

Table of Contents

EXECUTIVE SUMMARY	5
<i>Statement of Purpose</i>	5
<i>Project Team Members</i>	5
<i>Consultants</i>	5
<i>Reviewers</i>	6
<i>Project Team Support</i>	6
<i>Investigative History and Methodology</i>	6
<i>Use Program</i>	7
<i>Project Goals</i>	8
DEVELOPMENTAL HISTORY	9
<i>Introduction</i>	9
<i>Statement of Significance</i>	10
<i>Period of Significance</i>	11
<i>Historic Photographs</i>	12
<i>Drawings & Models</i>	29
<i>Century of Progress Architectural District – A Brief Comparison of Integrity</i>	29
EVALUATION OF CHARACTER DEFINING FEATURES	31
<i>A Brief Architectural Description of the Armco-Ferro House</i>	31
<i>Chronological Listing of Known Major Alterations</i>	32
<i>Spatial Organizations</i>	34
<i>Exterior Appearance & Interior Room Function and Appearance</i>	35
EXISTING CONDITIONS	44

<i>Photographs-First Floor</i>	44
<i>Photographs-Second Floor</i>	49
<i>Photographs-Third Floor</i>	53
<i>Evaluation Methodology</i>	57
<i>Site Features</i>	57
<i>Structure</i>	59
<i>Exterior Envelope</i>	60
<i>Interior</i>	64
<i>Plumbing Systems</i>	81
<i>Heating and Air-conditioning Systems</i>	82
<i>Electrical Systems</i>	82
<i>Kitchen Appliances</i>	83
<i>Furnishings</i>	84
<i>Accessibility</i>	84
<i>Life Safety</i>	84
ALTERNATIVE TREATMENTS	85
TREATMENT RECOMMENDATIONS	90
<i>Site Features</i>	90
<i>Structure</i>	90
<i>Exterior Envelope</i>	92
<i>Interior</i>	97
<i>Plumbing Systems</i>	113
<i>Heating and Air-conditioning Systems</i>	114

<i>Electrical Systems</i>	114
<i>Kitchen Appliances</i>	115
<i>Furnishings</i>	115
<i>Accessibility</i>	115
<i>Life Safety</i>	116
SUMMARY OF TREATMENT RECOMMENDATIONS	117

APPENDIX A – Context

- Century of Progress Architectural District
- A. HABS Large-Format Photographs
- B. HABS Written Historical and Descriptive Data

APPENDIX B – Historical Data

- Armco-Ferro House
- A. HABS Large-Format Photographs
- B. HABS Written Historical and Descriptive Data
- C. Reduced Copies of Measured Drawings

APPENDIX C – National Register Nomination

APPENDIX D – Exhibits

- A. Frameless Steel House At A Century of Progress, 1933
- B. The Official Pictures of A Century of Progress Exposition Chicago 1933
- C. Armco-Ferro Porcelain Enameled House, 1933
- D. Know This Kind of House Before You Build, 1933
- E. The Metal Home, 1933
- F. Letter to Insulated Steel Construction Co. from the Exhibition Committee, 1933
- G. Reduced copy of the electrical plan.
- H. A Century of Progress Homes and Furnishings, As exhibited at the World's Fair, Chicago, 1934
- I. An unnamed brochure produced by the Insulated Steel Construction Company, 1933
- J. "Steel House Will Be Built Here; Work Started Near Poastown", The Middletown, Ohio, News Journal, July 30, 1933
- K. "To Open Frameless Steel House", The Dayton Daily News, 1933
- L. List of Classified Structures Assessment Form, 1976
- M. Preliminary Condition Assessment, 1999
- N. Existing Condition Photographs, 2005
- O. Architects' Resumes

- P. Field Sketches by Christoph Lichtenfeld and Structural Sketches
- Q. Drawing of Proposed Alterations to Laundry
- R. Drawing of Proposed Basement

REFERENCES

EXECUTIVE SUMMARY

Statement of Purpose

The purpose of this report is to document the evolution of the structure, assess existing conditions and features, evaluate alternative treatments, and recommend treatments responding to objectives identified by park management for the rehabilitation of the Armco-Ferro House. The Armco-Ferro House was constructed for the 1933 Century of Progress Exposition. This report will offer alternative treatments for key issues while proposing treatments that will preserve the structure for the use and enjoyment of future generations.

Project Team Members

Information and Management Assistance:
Indiana Dunes National Lakeshore (INDU)
Superintendent Dale B. Engquist
Chief of Resource Management Bob Daum
Historian Janice Slupski

Historic Landmarks Foundation of Indiana (HLFI)
Northern Regional Office Director Todd Zeiger

Indiana Department of Natural Resources
Division of Historic Preservation & Archeology
(State Historic Preservation Office - SHPO)
Director Jon Smith

James Papoutsis Architect, A.I.A.
Principal James Papoutsis

Gilmore Franzen Architects, Inc.
President Lesley Gilmore

Consultants

Midwest Regional Office (MWR)
Chief of Cultural Resources Craig Kenkel

Historic Landmarks Foundation of Indiana (HLFI)
Director of Restoration Services Ron Zmyslo
Northern Regional Office Community Preservation Specialist Bob Yapp

Reviewers

Indiana Dunes National Lakeshore (INDU)
Chief of Resource Management Bob Daum
Historian Janice Slupski

Midwest Regional Office (MWR)
Historical Architect William Harlow
Historical Architect Mark Wolterman
Historical Landscape Architect Marla McEnaney

Project Team Support

Compliance Clerk Jena Whipking
GIS Specialist Lou Brennan

Investigative History and Methodology

The first investigation of the Armco-Ferro House is believed to have been done in 1976 for the List of Classified Structures (LCS). At that time the acquisition of the property was in progress. The reviewer noted that the building was in good condition as defined by the LCS.

The second investigation was completed for the General Management Plan (GMP) which was completed in 1980. The GMP addressed each of the Century of Progress houses separately, and called for their relocation to building sites in Beverly Shores outside of the beach zone. Beach erosion due to lake levels at that time was threatening two of the houses, the Florida Tropical House and the Wieboldt-Rostone House.¹

In 1985, the Midwest Regional Office completed research on the Century of Progress houses and prepared the National Register nomination for the Beverly Shores Century of Progress Architectural District. See Appendix C.

Additional investigation and research was completed in 1993/4 when the national lakeshore contracted with the Historic American Buildings Survey (HABS) to complete a set of as-built measured drawings, large-format photographs, and written histories of the Century of Progress homes, including the Armco-Ferro House. See Appendices A and B.

The 1997 General Management Plan, a compilation of management plans covering three distinct areas of the national lakeshore, was completed in August of that year. The stance taken by the national lakeshore was that long-term residential leases would be sought for each of the Century of Progress houses, requiring strict maintenance of the structures and occasional tours. It also stated that if the Rostone and Florida Tropical houses were threatened by shoreline erosion they would be moved to the south side of Lake Front Drive.²

¹ General Management Plan, Indiana Dunes National Lakeshore (National Park Service, Department of the Interior, 1980).

² General Management Plan, Indiana Dunes National Lakeshore (National Park Service, Department of the Interior, August 1997), 34.

The 1997 Interpretive Plan briefly refers to the interpretation of the houses through a wayside exhibit. Funding for this was requested in 2001 through the Project Management Information System (PMIS), package number 22021. At the time of this report the development of the wayside is proceeding.

In 1999 it was brought to the attention of the national lakeshore's Historical Architect that the house was in need of extensive repairs due to the level of deterioration. This condition resulted from the neglect of the Reservation of Use and Occupancy (ROU) holder to complete necessary maintenance and repairs. A preliminary condition assessment was completed at that time, with additional information provided by the ROU holder. See Appendix D Exhibit M.

In late 2004 and early 2005 the national lakeshore's Historical Architect, with the assistance of Todd Zeiger of Historic Landmarks Foundation of Indiana (HLFI), completed an assessment of the house in preparation for the completion of this report.

In late 2004 and early 2005 Thomas Cera and Christoph Lichtenfeld, both potential lessees of the house, completed research as they prepared their respective rehabilitation proposals. They provided copies of the materials to the national lakeshore to assist in the completion of this report.

Use Program

In November of 1993 the Historic Landmarks Foundation of Indiana (HLFI), a state-wide nonprofit preservation group, placed the Beverly Shores/Century of Progress Architectural District on the "Ten Most Endangered Landmarks in Indiana" list. The listing was done in an effort to gain public awareness of the state of the houses. HLFI then contacted the national lakeshore to discuss the long-term plans for the houses and how they might assist in their preservation.

In an effort to preserve the houses, and the integrity of the historic district, the national lakeshore entered into a Memorandum of Understanding (MOU) with HLFI in June, 1996, with the intent that the Florida Tropical House, and any additional houses as may be agreed to³, be protected and maintained under the auspices of a residential leasing program. The Florida Tropical House was leased to HLFI for a period of 20 years, and in turn HLFI was responsible for recruiting potential lessees. The lessees would be responsible for completing the recommended treatment within the first 3 years of the lease following the Secretary of the Interior's Standards.

From 1996 through 2004, HLFI has been actively recruiting potential lessees for the Century of Progress houses, with support from the Cultural Resource staff of the national lakeshore. There have been numerous stumbling blocks to this process, including the limited time period of the leases, the cost of the projects, and the lack of financial incentive in the way of federal or state income tax credits. In response to these points several amendments to the original MOU have been written.

³ Memorandum of Understanding Between Indiana Dunes National Lakeshore and Historic Landmarks Foundation of Indiana, June, 1996. National Park Service, Indiana Dunes National Lakeshore, Cultural Resource Management files, Historic Landmarks Foundation of Indiana folder.

In October, 1997, an amendment was written specifying the inclusion of the Wieboldt-Rostone House, the House of Tomorrow, and the Cypress Log Cabin in the leasing program. July, 1998, brought a second amendment to the MOU which extended the lease of the houses to HLF I from 20 to 25 years. In January, 2000, HLF I's lease was again extended to 35 years, with a period of 30 years set for the individual lessees. In November, 2000, in response to a request from several potential lessees and HLF I concerning the Federal Tax Incentive Program for historic preservation an amendment was written that allows the lessees to sublet a house. The national lakeshore agreed to this with the understanding that it would be on a limited basis. In April, 2004, there were two amendments to the MOU. One addressed commercial filming of the houses, and the other provided for the addition of the lots located between the houses to the agreement to be used for septic systems. In December, 2004, another amendment was written providing for the addition of the Armco-Ferro House to the agreement. The Armco-Ferro House had not been included in the original MOU due to the length of the Reservation of Use and Occupancy.

During this entire process the State Historic Preservation Office (SHPO) staff has been consulted on the development and implementation of the leasing program, and they have been very supportive of the national lakeshore and of the program. During the writing of the Historic Structures Reports on the Wieboldt-Rostone House, the House of Tomorrow, and the Cypress Log Cabin they have leant their knowledge and expertise in the development of treatment alternatives.

Prior to HLF I's receipt of the Armco-Ferro House in late 2004 (noted in the Developmental History section of this report), they had been contacted by two highly motivated families who were interested in leasing the house. (This report will not contain the history of the interactions between HLF I, park staff, and the potential lessees prior to the selection of the lessee.) To make an equitable and unbiased decision as to which family would become the lessee HLF I requested that each submit a rehabilitation proposal for review by committee. The committee included representatives from the national lakeshore, HLF I, and the SHPO. Prior to the presentations committee members toured the house, this was especially helpful since most had not been in the house. During this time a lengthy discussion ensued concerning rehabilitation alternatives; primarily concerning the inherent design flaws of the enameled panel installation details. After the presentation of each proposal the committee discussed its merits and its faults. During this time there was further discussion on the inherent design flaws in the panel installation. The successful family who was chosen to be the lessee had hired two reputable, very successful, architectural design firms to prepare the proposal. The first firm is experienced in dealing with steel, and the second specializes in historic preservation. These firms are active members of the project team. See Appendix D, Exhibit O, for their resumes.

Project Goals

The goal of this report is to: provide a comprehensive understanding of the structure and its significance in order to address management objectives and comply with the Secretary of the Interior Standards for preservation; to assure the ultimate treatment is compatible with the preservation of the original structure's purpose and integrity; to preserve significant spaces, extant fabric, and original design intent as much as possible; and to provide a serviceable, safe, and enjoyable structure for the occupants and park visitors.

DEVELOPMENTAL HISTORY

Introduction

The Armco-Ferro House was originally constructed for the 1933 Century of Progress Exposition. “The . . . Exposition opened in May of 1933 directed by the theme of science and its role in industrial advancement. Within the Home and Industrial Arts Group were model houses which featured modern materials, building methods and innovative home appliances, including the Armco-Ferro-Mayflower, Wieboldt-Rostone and Florida Tropical houses, and the House of Tomorrow. All utilized new techniques of design, construction and prefabrication in an attempt to bring the out-of-date housing industry in line with more efficient manufacturing practices such as those used by the auto industry.”⁴ The Home and Industrial Arts Group was the most successful venue of the Exposition.

The Armco-Ferro House was designed by Robert Smith, Jr., of Cleveland, Ohio. It is the only remaining example from the exposition that met the Fair Committee’s design criteria; a house that could be mass-produced and was affordable for an American family of modest means. This seemingly frameless house boasts a revolutionary construction system: corrugated steel panels that are bolted together. This system resembles a typical cardboard box. The corrugated panels are clad with porcelain-enameled steel panels produced by the Ferro Enamel Corporation. This construction system later provided the inspiration for the post World War II prefabricated housing developed by the Lustron Corporation.

After the close of the Exposition in 1934, Robert Bartlett, a Northwest Indiana real estate developer, purchased the Armco-Ferro House and moved it, along with several other structures from the Exposition, to his new residential development in Beverly Shores, Indiana. Bartlett had “. . . built a 200-foot-long pier on the lake to receive the buildings; the houses were lifted by giant cranes onto the pier and then rolled across the dunes on timbers to their new locations.”⁵ Bartlett sold the house to its first private owner in 1942. The house was subsequently sold sometime between 1942 and 1948 to the second owners (two separate parties). Upon the death of one party, interest in ownership was transferred to the remaining party in 1969. The house was sold to the National Park Service by this party in 1976 under the Reservation of Use and Occupancy Program, with an expiration of June 28, 2005. The ROU was sold to Mary Miller-Luxom, the House of Tomorrow ROU holder, in 1977. In 1982 Luxom quit claimed the house to David Kemerer and James Haydon (two separate parties).⁶ In late 2004 Historic Landmarks Foundation of Indiana (HLFI) approached Kemerer with an interest in buying the remaining few months of the ROU. To facilitate the sale to HLFI, Haydon quit claimed his interest in the ROU to Kemerer. Upon notification of the sale to HLFI the national lakeshore wrote an amendment to the existing MOU to include the Armco-Ferro House in the leasing agreement.

⁴ Maria F. Ali, *The Century of Progress Documentation Project* (Washington, D.C.: Historic American Buildings Survey, Department of the Interior, 1994), 1, HABS No. IN-239. Appendix A.

⁵ Jandl, 138.

⁶ Maria F. Ali, *The Armco-Ferro House* (Washington, D.C.: Historic American Buildings Survey, Department of the Interior, 1994), 1, HABS No. IN-244. Appendix B.

Statement of Significance

The Armco-Ferro House is located in the Century of Progress Architectural District, a National Register District. The nomination, dated October 21, 1985, states, “The Beverly Shores Century of Progress Architectural District is significant because it encompasses houses from the 1933/34 Chicago Century of Progress Exposition that comprised a portion of an exhibit known as the Home and Industrial Arts Group. Many of these structures were innovative and displayed engineering and construction technologies that have become an integral part of modern residential architecture.” The authors of the nomination stated, “In spite of . . . minor changes, all of the structures retain their integrity of design.” The authors focused on changes made to the Florida Tropical, Wieboldt-Rostone, and Cypress houses, noting that the Florida Tropical and Wieboldt-Rostone houses had been set on basements due to soil conditions.⁷

Although the National Register nomination states that the significance of the houses is unrelated to their current location, the role of the Century of Progress houses in the development of Beverly Shores has become apparent. A Determination of Eligibility⁸ completed on a property located in Beverly Shores included a concise history of the development of the town. It stated that Beverly Shores, developed by Frederick and Robert Bartlett of Chicago, was “One of the most ambitious recreational investments in the duneland . . .”⁹ area. It was the 1920’s, and the Bartletts envisioned Beverly Shores as a grand resort such as those of Florida.

Beverly Shores was established by Frederick Bartlett in 1927. His “. . . plans proposed construction of two “large and modern hotels to rival the hostelryes of Atlantic City” and a South Shore railroad station.”¹⁰ By 1930, he had built the administration building, the rail road station, and a clubhouse for the golf course. “To attract buyers, Bartlett established the Theater of the Dunes as summer headquarters for Chicago’s Goodman Theater Company.”¹¹

Robert Bartlett, Frederick’s younger brother, purchased Frederick’s interest in Beverly Shores in 1933. His purchase brought a second phase of development, with the construction of a large hotel, a beach casino, infrastructure, and extensive landscaping projects along the major thoroughfares. Bartlett utilized aggressive marketing tactics to sell real estate in a Depression-battered market. “Mirroring the wild promotional schemes of the 1920’s real estate boom . . .”¹² he moved the Century of Progress houses to Beverly Shores by barge and truck. Bartlett thought these high-profile structures would attract buyers’ to the development during a harsh business climate, however there is no definitive research with statistical data on how, or even if, his promotional schemes influenced property sales.

In 1946, Bartlett sold most of his Beverly Shores real estate holdings, but continued to use his home located there. The residents of Beverly Shores went to the polls in 1946 voting to incorporate as a town. The incorporation was certified on January 2, 1947.

⁷ National Register Nomination, Appendix C.

⁸ Janice Slupski, 17 West Service Avenue: An Illustration of Dunes Area Recreational Development (Indiana Dunes National Lakeshore, Department of the Interior, 1997), paraphrased.

⁹ Slupski, 4.

¹⁰ Slupski, 5.

¹¹ Slupski, 5.

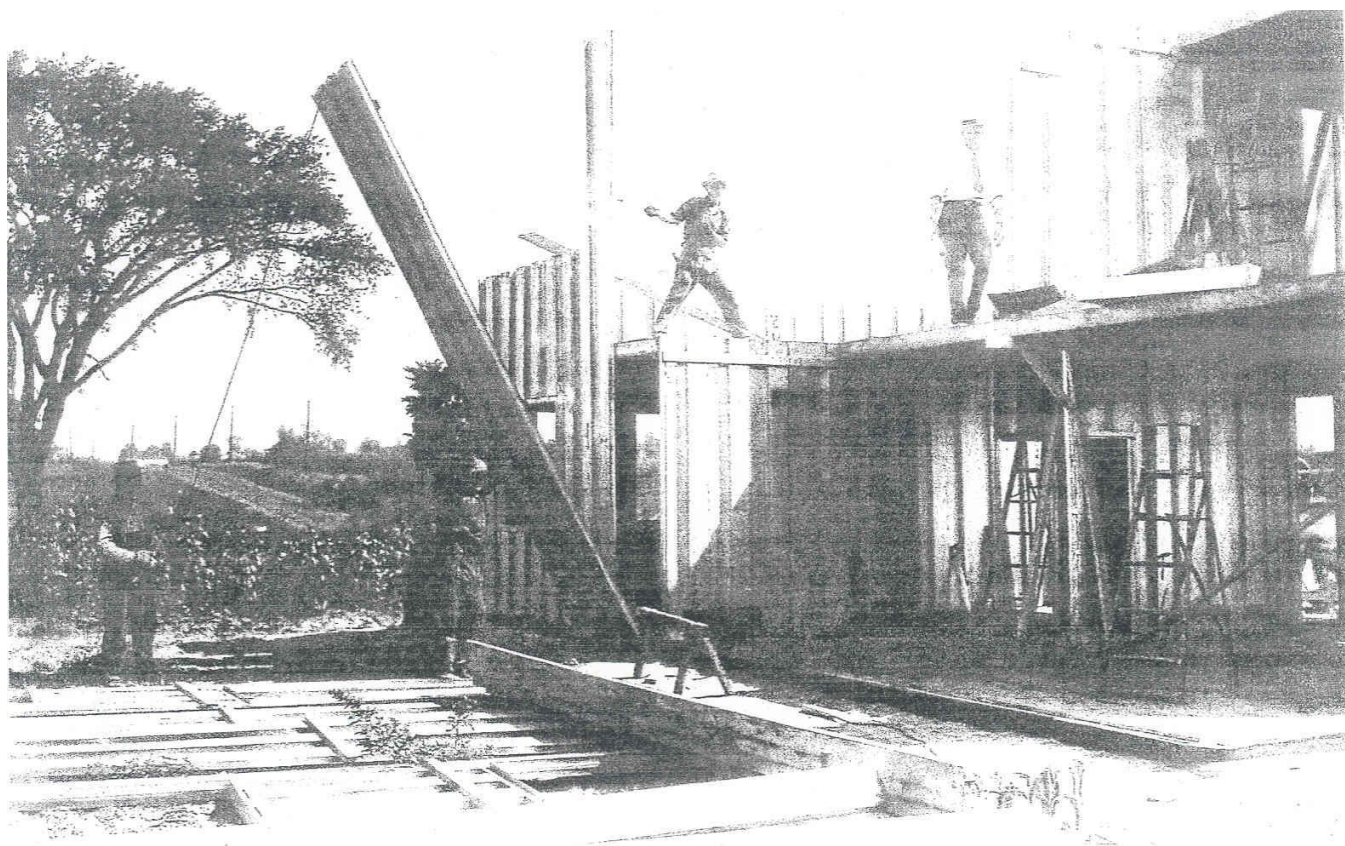
¹² Slupski, 7.

Period of Significance

The period of significance, as stated in the National Register nomination, were the years of 1933 and 1934, when the Armco-Ferro House was located at the Exposition site in Chicago. However the Century of Progress homes were moved from their original location in January of 1935 to their existing sites in Beverly Shores, Indiana. The new setting and spatial relationships of the homes have developed their own significance as cornerstones in the development of the town of Beverly Shores. Thus, the period of significance extends to 1947, including the years when Robert Bartlett was instrumental in the development of Beverly Shores.

