a distinctive interior feature as well. In addition, the original geometric-patterned ceramic tile in the bathroom is intact.

Polychrome II is in excellent condition. In addition to the change in roofing material, there have been three minor alterations to the exterior. A small glass-walled solarium has been created by enclosing the original mosaic concrete patio, a triangular space between the rear wall of the main block and the attached garage. In addition, a fiberglass awning in a color complementary to the exterior walls has been added over the side door. The original front and side doors have been replaced with black doors with wrought iron grillwork that are compatible with the Art Deco style of the house.

The three two-story Polychrome houses on Sutherland Road were constructed in 1935, despite some skepticism about the suitability of the Earley Process for two-story structures. The same materials and method of construction were used. These houses are identical except for variations in exterior colors and decorative trim. They are square in shape with an attached carport. The roof of each carport is enclosed with a low railing and serves as a small terrace.

The roof on each of these houses is hipped and is clad with the original slate shingles (at 9925 Sutherland shingles replaced). The house at 9919 Sutherland Road has one decorative detail missing from the other two Sutherland Road houses: on the under side of the eaves are narrow bands of cobalt blue and dark red surrounding the entire building. In contrast to this hidden detail, a wide and highly visible decorative frieze of stylized maple leaves arranged in a geometric pattern wraps around the upper third of each house, except for a center panel at the

See Continuation Sheet No. 5

**United States Department of the Interior
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**National Register of Historic Places
Continuation Sheet**

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 5

front. This center panel defines the space between the two symmetrical upstairs windows and between the first floor window and front door. Narrow bands of dark aggregate at regularly spaced intervals create the appearance of horizontal cuts across these center panels. Further emphasizing the horizontal line, and illustrative of the Art Deco style, is a curved projecting lintel course over the front door. To the right of the front door is an additional decorative feature with a practical purpose: a cut-out chevron design worked into the exterior wall panel covers the first floor bathroom casement window, which swings inward.

On the north end of each house is a glass brick wall approximately six-feet-square set into the exterior concrete panels.

Two symmetrically placed full size metal-framed glass doors open onto the back yard from the rear (east) wall of the house. On the south wall of the carport is a large metal-framed window flanked by relief panels in a chevron design. A concrete privacy wall with decorative cut-outs extends east from the east wall of the carport. A similar privacy wall extends north from the northwest corner of the front facade.

Interior features typifying the Art Deco style include parquet floors, the glass brick wall at the north end of the large rectangular living/dining room area, and original wood wall paneling in this area. Decorative doors with evenly spaced circle cut-outs enclose the furnace room in the kitchen and the fuse box in the front hall. The design of these doors closely resembles diagrams of the step-grading process Earley developed for producing a uniform aggregate mix. A staircase with a half-landing and a stepped dividing wall leads to the second floor.

On the second floor are three corner bedrooms and a generously sized full bathroom with a built-in bath set into a diagonal recess. Other original features of the bathroom include a swinging retractable shower curtain rod and geometric-patterned ceramic tile. A door in the southwest corner bedroom leads to the terrace roof of the carport.

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POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 6

Alterations have been relatively minor. All three carports have been enclosed. The rear carport enclosure includes a standard-size door. On the house at 9919 Sutherland Road, all but one of the casement windows on the second-story, and the living room window on the first floor, have been replaced with standard vinyl-trim windows. All other doors and windows on these three houses are original.

The exterior colors and decorative trim of the three Sutherland Road houses suggest a seasonal scheme. The house at 9919 is predominantly tan with fall-like accents of buff and deep red. The main panels of the middle house at 9923 are thought to be made of the same combination of crystalline and opalescent quartz used by Earley for the Baha'i Temple in Wilmette, Illinois, which was under construction from 1932 to 1951. The result is so strikingly white that it is sometimes mistaken for paint. The trim and the broad frieze of stylized maple leaves are in forest green to carry out a summer theme. At 9925 the combination of rose and buff mosaic panels with lighter green trim is suggestive of a spring motif. While these houses lack some of the more intricate ornamentation of Polychrome I and II, the symmetry of the window and door placement, the curved lintel overhang, and the numerous horizontal accents are perhaps more frankly evocative of the Art Deco style.

See Continuation Sheet No. 7

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National Register of Historic Places Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

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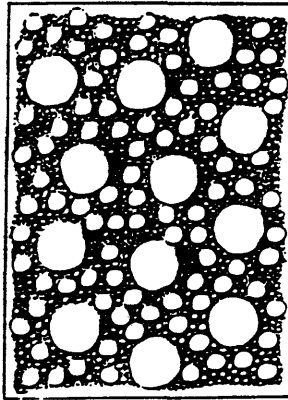


Fig 1 Uniformly Graded Mix. With Particles Well-Distributed

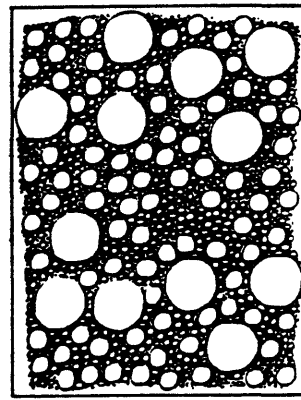


Fig 2. Uniformly Graded Mix With Particles Bunched In Pockets

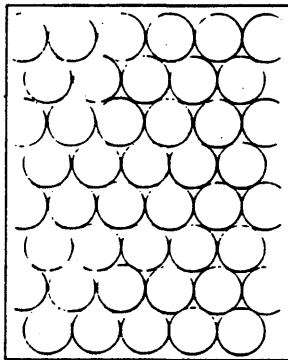


Fig 3 Spheres On A Flat Surface

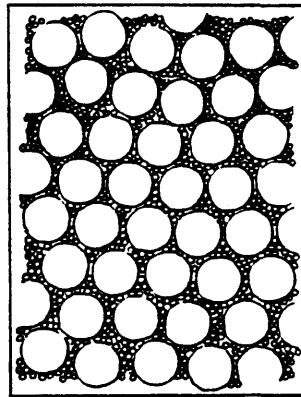


Fig 4. Step-Graded Mix Of Two Particle Sizes. Ratio Of Particle Diameters Is 10:1

M: 32-5, Polychrome Historic District, Montgomery, Maryland. Diagrams of John J. Earley's patented step-graded process for producing a uniform aggregate mix, from The Man Who Made Concrete Beautiful, Frederick W. Cron. The design of the decorative fuse box and furnace doors in the Sutherland Road houses echoes the patterns created by the distribution of particles in these diagrams. See description in Section 7, p. 5.

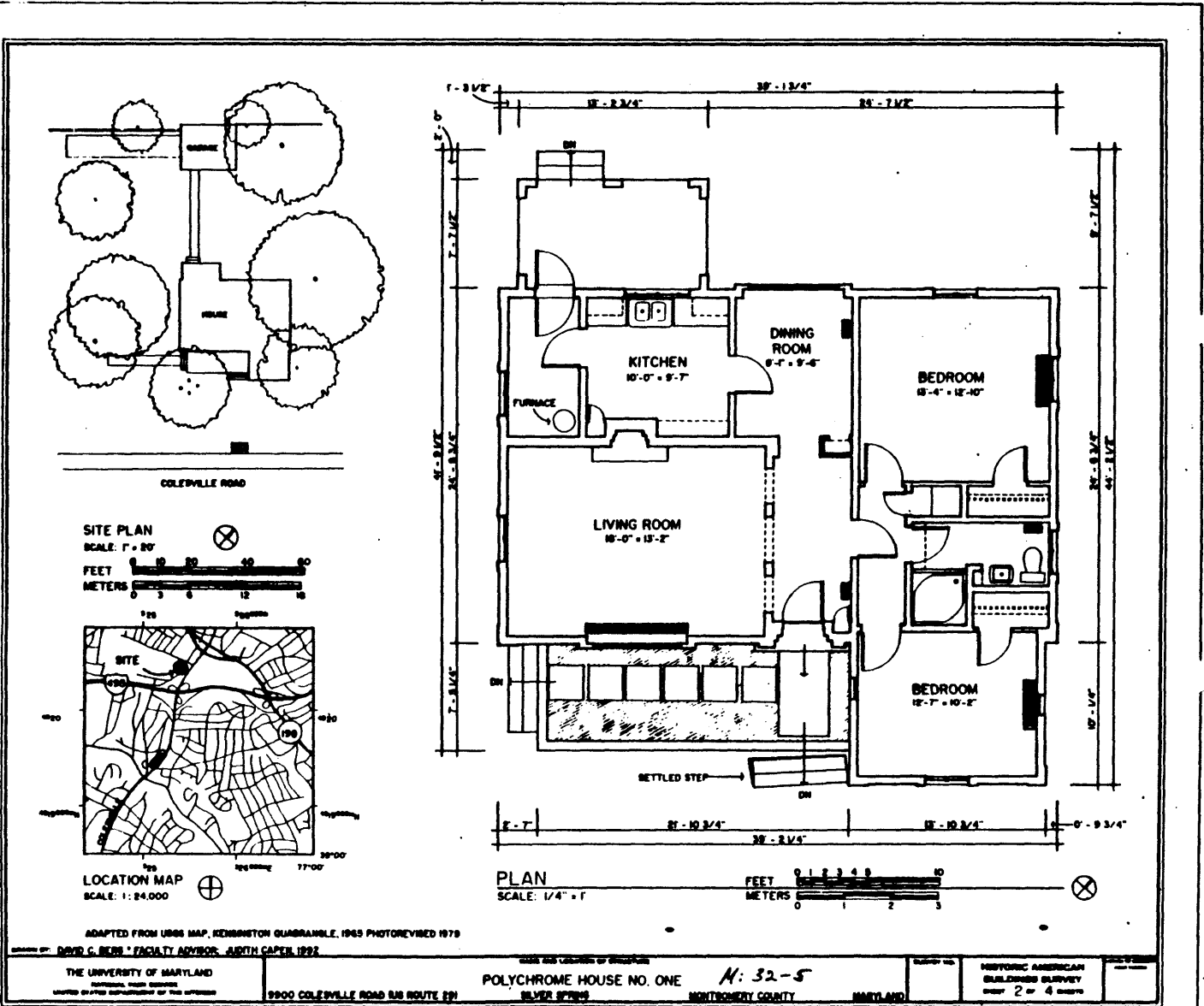
See Continuation Sheet No. 8

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 8



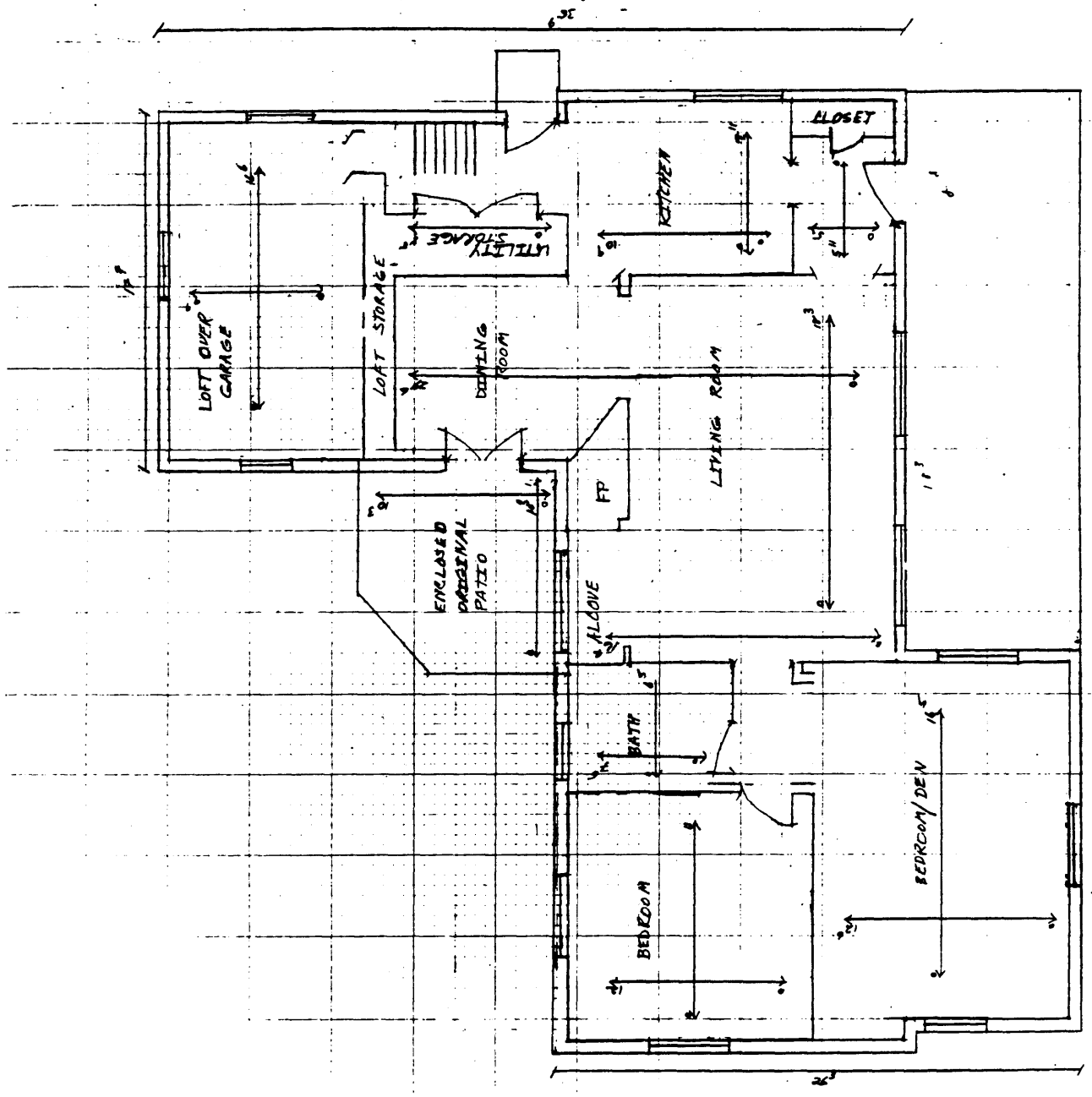
See Continuation Sheet No. 9

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 9



CONSTANCE F. TERRY
1993

46
M:32-5 POLYCHROME HISTORIC DISTRICT
9804 LOVELL RD
Montgomery, Maryland
MAIN FLOOR

SCALE: 1/4" = 1'-0"