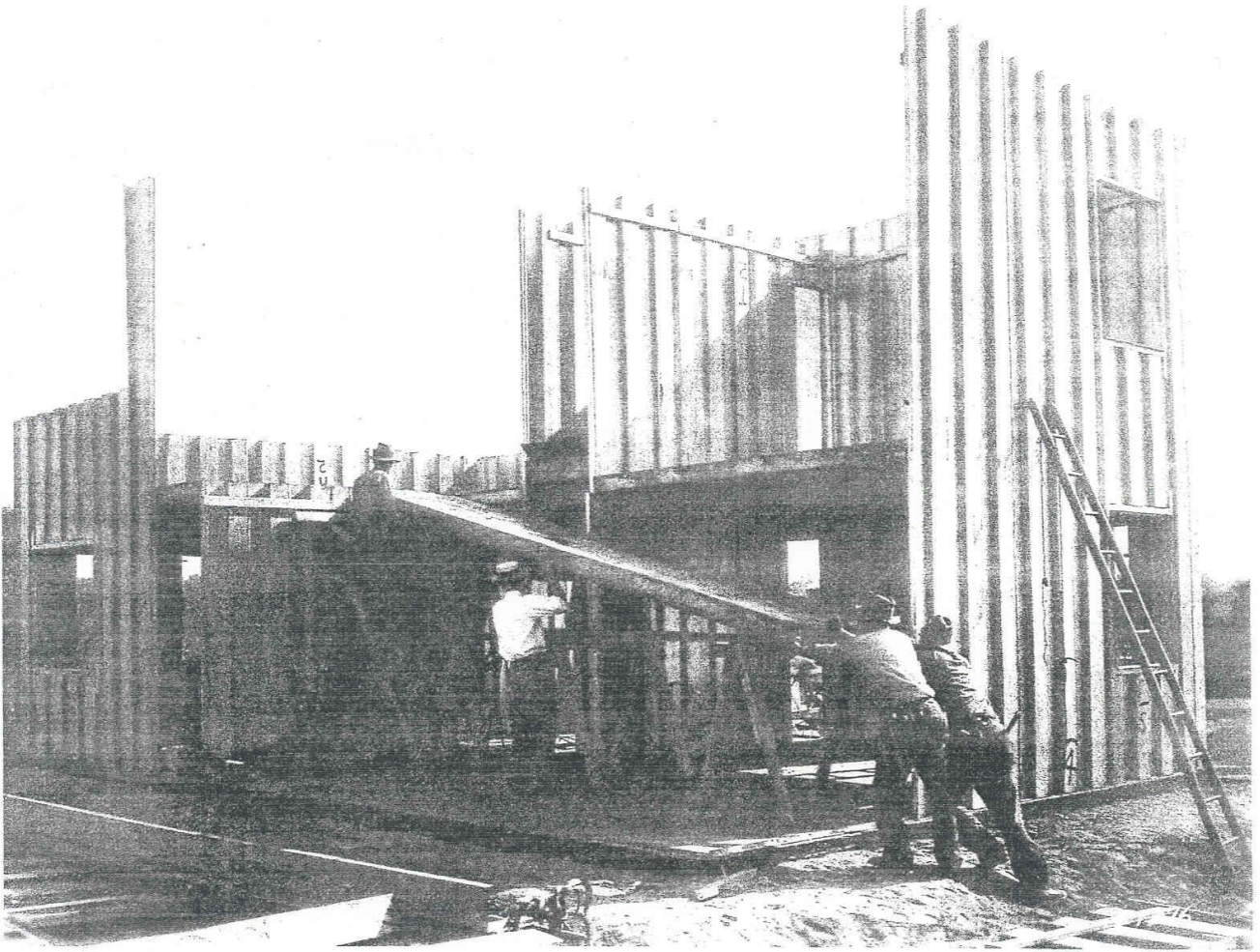
Historic Photographs

The Armco-Ferro House photos shown below were taken during both years of the Exposition. See also Appendix D, Exhibits A, B, C, D, and H.



This image is representative of the structural system of the Armco-Ferro House, and the method of construction. This particular house is located in Middletown, Ohio. It was constructed during the summer of 1933.¹³

¹³ From research completed by Christoph Lichtenfeld.



This image is representative of the structural system of the Armco-Ferro House, and the method of construction. This particular house is located in Middletown, Ohio. It was constructed during the summer of 1933.¹⁴

¹⁴ From research completed by Christoph Lichtenfeld.



The Armco-Ferro House as it was originally constructed for the 1933 fair season. Note the original garage door, the rounded overhang suspended above the front door, the shallow overhangs on the windows, the solid parapet wall, and the fixed awnings on the third floor windows.¹⁵

¹⁵ The Official Pictures of A Century of Progress Exposition Chicago 1933, Klein Publications, 1933. Appendix D, Exhibit B.



The living room of the Armco-Ferro House as it was originally decorated for the 1933 fair season. The furnishings for this season were very modern with rectilinear lines and details.¹⁶

¹⁶ Frameless Steel House at a Century of Progress, 1933. Appendix D, Exhibit A.



The dining room of the Armco-Ferro House as it was originally decorated for the 1933 fair season. The decorators thought “outside the box” when designing this room. Rather than using it solely as the dining space they created two use areas. The dining table was set on an outside wall under a window, and in the opposite corner they placed a card table for recreational purposes.¹⁷

¹⁷ Frameless Steel House at a Century of Progress, 1933. Appendix D, Exhibit A.



The kitchen of the Armco-Ferro House as it was originally designed for the 1933 fair season.¹⁸

¹⁸ Frameless Steel House at a Century of Progress, 1933. Appendix D, Exhibit A.



The boy's room of the Armco-Ferro House as it was originally decorated for the 1933 fair season. The furnishings for this season were very modern with rectilinear lines and details. Two unusual pieces of furniture for the time period included the hanging bunk bed, and the bookcase which doubled as the stair for the bed.¹⁹

¹⁹ Frameless Steel House at a Century of Progress, 1933. Appendix D, Exhibit A..



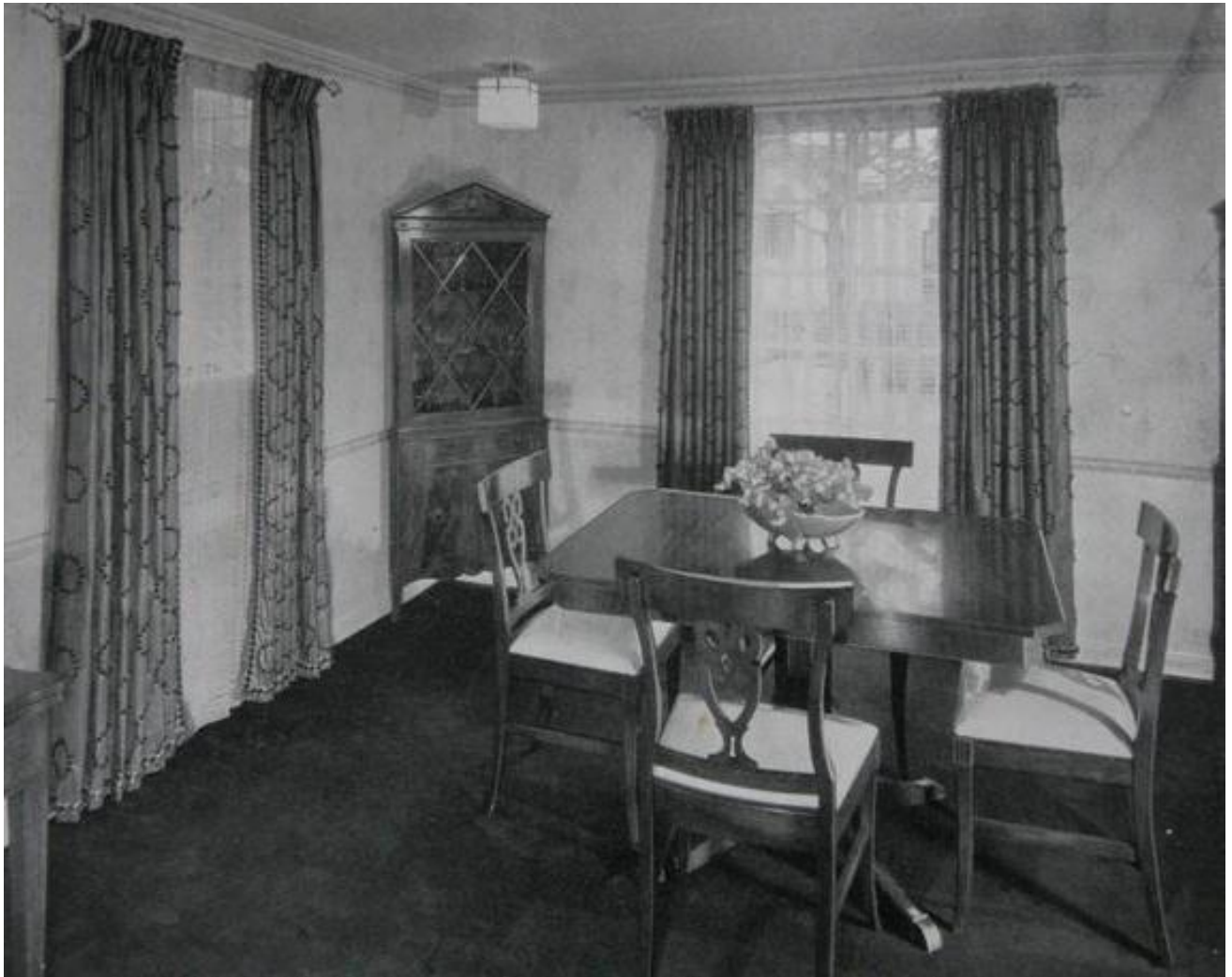
The Armco-Ferro House as it was redesigned for the 1934 fair season. Note the changes – the garage was enclosed, the porch was added, the overhangs on the windows were removed and awnings installed, the color of the parapet wall was changed and two wrought iron grills were added, and the fixed awnings on the third floor windows were removed.²⁰

²⁰ From research completed by Thomas Cera.



The living room of the Armco-Ferro House as it was decorated for the 1934 fair season. The furnishings for this season were very traditional – the spaces were not cluttered with too many pieces as in 1933.²¹

²¹ A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934, page 19. Appendix D, Exhibit H.



The dining room of the Armco-Ferro House as it was decorated for the 1934 fair season. The furnishings were very traditional, as was the use of a wood wainscot detail. Note however that the lighting did not change from that used in 1933.²²

²² A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934, page 20. Appendix D, Exhibit H.



The kitchen of the Armco-Ferro House as it was decorated for the 1934 fair season; looking toward the laundry room. The only changes that can be discerned from the 1933 season are the use of a Masonite “tile” wainscot, the “picture frame” pattern in the linoleum, and the cabinet/appliance layout.²³

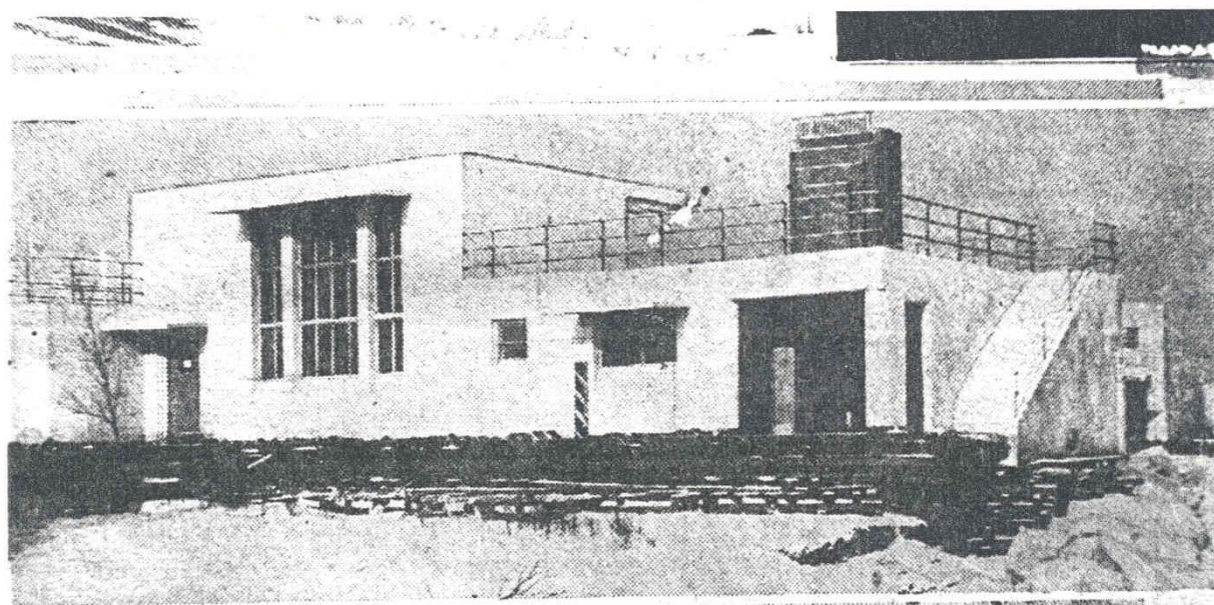
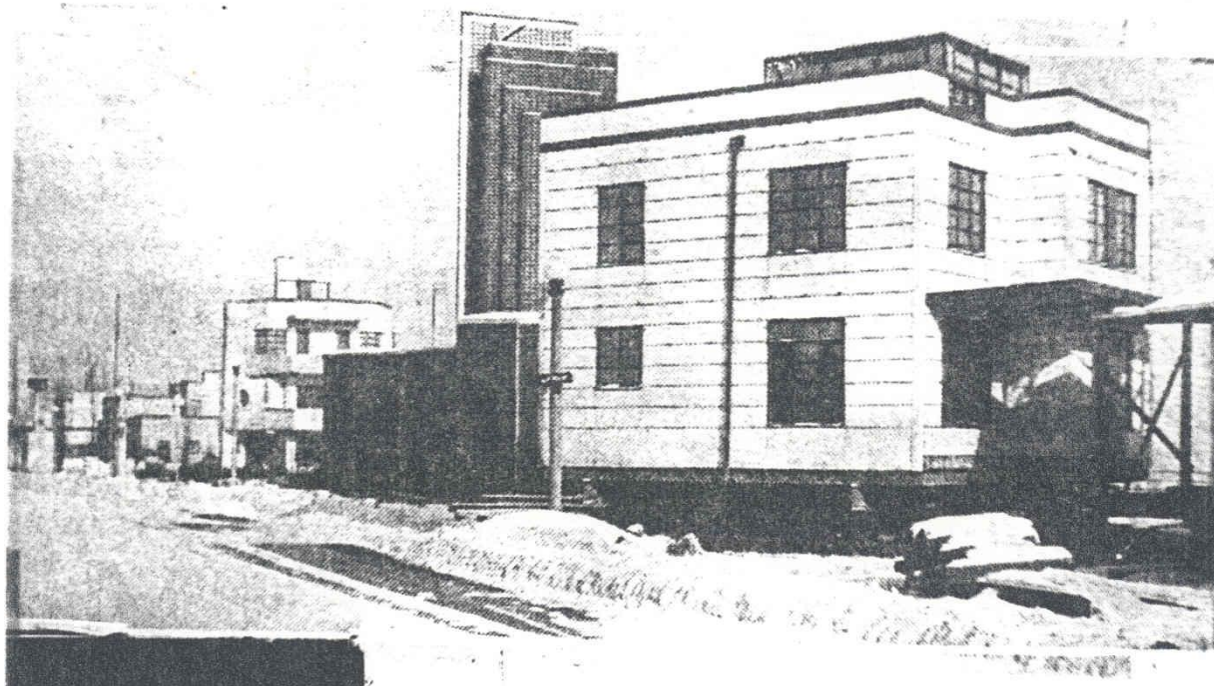
²³ A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934, page 21. Appendix D, Exhibit H.



The kitchen of the Armco-Ferro House as it was decorated for the 1934 fair season; looking toward the dining room. The only changes that can be discerned from the 1933 season are the use of a Masonite “tile” wainscot, the “picture frame” pattern in the linoleum, and the cabinet/appliance layout.²⁴

²⁴ A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934, page 21. Appendix D, Exhibit H.

SAYING GOOD-BY TO THE WORLD'S FAIR



Admired by millions as part of the modern homes exhibition, these two houses are ready to forsake the World's Fair grounds. Barges will float them across Lake Michigan to Beverly Shores where the Robert Bartlett Realty Company will re-locate them, together with four others of the fair's modern houses, in a permanent exhibition. (Top) The Armco-Ferro porcelain enamel house, moved across Leif Erickson and (bottom) the Florida Home perched on the rocks at the water's edge ready for transporting.



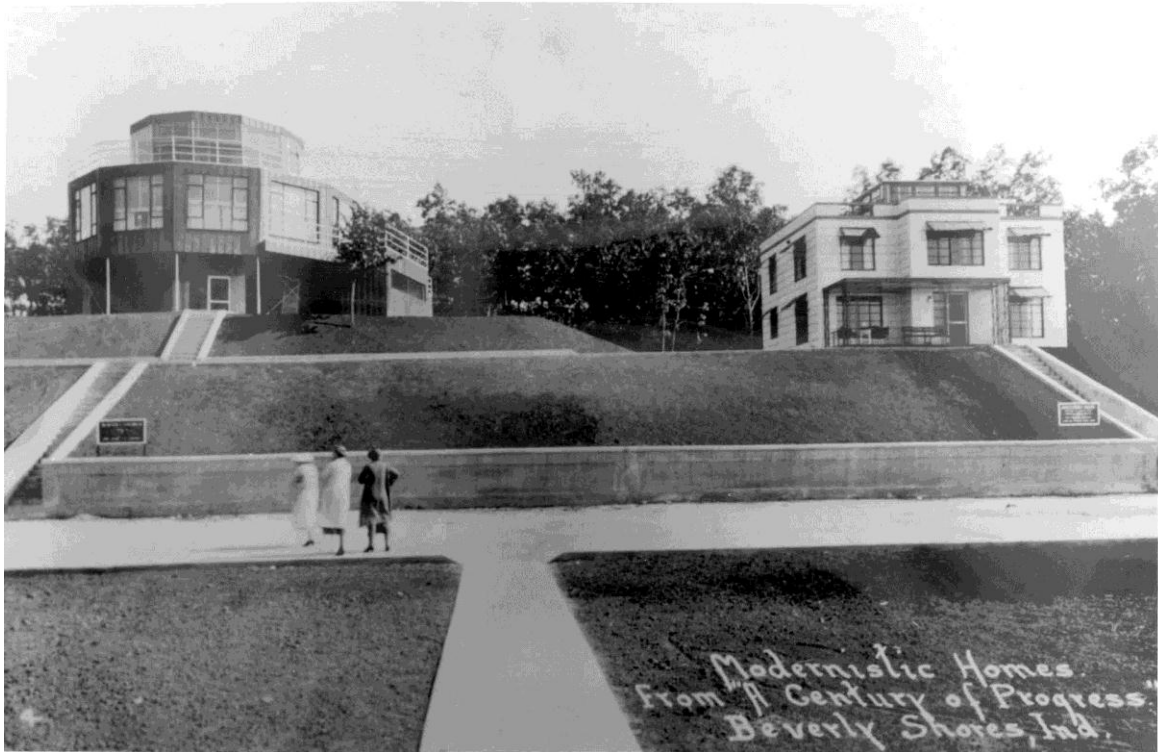
This historic photograph was taken in early 1935 as the Century of Progress houses were being moved from the Exposition site, by barge across Lake Michigan, to Beverly Shores, Indiana. This photo is of the Wieboldt-Rostone House, and is representative of the method used to move four of the five houses, including the Armco-Ferro House. Note the heavy timbers under the house. A combination of the crane and cribwork was used to lift the houses from the level of the pier to the level of Lake Front Drive.²⁵

²⁵ Cultural Resource files, Resource Management Division, Indiana Dunes National Lakeshore.



This photograph was taken after the Century of Progress houses arrived at Beverly Shores. You will notice that the Florida Tropical House is already in place on its foundation, the top two floors of the House of Tomorrow are being raised to the height of Lake Front Drive, and the Armco-Ferro House is in line to be raised to street level.²⁶

²⁶ Cultural Resource files, Resource Management Division, Indiana Dunes National Lakeshore.



This image is actually a postcard of the House of Tomorrow and the Armco-Ferro House after they were placed on their respective sites in Beverly Shores. Note the awnings were still in place over the windows, and Bartlett had placed interpretive markers in front of each house at the retaining wall.²⁷

²⁷ Cultural Resource files, Resource Management Division, Indiana Dunes National Lakeshore.

Drawings & Models

There are only a few drawings that have been found to date for the Armco-Ferro House. These include general sketches of the structural system and an exterior perspective, both produced by the company in 1933, see Appendix D, Exhibits A, C, D, E, and I, and sketches of the floor plans used in brochures for the 1934 fair season, see Appendix D, Exhibit H. The only construction drawing found is a reduction of the blueprint of the architect's original electrical plan, see Appendix D, Exhibit G. Pages of brochures produced by the company have been found that include drawings of other floor plans that were available. These brochures also included elevations of each house. See Appendix D, Exhibit I. The brochure produced for the 1933 fair season mentioned that "A cardboard cut-out model of this house, together with floor plan and elevation drawings, and a garden landscape plan and planting list, are for sale for 25 cents."²⁸, although none have been located. A set of as-built measured drawings were completed by the Historic American Buildings Survey (HABS), National Park Service, in the summer of 1994. These drawings included plans, elevations, and a section. See Appendix B for reduced copies of the drawings.

Century of Progress Architectural District – A Brief Comparison of Integrity

Of the remaining Century of Progress Exposition buildings, the Armco-Ferro House has seen only minor changes since its construction in 1933. The house's design was criticized by fair goers and critics as being too severe. So, for the 1934 fair season, several design features were added and others removed to create a more traditional appearance. The asymmetrical porch was added to the façade; sections of the parapet were removed and the cast iron grills were installed; the shallow rounded overhangs above the windows and the overhang above the front door were removed; striped awnings were installed over the windows on the first and second floors; and the awnings were removed from the third floor windows. In addition, the original garage area, used for demonstrating the enameling process, was enclosed for use as a study. The original kitchen cabinetry and appliances were removed prior to the house's move across the lake. The national lakeshore's Historical Architect assumes, from research completed by HABS, that these components were removed prior to the move and sold to help pay for the move. Due to the lack of regular maintenance on the building severe leaks have developed in the parapet walls and the flat roof. The leaks have contributed to the deterioration of the interior finishes, including plaster walls, Celotex ceiling panels, and the wood subflooring, and to the deterioration of the corrugated steel panels that comprise the structural system.

The House of Tomorrow has seen the most changes since the houses were moved to Beverly Shores, most notably in interior spatial relationships and replacement of exterior and interior finish materials. These changes, completed between 1935 and the early 1990's, range from the removal of the fixed glass curtain wall system on the second and third floor, to the addition of screened enclosures and a carport, to the addition and removal of interior walls, and finally to the significant alterations in interior wall finish materials. A list of known major alterations to the house was included in the Evaluation of Character Defining Features section of that house's Historic Structures Report.

²⁸ Frameless Steel House At A Century of Progress, 1933. Appendix D, Exhibit A.

The Wieboldt-Rostone House has seen only a few changes in its design since the Exposition. When it was moved to Beverly Shores it was set on a basement rather than on a flat concrete slab, and in 1950 it went through a major change in appearance when Perma-Stone was installed over the failing original Rostone panels. Since the national lakeshore discontinued use of the house as a science office and vacated it in 1985, it had experienced severe water damage resulting in the deterioration of interior finish materials including Rostone panels, stair treads, and risers.

The Florida Tropical House was also set on a basement after its move to Beverly Shores, and there were minor changes to the spatial organization of the first floor. The original bar area was modified to include a stair to the basement, a powder room, and a small dining area. In addition, the butler's pantry located adjacent to the kitchen was removed.

Finally, the Cypress Log Cabin and Guest House have seen only a few changes since their move to Beverly Shores in 1935, the most prominent being the change in the spatial relationship between the houses and the additions to both houses. Owners of the houses enclosed the original porch area of the main house for use as a bedroom, added a screened porch area, and closed a door between the exhibit room/living room and the display room/kitchen allowing for the addition of the kitchen, all completed prior to 1951.²⁹ The interior spatial organization of the guesthouse was also modified, prior to 1951, from its original use as a workshop and display area to its Beverly Shores use as a guesthouse, and three additions were constructed.³⁰

²⁹ Interview with Joel Miller, February 19, 1999.

³⁰ Interview with Joel Miller, February 19, 1999.

EVALUATION OF CHARACTER DEFINING FEATURES

A Brief Architectural Description of the Armco-Ferro House

From research completed by the Historic American Buildings Survey (HABS):

The Ferro Enamel Corporation, one of the two major sponsors for the . . . house, was formed in 1930 by a merger between the Ferro Enameling Company and the Ferro Enamel and Supply Co. The idea of using porcelain enamel for residential construction was introduced by Bob Weaver, president of the newly formed company. Shortly after the merger, Charles Bacon Rowley, architect, designed a four-person house with Ferro-Enamel shingles that the company erected in Cleveland, Ohio, in July 1932.³¹ Despite the innovative use of ferro-enamel as a cladding material, the house was built using conventional wood construction. The first porcelain-enameled frameless steel house was completed . . . in South Euclid, Ohio . . . Like the Armco-Ferro house, this house was designed by Robert Smith, Jr., and was built by Insulated Steel Corporation; . . .³²

In 1932, the American Rolling Company (Armco) . . . built a second porcelain-enameled frameless steel house . . . using Robert Smith, Jr. as architect.³³ The Ferro Enamel Corporation and the Insulated Steel Construction Company collaborated with Armco, thus setting the stage for the partnership that made the Century of Progress home possible.³⁴

The national lakeshore's Historical Architect assumes that the primary reason for the development of the enameled panel and steel structural system was an effort by the new corporation, and its associates, to find new markets for steel during the economic depression. Americans could get by without luxuries like cars, but not necessarily without houses.

The Armco-Ferro House was built to demonstrate the qualities of porcelain enamel as a permanent, paint free, exterior siding, and to show the possibilities of the new method of steel construction.³⁵ In an advertising pamphlet produced for the 1933 fair season by the Ladies' Home Journal and the Insulated Steel Construction Co. they extolled the virtues of the enameled panel and the steel structure.

Porcelain enamel will last forever. It is not affected by quick changes in atmospheric temperatures. Its impervious glass surface sheds water and moisture, and prevents corrosion. For this reason, too, dirt and grime will not easily collect on porcelain enamel walls. Your automobile has a strong, compact metal chassis, which supports the body . . . during years of hard service. Your FRAMELESS

³¹ Buell, Temple Hoyne, "Community Planning with Transportable Houses," *Architectural Record* 75 (January 1934), page 25.

³² Bemis, Albert Farwell, "Armco," *The Evolving House*, Vol. 3, *Rational Design* (Cambridge, MA: MIT Press, 1936), page 343.

³³ Buell, page 22.

³⁴ Ali, Armco-Ferro-Mayflower House, page 4. Appendix B.

³⁵ Ali, Armco-Ferro-Mayflower House, page 1. Appendix B.

STEEL HOUSE will also have a metal chassis – a new type of structure that replaces the conventional studding, sheathing and joist structures, . . . you will enjoy in your FRAMELESS STEEL HOUSE the assurance of full protection for your family against fire, lightning and wind. Experience has shown us the rugged endurance and practical value of steel. All about us today are skyscrapers, bridges, ocean piers and countless other applications of this most useful material. Everywhere are examples of its strength, utility and permanence.³⁶

They advertised that, in addition to porcelain enamel or insulation board, any finish material such as wood, brick, stone, stucco, plaster, or plywood could be applied to the exterior or the interior of the structural system. This was probably an effort to attract more potential customers with the use of traditional, comfortable, finish materials. They emphasized the house could be built in less than half the time it took to complete a traditional house; answering customers demands for better housing at moderate costs.³⁷

The Armco-Ferro House has seen only minor changes since its construction in 1933. The house's design was ridiculed by fair goers and critics as being too severe.³⁸ For the 1934 fair season several design features were removed, and others added, to create a more traditional appearance. The rounded overhang above the front door was removed, and the asymmetrical porch was added to the façade; sections of the solid parapet wall were removed and cast iron grills were installed; the shallow rounded overhangs above the windows on the first and second floors were removed and striped awnings were installed; the awnings were removed from the third floor windows; and the original garage area, used for demonstrating the enameling process, was enclosed for use as a "man's study". Prior to the house's move across the lake to Beverly Shores the original kitchen cabinetry and appliances were removed. The national lakeshore's Historical Architect assumes, from research completed by HABS, that the kitchen components were removed and sold to help pay for the move. There has also been speculation they were removed to lighten the load.

Chronological Listing of Known Alterations

- ◆ Late 1933 or early 1934 – The internal downspouts in the exterior walls were abandoned, and scuppers were cut in the parapet.
- ◆ 1934 – Exterior details were removed to soften the appearance of the house:
 - a) rounded overhang over the front door
 - b) shallow rounded overhangs on the first and second floor windows
 - c) awnings on the third floor windows
 - d) sections of the solid parapet walls
- ◆ 1934 – Exterior details added to soften the appearance of the house:
 - a) asymmetrical porch
 - b) striped awnings on the first and second floor windows
 - c) cast iron grills in the parapet walls
- ◆ 1934 – The garage was enclosed for use as a "man's study".

³⁶ Know This Kind of House Before You Build, 1933. Appendix D, Exhibit D.

³⁷ Know This Kind of House Before You Build, 1933. Appendix D, Exhibit D.

³⁸ Interview with David Kemerer.

- ◆ Late 1934 or early 1935 – The kitchen cabinets and appliances were removed prior to the move across Lake Michigan.
- ◆ Between 1935 – 1982 – The exterior light fixture at the front door was replaced.
- ◆ 1977 - The plumbing froze. The toilets, copper piping, and stack were replaced.
- ◆ Between 1977 – 1982 – Fabric was hung on the walls of all four bedrooms over multiple layers of wallpaper. The ROU holder at that time was Mary Miller-Luxom of House of Tomorrow fame. (Refer to the House of Tomorrow HSR.)
- ◆ Between 1977 – 1982 – The screened enclosure was added to the front porch.
- ◆ 1982 – Approximately 30 broken windows were replaced after Mary Miller-Luxom sold the ROU to the Kemerers.
- ◆ 1982 – The kitchen fluorescent light fixture was replaced. The original was stored in the closet under the stair.
- ◆ 1984 – The drywall in the northwest bedroom, on the west and north walls, was replaced. The walls were stripped down to the steel, ½” Thermax insulation was installed with green board placed over it, and the walls were plastered.
- ◆ Circa 1985 – The entire roof was repaired. It is unknown if extant layers were removed first. Post repairs - hot mops were completed on a semi-annual basis.
- ◆ Circa 1989 – The carpet in the southeast bedroom was replaced.
- ◆ Circa 1994 – The outdoor faucet on the west wall was installed
- ◆ 1999 - Subfloor repairs in the southeast corner of the northeast bedroom were completed. This included repairs to the steel structure (the deck and corrugated panels were severely deteriorated).
- ◆ 1999 – The drywall on the east wall of the living room was replaced. The wall was stripped down to the steel, ½” Thermax insulation was installed with green board placed over it, and the wall was plastered.
- ◆ 1999 – Carpet was installed on the first floor, and in the northeast and northwest bedrooms.
- ◆ 2000 – The ROU holder cleared away the built-up roofing materials in the areas around the roof drains and used modified Bitumin Torch Down roofing to make repairs.
- ◆ 2000 – The roofing failed at the parapet walls, and repairs were made using Modified Bitumin Torch Down roofing.
- ◆ 2001 – The solarium roof began to fail.
- ◆ 2002 – The sag in the solarium roof was pronounced; a temporary jack post and wood beam were installed to support it.

The following repairs were made by previous ROU holder Kemerer, however he did not recall the years in which they were made.

- ◆ The electrical outlets were replaced.
- ◆ The circa 1960’s exterior light fixture at the back door was replaced.

Kemerer also noted:

- ◆ The original electrical panel with breakers is still in place and is operable.
- ◆ There was no evidence of the original flooring in the living room and bedrooms when the last carpet was installed.
- ◆ The original linoleum is in place in the den and in the closets at the entry.
- ◆ The builder did not fill the walls with rock wool as originally specified.
- ◆ The stove is the only one Kemerer has ever seen in the house.

- ◆ The furnace and water heater have been in use for at least for 20 years.
- ◆ There is an underground tank on the southwest corner of the property under the lilacs. You can see the trench for the line to the house in the grass.
- ◆ The septic system is comprised of two large concrete crocks that are rigged in series. If you follow the south wall of the house east they are located in the area between the Armco-Ferro House and the House of Tomorrow. (This might be one of the tanks mistakenly thought to be connected to the House of Tomorrow.)
- ◆ The sewer line runs from the stack under the house to the south. Two feet out from the south wall it jogs. It turns east and runs straight to the tank.
- ◆ The gas lines feed into the house from the south.
- ◆ The story of the lilacs – Dr. Shugar, one of the ROU holders, was related to the man from Lombard, Illinois, who was a developer of lilacs.

Spatial Organizations

External

The spatial relationships between the Century of Progress homes have remained unchanged since their placement in Beverly Shores in 1935. However, due to natural succession, additions of landscaping features by subsequent owners, and a lack of regular maintenance, the once open lawns between the Cypress Log Cabin, the House of Tomorrow, and the Armco-Ferro House have become overgrown.

The integrity of the cultural landscape of the Century of Progress Architectural District has not yet been evaluated by Historical Landscape Architects. However the Midwest Region's Chief of Cultural Resources has stated that because rehabilitation has been chosen as the method of treatment for the Century of Progress houses then rehabilitation will be the preferred treatment for the landscapes.

Internal

The floor plan of the Armco-Ferro House is possibly based on the very traditional four-square; four rooms on the first floor with an implied central hall (stair), and four rooms on the second with a central hall. One of the advantages of the four-square was cross ventilation, from front to back. The first floor plan does incorporate this.

The internal spatial relationships of the first floor have seen only two alterations since the house was constructed. The area originally designed as the garage was enclosed for the 1934 fair season and decorated as a man's study, and the asymmetrical porch was added to the façade to soften the appearance of the house. The internal spatial relationships of the second floor have seen only one alteration since the house was constructed. The door opening between two of the bedrooms, currently known as the guest room and the master bedroom, was closed to create a closet. It is unknown if this was done during the fair or after. The third floor has not been modified from its original configuration.

Exterior Appearance & Interior Room Function and Appearance

The following briefly describes the historic, and most recent, room functions, and significant features. Alterations made to the spaces are noted within this text, and can also be found within Appendix D, Exhibit H. The intent of these summaries is to assist the reader in developing a mental image of how the rooms appear. Specific information with regard to elements and building materials can also be found within the Existing Conditions and Treatment Recommendations sections of this report. Names given to each room are the most recent and historic use names, respectfully. Combined photographs of several rooms have been included in this section with the most recent on the left and the historic on the right.

Please note, as you review the following material and the material in the Existing Conditions section of the report all building components are in varying degrees of deterioration due to a lack of regular maintenance by the previous residents during their occupancy. The lack of maintenance and neglect, e.g. not repairing or replacing the roof, resulted in severe leaks in the roof and parapet walls, and deterioration of interior finish materials and the structural system.

Exterior

As with many of the Century of Progress homes, the builders of the Armco-Ferro House accepted donations of construction materials and building components from various companies across the country. Those companies were afforded the opportunity to advertise in books and brochures produced for the Exposition.

Original Materials & Systems^{39 40}

Iron and Steel Sheets	American Rolling Mill Co, Middletown, Ohio
Porcelain Enamel	Ferro Enamel Corporation, Cleveland, Ohio
Enameling and Fabrication of Ext.	Vitreous Enameling Co., Cleveland, Ohio
Construction	Insulated Steel Construction Co., Cleveland, Ohio
Sheet Construction Screws	Hillwood Manufacturing Co., Cleveland, Ohio
Sheet Metal Screws	Parker Kahlon Corp., New York
Structural Adhesive	Paint Products Laboratories, Chicago
Insulation	The Celotex Company, Chicago
Garage Ceiling and Insulation	Western Felt Works, Chicago
Roofing	The Barrett Company, Chicago
Roof Insulation	Celotex Corporation, Chicago
Promenade Tile	Ludowici-Celadon Co., Chicago
Window Glass	Libbey-Owens-Ford Glass Co., Toledo, Ohio
Plumbing	Crane Company, Chicago
Water Heaters	Westinghouse Electric & Mfg. Co., Pittsburgh
Heating and Air Conditioning	Surface Combustion Company, Toledo, Ohio
No-Fuse-Load-Center	Westinghouse Electric & Mfg. Co., Pittsburgh
Electric Wiring Materials	Bryant Electric Co., Chicago

The current exterior appearance of the house is the same as that during the 1934 fair season, with the exception of the following: the removal of the window awnings on the first and second

³⁹ A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934, page 25. Appendix D, Exhibit H.

⁴⁰ The Metal Home, 1933. Appendix D, Exhibit E

floors; deterioration; attempted repairs to the porcelain enameled panels using bondo; and all exterior surfaces, including the stainless steel strips between the panels, have multiple layers of paint.

Porch Addition

The house's original design was criticized as being too severe.⁴¹ For the 1934 fair season several design features were removed and others added to create a more traditional appearance. The rounded overhang above the front door was removed, and the asymmetrical porch was added.

Interior

A variety of finish materials were used at the Exposition to showcase new and innovative materials by many different manufacturers.^{42 43 44}

Materials

Garage Door
Metal Doors
Nu-Wood Ceilings
Living Room Ceiling (1933/4)
Kitchen Ceiling (1933/4)
Solarium Ceiling (1934)
Bathroom Fixtures
Porcelain Enameled Shower
Kitchen Cabinets
Metal Cabinets
Veribrite One Piece Sink Tops
Complete Model Kitchen
Clothes Closet Features
Hardware
Ornamental Ironwork
Ornamental Stair Rail
Stair Nosing
Tile Wainscoting
Enameled Tile - Baths and Kitchen
Interior Paint
Wallpaper
Wallpaper
Drapery Hardware
Venetian Blinds
Draperies (1933)
Draperies (1933)
Draperies (1933)
Draperies (1933)

Supplier

Overhead Door Co., Hartford City, Indiana
Dahlstrom Metallic Door Co., Jamestown, N.Y.
Wood Conversion Company, Cloquet, Minnesota
Celotex Corporation, Chicago
Celotex Corporation, Chicago
Celotex Corporation, Chicago
Crane Company, Chicago
Fiatt Mfg. Co., Chicago
Elgin Stove & Oven Co., Elgin, Ill.
Dieterich Steel Cabinet Corp., Chicago
General Porcelain Enameling & Mfg. Co., Chicago
Westinghouse Electric & Mfg. Co., Pittsburgh
Knappe & Vogt Mfg. Co., Grand Rapids, Michigan
P. & F. Corbin, New Britain, Connecticut
Sternberg, Manufacturing Co., Chicago
Rose Iron Works, Cleveland, Ohio
Kinkead Industries, Chicago
Johns-Mansville Sales Corp., Chicago
Porcelain Tile Co., Chicago
Pan-American Wall Paper & Paint Co., Chicago
Mayflower Wall Papers, Chicago
Warner Co.
Kirsch Co., Sturgis, Michigan
Miller & Connell Co., Chicago
Orinoka
Marshall Field
J.H. Thorp
Schumacher

⁴¹ Interview with David Kemerer.

⁴² A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934, page 25. Appendix D, Exhibit H.

⁴³ The Metal Home, 1933. Appendix D, Exhibit E.

⁴⁴ Frameless Steel House At A Century of Progress, 1933. Appendix D, Exhibit A.

Curtains (1933)	Schumacher
Curtains (1933)	Scranton Lace
Curtains (1933)	Foster
Curtains (1933)	Columbus Coated Fabrics
Curtains (1934)	Quaker Lace Company, Philadelphia, Pa.
Carpets (1933)	Firth
Carpets (1933)	Olson
Carpets (1934)	Mohawk Carpet Mills, Amsterdam, New York
Linoleum	Congoleum-Nairn, Inc., Kearny, New Jersey
Flooring	Lug-Lox Flooring Co., Chicago
Terrazzo in Baths and Garage	Helipore Laboratories, Colorado Springs, Colorado
Grain Board in Upstairs Hall	National Gypsum Co., Buffalo, N.Y.
Felt Liners for Subfloors	Western Felt Works, Chicago
Lighting Fixtures (1933/4)	Safety Car Heating & Lighting Co., New Haven, Conn.
Lighting Fixtures (1934)	Beardslee Chandelier Manufacturing Co., Chicago
Lamps (1933)	Crest
Lamps (1934)	Paul Hanson, Co., Inc., Chicago
Awnings	George B. Carpenter & Co., Chicago

Additional information concerning home furnishings and artwork suppliers can be found at the end of Appendix D, Exhibits A and H.

The severe level of deterioration due to years of neglect and roof leaks, has diminished the once polished look of a simple interior. Overall, the rooms are in poor condition.

First Floor – As you enter the house turn to the left and proceed clockwise. Please note, the combined photographs in this section include the existing condition photo on the left and the historic photo from the 1934 fair season on the right.

Front Porch

As you approach the front of the building you will notice that the front porch is asymmetrical. It was added prior to the 1934 season to soften the appearance of the house. The wood framed screened enclosure was added sometime between 1977 and 1982. The concrete floor slab was originally painted green to match the trim on the house. It is now painted red, date unknown.

Entry

Upon entering the front door your eye focuses on the stair to the second floor, with its original black linoleum with metal nosing, and the original nickel and steel handrail. The entry area itself is defined by the symmetrical closets. The original linoleum, with an inlaid nautical pattern, remains on the floor of both closets.

The walls of the entry and stairwell were originally covered with insulation board finished with two coats of plaster; all of which have survived. The original Celotex ceiling tiles are in place, with the pattern continuing into the living room. The original metal clad front door is in place. Two of the original light fixtures remain; one in the entry and one in the east closet. The space is in fair condition.



Living Room

The original wall finish material was insulation board with two coats of plaster. Most of it has survived, with only the east wall having been replaced by the most recent resident. The wall was stripped down to steel, Thermax insulation board was installed and greenboard placed over it, and the wall was plastered. The original Celotex ceiling tiles are in place, with the pattern extending into the entry area, however due to water infiltration many of them are separating from the steel structure above. The original wood subfloor is in place over the steel floor structure, however there has been significant deterioration of both on the east side of the room. Sections of the original black linoleum, with a nautical motif inset, are in place in the entry hall closets.

The deterioration of the wall materials, subfloor, and steel structure, was the result of a series of events. The interior roof drains were disconnected in either late 1933 or early 1934, and roof drainage was rerouted to new scuppers in the parapet walls. The scuppers have not been draining the roof properly for years because of the number of layers of roofing material that has been applied. The roofing material has deteriorated, and water is getting into the parapet walls at the scuppers; primarily at the east wall of the house. Water is running down the interior of the wall through the continuous corrugated panels.⁴⁵ The room is in poor condition.



⁴⁵ Interview with David Kemerer.

Dining Room

The original wall finish material was insulation board with two coats of plaster; all of it is in place. The original patterned Nu-Wood ceiling remains, however there has been some shifting due to water infiltration in the bedroom above. The two light fixtures, located in opposite corners, are not the original, however they are hung in the location of the original fixtures for the 1933 fair season. When the brochure from the 1933 season was found it was determined why the fixtures were located in opposite corners rather than in the center of the room. For the 1933 season this room was not only decorated with the dining table it included a “permanent” card table. The tables were located in opposite corners. The steel framed French doors located on the south wall of the room have been severely damaged. The lower panel of one has been bent out. The room is in fair condition.



Kitchen

The original two-toned ivory cabinets, of which there are photographs, were removed probably in late 1934 or early 1935. The original sink was ivory and the 1934 countertops were covered with black linoleum edged in Monel. The national lakeshore's Historical Architect assumes, from research completed by HABS, that the original cabinets were removed prior to the move across the lake, and sold to help pay for the move. It has also been speculated that the removal of fixtures, from the houses that were barged, was done to lighten the load.

The existing kitchen is very similar to the original in the style of cabinets and layout. The stepped ceiling has not been modified, however some of the Celotex ceiling tiles have separated from the steel structure above due to water infiltration. The original wall finish material was insulation board with two coats of plaster, and for the 1934 fair season a wainscot of Masonite was added. The Masonite was made to look like ceramic or metal tile, and came in sections 2 tiles high x three tiles wide. Both remain, however the tile has numerous layers of paint. The floor tiles for the 1933 fair season were a solid color, and those from the 1934 fair season were squares of linoleum laid in a picture frame pattern. The existing tile is similar in color and pattern to those from 1934. The room is in poor condition.

**Laundry**

The laundry has not been altered. The original wall finish material was insulation board with two coats of plaster. Most of it remains, and it has deteriorated. The original terrazzo floor tile, with copper divider strips, is in place, however due to shifting in the steel structural system the floor tile has shifted significantly and cracked. The architects involved in the assessment of the house are intrigued by the installation of the tile; it was not installed using the traditional method. Only when it is removed will we understand the process that was used. The room is in poor condition.

Study/Garage

This room was originally designed as the garage for the 1933 fair season, and was outfitted with equipment used to demonstrate enameling techniques. The walls and ceiling were finished with insulation board with two coats of plaster, and the floor with terrazzo. The wall and ceiling finishes are still in place. For the second fair season the garage door was removed, and a

window installed with the remaining opening below enclosed. The terrazzo floor was removed, and linoleum over a wood subfloor was installed. The space was decorated as a “man’s study” with built-in bookshelves on two walls. The room is in fair condition.

Second Floor - As you leave the stair turn right.

Hall

The hall runs from the front of the house to the back ending at the full bath, with bedroom and closet doors opening off of it. The walls were finished with insulation board with two coats of plaster; most of which remains. The original ceiling of Nu-Wood tiles was removed, and a grid system with acoustical tiles was installed. The space is in poor condition.

Children’s Bedroom (Current) / Child’s Bedroom (1934) / Boy’s Bedroom (1933)

This room was originally decorated as a boy’s bedroom for the 1933 fair, and was redecorated as a child’s room for 1934. It was most recently used as a children’s room. The walls were finished with insulation board with two coats of plaster, and the ceiling with Nu-Wood tiles; both of which are in place. There are still multiple layers of wallpaper evident. For at least the second year of the fair the floor was finished with dark blue linoleum inset with a tiny house and tree pattern to match the wallpaper. The linoleum has been removed, date unknown. The room is in poor condition.

Full Bathroom

The only original fixture remaining is the tub. The porcelain sink appears to be circa 1950’s. The porcelain toilet is a replacement. The pipes and the toilet froze in 1977. The original wall finish materials included insulation board with two coats of plaster and metal tiles. Both are in place, however several tiles are missing. The ceiling was finished with insulation board and two coats of plaster, and the floor with terrazzo; both of which remain. The room is in fair condition.



Master Bedroom (Current) / Guest Room (1934) / Master Bedroom (1933)

What is now used as the master bedroom, with a $\frac{3}{4}$ bath attached, was presented as the master bedroom for the 1933 fair and the guest room for the 1934 season. The walls were finished with insulation board and two coats of plaster, and the ceiling with Nu-Wood tiles; both of which remain. There are multiple layers of wallpaper and border evident. The floor was finished with linoleum, however it has been removed. There is significant water damage to all materials due to roof leaks. An original framed opening in the wall separating this bedroom from the northeast bedroom was discovered when cloth fabric was removed from the walls. This opening, trimmed with wallpaper, probably provided a round circulation path through the second floor at the fair. The opening was closed off to provide space for a closet, date unknown. The room is in poor condition.

 $\frac{3}{4}$ Bathroom

The original fixtures, including the porcelain sink and shower, are in place, as is the original glass shower door. The porcelain toilet is a replacement. The pipes and the toilet froze in 1977. The original wall finish materials included insulation board with two coats of plaster and metal tiles; both are still in place. The ceiling was finished with insulation board and two coats of plaster, and the floor with terrazzo; both of which remain. The room is in fair condition.