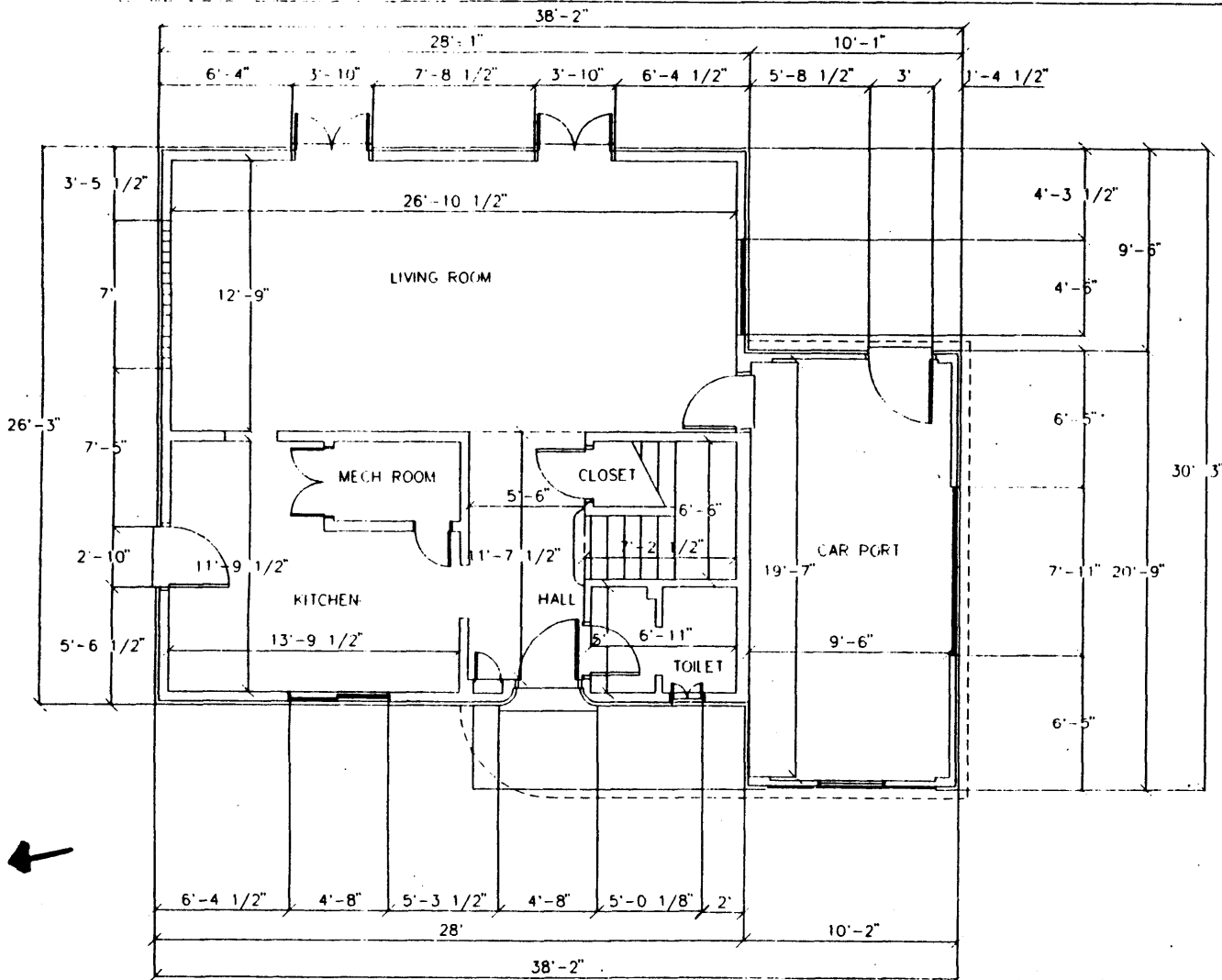
See Continuation Sheet No. 10

United States Department of the Interior
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National Register of Historic Places
Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 10



FIRST LEVEL
BARAN RESIDENCE
EARLEY POLYCHROME
E ALLAN SPULECC

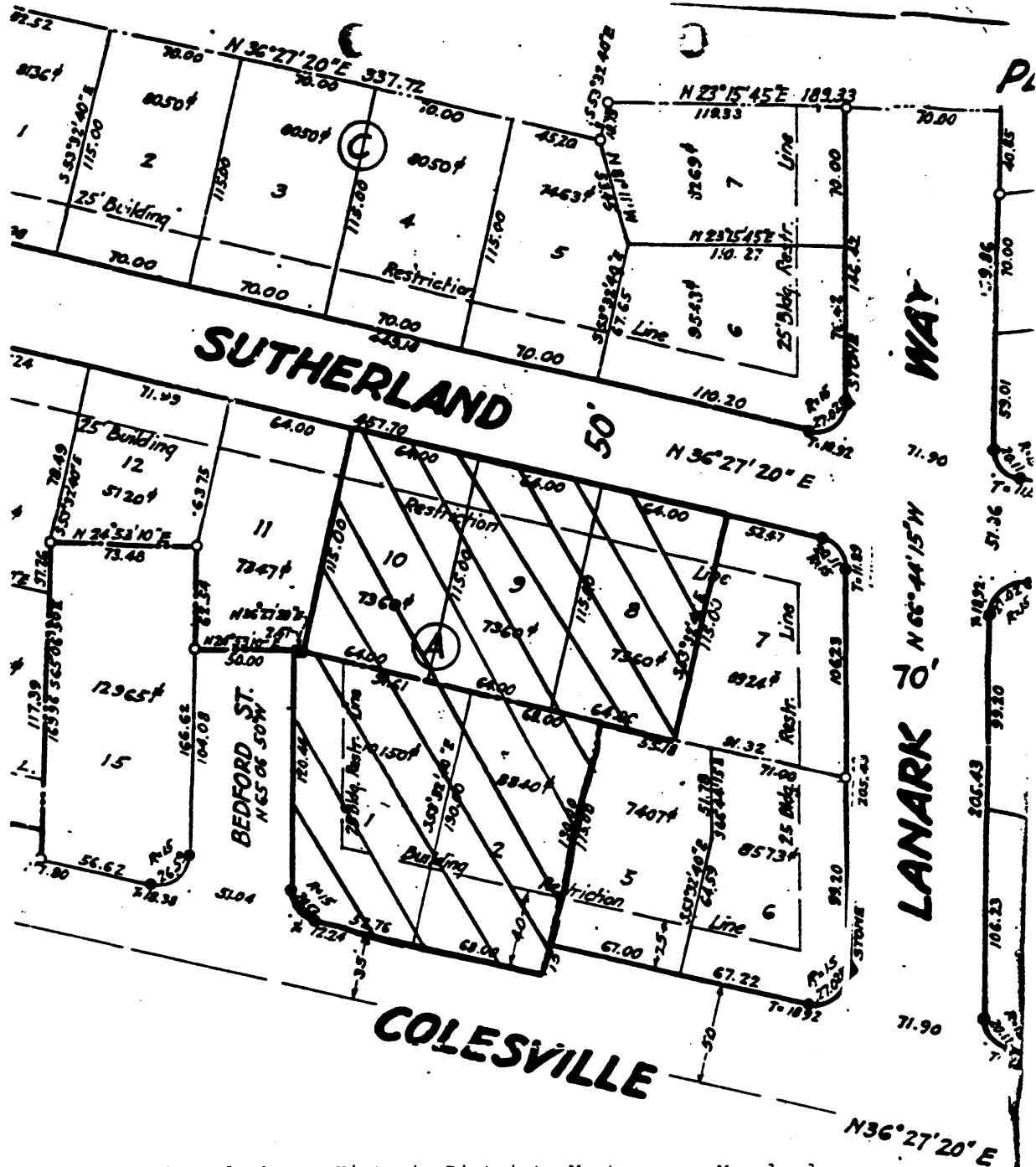
M: 32-5 Polychrome Historic District, Montgomery, Maryland. 9919 Sutherland Rd.
(and representative of 9923, 9925 Sutherland Rd.)

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Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 7 Page 11



M: 32-5, Polychrome Historic District, Montgomery, Maryland
(hatch-marked area): Lots 1, 2, Block A, 9900 and 9904 Colesville
Road; Lots 10, 9, 8, Block A, 9919, 9923, 9925 Sutherland Road.
Maryland-National Capital Park and Planning Commission, Silver Spring,
Maryland.