Guest Bedroom (Current) / Master Bedroom (1934) / Guest Bedroom (1933)

This room, now used as the guest room, was decorated as the guest room for the 1933 season and the master bedroom for the 1934. The original wall finish material was insulation board with two coats of plaster. Most of it has survived, however there is significant water damage; the east wall had to be replaced by the most recent resident. The wall was stripped down to steel, Thermax insulation board was installed and greenboard placed over it, and the wall was plastered. There are still multiple layers of wallpaper evident on the other walls. The ceiling was finished with Nu-Wood tiles, most of which remain, and the floor with linoleum that has been removed. There is significant water damage to all materials due to the roof leaks.

This room is located directly above the Living Room. As noted in that room's description, the deterioration of wall materials, subfloor, and the steel structure, was the result of a series of events which resulted in the failure and/or deterioration of the internal wall drains, the scuppers, the parapet wall, and the roofing material. Water is running down the interior of the walls through the continuous corrugated panels.⁴⁶ The room is in poor condition.

Children's Bedroom (Current) / Girl's Bedroom (1934) / Nursery (1933)

This room was decorated as a nursery for the 1933 season, and a girl's bedroom for the 1934 fair. It was most recently used as a children's room. The walls were finished with insulation board with two coats of plaster, and the ceiling with Nu-Wood tiles; both of which are in place, however there is water damage. The floor was finished with linoleum, however it has been removed. The room is in poor condition.

Closets

The house contained six permanent built-in closets at the Exposition; all of which remain, and are in poor condition.

⁴⁶ Interview with David Kemerer.

Stair

This stair provides access to the third floor solarium and roof deck. The original black linoleum with metal nosing remains. The walls were originally covered with insulation board finished with two coats of plaster; most of which has survived. The space is in poor condition.

**Third Floor
Solarium**

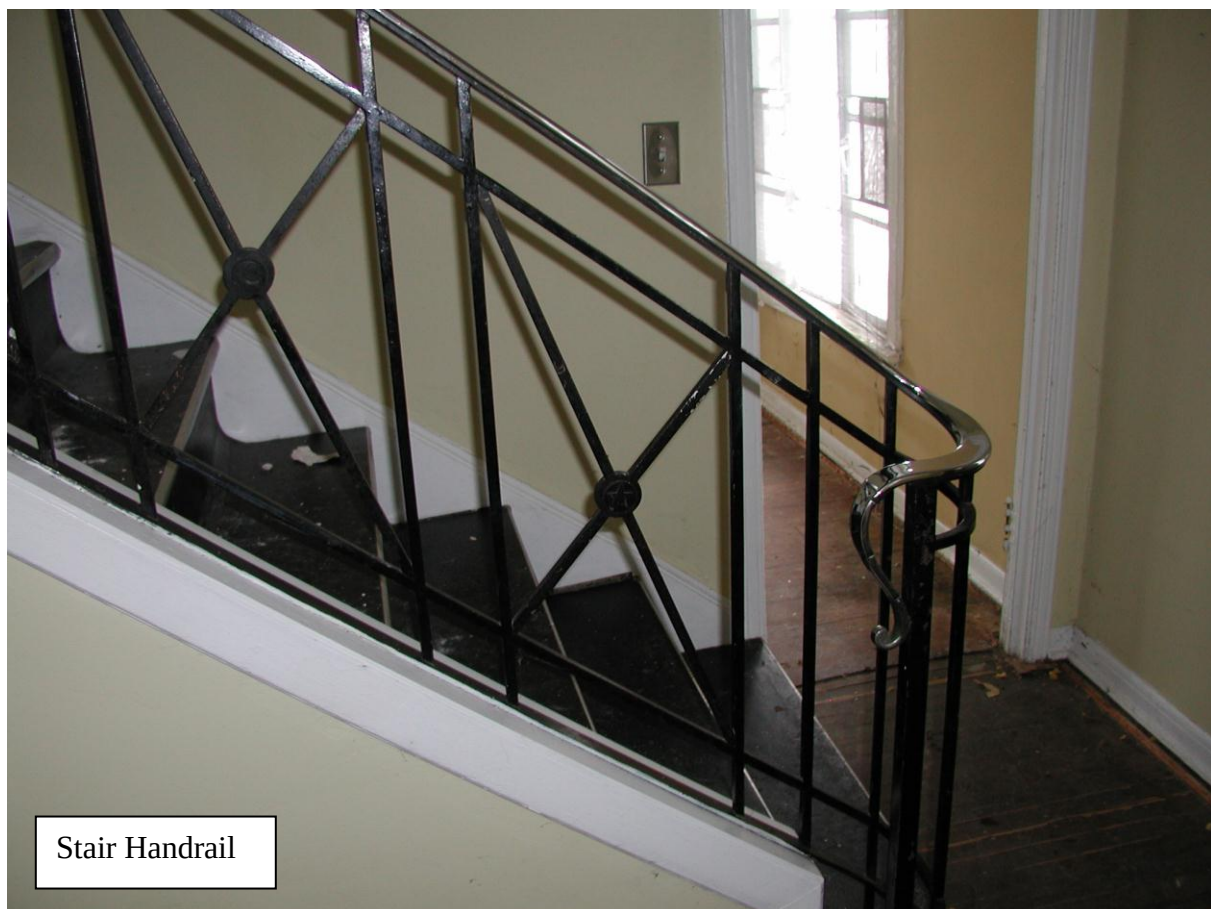
The solarium was originally designed to be an open space with easy access to the roof deck. The knee walls, finished with plastered insulation board, are of the same steel construction system used for the walls and floors. The steel frame awning windows were installed above the knee wall to provide ample air circulation. The original steel door with a fixed window provides access to the deck. The ceiling was finished with Celotex tiles, however it has been removed, date unknown. The floor was finished with black linoleum with a triple white stripe inset at the perimeter. It has been removed; date unknown. Documentation has not been located to determine if the floor for the 1933 season was the same as 1934. The existing floor is linoleum. The room is in poor condition.

**Roof Deck/Promenade**

The roof deck is accessed by the exterior door from the solarium. Due to the number of layers of roofing materials the door is currently inoperable. The glass has been removed, and a loose piece of plywood put in its place. To access the deck you must remove the plywood and crawl through the window opening. When the house was built there was a set of exterior stairs accessed through an opening in the parapet wall that led to ground level from the deck. These stairs provided an uninterrupted circulation through the house during the fair, from first floor to roof and back to ground level, so visitors did not have to cross paths during the tours. The roof deck, originally paved in clay tile set in mastic, is surrounded by a parapet wall. It was used for entertaining and outdoor activities. The deck is in poor condition.

EXISTING CONDITIONS**Photographs – First Floor**

The following numbered photographs, referenced in the sketch floor plan below, were chosen to represent the overall existing conditions of the building. All numbered photographs are located in Appendix D, Exhibit N.





Entry Hall East Closet



Looking into Living Room from Dining Room



Study



Kitchen Looking West



EXISTING CONDITIONS (cont.)**Photographs – Second Floor**

The following numbered photographs, referenced in the sketch floor plan below, were chosen to represent the overall existing conditions of the building. All numbered photographs are located in Appendix D, Exhibit N.



Stair to Second Floor



Master Bedroom North Wall



Master Bedroom Looking Into 3/4 Bath



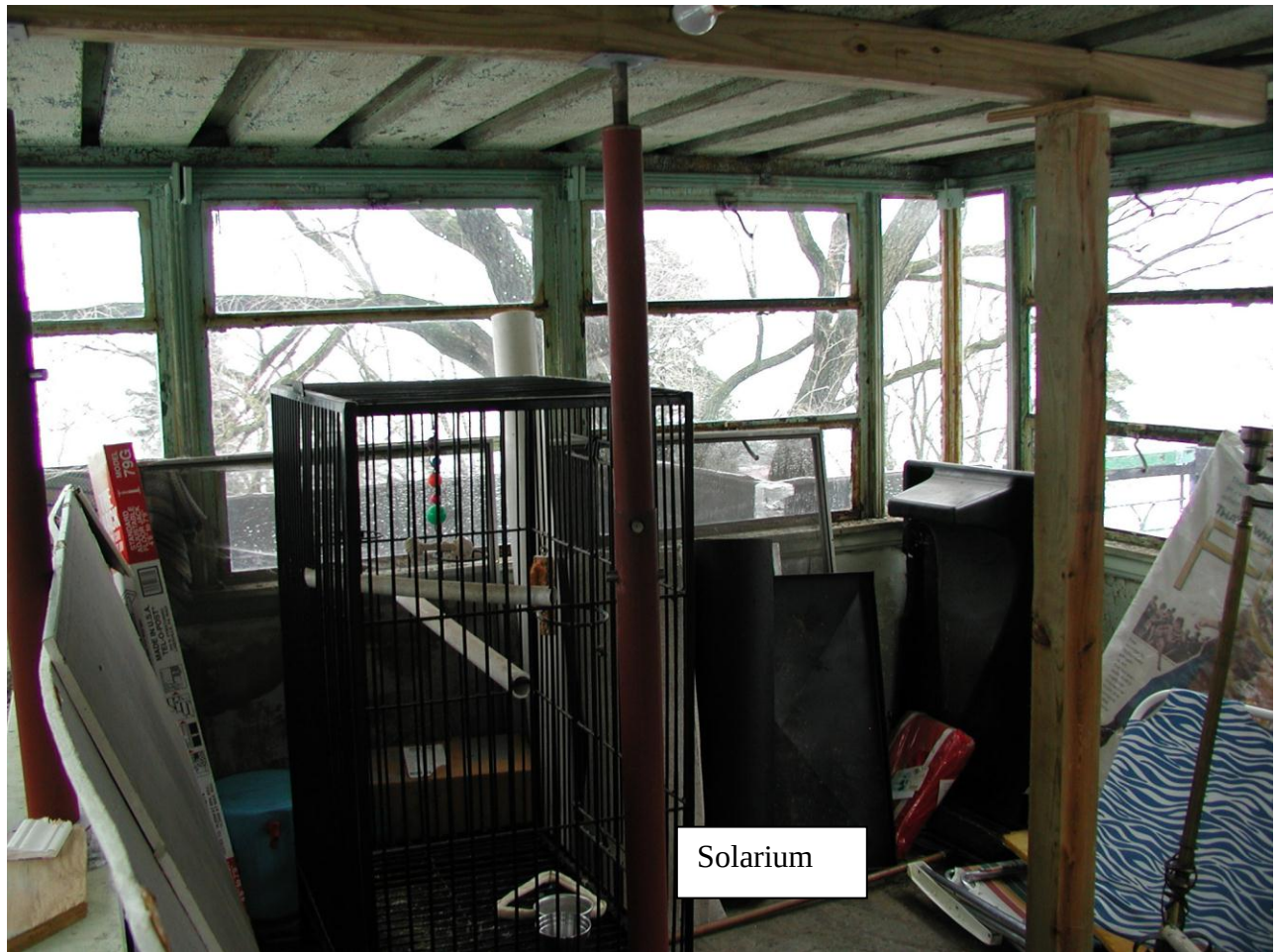
Guest Bedroom

EXISTNG CONDITIONS (cont.)**Photographs – Third Floor**

The following numbered photographs, referenced in the sketch floor plan below, were chosen to represent the overall existing conditions of the building. All numbered photographs are located in Appendix D, Exhibit N.



Stair to Third Floor





Solarium – Door to Promenade

EXISTING CONDITIONS (cont.)***Evaluation Methodology***

The condition of the house has been evaluated based upon the criteria listed in the Resource Management Plan Guideline, noted below. This guideline is utilized for the evaluation of structures for the NPS's List of Classified Structures. Please note, as previously stated, all building components are in varying degrees of deterioration due to a lack of regular maintenance by previous residents during their occupancy.

Good

The structure and significant features are intact, structurally sound, and performing their intended purpose. The structure and significant features need no repair or rehabilitation, but only routine or preventive maintenance.

Fair

The structure is in fair condition if either of the following conditions are present:

- a) There are early signs of wear, failure, or deterioration though the structure and its features are generally structurally sound and performing their intended purpose; or
- b) There is failure of a significant feature of the structure.

Poor

The structure is in poor condition if any of the following conditions are present:

- a) The significant features are no longer performing their intended purpose; or
- b) Significant features are missing; or
- c) Deterioration or damage affects more than 25% of the structure; or
- d) The structure or significant features show signs of imminent failure or breakdown.

Unknown

Not enough information is available to make an evaluation.

Site Features**Siting**

The house is sited on a dune, on the south side of Lake Front Drive overlooking Lake Michigan, to the west of the House of Tomorrow.

Due to the surrounding vegetation, most notably large trees and undergrowth, this site is highly flammable.

Soils

"This sand dune area is comprised of Oakville fine sand with slopes of 18 to 40 percent. This type of soil, typically found on lake plains, low sand dunes, and beaches ridges, is deep and well drained. . . . In a typical profile, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsoil is about 30 inches thick. . . . Some areas of this soil are strongly acid in the surface layer and subsoil. . . . This soil has low available water capacity and very rapid

permeability. The organic matter content of the surface layer is moderate. Surface runoff is rapid. . . . Most of the acreage of this soil is in woodland. Trees have stabilized the sand movement in these areas. . . . This soil has severe limitations for building sites because of the slope. . . . Foundations and footings should be constructed to provide stability for the structure and may need to be placed on pilings.”⁴⁷

Grade

The site is relatively flat under the house. It is accessed by a set of concrete steps from Lake Front Drive, or from Carol Lane on the south side which runs parallel to Lake Front Drive. The back yard elevation is approximately two feet lower than Carol Lane. There is an abrupt slope up to the adjacent lot on the west side, rising approximately eight feet. There is a gradual slope up to the adjacent lot on the east side, rising approximately two feet.

Vegetation

The lot to the west of the site was previously a home site, with nonnative trees and shrubs. The national lakeshore’s Restoration Specialist will be working with a contractor to remove this vegetation. The lot to the east of the site is the location of the House of Tomorrow.

1. The lilacs planted on the east and west sides of the site are very old, and are not blooming. Dr. Shugar, a previous resident of the house, planted them. It is said that he was related to a prominent horticulturist from Lombard, IL, who cultivated lilacs.⁴⁸
2. There is a substantial stand of garlic mustard on the site of the House of Tomorrow which is creeping onto this site. Garlic mustard is an exotic species that the national lakeshore is attempting to eradicate.
3. There are two large, mature, Chinese Elm trees in the front yard on the slope. Chinese Elm is a nonnative invasive species that the national lakeshore routinely removes.
4. There are two overgrown Hemlock bushes in the front yard; one on either side of the concrete stair. Hemlock is a nonnative species to the national lakeshore.
5. There are two large trees, one a Box Elder and the other an Oak, located in the southeast corner of the back yard on a small rise.

Exterior Furniture

There is a concrete sidewalk, date unknown, at the front entrance of the house that continues around the east side of the house. The sidewalk is in poor condition because it has lifted in several places due to the shifting of the dune.

Miscellaneous

There is evidence of small animal habitation under the house.

⁴⁷ Department of Agriculture, Soil Conservation Service, and Purdue University, Agricultural Experiment Station, Porter County Soil Survey, n.d.

⁴⁸ Interview with David Kemerer

Structure

General Building Description

This three-story structure is in poor condition as defined by the Resource Management Plan Guideline. The deterioration or damage affects more than 25% of the structure. Previous residents did little to maintain the structure.

Foundation

It was originally thought the house sat on a concrete slab. However, through further examination of the building it appears that it may have been set directly on the ground with a shallow crawl space beneath, similar to the Cypress Log Cabin. This would explain the settling problem and part of the deterioration of the steel structural system. A thorough inspection will have to be completed to determine if any type of foundation exists.

Exterior Wall Framing

The house is unique in that it is frameless; there are no traditional beams and columns, instead the walls are box-like units. The walls were constructed of formed sheet steel. The wall units are house high and were made in various widths, averaging 5 ft. wide. They were factory fabricated, with all of the welding completed at the shop, and assembled in the field using sheet metal screws. The joints were sealed with asphalt mastic.^{49 50} All of the door and window frames were welded in place at the shop.⁵¹ On the interior of the panels, at the first floor ceiling line, a metal conduit was welded in place to serve as a continuous floor bracket.⁵² A layer of insulation board was applied to both the exterior and interior surfaces of the steel. The porcelain enamel panels were placed over the insulation board on the exterior, and two coats of plaster were applied to the interior board.^{53 54} The system was so efficient that the “Walls and floors were . . . so fitted to each other that the house was put together in five days by six men.”⁵⁵

1. The overall condition of the exterior wall framing is unknown. A portion has been inspected, and gaping holes in the steel were found as was a substantial amount of rust. To inspect the remaining framing would require extensive removal of finish materials on the first, second, and third floors of the house. The national lakeshore’s Historical Architect expects to find similar levels of deterioration where there are known roof leaks.
2. The original garage door was removed, the wall framed, and the operable window installed in 1934. The garage was then decorated as a “man’s study”; originally the space had been set up with equipment for demonstrating the enameling process.

⁴⁹ Official Story and Encyclopedia of A Century of Progress 1933, page 68.

⁵⁰ The Architectural Forum, July 1933, page 54.

⁵¹ Official Guidebook World’s Fair 1934, page 130.

⁵² Official Guidebook World’s Fair 1934, page 130.

⁵³ Official Guidebook World’s Fair 1934, page 130.

⁵⁴ The Architectural Forum, July 1933, page 54.

⁵⁵ A Century of Progress Industrial Exhibits, page 133.

Floor and Roof Framing

The floors are of light steel sheets formed in “Z” sections. The strip wood flooring was keyed and locked into the patented metal channels, and was originally insulated with 1/8 in. felt. The structural system for the flat roof is the same as that of the floor.⁵⁶

A portion of the first floor structure in the living room has been inspected, and gaping holes in the steel were found as was a substantial amount of rust. Subfloor repairs in the southeast corner of the northeast bedroom were completed in 1999. This work included repairs to the steel structure; the deck and corrugated panels were severely deteriorated. It is also known that the solarium roof began to fail in 2001, and a pronounced sag developed in 2002. A temporary jack post and wood beam were installed to support it.

To inspect the remaining floor and roof structure would require extensive removal of finish materials on all floors of the house so the overall condition of the floor and roof framing is unknown at this time. The national lakeshore’s Historical Architect expects to find similar levels of deterioration, e.g. missing steel and rust, where there are known roof leaks.

Addition

1. The asymmetrical front porch was added for the 1934 fair season. The wrought iron columns and rails are in fair condition, with a small amount of deterioration at the base of the columns where they come into contact with the concrete slab. The roof is in fair condition.
2. The screened enclosure was added, on the interior of the columns, sometime between 1977 and 1982. The enclosure is in fair condition.

Exterior Envelope

Exterior Wall Finish

1. The enameled steel panels are severely deteriorated. The primary causes are the materials and methods of installation, and the secondary is a lack of general maintenance. The panels were held in place by horizontal stainless steel channels. The channels are “s” shaped; the top of a panel would be slipped into the upper channel first, and then the bottom dropped into the channel below, see Appendix D, Exhibit P. There are several inherent design flaws in this system. First, no matter how you place a horizontal “s” channel it is going to collect water. Second, the weep holes in the bottom of the channels are too small; due to the cohesion of the molecules the water can not pass through them. Third, the panels are steel and the channels are stainless. Galvanic action is occurring, resulting in a breakdown of the enameled finish and severe rust. Fourth, the ends of the panels butt against each other and the building corner trim, requiring extensive use of caulk to seal the butt joints.

The previous residents, all inclusive, did very little to maintain the building. Repairs that were made to the panels were inappropriate; Bondo was used to fill areas that had rusted away. In addition, several layers of paint have been applied to all of the enameled surfaces.

⁵⁶ The Architectural Forum, July 1933, page 54.

2. The enameled building corner trim pieces have deteriorated. The primary cause is the butt joint with adjacent enameled panels. This type of joint requires an extensive amount of caulk to seal it. The secondary cause of the deterioration is a lack of general maintenance.

Insulation

The original design called for the placement of rock wool in the cavities of the corrugated steel panels, however that was not completed.⁵⁷ The design also called for insulation board to be placed on the exterior and interior of the corrugated steel panels; which was done. The enamel panels were installed over the insulation board on the exterior, and on the interior there were two coats of plaster placed over it. Most of it is still in place, with the exception of: the east wall in the living room; the east wall of the northeast bedroom and the adjacent closet; and the north and west walls of the northwest bedroom. The insulation board is in poor condition due to roof leaks and lack of regular maintenance.

Roofing

1. The roof structure was originally insulated with 1 in. fiber material, and finished with 4-ply built-up roofing covered with clay tile laid in hot mastic.⁵⁸ It is unknown when, or even if, this system was removed, and when the first built-up roofing system was installed.

The entire roof was repaired in approximately 1985 by then ROU holder Kemerer. He was unsure of the exact year. It is unknown if extant layers of roofing were removed first. After these repairs were completed, Kemerer noted that hot mops were completed on a semi-annual basis.

In late 1994 the Maintenance Division of the national lakeshore stabilized the roof in an effort to protect the house from further deterioration. The work included placing a layer of roofing felt over the existing material and hot mopping it with tar.⁵⁹

In 2000 ROU holder Kemerer cleared away the built-up roofing materials in areas around the roof drains and used modified Bitumin Torch Down roofing to make repairs. The roofing at the parapet walls had also failed, and repairs were made at the same time using the same materials.

The roof is in poor condition.

2. The door at the exterior opening from the third floor onto the roof deck is not operable, due to the layers of roofing that have been added over the years. To gain access to the roof deck the window glass was removed and a board placed over the opening; when you want to get onto the roof you remove the board and crawl through the window opening. The door and threshold are in poor condition.

Parapet

The original 1933 parapet wall was solid on all four elevations. The one row of enameled panels and the top flashing were finished in green as was the top row of panels on the house. During

⁵⁷ Interview with David Kemerer

⁵⁸ The Architectural Forum, July 1933, page 54.

⁵⁹ Maintenance Division files, Indiana Dunes National Lakeshore.

that fair season the design of the house was criticized as being too severe. For the 1934 season the top row of panels on the house and the row on the parapet were removed to redesign the look of the top of the house. In their place a row of deeper panels, white in color, was installed with a narrow piece of green trim at the bottom. In addition sections of the parapet on the front elevation were removed and replaced with ironwork.⁶⁰ When roof repairs were made over the years the roofing materials were wrapped up the inside of the parapet wall resulting in the deterioration of the original enameled panels. The parapet is in poor condition.

Downspouts & Scuppers

There are both internal and external downspouts. The roof drains are/were attached to the internal downspouts located in the walls. It is currently unknown if these are still functioning. Scuppers were cut in the parapet walls and external downspouts were added; date unknown. Both are in poor condition due to multiple layers of roofing and poor roof repairs. There is a possibility that the addition of the scupper on the east elevation may have damaged the structural system and/or roof. That is where the roof is leaking causing damage on both the first and second floors. The downspouts and scuppers, overall, are in poor condition.

Windows

Libbey-Owens-Ford was contracted with to supply the single-paned glass for the windows. The supplier for the window frames has not yet been determined. Note: all window handles are believed to be bronze. Further investigation is necessary.

1. The first floor steel frame windows have deteriorated due to a lack of general maintenance, and water infiltration. The windows are in poor condition.

Existing Window Types – Original 1933

Type – Twenty Light Steel Frame; 4 lights horizontal, 5 lights vertical; top horizontal row, and left and right vertical rows are fixed; two center vertical rows are operable casements.

Location – Living Room

Existing Window Types – Original 1933

Type – Fifteen Light Steel Frame; 3 lights horizontal, 5 lights vertical; top horizontal row and center vertical row are fixed; left and right vertical rows are operable casements.

Location – Living Room

Existing Window Types – Original 1933

Type – Six Light Steel Frame; 2 lights horizontal, 3 lights vertical; left and right vertical rows are operable casements.

Location – Dining Room

Existing Window Types – Original 1933

Type – Nine Light Steel Frame; 3 lights horizontal, 3 lights vertical; center vertical row is fixed; left and right vertical rows are operable casements.

Location – Kitchen

⁶⁰ Interview with David Kemerer

Existing Window Types – Original 1933

Type – Eight Light Steel Frame; 2 lights horizontal, 4 lights vertical; left and right vertical rows are operable casements.

Locations – Study, Laundry

Existing Window Types – Original 1934

Type - Fifteen Light Steel Frame; 3 lights horizontal, 5 lights vertical; top horizontal row and center vertical row are fixed; left and right vertical rows are operable casements.

Location - Study

2. The second floor steel frame windows have deteriorated due to a lack of general maintenance, and water infiltration. The windows are in poor condition.

Existing Window Types - 1933

Type – Twelve Light Steel Frame; 3 lights horizontal, 4 lights vertical; middle vertical row is fixed; left and right vertical rows are operable casements.

Locations – Guest Bedroom, and Room #206 Children's Bedroom

Existing Window Types - 1933

Type – Eight Light Steel Frame; 2 lights horizontal, 4 lights vertical; left and right vertical rows are operable casements.

Locations – All Bedrooms

Existing Window Types - 1933

Type – Four Light Steel Frame; 1 light horizontal, 4 lights vertical; vertical row is operable casement.

Locations – Full Bathroom, ¾ Bathroom

3. The third floor steel frame windows have deteriorated due to a lack of general maintenance, and water infiltration. (Please note the windows occupy the full width of each wall, with exception of the exterior door location. There is a knee wall of steel frame construction beneath them finished with plastered insulation board.) The windows are in poor condition.

Existing Window Types - 1933

Type – Three Light Steel Frame; 1 light horizontal, 3 lights vertical; top and bottom lights are awnings, middle light is fixed.

Location – Solarium

In walls 1, 3, and 4 there are three windows centered with a narrow section of fixed glass on either end. In wall 5 the door is centered with one awning window on each side, and a narrow section of fixed glass on either end.

Exterior Doors

1. The original exterior doors, located at the front and back of the house, were flush steel, with nonmortice butts and strikes, hung in steel frames. Both are still in place. They are in fair condition.

2. The original patio doors located in the dining room were flush steel, each with 6 lights of glass, in a steel frame. Both remain, however the bottom stiles have been bent out. The doors are in poor condition.
3. The original door located in the solarium, providing access to the roof deck, was flush steel with 1 light of fixed glass. It was hung in a steel frame. The door is in poor condition.

See the Interior Doors section of this report for the complete Door Schedule.

Chimney

See the HVAC section of this report.

Interior

Partition Framing

The interior partitions are of the same construction as the exterior walls, and were constructed at the same time as an integral part of the structural system. They were finished with insulation board and plastered. Three inch channels were provided at the floor and ceiling levels to run conduits.⁶¹ The overall condition of the interior partitions is unknown. They have not been inspected because it would require extensive removal of finish materials on each floor of the house.

Interior Stairs

The original interior stairs, from the first to the third floor, were constructed of steel stringers with steel tread and risers. The original floor finish, black linoleum, is still in place. The first floor balustrade was fabricated of steel with a nickel handrail. The stair appears to be in good condition because there is no deflection when weight is applied. A thorough inspection has not been completed because it will require removal of finish materials.

Wall Finishes

First Floor

1. The historic wall finish materials have deteriorated due to numerous roof leaks, and all are in poor condition. The insulation board was attached to the steel structure using horizontal furring strips, and then two coats of plaster were applied. For the 1933 fair season several of the rooms were finished with wallpaper, and for the 1934 season almost all rooms were finished with wallpaper. Please see the Wall Finish Schedule for a list of materials, and also refer to Appendix D, Exhibits A and H.
2. In 1999 the insulation board on the east wall of the living room was replaced. The wall was stripped down to the steel, ½" Thermax insulation was installed with green board placed over it, and the wall was plastered.

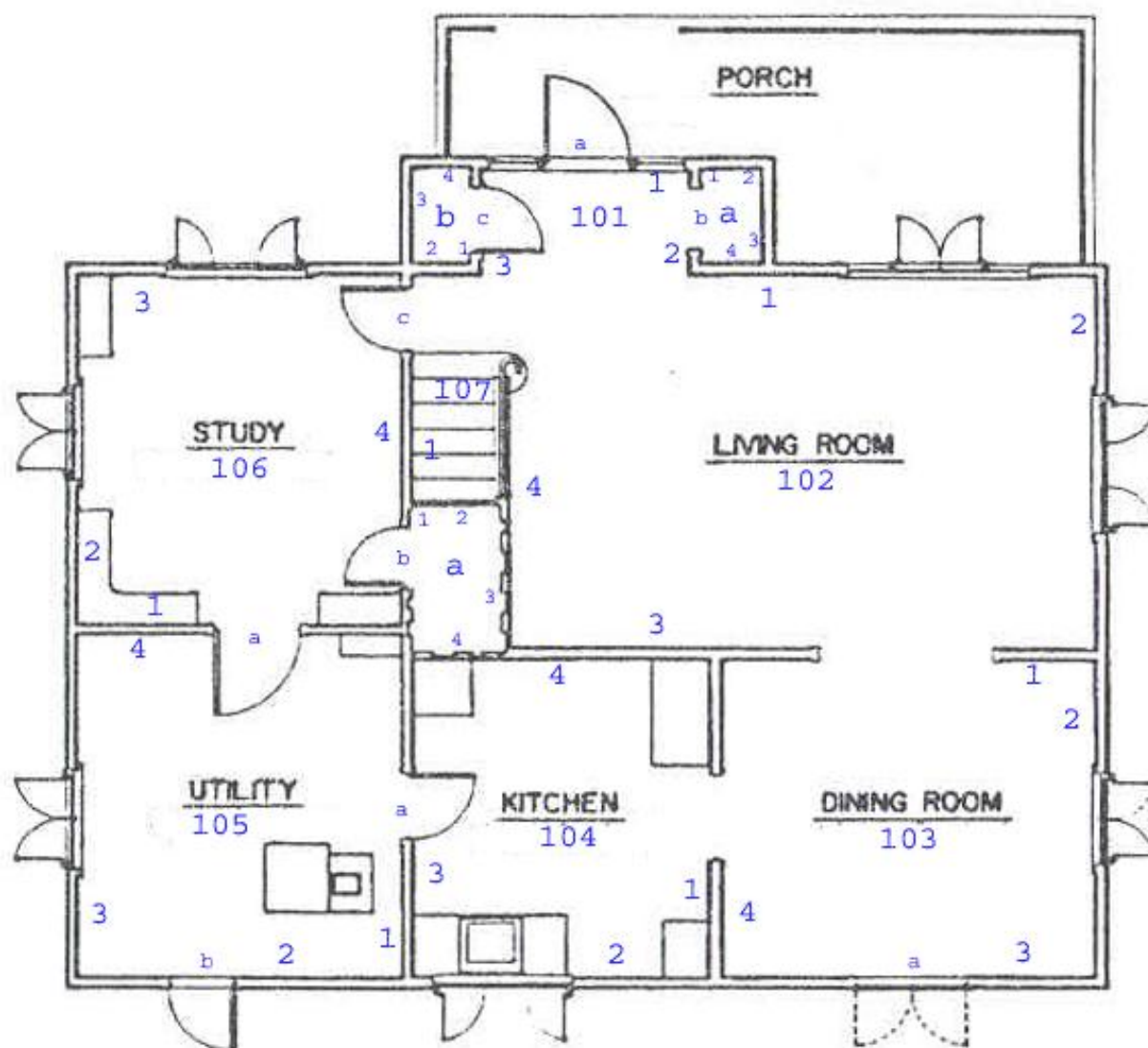
⁶¹ The Architectural Forum, July 1933, page 54.

First Floor Plan

Room Numbers – ex. 101

Wall Numbers – ex. 1

Door Letters – ex. a



Room No.	Current/Historic Room Names	Wall No.	Original Material	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	First Floor				
101	Entry Hall	101-1	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
		101-2	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
		101-3	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
101a	East Closet	101a-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		101a-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		101a-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		101a-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
101b	West Closet	101b-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		101b-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		101b-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		101b-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint

Room No.	Current/Historic Room Names	Wall No.	Original Material	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	First Floor (cont.)				
102	Living Room	102-1	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
		102-2	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	North ½ Insulation Board with Plaster / Paint South ½ Thermax Insulation / Green Board / Plaster / Paint
		102-3	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
		102-4	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
103	Dining Room	103-1	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes – Wainscot removed	Insulation Board with Plaster / Paint
		103-2	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes – Wainscot removed	Insulation Board with Plaster / Paint
		103-3	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes – Wainscot removed	Insulation Board with Plaster / Paint
		103-4	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes – Wainscot removed	Insulation Board with Plaster / Paint

Room No.	Current/Historic Room Names	Wall No.	Original Material	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	First Floor (cont.)				
104	Kitchen	104-1	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot of Metal Tile (1934)	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile
		104-2	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot of Metal Tile (1934)	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile
		104-3	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot of Metal Tile (1934)	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile
		104-4	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot of Metal Tile (1934)	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile
105	Laundry	105-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		105-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		105-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		105-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint

Room No.	Current/Historic Room Names	Wall No.	Original Material	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	First Floor (cont.)				
106	Study/Garage	106-1	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes	Insulation Board with Plaster / Paint
		106-2	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes	Insulation Board with Plaster / Paint
		106-3	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes	Insulation Board with Plaster / Paint
		106-4	Insulation Board with Plaster / Paint (1933) Wallpaper & Wainscot (1934)	Yes	Insulation Board with Plaster / Paint
106a	Closet Under Stair	106a-1	Steel Structure	Yes	Steel Structure
		106a-2	Steel Structure	Yes	Steel Structure
		106a-3	Steel Structure	Yes	Steel Structure
		106a-4	Steel Structure	Yes	Steel Structure
107	Stair	107-1	Insulation Board with Plaster / Linoleum (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint

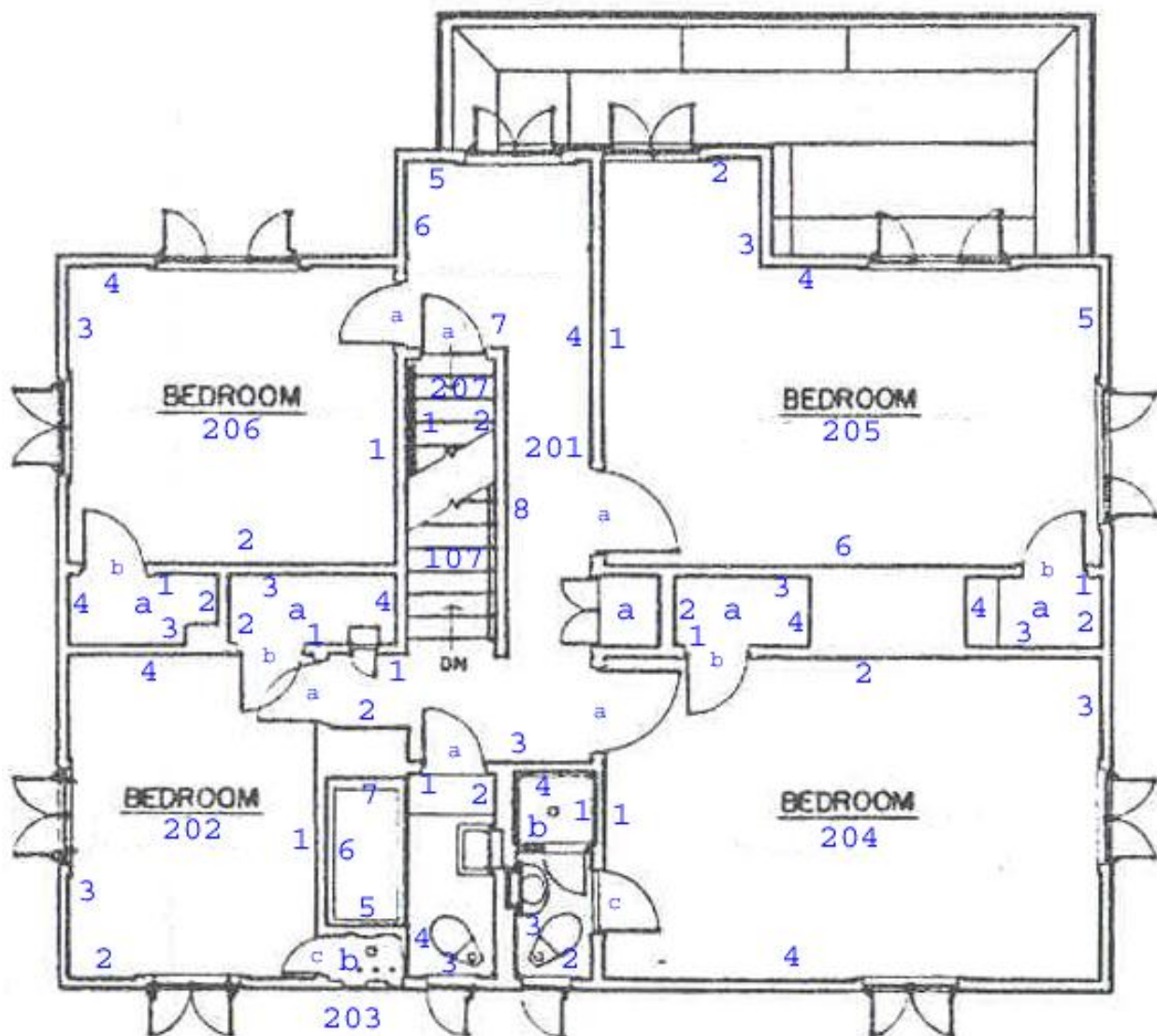
Second Floor

1. The historic wall finish materials have deteriorated due to numerous roof leaks, and all are in poor condition. The insulation board was attached to the steel structure using horizontal furring strips, and then two coats of plaster were applied. For the 1934 fair season various patterns of wallpaper were used in the rooms. Please see the Wall Finish Schedule for a complete list of materials.

2. In 1984 the insulation board in the northwest bedroom, on the west and north walls, was replaced. The walls were stripped down to the steel, ½" Thermax insulation was installed with green board placed over it, and the walls were plastered.

3. In 1999 the insulation board on the east wall of the northeast bedroom, and the adjacent closet, was replaced. The walls were stripped down to the steel, ½" Thermax insulation was installed with green board placed over it, and the walls were plastered.

Second Floor Plan



Room No.	Current/Historic Room Names	Wall No.	Original Materials	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	Second Floor				
201	Hall	201-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-5	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-6	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-7	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		201-8	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
201a	Closet	201a-1	Wood Shelf System	Yes	Wood Shelf System
		201a-2	Wood Shelf System	Yes	Wood Shelf System
		201a-3	Wood Shelf System	Yes	Wood Shelf System
		201a-4	Wood Shelf System	Yes	Wood Shelf System
202	Children's Bedroom / Child's Bedroom / Boy's Bedroom	202-1	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Wallpaper
		202 -2	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Wallpaper
		202-3	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Wallpaper
		202-4	Insulation Board with Plaster / Paint (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Wallpaper
202a	Closet	202a-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		202a-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		202a-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		202a-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint

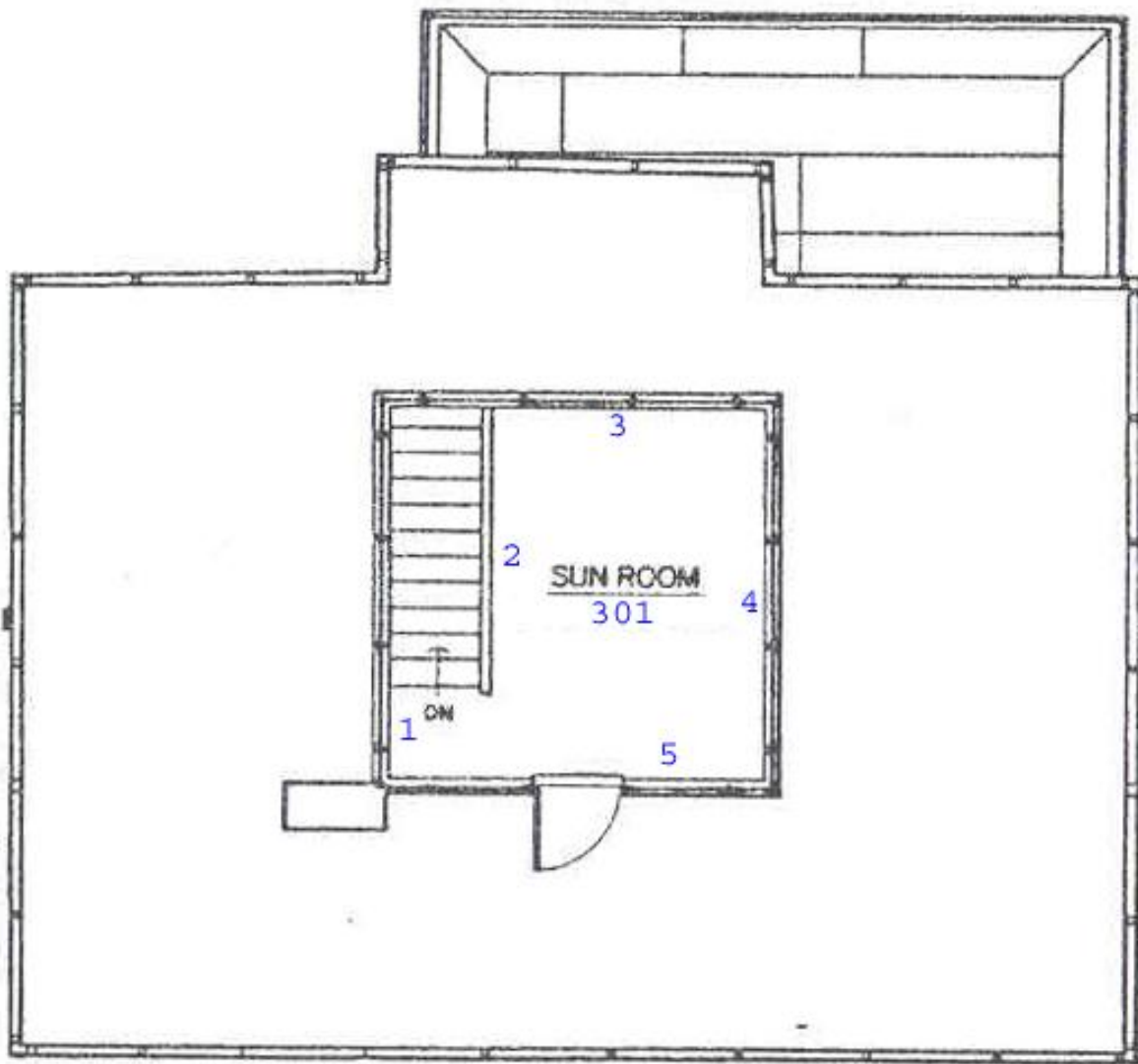
Room No.	Current/Historic Room Names	Wall No.	Original Materials	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	Second Floor (cont.)				
202b	Pipe Chase	202b-1	Steel Structure	Yes	Steel Structure
		202b-2	Steel Structure	Yes	Steel Structure
		202b-3	Steel Structure	Yes	Steel Structure
		202b-4	Steel Structure	Yes	Steel Structure
203	Full Bathroom	203-1	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		203-2	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		203-3	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		203-4	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		203-5	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		203-6	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		203-7	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
204	Master Bedroom/ Guest Bedroom / Master Bedroom	204-1	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		204-2	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		204-3	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		204-4	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
204a	Closet	204a-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		204a-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		204a-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		204a-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
204b	¾ Bathroom	204b-1	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		204b-2	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		204b-3	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile
		204b-4	Insulation Board with Plaster / Metal Tile	Yes	Insulation Board with Plaster / Metal Tile

Room No.	Current/Historic Room Names	Wall No.	Original Materials	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	Second Floor (cont.)				
205	Guest Bedroom / Master Bedroom / Guest Bedroom	205-1	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		205-2	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		205-3	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		205-4	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
		205-5	Insulation Board with Plaster / Wallpaper	Yes	North ½ Insulation Board with Plaster / Wallpaper South ½ Thermax / Green Board / Plaster
		205-6	Insulation Board with Plaster / Wallpaper	Yes	Insulation Board with Plaster / Wallpaper
205a	Closet	205a-1	Insulation Board with Plaster / Paint	No	Insulation Board with Plaster / Paint
		205a-2	Insulation Board with Plaster / Paint	No	Thermax
		205a-3	Insulation Board with Plaster / Paint	No	Thermax
		205a-4	Insulation Board with Plaster / Paint	No	Insulation Board with Plaster / Paint
206	Children's Bedroom / Girl's Bedroom / Nursery	206-1	Insulation Board with Plaster / Linoleum (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
		206-2	Insulation Board with Plaster / Linoleum (1933) Wallpaper (1934)	Yes	Insulation Board with Plaster / Paint
		206-3	Insulation Board with Plaster / Linoleum (1933) Wallpaper (1934)	No	Thermax / Green Board / Plaster / Paint
		206-4	Insulation Board with Plaster / Linoleum (1933) Wallpaper (1934)	No	Thermax / Green Board / Plaster / Paint

Room No.	Current/Historic Room Names	Wall No.	Original Materials	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	Second Floor (cont.)				
206a	Closet	206a-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		206a-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		206a-3	Insulation Board with Plaster / Paint	No	Wood Paneling
		206a-4	Insulation Board with Plaster / Paint	No	Wood Paneling
207	Stair	207-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		207-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint

Third Floor

The wall finish materials have deteriorated due to numerous water leaks, and are in poor condition. The insulation board was attached to the steel structure using horizontal furring strips, and then two coats of plaster were applied. Please see the Wall Finish Schedule for a complete list of materials.

Third Floor Plan

Room No.	Current/Historic Room Names	Wall No.	Original Materials	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials
	Third Floor				
301	Solarium	301-1	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		301-2	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		301-3	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		301-4	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
		301-5	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint

Ceiling Finishes

First Floor

Most of the historic ceiling materials remain, however there are varying degrees of deterioration due to water and moisture infiltration. The Celotex was attached to the steel structural system with mastic.

Room No.	Current/Historic Room Names	Original Materials	Orig. Material Still in Existence	Existing Base Material / Intermediate Material / Top Material
	First Floor			
100	Front Porch	Steel Structure	Yes	Steel Structure
101	Entry	Celotex tiles	Yes	Celotex tiles
101a	East Closet	Insulation Board with Plaster	Yes	Insulation Board with Plaster / Paint
101b	West Closet	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster
102	Living Room	Celotex tiles	Yes	Celotex tiles
103	Dining Room	Nu-Wood Sheets	Yes	Nu-Wood Sheets
104	Kitchen	Celotex tiles	No	Insulated Tiles
105	Laundry	Steel Structure	Yes	Steel Structure
106	Study/Garage	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
106a	Closet Under Stair	Steel Structure	Yes	Steel Structure
107	Stair	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint

Second Floor

Most of the historic ceiling materials remain, however there are varying degrees of deterioration due to water and moisture infiltration. The Celotex was attached to the steel structural system with mastic.