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Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 8 Page 12

HISTORIC CONTEXT:

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA

Geographic Organization: Piedmont

Chronological/Developmental Period(s):

Modern Period - A.D. 1930-Present

Prehistoric/Historic Period Theme(s):

Architecture/Landscape Architecture/Community Planning
Social/Educational/Cultural

Resource Type:

Category: District

Historic Environment: Suburban

Historic Function(s) and Use(s):

DOMESTIC/single dwelling

Known Design Source:

Builder/Master Craftsman-John Joseph Earley
Architect (Polychrome I) J.R. Kennedy

See Continuation Sheet No. 13

United States Department of the Interior
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Continuation Sheet

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

Section number 8 Page 13

SIGNIFICANCE SUMMARY:

The five single-family dwellings that comprise the Polychrome Historic District were built in 1934-35 by master-craftsman John Joseph Earley (1881-1945). These unique houses are outstanding examples of the Art Deco-style and reflect Earley's artistry and craftsmanship. Conventional wood frames were clad with prefabricated "mosaic concrete" panels utilizing a process Earley developed and patented in which the concrete was stripped to expose the brilliantly colored aggregate particles, creating an effect similar to impressionist or pointillist painting. In addition to their striking, richly ornamented appearance, these houses represent a relatively rare example of precast concrete panel construction in single-family housing for the time period. Earley's patented structural system led to the widespread use of precast architectural concrete as a major exterior cladding material. The legacy of the Polychrome houses can be seen in thousands of curtain-wall buildings nationwide.

Earley was a master builder who culminated nearly three decades of engineering and architectural experience in the design and construction of the Polychrome houses. From 1906 to 1933 he was responsible for such complex and demanding projects as the stucco work for Meridian Hill Park (Washington, D.C., 1916); the casting of Lorado Taft's sculpture, "The Fountain of Time" (Chicago, 1920-22); the rebuilding of the replica of the Parthenon at Nashville (1925); and the Baha'i Temple of Light in Wilmette, Illinois (begun in 1932). Earley created a new medium for the decorative arts--mosaic concrete--in designing the richly detailed interior of the Shrine of the Sacred Heart (Washington, D.C. 1923), the same material used in executing the intricate design of the ceilings for the Department of Justice (1933) and in the Polychrome houses. Earley wrote eloquently about the social changes taking place in the United States during the 1930s and the demand for what he termed "social justice." The Polychrome houses represent his attempt to solve the "small house problem" by providing innovative housing at modest cost during the economic and social upheaval of the Great Depression.

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**United States Department of the Interior
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Continuation Sheet**

POLYCHROME HISTORIC DISTRICT
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John Joseph Earley

John Joseph Earley was the son of James Farrington Earley, a fourth generation stone-carver and ecclesiastical artist, and Mary Kelly Earley. He was born in New York City on December 12, 1881, shortly after his parents had emigrated from Ireland. In 1890 the Earley family moved to Washington, D.C., where James Earley established the Earley Studio, a stone carving and modeling business. During this period the studio did the stone work and ornamental sculpture for many churches and government buildings. A more unusual project was a commission to design the "buffalo" nickel, which James Earley executed for the United States Mint.

John Earley was educated in parochial schools in Washington, D.C., finishing at St. John's College (as it was then known), where he studied the classics. At 17 he began an apprenticeship in the crafts of sculpture, model making, and stone carving at his father's studio. He inherited the studio at the age of 25 when his father died in 1906. Fulfilling his father's deathbed wish, he entered into a business relationship with Basil Gordon Taylor, a gifted practical engineer who had begun his career at the Earley Studio as a handyman.⁶

Over the next two decades John Earley developed and perfected a process for producing exposed aggregate stucco, which in turn led to the invention of a new medium for the decorative arts--mosaic concrete--and ultimately to the precasting of these thin panels in the studio for later assembly on site in the construction of houses and other structures.

The Earley Process - Innovations in Concrete Construction

The "Earley Process," which was the basis for the concrete panel construction ultimately used in the Polychrome houses, had its origins in a research project on stucco conducted by the Earley Studio at the Bureau of Standards (now the National Institute of Standards and Technology) in 1911. The purpose of this project was to probe the causes of numerous failures in stucco construction in the early 1900s. In 1914, the Earley Studio was engaged to do the stucco work for broader based

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**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Continuation Sheet**

POLYCHROME HISTORIC DISTRICT
Montgomery County
Maryland

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experiments and John Earley was appointed to the technical advisory committee.

Concurrently, in 1916 Earley's studio was retained by the U.S. Office of Public Buildings and Grounds to execute the stucco work for the terraced water cascades at Meridian Hill Park in Washington, D.C. This feature was the major design element at Meridian Hill Park and served as a prototype for the decorative use of exposed aggregate concrete by landscape architects. Two important innovations in the development of the Earley Process resulted from this project. First, Earley realized that a textured concrete surface could be created by stripping the forms while the concrete was still "green" and then removing the covering of cement paste from the aggregate to expose the larger pebbles.⁷ In addition to adding texture, this technique produced a pleasing change in color, from cold gray to a warm creamy tan. A test panel was produced for the United States Commission of Fine Arts and was enthusiastically approved for use at Meridian Hill Park. Earley coined the term "architectural concrete" to describe the new finish.

Further refinements were necessary, however, to prevent the pebbles from bunching together in pockets. To solve the problem, Earley developed a step-grading process for producing a uniform aggregate mix, using one size of pebbles and one size of sand particles at a ratio of 10:1.⁸

A second problem involved the demolding of the balusters. Earley again drew on Bureau of Standards research and found that by removing part of the mixing water from the concrete in the mold, the casting would set faster and have sufficient strength to overcome the suction of demolding. With the solution of these two problems, his biographer, Frederick W. Cron, states, "Earley had now discovered and put into use the significant elements of what was to become an important industrial process."⁹ In 1921 and 1922, Earley was granted U.S. patents for both the step-graded aggregate process he developed and for his method of lining molds for protection during casting.