Room No.	Current/Historic Room Names	Original Materials	Orig. Material Still in Existence	Existing Base Materials/ Intermediate Materials/ Top Materials
	Second Floor			
201	Hall	Nu-Wood tiles	No	Insulation Board with Plaster / Paint
201a	Closet	Wood Shelf System	Yes	Wood Shelf System
202	Children's Bedroom / Child's Bedroom / Boy's Bedroom	Nu-Wood tiles	Yes	Nu-Wood tiles
202a	Closet	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
202b	Pipe Chase	Steel Structure	Yes	Steel Structure
203	Full Bathroom	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
204	Master Bedroom/ Guest Bedroom/ Master Bedroom	Nu-Wood tiles	Yes	Nu-Wood tiles
204a	Closet	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
204b	¾ Bathroom	Insulation Board with Plaster / Paint	Yes	Insulation Board with Plaster / Paint
205	Guest Bedroom/ Master Bedroom/ Guest Bedroom	Nu-Wood tiles	Yes	Nu-Wood tiles
205a	Closet	Insulation Board with Plaster / Paint	No	Steel Structure
206	Children's Bedroom / Girl's Bedroom / Nursery	Nu-Wood tiles	Yes	Nu-Wood tiles
206a	Closet	Insulation Board with Plaster / Paint	No	Steel Structure
207	Stair	N.A.	N.A.	N.A.

Third Floor

The historic ceiling material, Celotex tile, was removed; date unknown. The exposed steel structural system is in poor condition.

Room No.	Current/Historic Room Names	Original Materials	Orig. Material Still in Existence	Existing Base Materials/ Intermediate Materials/ Top Materials
	Third Floor			
301	Solarium	Celotex tile	No	Steel Structure

Floor Finishes

First Floor

1. Most of the historic flooring materials have been removed. The original subflooring remains in most areas, however its condition has not been fully investigated. It is unknown if the felt underlayment has deteriorated. The subflooring that has been examined is in extremely poor condition having rotted away from repeated roof leaks.
2. The original Terrazzo tile floors remain in the laundry and the closet under the stair, however, due to the shifting of the structure they are both in poor condition.

Room No.	Current/Historic Room Names	Original Materials	Orig. Material Still in Existence	Existing Base Material / Intermediate Material / Top Material
	First Floor			
100	Front Porch	Painted Concrete - Green	Yes	Painted Concrete - Red
101	Entry	1/8" Felt / 1 1/2" T&G Subfloor / Inlaid Linoleum	No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet
101a	East Closet	1/8" Felt / 1 1/2" T&G Subfloor / Inlaid Linoleum	Yes	1/8" Felt / 1 1/2" T&G Subfloor / Inlaid Linoleum
101b	West Closet	1/8" Felt / 1 1/2" T&G Subfloor / Inlaid Linoleum	Yes	1/8" Felt / 1 1/2" T&G Subfloor / Inlaid Linoleum
102	Living Room	1/8" Felt / 1 1/2" T&G Subfloor / Inlaid Linoleum	No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet
103	Dining Room	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet
104	Kitchen	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	Mortar? / Vinyl Squares
105	Laundry	Terrazzo tile	Yes	Terrazzo tile
106	Study/Garage	Garage – Terrazzo tile Study – 1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No Yes	1/8" Felt / 1 1/2" T&G / Linoleum / Carpet
106a	Closet Under Stair	Terrazzo tile	Yes	Terrazzo tile
107	Stair	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	Yes	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum

Second Floor

1. The historic flooring materials have been removed, however the original subflooring remains in most spaces with exception of Room #202 Children's Bedroom where it was replaced with plywood. The condition of the remaining subfloor has not fully been investigated. The subflooring that has been examined is in extremely poor condition having rotted away from repeated roof leaks.
2. The original Terrazzo tile floors remain in the bathrooms. Both are in good condition.

Room No.	Current/Historic Room Names	Original Materials	Orig. Material Still in Existence	Existing Base Materials/ Intermediate Materials/ Top Materials
	Second Floor			
201	Hall	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Subfloor / Armstrong Vinyl Composite Tiles
201a	Closet	Wood Shelf System	Yes	Wood Shelf System
202	Children's Bedroom / Child's Bedroom / Boy's Bedroom	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	Plywood / Rolled Vinyl / Carpet
202a	Closet	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	Plywood/ Rolled Vinyl / Carpet
202b	Pipe Chase	Steel Structure	Yes	Steel Structure
203	Full Bathroom	Terrazzo tile	Yes	Terrazzo tile
204	Master Bedroom / Guest Bedroom / Master Bedroom	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Subfloor / Carpet
204a	Closet	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Subfloor / Carpet
204b	3/4 Bathroom	Terrazzo tile	Yes	Terrazzo tile
205	Guest Bedroom / Master Bedroom / Guest Bedroom	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Subfloor / Carpet
205a	Closet	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	Plywood
206	Children's Bedroom / Girl's Bedroom / Nursery	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Subfloor / Carpet
206a	Closet	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	No	1/8" Felt / 1 1/2" T&G Subfloor / Carpet
207	Stair	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum	Yes	1/8" Felt / 1 1/2" T&G Subfloor / Linoleum

Third Floor

1. The original black linoleum, with 3 white stripes inlaid at the perimeter, was removed; date unknown. The existing material is linoleum, and it is in fair condition.

Room No.	Current/Historic Room Names	Original Materials	Orig. Material Still in Existence	Existing Base Materials/ Intermediate Materials/ Top Materials
	Third Floor			
301	Solarium	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	Yes – Wood Subfloor No - Linoleum	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum

Interior Doors

All of the original interior doors were wood solid core hung in metal frames.

1. First Floor - All of the original doors remain, and are in fair condition. See the complete Door Schedule for detailed information.

Room No.	Current/Historic Room Names	Door No.	Original Door Type	Orig. Door Type Still in Existence	Existing Door Type
	First Floor				
101	Entry	101a	Flush Steel	Yes	Flush Steel
101a	East Closet	101b	Wood Solid Core	No	None
101b	West Closet	101c	Wood Solid Core	Yes	Wood Solid Core
103	Dining Room	103a	Steel French Doors	Yes	Steel French Doors
105	Laundry	105a	Wood Solid Core	Yes	Wood Solid Core
		105b	Flush Steel with Fixed Glass (one light)	Yes	Flush Steel with Fixed Glass (one light)
106	Study	106a	Wood Solid Core	Yes	Wood Solid Core
		106b	Wood Solid Core	Yes	Wood Solid Core
		106c	Wood Solid Core	Yes	Wood Solid Core

2. Second Floor – All of the original doors remain, and are in fair condition. See the complete Door Schedule for detailed information.

Room No.	Current/Historic Room Names	Door No.	Original Door Type	Orig. Door Type Still in Existence	Existing Door Type
	Second Floor				
201a	Closet	201-a	Wood Solid Core	Yes	Wood Solid Core
202	Children's Bedroom/ Girl's Bedroom	202-a	Wood Solid Core	Yes	Wood Solid Core
202a	Closet	202a-b	Wood Solid Core	Yes	Wood Solid Core
202b	Pipe Chase	202b-c	Wood Solid Core	Yes	Wood Solid Core
203	Full Bathroom	203-a	Wood Solid Core	Yes	Wood Solid Core
204	Master Bedroom/ Guest Bedroom	204-a	Wood Solid Core	Yes	Wood Solid Core
204a	Closet	204a-b	Wood Solid Core	Yes	Wood Solid Core
204b	¾ Bathroom	204b-c	Wood Solid Core	Yes	Wood Solid Core
205	Guest Bedroom/ Master Bedroom	205-a	Wood Solid Core	Yes	Wood Solid Core
205a	Closet	205a-b	Wood Solid Core	Yes	Wood Solid Core
206	Children's Bedroom/ Child's Bedroom	206-a	Wood Solid Core	Yes	Wood Solid Core
206a	Closet	206a-b	Wood Solid Core	Yes	Wood Solid Core
207	Stair	207-a	Wood Solid Core	Yes	Wood Solid Core

Cabinets/Built-in Furniture

1. The kitchen cabinets, installed circa 1935, are in good condition.
2. The built-in bookshelves in the study, installed in 1934, are in good condition.
3. The house was originally designed with six closets (with shelving), all of which remain. The closets are in fair condition with the exception of the closets located in the northeast and northwest bedrooms which are in poor condition.

Plumbing Systems

Water Supply

The house is serviced by a well. Its location is currently unknown. The condition of the well, and the equipment types are unknown. The existing interior water distribution system is enclosed within the walls, so the types of pipe used and their condition is unknown; they have not been inspected for safety or code compliance.

Sanitary Sewer System

The house is currently serviced by a septic tank. The tank is located near the east property line. Its condition and equipment types (i.e. tanks, lift stations) are unknown.

Plumbing & Fixtures

1. The full bathroom located on the second floor includes the original enameled cast iron tub. The tub wall enclosure is covered with the original metal tiles. The ceramic toilet (with wall tank) and ceramic sink (supported by chrome legs at the front) are replacements. The toilet and the pipes froze in 1977⁶², and it appears the sink is circa 1950's. The bathroom and fixtures are in fair condition.
2. The ¾ bathroom located on the second floor includes the original ceramic sink, and shower enclosure with glass door. The ceramic toilet (with wall tank) is a replacement. The toilet and the pipes froze in 1977.⁶³ The bathroom and fixtures are in fair condition.
3. The plumbing in the kitchen, bathrooms, and laundry will require inspection and possible repair and/or replacement. The plumbing was conventional for the time period of construction, and does not meet current building codes. The condition is unknown.
4. The original water heater was replaced prior to 1982; the year in which the last resident purchased the ROU. The existing gas water heater is in good condition.
5. The existing bathrooms are located on the second floor which might be considered an inconvenience for contemporary lifestyles.

Heating and Air-conditioning Systems

1. The original heating system was replaced prior to 1982; the year in which the last resident purchased the ROU. The original ductwork, most of which is still in place, was left exposed in the laundry room. The materials used to fabricate the ductwork, and its current condition, are unknown. The existing forced air gas furnace is in fair condition.
2. The existing chimney, originally used to vent the furnace, is probably in use to vent the existing furnace. The condition of the flue has not been inspected.
3. The existing air conditioning system has not been inspected, and its age is undetermined.

Electrical Systems**Power Supply & Distribution**

1. The original aerial electrical service comes into the structure on the west elevation of the house. It was conventional for the time period of construction. The condition of the service is unknown.
2. The original distribution panel, which incorporated breakers, was innovative. The panel is still in place, and is being used. The condition of the panel is unknown.

⁶² Interview with David Kemerer.

⁶³ Interview with David Kemerer.

3. The electrical wiring was conventional for the time period of construction, and does not meet current building code. It is in poor condition.
4. All of the original electrical outlets were replaced after 1982.

Electrical Fixtures and Devices

It is important to note that lighting was an important element in the interior decoration of the house, not the architectural design. It could be assumed, from the photo documentation from both fair seasons, the interior decorators wanted the lighting to accentuate the room use, and so chose to use primarily task and reading lamps throughout the house. See Appendix D, Exhibits A and H.

1. The existing original light fixtures located in the entry, the east entry closet, and the study are in fair condition.
2. The light fixtures located in the dining room are not original, date unknown. There is photo documentation of the original fixtures used during both fair seasons, and the existing are located in the same positions. They are in fair condition.
3. The light fixtures located in the bathrooms are not original, date unknown. There is photo documentation of the originals, and the existing are very close in style to them. They are in fair condition.
4. The exterior light fixture at the front door was replaced with a fixture of pseudo Colonial design, date unknown. There is photo documentation of the original. The existing is in fair condition.
5. The exterior light fixture at the back door has been replaced twice. The original was replaced circa 1960's. The second fixture was replaced after 1982; it does appear to be circa 1980's. Photo documentation of the original has yet to be found. The existing is in fair condition.
6. The other existing light fixtures, dates unknown and not original to the house, are in fair condition.
7. There are no exterior light fixtures on site to provide for security.

Kitchen Appliances

The original appliances, including the refrigerator and stove, were removed after the closing of the Exposition in 1934. Photographs of the appliances do exist; see Appendix D, Exhibits A and H. The existing appliances, including the refrigerator and stove, were in the house when the ROU was purchased by the last resident in 1982.

Furnishings

There is substantial documentation on the furnishings used at the Century of Progress Exposition. See Appendix D, Exhibits A and H. The last resident of the house, prior to the sale of the Reservation of Use and Occupancy to HLFi in 2004, furnished the house with eclectic pieces. Freestanding furniture is considered a personal possession, so when the sale was completed the residents removed it. The house currently stands empty.

Accessibility

At present, the first floor of the house is only partially accessible. The path to the front door from the backyard is relatively level and can be utilized with assistance. The threshold design and the width of this door are sufficient for accessibility. The path to the back door is relatively level and can be utilized with some assistance. However, the threshold design and the width of this door are not sufficient for the unimpeded passage of a wheelchair. The second and third floors of the house are not accessible due to the lack of an elevator. The handicap accessibility assessment is based upon conditions set forth in the *Uniform Federal Accessibility Standards*, 1985 edition, adopted by the National Park Service.

Life Safety

The house was not designed as a private residence, however since it was originally designed as an exhibit building for the 1933 Century of Progress Exposition, with hundred's of visitors on a daily basis, it does provide the opportunity for safe and expedient egress in case of fire. The house has three openings leading to the exterior on the first floor, the back door and patio doors on the south side of the house, and the front door on the north side of the house. There is one exterior door from the third floor onto the roof deck. However, there are no exterior stairs leading from the roof deck to the exterior of the first floor. It is required under the lease agreement with HLFi that residents maintain fire extinguishers in the house. The assessment is based upon conditions set forth in the NFPA 5000 Building Code, which is utilized by the National Park Service.

ALTERNATIVE TREATMENTS

Alternative #1 Restoration

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.⁶⁴

Even though the following points can be made about the Armco-Ferro House:

- ◆ that it has retained its most dominant architectural details: its distinct massing and rectilinear lines;
- ◆ that the configuration of the floor plan and room relationships on the first, second, and third floors have not been altered; and
- ◆ that the house has retained most of the architect's original details, i.e. the unique structural system, enameled panels, stainless steel channels, steel windows, and flush steel doors.

Restoration, as strictly defined by the Secretary of the Interior, is not recommended for the following reasons:

- ◆ the house was moved from its original location, at the Exposition site in Chicago, to Beverly Shores and has lost its original context;
- ◆ the period of significance as originally noted in the National Register nomination was 1933 – 1934, however it has been determined during the writing of this report that the period of significance is actually 1933 – 1947 due to the significance of the Century of Progress houses to the development of Beverly Shores, Indiana;
- ◆ the documentation on design details, such as linoleum colors and patterns, paint colors, and wallpaper colors and patterns, is insufficient; and
- ◆ the integrity of the house has been severely compromised by the lack of general maintenance and neglect by the previous residents, resulting in a severe level of deterioration of the exterior walls, interior wall finishes, and the structural system due to significant water and moisture infiltration.

Alternative #2 Rehabilitation

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.⁶⁵

⁶⁴ Weeks and Grimmer, 117.

⁶⁵ Kay D. Weeks and Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, (U.S. Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Heritage Preservation Services, Washington, D.C., 1995), 61.

Because the following points can be made about the Armco-Ferro House:

- ◆ that the house has retained its most dominant architectural details, i.e. its distinct massing and rectilinear lines;
- ◆ that the configuration of the floor plan and room relationships on the first, second, and third floors have not been altered; and
- ◆ that the house has retained most of the architect's original details, i.e. the unique structural system, enameled panels, stainless steel channels, steel windows, and flush steel doors.

Rehabilitation, as defined by the Secretary of the Interior, is a viable alternative for the treatment of the Armco-Ferro House for the following reasons:

- ◆ the integrity of the house has been severely compromised by the lack of general maintenance and neglect by the previous residents, resulting in a severe level of deterioration of the exterior walls, interior wall finishes, and the structural system due to significant water and moisture infiltration; and
- ◆ rehabilitation would provide continuity within the Century of Progress Architectural District, as a rehabilitation project is in progress on the Florida Tropical House, the Wieboldt-Rostone House, the House of Tomorrow, and the Cypress Log Cabin.

Alternative #3 Preservation

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.⁶⁶

Even though the following points can be made about the Armco-Ferro House:

- ◆ that the house has retained its most dominant architectural details, i.e. its distinct massing and rectilinear lines;
- ◆ that the configuration of the floor plan and room relationships on the first, second, and third floors have not been altered; and
- ◆ that the house has retained most of the architect's original details, i.e. the unique structural system, enameled panels, stainless steel channels, steel windows, and flush steel doors.

Preservation, as defined by the Secretary of the Interior, is not recommended for the following reasons:

- ◆ the integrity of the house has been severely compromised by the lack of general maintenance and neglect by the previous residents, resulting in a severe level of

⁶⁶ Weeks and Grimmer, 17.

deterioration of the exterior walls, interior wall finishes, and the structural system due to significant water and moisture infiltration.

Supporting Data

The national lakeshore's 1980 General Management Plan (GMP) addressed each of the Century of Progress houses separately, and called for their relocation to building sites in Beverly Shores outside of the beach zone. Beach erosion due to lake levels at that time was threatening two of the houses, the Florida Tropical House and the Wieboldt-Rostone House.⁶⁷

In November of 1993 the Historic Landmarks Foundation of Indiana (HLFI) placed the Century of Progress houses on the "Ten Most Endangered Landmarks in Indiana" list, and contacted the national lakeshore to discuss the long term plans for the houses and how they might assist in their preservation.

The national lakeshore entered into a Memorandum of Understanding (MOU) with HLFI in June, 1996, with the intent that the Florida Tropical House, and any additional houses as may be agreed to⁶⁸, be protected and maintained under the auspices of a residential leasing program. The Florida Tropical House was leased to HLFI for a period of 20 years, and in turn HLFI was responsible for recruiting potential lessees. The lessees would be responsible for completing the recommended treatment within the first 3 years of the lease following the Secretary of the Interior's Standards.

The 1997 GMP, a compilation of management plans covering three distinct areas of the national lakeshore, was completed in August of that year. The stance taken by the national lakeshore at that time was that long-term leases would be sought for each house under the auspices of a residential leasing program, requiring strict maintenance of the structures and occasional tours.⁶⁹

The national lakeshore's 1997 Interpretive Plan briefly refers to the interpretation of the houses through a wayside exhibit. Funding for this was requested in 2001 through the Project Management Information System (PMIS), package number 22021.

From 1996 through 2004, HLFI has been actively recruiting potential lessees for the Century of Progress houses, with support from the Cultural Resource staff of the national lakeshore. There have been numerous stumbling blocks to this process, including the limited time period of the leases, the cost of the projects, the lack of financial incentive in the way of federal or state income tax credits, and the fact that the Town of Beverly Shores has an ordinance restricting the use of buildings within the town limits to single family residences. The last of which was ultimately found not to be applicable to this project because the Century of Progress houses fall within a grandfather clause, i.e. construction date, of the ordinance. In response to these points several amendments to the original MOU have been written.

⁶⁷ General Management Plan, Indiana Dunes National Lakeshore (National Park Service, Department of the Interior, 1980).

⁶⁸ Memorandum of Understanding Between Indiana Dunes National Lakeshore and Historic Landmarks Foundation of Indiana, June, 1996. National Park Service, Indiana Dunes National Lakeshore, Cultural Resource Management files, Historic Landmarks Foundation of Indiana folder.

⁶⁹ General Management Plan, Indiana Dunes National Lakeshore (National Park Service, Department of the Interior, August 1997), 34.

In October, 1997, an amendment was written specifying the inclusion of the Wieboldt-Rostone House, the House of Tomorrow, and the Cypress Log Cabin in the leasing program. July, 1998, brought a second amendment to the MOU which extended the lease of the houses to HLF I from 20 to 25 years. In January, 2000, HLF I's lease was again extended to 35 years, with a period of 30 years set for the individual lessees. In November, 2000, in response to a request from several potential lessees and HLF I concerning the Federal Tax Incentive Program for historic preservation an amendment was written that allows the lessees to sublet a house. The national lakeshore agreed to this with the understanding that it would be on a limited basis. In April, 2004, there were two amendments to the MOU. One addressed commercial filming of the houses, and the other provided for the addition of the lots located between the houses to the agreement to be used for septic systems. In December, 2004, another amendment was written providing for the addition of the Armco-Ferro House to the agreement. The Armco-Ferro House had not been included in the original MOU due to the length of the Reservation of Use and Occupancy.

Even prior to HLF I's receipt of the house (noted in the Developmental History section of this report), they had been contacted by two highly motivated families who were interested in leasing the house. To make an equitable and unbiased decision as to which family would become the lessee HLF I requested that each submit a rehabilitation proposal for review by committee. The committee included representatives from the national lakeshore, HLF I, and the State Historic Preservation Office (SHPO). The successful family had hired two reputable, very successful, architectural design firms to prepare the proposal. One firm is experienced in dealing with steel, and the second specializes in historic preservation. These firms will be active members of the project team. See Appendix D, Exhibit O, for their resumes. One of the key points in the lessee's proposal, and one reason the committee chose this family as the lessee, was that the architectural firms will be preparing extensive documentation, drawings and photos, of the house prior to and during construction. Every aspect of the house, including plans, elevations, and details will be drawn to record the existing condition of the house. These drawings will be used to catalog all parts as they are removed during the initial phases of construction, and to document the levels of deterioration. All of these drawings, once accepted by the NPS, will become part of the official record of this project.

Recommendation

In consideration of the condition of the Armco-Ferro House, the national lakeshore recommends Alternative #2, Rehabilitation, as the preferred method of treatment within the guidelines set forth by the Secretary of the Interior.

While this alternative maintains the architect's original details still in existence, i.e. the unique structural system, stainless steel channels, steel windows, and flush steel doors, it provides for:

- ◆ the restoration of the structural system by replacing large sections of the severely deteriorated corrugated steel panels in-kind while allowing modifications to the sealant system which was an inherent design failure;
- ◆ the restoration of the exterior appearance of the house by replacing the severely deteriorated enameled panels in-kind while allowing modifications to the connection details which were an inherent design failure;

- ◆ the rehabilitation of the roof through the installation of new roofing materials, flashing, and a roof drainage system;
- ◆ removing the severely deteriorated plastered insulation board, and replacing it with rigid insulation and plastered drywall;
- ◆ the adaptive use of the laundry room for contemporary use, e.g. providing a first floor restroom and access to the new basement; and
- ◆ the construction of a new basement under the house providing a foundation, new laundry and mechanical facilities, and a storage area.

TREATMENT RECOMMENDATIONS

Site Features

Siting

Due to the surrounding vegetation there will be absolutely no smoking allowed on the site, or in adjacent areas, during the rehabilitation work.

Vegetation

1. Due to the proximity and age of the lilacs on the east and west sides of the site the preferred method of treatment is to remove them, and replace them in kind at the end of the construction project. The new plants would be located at an appropriate distance from the structure, allowing for root growth and canopy development.
2. The national lakeshore will monitor the garlic mustard.
3. There are two large, mature, nonnative Chinese Elm trees in the front yard on the dune slope. The preferred method of treatment is to remove them, leaving the root balls to protect the dune from erosion, and plant two native trees in their place upon completion of the project.
4. There are two overgrown Hemlock bushes in the front yard; one on either side of the concrete stair. Hemlock is a nonnative species. The preferred method of treatment is to remove them, and replace them with native vegetation upon completion of the project.
5. There are two large trees, one a Box Elder and the other an Oak, located in the southeast corner of the site on a small rise. The preferred method of treatment is to remove the trees, and temporarily level the rise, matching the elevation of the overall site, so that the house can be temporarily moved to the southeast corner of the site during the construction of the foundation. At the completion of construction the rise will be regarded to its original elevation and slope, the Oak will be replaced in-kind, and the Box Elder will be replaced with a species native to the area.

Exterior Furniture

The concrete sidewalk will be replaced in kind at the completion of the project.

Miscellaneous

During construction of the foundation if any small animals are found they will be relocated by park staff to other areas of the park.

Structure

General Building Description

As previously stated, the structure is in poor condition as defined by the Resource Management Plan Guideline. The deterioration or damage affects more than 25% of the structure.

Foundation

A limited amount of excavation will be done to determine whether any type of foundation exists and to determine the level of deterioration of the floor steel structural system. Current building codes require that a new foundation be constructed under the building with the depth of the footings below frost line and enough space provided for a crawl space. During the rehabilitation of the Cypress Log Cabin and Guest House it was determined there is less disturbance to the dune during excavation if the building is moved to another part of the site.

To meet the requirements of the code and limit disturbance to the dune the preferred method of treatment is to lift the building and move it to the south end of the property prior to excavation. The area below the original footprint will then be excavated for the construction of the footings and concrete block foundation walls, and installation of foundation drains. There may be a need to place shoring in the dune at the north end of the foundation prior to excavation to protect the edge of the dune from erosion. An engineer will make that determination on-site. The construction of a full basement to accommodate new laundry, mechanical, and storage spaces is preferred over a crawl space due to the limited square footage within the building. This will protect the original, unaltered, design of the floor plans from change. The new foundation will not elevate the house above the existing grade elevation.

Exterior Wall Framing

1. Since the structural system throughout the house is integrated the preferred method of treatment is to remove all deteriorated wall, ceiling, and floor finishes on the first, second, and third floors to complete the inspection. All finish materials will be documented prior to removal. (Note: the original floor finishes in the east and west entry closets will be removed, stored, and reinstalled at the end of the construction if possible. The material is linoleum and may not withstand the removal process.) All deteriorated structural steel will be replaced in-kind, e.g. the same gauge, corrugation type, method of fabrication, and method of installation.

2. The original garage door was removed, the wall framed, and the operable window installed in 1934. The preferred method of treatment is to maintain the framed wall and operable window, and repair as necessary.

Floor and Roof Framing

Since the structural system throughout the house is integrated the preferred method of treatment is to remove all deteriorated wall, ceiling, and floor finishes on the first, second, and third floors to complete the inspection. All finish materials will be documented prior to removal. All deteriorated structural steel will be replaced in-kind, e.g. the same gauge, corrugation type, method of fabrication, and method of installation.

Addition

1. The preferred method of treatment is to maintain the asymmetrical front porch, and repair and/or replace any deteriorated columns, rails, and roof members.

2. The preferred method of treatment is to permanently remove the screened enclosure.

Exterior Envelope**Exterior Wall Finish**

1. Panels - The preferred method of treatment is to replace all of the enameled panels in-kind, using the same gauge steel, method of fabrication, and color. The primary determinants for making this recommendation are: the level of deterioration; the use of inappropriate repair materials; the number of layers of paint; and most importantly, the inherent design failure of the original installation method and the possibility of continued galvanic action occurring between unlike materials (old steel versus new steel versus the material used for the channels). If we replace only the panels that are seriously deteriorated and leave those that have only minor deterioration we invite greater difficulties in the future. As the older panels deteriorate it will require extensive work to remove them without removing or damaging the new panels, the channels, and the trim. In reality, removing deteriorated panels in the future may require removing all of the panels to access only a few. A selection of the original panels in various conditions will be retained, and exhibited in the building during the annual open house.

Channels - The original design for the panel installation, using stainless steel “s” channels to secure the panels, was inherently flawed; allowing significant water infiltration and prompting galvanic action between incompatible materials.

Alternative #1 (Preferred):**Description:**

The channels will be retained. They will be temporarily removed, and repaired and/or replaced in-kind. To alleviate one of the design flaws, repairs to channel sections will include increasing the size and number of weep holes for drainage.

If sections of channel require replacement the material might be available from a similar house in Middletown, Ohio, that was also built by the Ferro Enamel Corporation. That house has been covered with wood siding. The lessee of the Armco-Ferro House is willing to contact the owners of the Middletown house to request permanently removing sections of channel for use on the Armco-Ferro House.

Analysis:

- ◆ the steel panel and stainless steel channel design element, even though inherently flawed, is one of the primary features of the house, and should be retained.
- ◆ an insulating material should be incorporated in the channel to prevent galvanic action between the steel panels and the stainless steel channels.
- ◆ this alternative meets the requirements within the Secretary’s Standards for Rehabilitation.

Special Construction Requirements:

- ◆ choosing an appropriate insulating material that can be incorporated in the channel to prevent galvanic action between the unlike materials.

Alternative #2:

Description:

The development of an appropriate design solution to alleviate the inherent flaws in the channel design will require the combined efforts of the design team, including representatives from the NPS, HLF, the architecture firms of James Papoutsis Architect and Gilmore Franzen Architects, Inc., and the SHPO. Several ideas were discussed during a tour of the house by staff members of the national lakeshore, HLF, and the SHPO, but no alternatives have been developed to date.

Analysis:

- ♦ maintaining the significant visual characteristics of the stainless steel channel is of primary importance.
- ♦ eliminating the inherent design flaws in the channels will protect the new enameled steel panels from deterioration due to galvanic action.
- ♦ this alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Special Construction Requirements:

- ♦ cost of fabricating replacement materials.

2. The preferred method of treatment is to clean and repair all of the corner trim for reuse. It is not feasible to replace it due to the complexity and cost of forming the sections, e.g. rolling, new pieces from sheet steel.

Insulation

The original design called for the placement of rock wool in the cavities of the corrugated steel panels, however that was not completed. The design also called for insulation board to be placed on the exterior and interior of the corrugated steel panels; which was done. The insulation board is in poor condition due to roof leaks and lack of regular maintenance.

Alternative #1 (Preferred):

Description:

Remove all deteriorated insulation board on the exterior and interior of the steel wall panels. The insulation board will be replaced in-kind on the exterior of the steel wall panels. Rigid insulation, 1" to 1 ½" thick, with a vapor barrier will be placed on the interior of the steel wall panels to provide adequate insulation value, and to prevent moisture infiltration. The window and door frames will be extended to accommodate the additional material. Mold resistant drywall with a skim coat of plaster will be placed over the rigid insulation as the finish material. A moisture migration control will be developed for the exterior walls, and if necessary a mold resistant coating will be used on the drywall.

Analysis:

- ♦ if the rigid insulation were placed on the exterior of the steel it would radically change the architect's original flush details of the enameled panels, the enameled corner details, and the window and door surrounds.

- ◆ placing the rigid insulation on the interior of the steel framing will increase the wall thickness, however it will not be as intrusive on the architect's original design.
- ◆ extending the window frames will accommodate the installation of new interior storm windows without affecting the architect's original design.
- ◆ this method of insulating the house will reduce heating and air-conditioning loads.
- ◆ by decreasing heating and air-conditioning loads it will reduce the impact on the environment, i.e. reducing the consumption of fossil fuels.
- ◆ this method of insulating the house will provide for 4 season use of the house.
- ◆ this alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Special Construction Requirements:

- ◆ extending the window and door frames to accommodate the additional material.

Alternative #2:

Description:

Remove all deteriorated insulation board on the exterior and interior of the steel wall panels. The insulation board will be replaced in-kind on the exterior of the steel wall panels. Rigid insulation, 1" to 1 ½" thick, with a vapor barrier will be placed on the interior of the steel wall panels to provide adequate insulation value, and to prevent moisture infiltration. The window and door frames will be extended to accommodate the additional material. Mold resistant drywall with a skim coat of plaster will be placed over the rigid insulation as the finish material. A moisture migration control will be developed for the exterior walls, and if necessary a mold resistant coating will be used on the drywall. In addition, the cavities within the steel wall panels will be filled with foam insulation.

Analysis:

- ◆ if the rigid insulation were placed on the exterior of the steel it would radically change the architect's original flush details of the enameled panels, the enameled corner details, and the window and door surrounds.
- ◆ placing the rigid insulation on the interior of the steel framing will increase the wall thickness, however it will not be as intrusive on the architect's original design.
- ◆ the original construction specifications called for the placement of insulation in the cavities within the steel framed wall, however it was never completed.
- ◆ to prevent the "over" insulation of the walls and the potential for moisture infiltration and retention, a consultant specializing in insulation and moisture studies will be hired by the lessee's architects to determine if insulating the wall cavities is feasible.
- ◆ this method of insulating the house will reduce heating and air-conditioning loads.
- ◆ by decreasing heating and air-conditioning loads it will reduce the impact on the environment, i.e. reducing the consumption of fossil fuels.
- ◆ this method of insulating the house will provide for 4 season use of the house.
- ◆ this alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Special Construction Requirements:

- ◆ extending the window and door frames to accommodate the additional material.
- ◆ determining which foam insulation is appropriate for this use.
- ◆ determining if a vapor barrier, and what type, can be installed inside the wall cavities to prevent moisture infiltration and retention.

Alternative #3:**Description:**

Remove all deteriorated insulation board on the exterior and interior of the steel wall panels, and replace in-kind. Mold resistant drywall with a skim coat of plaster will be placed over the insulation board on the interior as the finish material. A moisture migration control will be developed for the exterior walls, and if necessary a mold resistant coating will be used on the drywall.

Analysis:

- ◆ this method does recognize the architect's original design intent.
- ◆ this method does not provide adequate insulation or vapor barrier.
- ◆ this method of insulating the house will increase heating and air-conditioning loads.
- ◆ by increasing heating and air-conditioning loads it will increase the impact on the environment, i.e. increasing the consumption of fossil fuels.
- ◆ this method of insulating the house will provide for only 2 - 3 season use of the house.
- ◆ this alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Special Construction Requirements:

- ◆ utilizing a furnace and air-conditioner with higher output.

Roofing

1. The preferred method of treatment is to: replace the existing roof with an EDPM rubber roofing system, which will include the use of sloped rigid insulation over the steel structural system to provide adequate roof drainage; repair and/or replace in-kind the flashing; and install a walkway pad system over the EDPM to protect the system from damage during use of the roof deck.

2. The door and threshold onto the roof deck has severely deteriorated. The preferred method of treatment is to repair the door and rebuild the threshold, providing for both code requirements for egress and sufficient height for the EDPM roofing system installation.

Parapet

The preferred method of treatment is to remove the roofing, and inspect the enameled panels and trim on the interior of the parapet. All enameled panels will be replaced in-kind, matching the original in steel gauge, method of fabrication, method of installation, and color. The trim, especially the building corner pieces will be repaired rather than replaced because of the complexity of fabricating replacement parts. The ironwork details in the parapet on the For the 1934 fair season sections of the parapet on the front elevation were removed and replaced with

ironwork.⁷⁰ When roof repairs were made over the years the roofing materials were wrapped up the parapet wall resulting in the deterioration of the original enameled panels. The parapet is in poor condition.

Downspouts & Scuppers

The preferred method of treatment is to inspect the roof drains and internal downspouts after the roofing material and interior wall finishes have been removed to determine if they can be repaired for reuse or replaced in-kind. The scuppers will also be inspected after the removal of roofing materials to determine the extent of repairs necessary. The external downspouts will be repaired for reuse. Utilizing both systems of drainage should provide adequate drainage for the roof.

Windows

The steel frame windows on all three floors have deteriorated due to a lack of general maintenance, and water infiltration. (Please note the third floor windows occupy the full width of each wall, with exception of the exterior door location.) The preferred method of treatment is to restore all windows. Prior to their restoration the windows will be removed from the structure, and the glass removed from the frames, catalogued and stored. The frames will be sanded, repaired, and repainted, after which the original glass will be reinstalled and recaulked. Please note, reflective coatings to reduce heat gain within the building shall not be allowed on any window glass as it would change the architectural detailing and visual characteristics of the architect's original design.

Alternative #1 (Preferred):

Description:

Interior storm windows will be installed on all windows to protect the structure from extremes in temperature.

Analysis:

- ◆ a window type should be chosen that will not deter from the design of the original windows.
- ◆ a window type should be chosen that will protect the steel frames from a build-up of condensation that could cause deterioration.
- ◆ a window type should be chosen that will not damage, or require the removal of, the original window hardware.
- ◆ this alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Special Construction Requirements:

- ◆ none

⁷⁰ Interview with David Kemerer.

Alternative #2:

Description:

Retrofit the steel window frames so that thermopane glass could be installed to protect the structure from extremes in temperature.

Analysis:

- ◆ the steel window frames are in need of extensive repair due to severe levels of deterioration, and retrofitting for thermopane glass could be done at the same time.
- ◆ this alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Special Construction Requirements:

- ◆ retrofit the steel window frames for the installation of thermopane glass.

Alternative #3:

Description:

Do not utilize storm windows.

Analysis:

- ◆ the expense of heating the building will be increased.

Special Construction Requirements:

- ◆ utilizing a furnace and air-conditioner with higher output.

Exterior Doors

1. The preferred method of treatment is to restore the original exterior doors, located at the front and back of the house.
2. The preferred method of treatment is to restore the original patio French doors located in the dining room.
3. The preferred method of treatment is to restore the original door located in the solarium.

See the Interior Doors section of this report for the complete Door Schedule.

Chimney

See the HVAC section of this report.

Interior**Partition Framing**

Since the structural system throughout the house is integrated the preferred method of treatment is to remove all deteriorated wall, ceiling, and floor finishes on the first, second, and third floors to complete the inspection. All finish materials will be documented prior to removal. All deteriorated structural steel will be replaced in-kind, e.g. the same gauge, corrugation type, method of fabrication, and method of installation.

Interior Stairs

The original interior stairs, from the first to the third floor, appear to be in good condition as there is no deflection when weight is applied. The preferred method of treatment is to remove all of the floor coverings and complete a thorough inspection before choosing a course of action. When repairs are complete new linoleum matching the original in type and color will be installed.

Wall Finishes*First Floor*

1. The preferred method of treatment is to remove the deteriorated historic wall finish materials, and repair and/or replace the structural steel as previously noted. All deteriorated finish materials on the walls will be replaced with mold resistant drywall, attached to the steel by horizontal furring strips, and finished with a skim coat of plaster. The lessee will be given the option of painting the walls as per the original 1933 color scheme noted in historic photographs and written documentation, or using wallpaper representative of that used for the 1934 fair season. Please see the Wall Finish Schedules for a complete list of materials.
2. The preferred method of treatment is to remove all nonhistoric wall finish materials, and replace it with mold resistant drywall, attached to the steel by horizontal furring strips, and finished with a skim coat of plaster. The lessee will be given the option of painting the walls as per the original 1933 color scheme noted in historic photographs and written documentation, or using wallpaper representative of that used for the 1934 fair season. Please see the Wall Finish Schedules for a complete list of materials.

Room No.	Current/Historic Room Names	Wall No.	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	Repair and/or Replace with
	First Floor				
101	Entry Hall	101-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
101a	East Closet	101a-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101a-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101a-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101a-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
101b	West Closet	101b-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101b-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101b-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		101b-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
102	Living Room	102-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		102-2	Yes	North ½ Insulation Board with Plaster / Paint South ½ Thermax Insulation / Green Board / Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		102-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		102-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
103	Dining Room	103-1	Yes – Wainscot removed	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		103-2	Yes – Wainscot removed	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		103-3	Yes – Wainscot removed	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		103-4	Yes – Wainscot removed	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster

Room No.	Current/Historic Room Names	Wall No.	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	Repair and/or Replace with
	First Floor (cont.)				
104	Kitchen	104-1	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Paint & Wainscot of Masonite Tile
		104-2	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Paint & Wainscot of Masonite Tile
		104-3	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Paint & Wainscot of Masonite Tile
		104-4	Yes	Insulation Board with Plaster / Paint & Wainscot of Masonite Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Paint & Wainscot of Masonite Tile
105	Laundry	105-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		105-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		105-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		105-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
106	Study/Garage	106-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		106-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		106-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		106-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
106a	Closet Under Stair	106a-1	Yes	Steel Structure	Mold Resistant Drywall w/Skim Coat of Plaster
		106a-2	Yes	Steel Structure	Mold Resistant Drywall w/Skim Coat of Plaster
		106a-3	Yes	Steel Structure	Mold Resistant Drywall w/Skim Coat of Plaster
		106a-4	Yes	Steel Structure	Mold Resistant Drywall w/Skim Coat of Plaster
107	Stair	107-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster

Second Floor

1. The preferred method of treatment is to remove the deteriorated historic wall finish materials, and repair and/or replace the structural steel as previously noted. All deteriorated finish materials on the walls will be replaced with mold resistant drywall, attached to the steel by horizontal furring strips, and finished with a skim coat of plaster. The lessee will be given the option of painting the walls as per the original 1933 color scheme noted in historic photographs and written documentation, or using wallpaper representative of that used for the 1934 fair season. Please see the Wall Finish Schedules for a complete list of materials.

2. & 3. The preferred method of treatment is to remove all nonhistoric wall finish materials, and replace them with mold resistant drywall, attached to the steel by horizontal furring strips, and finished with a skim coat of plaster. The lessee will be given the option of painting the walls as per the original 1933 color scheme noted in historic photographs and written documentation, or using wallpaper representative of that used for the 1934 fair season. Please see the Wall Finish Schedules for a complete list of materials.

Room No.	Current/Historic Room Names	Wall No.	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	Repair and/or Replace with
	Second Floor				
201	Hall	201-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-5	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-6	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-7	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		201-8	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
201a	Closet	201a-1	Yes	Wood Shelf System	Wood Shelf System
		201a-2	Yes	Wood Shelf System	Wood Shelf System
		201a-3	Yes	Wood Shelf System	Wood Shelf System
		201a-4	Yes	Wood Shelf System	Wood Shelf System
202	Children's Bedroom / Child's Bedroom / Boy's Bedroom	202-1	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		202 -2	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		202-3	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		202-4	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
202a	Closet	202a-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		202a-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		202a-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		202a-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
202b	Pipe Chase	202b-1	Yes	Steel Structure	Steel Structure
		202b-2	Yes	Steel Structure	Steel Structure
		202b-3	Yes	Steel Structure	Steel Structure
		202b-4	Yes	Steel Structure	Steel Structure

Room No.	Current/Historic Room Names	Wall No.	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	Repair and/or Replace with
	Second Floor				
203	Full Bathroom	203-1	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		203-2	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		203-3	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		203-4	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		203-5	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		203-6	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		203-7	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
204	Master Bedroom / Guest Bedroom / Master Bedroom	204-1	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		204-2	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		204-3	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		204-4	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
204a	Closet	204a-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		204a-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		204a-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		204a-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
204b	¾ Bathroom	204b-1	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		204b-2	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		204b-3	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile
		204b-4	Yes	Insulation Board with Plaster / Metal Tile	Mold Resistant Drywall w/Skim Coat of Plaster / Metal Tile

Room No.	Current/Historic Room Names	Wall No.	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	Repair and/or Replace with
	Second Floor				
205	Guest Bedroom / Master Bedroom / Guest Bedroom	205-1	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		205-2	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		205-3	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		205-4	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
		205-5	Yes/No	North ½ Insulation Board with Plaster / Wallpaper South ½ Thermax / Green Board / Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		205-6	Yes	Insulation Board with Plaster / Wallpaper	Mold Resistant Drywall w/Skim Coat of Plaster
205a	Closet	205a-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		205a-2	No	Thermax	Mold Resistant Drywall w/Skim Coat of Plaster
		205a-3	No	Thermax	Mold Resistant Drywall w/Skim Coat of Plaster
		205a-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
206	Children's Bedroom / Girl's Bedroom / Nursery	206-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		206-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		206-3	No	Thermax / Green Board / Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		206-4	No	Thermax / Green Board / Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
206a	Closet	206a-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		206a-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		206a-3	No	Wood Paneling	Mold Resistant Drywall w/Skim Coat of Plaster
		206a-4	No	Wood Paneling	Mold Resistant Drywall w/Skim Coat of Plaster
207	Stair	207-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		207-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster

Third Floor

1. The preferred method of treatment is to remove the deteriorated historic wall finish materials, and repair and/or replace the structural steel as previously noted. All deteriorated finish materials on the walls will be replaced with drywall, attached to the steel by horizontal furring strips, and finished with plaster. The lessee will be given the option of painting the walls as per the original 1933 color scheme noted in historic photographs and written documentation. Please see the Wall Finish Schedules for a complete list of materials.

Room No.	Current/Historic Room Names	Wall No.	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	Repair and/or Replace with
	Third Floor				
301	Solarium	301-1	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		301-2	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		301-3	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		301-4	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster
		301-5	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster

Ceiling Finishes

First Floor

The preferred method of treatment is to remove the deteriorated historic ceiling finish materials, and repair and/or replace the structural steel as previously noted. All deteriorated finish materials on the ceilings will be replaced with Celotex, attached to the steel with mastic, and mold resistant drywall, attached to the steel by horizontal furring strips and finished with a skim coat of plaster. Please see the Ceiling Finish Schedules for a complete list of materials.

Room No.	Current/Historic Room Names	Orig. Material Still in Existence	Existing Base Material / Intermediate Material / Top Material	New Material
	First Floor			
100	Front Porch	Yes	Steel Structure	Steel Structure
101	Entry	Yes	Celotex tiles	Celotex tiles
101a	East Closet	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
101b	West Closet	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
102	Living Room	Yes	Celotex tiles	Celotex tiles
103	Dining Room	Yes	Nu-Wood Sheets	Celotex sheets
104	Kitchen	No	Insulated Tiles	Celotex tiles
105	Laundry	Yes	Steel Structure	Steel Structure
106	Study/Garage	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
106a	Closet Under Stair	Yes	Steel Structure	Steel Structure
107	Stair	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint

Second Floor

The preferred method of treatment is to remove the deteriorated historic ceiling finish materials, and repair and/or replace the structural steel as previously noted. All deteriorated finish materials on the ceilings will be replaced with Celotex, attached to the steel with mastic, and mold resistant drywall, attached to the steel by horizontal furring strips and finished with a skim coat of plaster. Please see the Ceiling Finish Schedules for a complete list of materials.

Room No.	Current/Historic Room Names	Orig. Material Still in Existence	Existing Base Materials/ Intermediate Materials/ Top Materials	New Material
	Second Floor			
201	Hall	No	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
201a	Closet	Yes	Wood Shelf System	Wood Shelf System
202	Children's Bedroom / Child's Bedroom / Boy's Bedroom	Yes	Nu-Wood tiles	Celotex tiles
202a	Closet	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
202b	Pipe Chase	Yes	Steel Structure	Steel Structure
203	Full Bathroom	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
204	Master Bedroom/ Guest Bedroom/ Master Bedroom	Yes	Nu-Wood tiles	Celotex tiles
204a	Closet	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
204b	¾ Bathroom	Yes	Insulation Board with Plaster / Paint	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
205	Guest Bedroom/ Master Bedroom/ Guest Bedroom	Yes	Nu-Wood tiles	Celotex tiles
205a	Closet	No	Steel Structure	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
206	Children's Bedroom / Girl's Bedroom / Nursery	Yes	Nu-Wood tiles	Celotex tiles
206a	Closet	No	Steel Structure	Mold Resistant Drywall w/Skim Coat of Plaster / Paint
207	Stair	N.A.	None	N.A.