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Mosaic Concrete

Earley continued to experiment with permanent coloring techniques for exposed aggregate stucco in collaboration with J.C. Pearson, a cement chemist at the Bureau of Standards. The construction of the East Potomac Park Field House in southwest Washington, D.C. in 1919 reinforced the success of this technique.

In 1920, while the Earley Studio was casting Lorado Taft's monumental sculpture "The Fountain of Time" in Chicago, John Earley was contacted by the Washington architectural firm of Murphy and Olmsted, which had been retained by the congregation of the Church of the Sacred Heart to design a new church at Park Road and 16th Street in Washington, D.C. The church, which became known as the Shrine of the Sacred Heart, was to be a vaulted basilica in the northern Italian Romanesque style, and the architects envisioned a richly detailed mosaic interior. However, the cost and availability of materials were major hurdles. For the solution, the architects turned to John Earley and his innovative work in concrete.

It was in the execution of this splendid interior that Earley created the medium of *mosaic concrete*. The development of this new dimension in concrete design is best described by Earley himself in a book published in 1924 about the Shrine of the Sacred Heart:

. . . When we learned that the aggregate would be the dominating element of architectural concrete, and that the character and position of the particles could be controlled, there was opened to us a treasure of color, knowledge and experience . . . By considering the particles of aggregate as spots of color in juxtaposition, all the knowledge and much of the technique of the impressionist, or the pointillist school of painting, was immediately applicable to concrete.

This school places color spots, side by side with one another, in such a manner that they blend in the air to hues of even value and chroma . . . Colors for which no

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aggregate has yet been found . . . are successfully made . . .

¹⁰ To reproduce the architect's brilliantly colored polychrome designs, Earley assembled more than 200 colors of aggregates, many of them imported.

The interior work was completed in 1923. "[T]he effect on beholders, then as now, was breathtaking," Cron states, and the Shrine "attracted wide attention in architectural circles."¹¹

The Baha'i Temple

Earley's growing reputation as a craftsman of extraordinary artistic gifts was greatly enhanced when his studio was commissioned to do the exterior ornamentation for what many consider to be the most beautiful, and certainly the most intricate, building ever constructed of concrete: the Baha'i Temple of Light in Wilmette, Illinois. This project is also a stunning example of the principle of separating structure from ornament, which Earley continued to espouse.

The initial contact came in 1920, when Earley was approached by Louis Bourgeois, an architect and a member of the Baha'i Faith, about his plans for a magnificent edifice to be built on a bluff overlooking Lake Michigan. Because of fund-raising difficulties, the contract for the dome was not signed until 1932, two years after the architect's death. It was left to Earley to interpret Bourgeois' design. This was especially difficult because there were no final engineering plans for the exterior ornamentation and no method had been developed for attaching the ornamentation to the steel superstructure.¹² Earley had been thinking about the project for more than a decade, however, because, as he later wrote, "'somehow it always seemed to be our work.'¹³

Earley described the structure as "'a thing to fascinate the imagination . . . [a] temple of light with a great pierced dome . . . the courses of the stars woven into a fabric . . . Interwoven are the tendrils of living things, leaves, and flowers, because no symbol of creation would be complete without a symbol of life.'¹⁴

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The technical problems were formidable. The dome consisted of nine identical triangular fields between nine identical ribs, and the casts weighed as much as three tons each. The size and weight required a further modification to the process developed 15 years earlier for the balusters at Meridian Hill Park: a change in the size of the smallest aggregate permitted the extraction of additional water to obtain greater stability.¹⁵

The dome was completed in 1934. The Earley Studio continued to be involved in the exterior and interior ornamentation of the Temple of Light until its final completion in March, 1951.

Department of Justice

In 1933, while the Baha'i Temple project was under construction, Earley's studio was engaged to execute concrete mosaic ceilings for the Art Deco interior of the new Department of Justice building in Washington.

This project marked a turning point for the studio and precipitated a dramatic change in John Earley's philosophy on the separation of structure and ornamentation. The architects, the Philadelphia firm of Zantziger, Borie and Medary, insisted upon a monolithic finish. Despite Earley's initial arguments, the specifications explicitly stated that "the mosaic finish and the structural concrete connected with it shall be one."¹⁶

Previously the studio had used monolithic finishes only on smaller objects, such as plaques, that could be demolded within 24 hours. As Earley's biographer Cron states: "This was patently impossible for the two great main beams [of the Justice Department ceilings], which would have to be supported at least a week to gain the strength necessary to hold up their own weight."¹⁷

Rethinking the problem, John Earley had an idea:

'If we were to strengthen the mosaic concrete slabs we might use them as forms to support the structural concrete while setting and thus discard the

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conventional wooden forms and supports.¹⁸

Earley goes on to describe the solution:

'And so the ceilings were built. The precast slabs were made in our studio and taken to the building and set in place. Into them as into a mold the structural concrete of the second floor was poured. A strange thing had been done. The decorated surface of a concrete structure was its mold. The concrete had, if I may use the figure, been poured into its own skin.'¹⁹

Thus the Earley Process entered a new phase in its evolution and set the stage for the implementation of an idea John Earley had first articulated in 1924 in connection with the Shrine of the Sacred Heart, when he observed that "[t]he usefulness of concrete . . . may be extended not only to beautiful churches and great buildings, but to homes and little buildings."²⁰

Experimental Housing of the Depression Era

In the wake of the stock market crash of 1929 and Franklin Delano Roosevelt's proclamation of the "forgotten man" in 1932, national attention was focused in a new and urgent way on the housing needs of Americans. As one architectural and social historian put it:

. . . There was a general feeling that there must be an enormous market for a good and inexpensive detached house, that good dwellings might be more important to the national welfare than good automobiles, that good houses obviously cost too much, that it should be possible to design them for mass production and that not enough was being done about it.²¹

John Earley articulated his own response to this newly perceived need in an article in the Journal of the American Concrete Institute at the height of the Depression:

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Great social changes are taking place in the United States. The people demand that further steps be taken towards a social justice that will effect a more general and equitable distribution of the comforts of living.