Third Floor

The preferred method of treatment is to repair and/or replace the structural steel as previously noted. The missing original finish material on the ceiling will be replaced with Celotex attached to the steel with mastic. Please see the Ceiling Finish Schedules for a complete list of materials.

Room No.	Current/Historic Room Names	Orig. Material Still in Existence	Existing Base Materials/ Intermediate Materials/ Top Materials	New Material
	Third Floor			
301	Solarium	No	Steel Structure	Celotex tiles

Floor Finishes*First Floor*

The preferred method of treatment is to remove the nonhistoric flooring materials, and investigate the condition of any historic flooring materials if found. If found they should be repaired and/or replaced in kind.

The inlaid linoleum located in the entry closets shall be repaired and/or replaced in kind. The linoleum on the stair shall be repaired and/or replaced in kind. The Terrazzo tile in the laundry and the under stair closet shall be repaired and/or replaced in kind. The kitchen tile shall be replaced, matching the color and “picture frame” design used for the 1934 season.

The only written documentation of the colors and patterns of linoleum used in the Entry, Living Room, and Dining Room were found in Appendix D, Exhibit A. This documentation is incomplete. To avoid making incorrect decisions, due to the incomplete documentation, the preferred method of treatment for the floors in the Entry, Living Room, and Dining Room is to repair and/or replace in kind the existing wood subfloor and use it as a finished floor. If in the future additional documentation on the original linoleum is located the lessees will be given the option of replicating the colors and patterns in each room.

Room No.	Current/Historic Room Names	Original Material	Orig. Material Still in Existence	Existing Base Material / Intermediate Material / Top Material	New Material
	First Floor				
100	Front Porch	Painted Concrete - Green	Yes	Painted Concrete - Red	Painted Concrete - Green
101	Entry	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
101a	East Closet	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	Yes	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	1/8" Pad / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum
101b	West Closet	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	Yes	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	1/8" Pad / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum
102	Living Room	1/8" Felt / 1 1/2" T&G Wood Subfloor / Inlaid Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
103	Dining Room	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
104	Kitchen	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	No	Mortar / Vinyl Squares	1/8" Pad / 1 1/2" T&G Wood Subfloor / Linoleum
105	Laundry	Terrazzo tile	Yes	Terrazzo tile	Terrazzo tile
106	Study/Garage	Garage - Terrazzo Study – 1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	No - Terrazzo Yes – Subfloor & Linoleum	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum / Carpet	1/8" Pad / 1 1/2" T&G Wood Subfloor / Linoleum
106a	Closet Under Stair	Terrazzo tile	Yes	Terrazzo tile	Terrazzo tile
107	Stair	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	Yes	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	1/8" Pad / 1 1/2" T&G Wood Subfloor / Linoleum

Second Floor

The preferred method of treatment is to remove the nonhistoric flooring materials, and investigate the condition of any historic flooring materials if found. If found they should be repaired and/or replaced in kind.

The linoleum on the stair shall be repaired and/or replaced in kind. The Terrazzo tile in both bathrooms shall be repaired and/or replaced in kind.

The only written documentation of the colors and patterns of linoleum used in the bedrooms and hall was found in Appendix D, Exhibit A. This documentation is incomplete. To avoid making incorrect decisions, due to the incomplete documentation, the preferred method of treatment for the floors in the bedrooms and hall is to repair and/or replace in kind the existing wood subfloor and use it as a finished floor. If in the future additional documentation on the original linoleum is located the lessees will be given the option of replicating the colors and patterns in each room.

Room No.	Current/Historic Room Names	Original Material	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	New Material
	Second Floor				
201	Hall	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Vinyl Composite Tiles	1/8" Pad / 1 1/2" T&G Wood floor
201a	Closet	Wood Shelf System	Yes	Wood Shelf System	Wood Shelf System
202	Children's Bedroom / Child's Bedroom / Boy's Bedroom	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	No	Plywood / Rolled Vinyl / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
202a	Closet	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	No	Plywood / Rolled Vinyl / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
202b	Pipe Chase	Steel Structure	Yes	Steel Structure	Steel Structure
203	Full Bathroom	Terrazzo tile	Yes	Terrazzo tile	Terrazzo tile
204	Master Bedroom / Guest Bedroom / Master Bedroom	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
204a	Closet	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
204b	¾ Bathroom	Terrazzo tile	Yes	Terrazzo tile	Terrazzo tile
205	Guest Bedroom / Master Bedroom / Guest Bedroom	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
205a	Closet	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	No	Plywood	1/8" Pad / 1 1/2" T&G Wood floor
206	Children's Bedroom / Girl's Bedroom / Nursery	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
206a	Closet	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	Yes/No	1/8" Felt / 1 1/2" T&G Wood Subfloor / Carpet	1/8" Pad / 1 1/2" T&G Wood floor
207	Stair	1/8" Felt / 1 1/2" T&G Wood Subfloor/Linoleum	Yes	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	1/8" Pad / 1 1/2" T&G Wood Subfloor/Linoleum

Third Floor

The preferred method of treatment is to remove the nonhistoric flooring materials, and investigate the condition of any historic flooring materials if found. If found they should be repaired and/or replaced in kind.

The only written documentation of the colors and patterns of linoleum used in the solarium was found in Appendix D, Exhibit A. This documentation is incomplete. To avoid making incorrect decisions, due to the incomplete documentation, the preferred method of treatment for the floor in the solarium is to repair and/or replace in kind the existing wood subfloor and use it as a finished floor. If in the future additional documentation on the original linoleum is located the lessees will be given the option of replicating the colors and patterns.

Room No.	Current/Historic Room Names	Original Material	Orig. Material Still in Existence	Existing Base Materials / Intermediate Materials / Top Materials	New Material
	Third Floor				
301	Solarium	1/8" Felt / 1 1/2" T&G Wood Subfloor/ Inlaid Linoleum	Yes – Wood Subfloor No - Linoleum	1/8" Felt / 1 1/2" T&G Wood Subfloor / Linoleum	1/8" Pad / 1 1/2" T&G Wood floor

Interior Doors

All of the original interior doors were wood solid core hung in metal frames.

1. First Floor - All of the original doors remain with the exception of the west entry closet. The preferred treatment is to restore the existing doors and hardware, and replace the west entry closet door in-kind.
2. Second Floor – All of the original doors remain. The preferred method of treatment is to restore the existing doors and hardware.

Cabinets/Built-in Furniture

1. The preferred treatment is to permanently remove the 1935 kitchen cabinets, and replace them with cabinets matching the original design and color.
2. The preferred treatment is to restore the bookshelves.
3. The preferred treatment is to restore the closets.

Plumbing Systems**Water Supply**

The house is currently serviced by a well. The preferred method of treatment is to inspect the equipment and test the water before deciding upon use of the existing well or drilling a new well. An alternate that has been discussed is for all of the lessees to share the cost of extending the new city water line to the houses.

Sanitary Sewer System

The house is currently serviced by a septic tank. The preferred method of treatment is to inspect the tanks to determine if they are serviceable. If they are not a new septic system will be installed, and its location will be based on the locations of the new wells for the Armco-Ferro and the House of Tomorrow to meet current Health and Safety codes and regulations.

Plumbing & Fixtures

1. The preferred method of treatment for the full bathroom is to:

- a) catalog, remove, and store the existing metal wall tiles and reinstall at the end of the project;
- b) replicate the missing metal tiles, approximately 6, and install them in unobtrusive locations;
- c) inspect the original tub and repair if necessary;
- d) replace the existing toilet with one matching the original in design and color; and
- e) replace the existing sink with one matching the original in design and color.

Please note, the original tub will be documented, cataloged, removed, and stored until the completion of the project to protect it from damage during construction.

2. The preferred method of treatment for the $\frac{3}{4}$ bathroom is to:

- a) catalog, remove, and store the existing metal wall tiles and reinstall at the end of the project;
- b) replicate the missing metal tiles, and install them in unobtrusive locations;
- c) inspect the original shower and glass door and repair if necessary;
- d) inspect the original sink and repair if necessary; and
- e) replace the existing toilet with one matching the original in design and color.

Please note, the original shower and sink will be documented, cataloged, removed, and stored until the completion of the project to protect them from damage during construction.

3. The preferred method of treatment is to inspect the plumbing throughout the house to determine what can be repaired and what will have to be replaced. It is assumed that all pipes will have to be replaced.

4. The preferred method of treatment is to replace the existing water heater with an efficient gas water heater that will meet current codes.

5. The preferred method of treatment is to construct a new $\frac{1}{2}$ bathroom on the first floor located in the existing laundry within the space currently occupied by the forced air heating system. See drawing, Appendix D, Exhibit Q.

Heating and Air-conditioning Systems

1. The preferred method of treatment is to remove the existing forced-air furnace, and install a new gas high efficiency forced-air unit utilizing the existing original ductwork if possible. The ductwork should be cleaned, relined, and repaired. If the ductwork can not be used it should be replaced in kind.
2. The existing chimney, originally used to vent the furnace, is probably in use. The preferred method of treatment is to inspect the flue to determine if it can be cleaned and reused, or if it has to be replaced.
3. The preferred method of treatment is to remove the existing air conditioning unit, and replace it with a high efficiency unit utilizing the existing ductwork for the forced air heating system, as noted above. The new system should include a humidity control system to regulate interior moisture levels.

Electrical Systems**Power Supply & Distribution**

1. The original aerial electrical service comes into the structure on the west elevation of the house.

Alternative #1 (Preferred): The preferred treatment is to leave the service entrance where it is located; rewiring it to meet current building codes if necessary. This alternative meets the requirements within the Secretary's Standards for Rehabilitation.

Alternative #2: Place the service underground. This alternative meets the requirements within the Secretary's Standards for Rehabilitation.

2. The preferred method of treatment is to install a new service panel, and to retain the original in place for exhibit purposes only.
3. The preferred method of treatment is to remove the wiring on all levels and rewire, utilizing existing conduit if possible, to bring up to current building code.
4. The preferred method of treatment is to remove the outlets on all levels, and replace them when rewiring.

Electrical Fixtures and Devices

It is important to note that lighting was an important element in the interior decoration of the house, not the architectural design. It could be assumed, from the photo documentation from both fair seasons, the interior decorators wanted the lighting to accentuate the room use, and so chose to use primarily task and reading lamps throughout the house.

1. The preferred method of treatment is to repair the existing original light fixtures located in the entry, the east entry closet, and the study.

2. The preferred method of treatment is to replace the existing light fixtures located in the dining room matching the original in design and materials. The existing will be retained for interpretive purposes.
3. The preferred method of treatment is to replace the existing light fixtures located in the bathrooms matching the original in design and materials.
4. The preferred method of treatment is to replace the existing exterior light fixture at the front door matching the original in design and materials.
5. The preferred method of treatment is to replace the existing exterior light fixture at the back door with one that matches the architectural design of the house, and the Architect's original intent.
6. The preferred method of treatment is to replace the other existing fixed light fixtures with fixtures matching the architectural design of the house, and the Architect's original intent.
7. The preferred method of treatment is to utilize exterior lighting on the stairs from the street up to the house, and lights as intrusion alarms to provide for security, both unobtrusively, while complementing the architectural design of the house and the landscape design, and with prior approval of the National Park Service.

Kitchen Appliances

The original appliances, including the refrigerator and stove, were removed after the closing of the Exposition in 1934. The preferred treatment is to install new appliances that are replicas of the original. See Appendix D, Exhibits A and H.

Furnishings

There is substantial documentation on the furnishings used at the Century of Progress Exposition. See Appendix D, Exhibits A and H. The last resident of the house, who sold the remaining months of the Reservation of Use and Occupancy to HLF in 2004, furnished the house with eclectic pieces. Freestanding furniture is considered a personal possession, so when the ROU was sold the residents removed it. The house currently stands empty.

Accessibility

Because the house will be used as a private residence, with public visitation limited to one day a year, the preferred treatment is to open only the first floor for the annual house tour. Additional access to the interior of the house would adversely affect the historic integrity and appearance of the house. To make the second and third floors accessible would entail significant loss of historic fabric and degradation of character. To interpret areas of the houses that are not accessible, photographic displays would be produced and exhibited during the annual house tour.

Life Safety

The house was not designed as a private residence, however since it was originally designed as an exhibit building for the 1933 Century of Progress Exposition, with hundreds of visitors on a daily basis, it does provide the opportunity for safe and expedient egress in case of fire. The house has three openings leading to the exterior on the first floor, the back door and French doors on the south side of the house, and the front door on the north side of the house. It is required under the lease agreement with HLFH that residents maintain fire extinguishers in the house.

The national lakeshore further recommends:

1. Extinguishers should be placed in: the laundry room and the kitchen on the first floor and other areas where fire might be a danger based on the use of the structure; and each bedroom on the second floor; and on the third floor.
2. A security system should be installed that includes a smoke detection system.

SUMMARY OF TREATMENT RECOMMENDATIONS

Use Program

Through a Memorandum of Understanding with Historic Landmarks Foundation of Indiana (HLFI), it is the intent of the national lakeshore and HLFI that the Century of Progress houses, including the Armco-Ferro House, be protected under the auspices of a residential leasing program. To facilitate this program, the national lakeshore leased all of the Century of Progress houses to HLFI for a period of 35 years; in-turn, HLFI is responsible for recruiting potential lessees for each house. The individual houses would be leased to interested parties for a period of 30 years. The lessees would be responsible for completing the rehabilitation project within the first 3 years of the lease following the Secretary of the Interior's Standards.

Accessibility

Since the structure is to be used as a private residence, and would only be open one day a year for public visitation, accessibility would be accommodated in alternative ways.

Construction of accessible routes to and within the structure would adversely affect the historic integrity and appearance of the site and structure. The construction of a substantial ramp from Lake Front Drive to the historic front entrance to the site would not only adversely affect the cultural landscape it would be cost prohibitive. The historic front entrance to the structure can be made accessible with assistance. A clear and level path to the front door from the back yard will be provided, as will the services of a volunteer or staff member, to assist any visitors requiring assistance.

To make the structure's interiors, including the second and third floors and bathrooms, code-accessible would entail the loss of historic fabric and degradation of historic character. The floor plan would have to be severely redesigned to accommodate an elevator and an accessible bathroom. The structural system would have to be altered, and wall, ceiling, and floor fabric, and door trim would be lost. To provide interpretation of the areas that are not accessible, photo displays would be utilized during the tours, and would be set up on the first floor. To provide for restroom accessibility, port-a-johns would be placed near the site for public use during the annual, one day, open house.

Life Safety and Fire Detection

The structure would be protected with a smoke detection system connected to an alarm system. The alarm company would notify the local fire departments, including Beverly Shores of which the national lakeshore currently has a mutual aid agreement. The keypad for the alarm system would be located near the back door for ease of access. Smoke detectors would be installed in at least the entry hall, the kitchen, the second floor hall, and on the third floor.

Site Features

- ◆ Remove overgrown lilacs and replace in kind.
- ◆ Monitor garlic mustard.
- ◆ Remove nonnative species, and replace with native species.
- ◆ Replace sidewalk in kind.

Structure

- ◆ Remove all deteriorated interior finish materials and ventilate structure.
- ◆ Raise building, excavate and construction foundation with basement.
- ◆ Install foundation drains to facilitate drainage away from structure.
- ◆ Repair and/or replace in kind structural steel exterior wall framing after inspection.
- ◆ Repair and/or replace in kind structural steel floor and roof framing after inspection.
- ◆ Repair and/or replace in kind porch columns, rails, and roof members.

Exterior Envelope

- ◆ Remove all deteriorated exterior enameled steel panels, and replace in kind.
- ◆ Repair and/or replace in kind channels used to hold enameled panels in place.
- ◆ Scrape, clean, and repair all building corner trim pieces.
- ◆ Install new insulation board on exterior of structural steel wall panels.
- ◆ Install new rigid insulation on interior of structural steel wall panels.
- ◆ Replace deteriorated roofing with EDPM roofing system, and install a walkway pad system over roofing.
- ◆ Rebuild door threshold at exterior opening onto roof deck, while meeting egress and EDPM roofing system requirements.
- ◆ Remove all deteriorated enameled steel panels on the parapet, and replace in kind.
- ◆ Repair and/or replace in kind the wrought iron panels in the parapet.
- ◆ Repair and/or replace the external and internal downspouts.
- ◆ Repair the scuppers.
- ◆ Restore all windows.
- ◆ Install new storm windows.
- ◆ Restore original exterior doors and frames.

Interior

- ◆ Repair and/or replace in kind structural steel interior wall framing after inspection.
- ◆ Remove floor finish material on stairs for inspection, and determine course of action.
- ◆ Remove deteriorated wall finishes on all levels, and replace with drywall finished with a skim coat of plaster. See finish schedule in text of report.
- ◆ Remove deteriorated ceiling finishes on all levels, and replace with Celotex and drywall finished with a skim coat of plaster. See finish schedule in text of report.
- ◆ Remove nonhistoric floor finishes on all levels, investigate condition of any historic materials found, and repair and/or replace in kind. Repair and/or replace all materials as noted in text of report.
- ◆ Repair and/or replace in kind original linoleum in entry closets.
- ◆ Repair and/or replace in kind original terrazzo tile in laundry, closet under stair, full bathroom, and ¾ bathroom.
- ◆ Restore all interior doors, frames, and hardware.
- ◆ Permanently remove existing kitchen cabinets, and replace with cabinets matching original in design and materials.
- ◆ Restore bookshelves in study.
- ◆ Restore all closets.

Plumbing Systems

- ◆ Install new well or connect to new city water system.
- ◆ Install new septic system.
- ◆ Replace existing toilet and sink in full bathroom, matching original in design and color.
- ◆ Replace existing toilet in ¾ bathroom, matching original in design and color.
- ◆ Repair and/or replace all plumbing.
- ◆ Replace existing water heater.
- ◆ Install new 1/2 bathroom on first floor.

Heating and Air-conditioning Systems

- ◆ Remove existing forced air heating system.
- ◆ Install new forced air heating system, utilizing original ducts if possible. Clean, reline, repair and/or replace ducts in kind.
- ◆ Replace flue in existing chimney.
- ◆ Install air-conditioner, utilizing the ductwork for the forced air heating system.
- ◆ Install humidity control system.

Electrical Systems

- ◆ Relocate service to underground.
- ◆ Install new distribution panel, rewire all levels, and replace all outlets. Additional outlets will be necessary.
- ◆ Retain existing original fixtures, and repair.
- ◆ Replicate missing original fixtures where documentation exists. See details in text of report.
- ◆ Remove all other existing light fixtures, and replace with fixtures that are appropriate to the architectural design.
- ◆ Install new exterior security lighting.

Kitchen Appliances

- ◆ Install replica appliances.

Furnishings

NA

APPENDIX A – Context

Century of Progress Architectural District

A. HABS Large-Format Photographs

B. HABS Written Historical and Descriptive Data

APPENDIX B – Historical Data

Armco-Ferro House

- A. HABS Large-Format Photographs
- B. HABS Written Historical and Descriptive Data
- C. Reduced Copies of Measured Drawings

APPENDIX C – National Register Nomination

APPENDIX D – Exhibits

A. Frameless Steel House At A Century of Progress, 1933

APPENDIX D – Exhibits

B. The Official Pictures of A Century of Progress Exposition Chicago 1933

APPENDIX D – Exhibits

C. Armco-Ferro Porcelain Enameled House, 1933

APPENDIX D – Exhibits

D. Know This Kind of House Before You Build, 1933

APPENDIX D – Exhibits

E. The Metal Home, 1933

APPENDIX D – Exhibits

F. Letter to Insulated Steel Construction Co. from the Exhibition Committee, 1933

APPENDIX D – Exhibits

G. Reduced copy of the electrical plan.

APPENDIX D – Exhibits

H. A Century of Progress Homes and Furnishings, As exhibited at the World's Fair,
Chicago, 1934

APPENDIX D – Exhibits

- I. An unnamed brochure produced by the Insulated Steel Construction Company, 1933

APPENDIX D – Exhibits

J. “Steel House Will Be Built Here; Work Started Near Poasttown”, The Middletown, Ohio, News Journal, July 30, 1933

APPENDIX D – Exhibits

K. “To Open Frameless Steel House”, The Dayton Daily News, 1933

APPENDIX D – Exhibits

L. List of Classified Structures Assessment Form, 1976

APPENDIX D – Exhibits

M. Preliminary Condition Assessment, 1999

APPENDIX D – Exhibits

N. Existing Condition Photographs, 2005

APPENDIX D – Exhibits

O. Architect's Resumes

APPENDIX D – Exhibits

P. Field Sketches by Christoph Lichtenfeld and Structural Sketches

APPENDIX D – Exhibits

Q. Drawing of Proposed Alterations to Laundry

APPENDIX D – Exhibits

R. Drawing of Proposed Basement

REFERENCES

Kay D. Weeks and Anne E. Grimmer, The Secretary of the Interior's Standards for the Treatment of Historic Properties, (U.S. Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Heritage Preservation Services, Washington, D.C., 1995).

Maria F. Ali, The Century of Progress Documentation Project (Washington, D.C.: Historic American Buildings Survey, Department of the Interior, 1994), HABS No. IN-239. Appendix A.

Maria F. Ali, Armco-Ferro-Mayflower House Documentation Project (Washington, D.C.: Historic American Buildings Survey, Department of the Interior, 1994), HABS No. IN-244. Appendix B.

National Register Nomination, National Register of Historic Places (National Park Service, Department of the Interior, October 1985), Appendix C.

General Management Plan, Indiana Dunes National Lakeshore (National Park Service, Department of the Interior, February 1980).

General Management Plan, Indiana Dunes National Lakeshore (National Park Service, Department of the Interior, August 1997).

Maintenance Division files, Indiana Dunes National Lakeshore.

Cultural Resource files, Resource Management Division, Indiana Dunes National Lakeshore.

Janice Slupski, 17 West Service Avenue: An Illustration of Dunes Area Recreational Development, (Indiana Dunes National Lakeshore, Department of the Interior, 1997).

Department of Agriculture, Soil Conservation Service, and Purdue University, Agricultural Experiment Station, Porter County Soil Survey, n.d.

A Century of Progress Homes and Furnishings, Dorothy Raley, Editor, 1934.

The Official Pictures of A Century of Progress Exposition Chicago, 1933.

Joseph C. Folsom, "How to Enjoy This Week at the Fair Week Ending Sept. 30", Official World's Fair Weekly, 1933.

"Frameless Steel House At A Century of Progress", 1933.

"Armco-Ferro Porcelain Enameled House", 1933.

"Know This Kind of House Before You Build", 1933.

“The Metal Home”, 1933.

An unnamed brochure produced by the Insulated Steel Construction Company, 1933.

“Steel House Will Be Built Here; Work Started Near Poasttown”, The Middletown, Ohio, News Journal, July 30, 1933.

“To Open Frameless Steel House”, The Dayton Daily News, 1933.

Not Utilized

A Century of Progress Exposition Chicago, 1933.

Official Guide Book of the Fair with Supplement, 1934.

Official Guide Book World’s Fair, 1934.

Erik Mattie, World’s Fairs, Princeton Architectural Press, n.d.

Prints & Photos, Chicago Historical Society.

www.caia.umn.edu/chicago, topics of conversation.

www.geocities.com/PickelFence