. . . [I]t is entirely possible that we all will come to understand that the security which we desire for ourselves and our dependents, lies in the nation's ability to provide food and shelter for everyone. It seems to me that the simplest way in which such security can be achieved is to enable everyone to procure a small house and a plot of ground, which can be cultivated and which will produce sustenance.²²

An article on "The Small House" in the October, 1935, issue of Architectural Forum looked back at "the six creeping years since 1929" and concluded that "[h]ad there been no depression, there would have been no change. But there was depression. And the masterminds of economics decided that the key to recovery was home building . . . Thus, for the first time, the best minds of the U.S. deigned to consider the home."²³ The government responded to the crisis with housing programs sponsored by agencies such as the Reconstruction Finance Agency and the Housing Division of the Public Works Administration.

As a sense of optimism began to return after the 1932 election, public-spirited citizens and private industry joined forces to sponsor the Century of Progress Exposition, which was held in Chicago in 1933. The July issue of Architectural Forum in that year featured more than a dozen prototype houses on display along the Lake Michigan waterfront. These "demonstration" houses included the Armco-Ferro Enamel House, the Stran-Steel House, the Masonite, Lumber Industries, and Common Brick houses, and the House of Tomorrow and the House of Today.

This movement and professional interest in domestic architecture inspired the construction of a number of examples of prefabricated/demonstration houses in the Washington, D.C. area during this time period. Virtually all of these building postdate the completion of Earley's five Polychrome houses in suburban Maryland. A two-story Motohome (steel framed, flat

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steel-roofed, with exterior wall panels of asbestos cement) was erected in the Kenwood subdivision in Montgomery County in 1936.²⁴ A Frank Lloyd Wright Usonian house, now known as the Pope-Leighy House and relocated to Mount Vernon, Virginia, was originally designed in 1939 for a site in Falls Church, Virginia. It is one of some two dozen wooden houses designed by Wright between the mid-1930s and the early 1940s as relatively low-cost prefabricated housing for "the common man."²⁵ In 1941, the federal government sponsored a development of prefabricated houses, from different manufacturers, in Indian Hill, Maryland. Most models were constructed of plywood or similar material on a wood frame.²⁶

In addition, during the 1930s the federal housing policy fostered the construction of whole new towns, including some 30 communities of "subsistence" homesteads and three "greenbelt" towns.²⁷ One of these new towns, Greenbelt, Maryland, was under construction while the Polychrome houses were being erected in nearby Silver Spring.

Polychrome Houses

Given the nature of the times and his background as a master craftsman in concrete, it was perhaps inevitable that John Earley would join the "demonstration" effort and devise a practical method of building houses with his mosaic concrete panels, the end product of a process that had started 20 years earlier at the Bureau of Standards.

The use of concrete in American domestic architecture was not new. Milton House, a hostelry built entirely of "gravel wall," was constructed in Wisconsin in 1844. The concept was borrowed by Orson Fowler for some of his Octagon houses in the 1850s. Ward's Castle (1873-1876) combined concrete with iron reinforcing rods and is believed to have cost \$100,000. Thomas Edison's plans for a poured-concrete house made with reusable steel molds evolved over several years, at escalating cost; some of his ideas ultimately were utilized by Frank Lambie and others between 1912-1914 to construct a dozen or so houses.²⁸

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These efforts all required elaborate, labor-intensive techniques including on-site mixing and poured-in-place molding. Edison's cast iron molds, for example, were estimated to weigh between 250,000 and 450,000 pounds; the suggested method for transporting them to the building site was "'by railroad or teams.'" On-site assembly required four electrically-driven derricks. Variations in exterior color were to be achieved through the use of applied paints or by tinting the concrete itself.²⁹

In contrast, when John Earley built the five small but richly detailed and ornamented Polychrome houses in a burgeoning suburb of Washington, D.C. in 1934-35, he devised a method of construction that brought together a renewed interest in prefabrication and his own aesthetic and technical innovations in concrete construction.

As he described the method in a 1935 article, the thin precast slabs of mosaic concrete were hauled from the Earley Process plant in Rosslyn, Virginia, by a one-and-a-half ton truck and were assembled on site directly from the truck using a chain hoist and a piece of six-inch steel beam set on an "A" frame. (It should be noted that the simplicity of this system and the thinness of the panels contrasted sharply with earlier concrete prefabrication which required cranes and other large mechanical devices.) The slabs were fastened at the joints, supported, and tied to the foundation by small reinforced concrete columns. A special device, consisting of dowels protruding from the back of each slab along the vertical edge, allowed the slabs to move in any direction independently. Earley chose to attach his mosaic concrete walls to a conventional wood frame, and to roof the house with slate, to avoid, as he put it, "the pit of misapplication" which awaited those who, having come up with an ingenious idea for building with a special material "have permitted their idea to obsess them." It was Earley's philosophy that "the new American home will be a composite of materials, each used to the best advantage for the good of the house."³⁰

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The Impact of the Polychrome Houses on the Field of Concrete Construction

John Earley and the Polychrome houses received considerable attention in contemporary architectural literature. The July, 1935, issue of Architectural Forum featured Earley and Polychrome I in a detailed article entitled, "Prefabrication for Architects," which included photographs of the house as it was being assembled on site. In February, 1940, an article on "Architectural Concrete Slabs" in the same publication credits "Washington craftsman-in-concrete John Joseph Earley" as "the man [m]ore than any other responsible for the development of the slabs." That article featured the two Polychrome houses on Colesville Road, noting that they "have been standing for five years," and the mosaic concrete ceilings Earley executed for the Department of Justice.

Earley's achievements as a master craftsman, and his contributions to the concrete industry and to the fields of architecture and engineering, were recognized in several different ways during the 1930s. In 1934 he received the American Concrete Institute's most prestigious award, the Turner Gold Medal, "'for outstanding achievement in developing concrete as an architectural medium.'"³¹ The American Institute of Architects awarded Earley its Craftsmanship Medal in 1936 "'for meritorious and original work in the application of color to masonry and the development of a new technique for the decorative use of concrete . . .'"³² In 1938 he was elected president of the American Concrete Institute, the first non-engineer to hold that position.

Earley and his partner, Basil Taylor, were granted a U.S. Patent in 1936 for the technique of tying precast panels together. Previously (in 1921 and 1922) Earley had been granted patents for the step-graded aggregate process he developed and for a method of lining molds for protection during casting, both of which formed the basis of the "Earley Process."

These two patented processes--the culmination of almost three decades of experimentation in concrete design and

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construction--were joined together for the first time in the construction of the five Polychrome houses.

Earley himself recognized that the new principle of construction applied to the Polychrome houses, that is, the free attachment of prefabricated thin slabs to a reinforced concrete skeleton, had far-reaching implications. He observed in 1935 that "the principle is larger than the [small house] problem itself and we may expect to see it applied to major construction when major construction will again become important."³³ Earley's prediction of wider application was correct. The book Yesterday's Houses of Tomorrow, published in 1991, includes an essay on the Polychrome houses and notes that, "[o]ver the years precast architectural concrete became a major exterior cladding material" and that "thousands upon thousands of buildings across America can trace their lineage to the little houses in Silver Spring."³⁴

John Earley did not live to participate in the housing boom that followed World War II. He died in 1945 after suffering a stroke on a job site. His craftsmanship and artistry in concrete construction are evident today in the many projects that survive him. The papers and articles he wrote show him to have been an erudite and articulate man whose love for the medium in which he worked was almost spiritual. He once expressed it in this way:

. . . Concrete is so wonderfully responsive that it has wound a spell around me and around the men in my studio. When the work is taken from the moulds each morning and the colors are exposed, there is something so spectacular, so magical about it, that our enthusiasm never abates.³⁵

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1. John J. Earley, "What Concrete Means to the Craftsmen Who Are Entrusted with Interpreting Architectural Design," in Substance, Form and Color Through Concrete (New York: The Atlas Portland Cement Company, 1924), 19-20.
2. John J. Earley, "Architectural Concrete Makes Prefabricated Houses Possible," Journal of the American Concrete Institute, vol. 6 (Detroit, Mich.: American Concrete Institute, 1935), 519.
3. "Architectural Concrete Slabs," Architectural Forum (February 1940), 103.
4. H. Ward Jandl, John A. Burns, Michael J. Auer, Yesterday's Houses of Tomorrow (Washington, D.C.: The Preservation Press, 1991), 174.
5. Ibid.
6. Frederick W. Cron, The Man Who Made Concrete Beautiful (Ft. Collins, Colo.: Centennial Publications, 1977), 6.
7. Ibid., 9.
8. Ibid., 11.
9. Ibid., 12.
10. John J. Earley, "What Concrete Means to the Craftsmen Who Are Entrusted with Interpreting Architectural Design," in Substance, Form and Color Through Concrete, 19-20.
11. Cron, The Man Who Made Concrete Beautiful, 24.
12. Bruce W. Whitmore, The Dawning Place (Wilmette, Ill.: Baha'i Publishing Trust, 1984), 165.
13. Ibid., 164.
14. Ibid.
15. Cron, The Man Who Made Concrete Beautiful, 45.
16. Ibid., 49.

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17. Ibid., 49.
18. Ibid.
19. Ibid., 51.
20. John J. Earley, "What Concrete Means to the Craftsmen . . ." in Substance, Form and Color through Concrete, 21.
21. John Burchard and Albert Bush-Brown, The Architecture of America: a Social and Cultural History (Boston, Mass.: Little, Brown and Company, 1961), 328-29.
22. John J. Earley, "Architectural Concrete Makes Prefabricated Houses Possible," Journal of the American Concrete Institute, vol. 6 (Detroit, Mich.: American Concrete Institute, 1935), 513-24.
23. Architectural Forum 63, "The Small House," October, 1935, 228.
24. H. Ward Jandl, John A. Burns, Michael J. Auer, Yesterday's Houses of Tomorrow (Washington, D.C.: The Preservation Press, 1991), 153.
25. Ibid., 117-125.
26. Ibid., 22.
27. David P. Handlin, American Architecture (London: Thames and Hudson, 1985), 204.
28. H. Ward Jandl, et al., 43-79.
29. Ibid., 73-74.
30. Ibid., 518.
31. Cron, The Man Who Made Concrete Beautiful, 48.
32. Ibid.
33. John J. Earley, "Architectural Concrete Makes Prefabricated Houses Possible," Journal of the American Concrete Institute, 524.

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34. H. Ward Jandl, et al., Yesterday's Houses of Tomorrow, 180.

35. John J. Earley, "What Concrete Means to the Craftsmen. . ." in Substance, Form and Color through Concrete, 20.

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VERBAL BOUNDARY DESCRIPTION:

Lots 1, 2, 8, 9, 10, Block A, Fairway, Section One and Section Two, Montgomery County, Maryland.

BOUNDARY JUSTIFICATION:

The five contiguous lots encompass the five houses and one detached garage constructed by John J. Earley in 1934-35 and comprise the entire property historically associated with the resource.

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- 1) Ivan Baran
9919 Sutherland Road
Silver Spring, Maryland 20901

- 2) Renata Gould
9904 Colesville Road
Silver Spring, Maryland 20901

- 3) Thomas H. and E.F. Bass
5433 Ashleigh Road
Fairfax, Virginia 22030 (owners of 9900 Colesville Road and 9923 and 9925
Sutherland Road)