



Frank Lloyd Wright Trust

Robie House Restoration

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Frank Lloyd Wright Trust is responsible for fundraising, restoration and operations; we have a lease in perpetuity of the site.

Robie House is owned by the **University of Chicago**

Frank Lloyd Wright Trust took over operations in winter of 1997.

Who decided what the Robie House restoration will involve?

- Restoration Committee (group of architects, conservators and curators.) They make decision on the restoration of the building along with architectural staff and consultants.
- After review by restoration committee the Master Plan was plan reviewed at scholars' conference – Wright scholars and other architects who had previously worked on the Robie House were brought together to evaluate the master plan. The plan for the Restoration was developed out of that meeting (see restoration goal statement below.)
- As part of our museum's educational goals the staff involves students as much as possible in the restoration process.
- In house architectural staff completed master plan, documentation of existing conditions, and completes working documents as project progresses. Initial documentation work included researching as many primary sources as possible to learn about the building and the neighborhood.
- We are currently in process of finishing the Robie House Conservation Management Plan which was funded by the Getty Foundation to set a direction for the next 10-20 years.

Master Plan for the Restoration of the Robie House

- **Restoration Objectives**
 - The restoration will minimize impact on the original building fabric and conserve extant features, while restoring the building to its 1910 appearance.
 - The restored Frederick C. Robie House will be operated and preserved as a museum.
 - The restoration will adhere to the policies and procedures of the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.
 - Non-extant built in cabinetry originally designed by Wright and installed in the 1910 Robie House will be reproduced according to primary documentation.
 - The restoration and conservation of the building will be documented; additionally, fragments and artifacts found or removed during the restoration will be archived.
- **Educational Objectives**
 - The interpretive and educational programs will be designed to achieve the following goals.
 - To enhance the public's understanding of the Robie House as an architecturally significant building
 - To heighten the public's understanding of Wright's development of the Prairie style, and his contribution to architectural history
 - To expand the public's understanding of the historical and social context in which the building was designed
 - To improve the public's understanding of the process of restoring historic buildings and of the importance of this process.

Robie House Restoration

Structure of the Robie House

- How does the structure of Robie House work –steel with brick bearing walls on first two levels, wood roof and wood interior partitions.
- Structural analysis by TGWY
- Why are modifications needed – structural problems, new use of building
- How was structure reinforced
 - Tie down of west cantilever to resist uplift & reinforced steel connections on west porch cantilevers
 - Reinforcing of framing to properly support the south balcony- counter weight motion created by cantilever
 - New beam in front entry and over entry door
 - Rebuild stud walls and floor framing compromised by termites

Robie House Restoration Phases

- Stabilization and documentation – completed, documentation on going
 - Document the existing conditions
 - Analyze materials to determine materials used, finishes, colors used,
 - Analyze structure of building
 - Abate asbestos
 - Develop emergency preparedness and preventative maintenance plan updating as work progresses, currently in process of developing a Robie House Conservation Management Plan underwritten by the Getty Foundation, to be completed this Spring.
- Restoration of exterior and mechanical infrastructure - completed
 - Stabilize the exterior of the building and tighten up building shell to prevent additional water penetration.
 - Install reproduction clay shingles on building felts over ice and water shield
 - Conserved metal cornice (edge of soffit), install soffit venting between cornice and plaster soffit.
 - Re-point entire building removing non-historic tuck pointing and installing natural colored concaved joint lime putty on horizontal joints and flush joint red mortar on vertical. (We will be continuing with repairs to pointing over the next couple of years.
 - Rebuilt failing garden walls and entry way retaining wall to the original configuration installing adequate foundation systems. Custom reproduction bricks used on inside of garden walls.
 - Replaced any spalled or severely cracked bricks on building with original salvaged bricks.
 - Stabilized the structure
 - Update failing mechanical infrastructure in a manner that protects the building and its collections. Refined and updated this system in 2018 with new modulating valves and new computer control system.
 - Conserves art glass windows and doors throughout the restoration process
 - Stabilizes the exterior of the building and tighten up building shell to prevent additional water penetration.
 - Abate asbestos, chlordane and fuel tank
 - Continue documentation of existing conditions as additional areas are opened up.
 - Document all work performed, plan and visual format
 - Develop maintenance plan for building and its infrastructure as work progresses.
 - Masonry completed – preservation work is needed since work was completed 13 years ago.

Robie House Restoration

- Restoration of the Interior – two main floors substantially completed
 - Restore/Conserve the interior to its appearance in 1910
 - Conserve original existing non-code compliant light fixtures – 29 bare bulb – completed
 - Conserve existing decorative sconces.
 - Custom cast and fabricate light fixtures where missing – 43 bare bulb, 27 decorative sconces. (majority completed, additional bare bulbs will be done over next couple of years.)
 - Conserved all existing wood returning it to its original appearance.
 - Conserved existing original trim, radiator cabinets and casework.
 - Conserved existing art glass, window sash and hardware. 50% of windows have been conserved will continue work on an ongoing yearly basis.
 - Recreated missing art glass windows. (Originals from Smart are in process of being returned, reproductions installed in servant's wing and in front entry door.)
 - Continue with abatement program in interior spaces as necessary.
 - Procure period or custom fabricate non-extant hardware and casework.
 - Install period bathrooms and kitchen fixtures in their original locations. (substantially completed)
 - Remove non-original paint exposing original plaster, infill historically matching plaster.
 - Install custom paints on all plaster wall surfaces matching original colors (some are multi layered.) (Installed in all spaces but the third floor)
 - Fabricate and install carpets where missing (will be a future project.)
- Site restoration and landscaping
 - Restore concrete walkways and drives and entry walk pavers, to original configuration, texture and color (will be a future project)
 - Continue with abatement program as necessary
 - Restore the landscape to its original appearance (will be completed once walkways are restored.)

Custom materials that were/are required restoring Robie House

- Roman Bricks- Custom matched and fabricated by Belden Bricks- Canton, Ohio
- Roof Tiles – custom made by Ludowici - New Lenox, Ohio
- Masonry Mortar – custom matched and mixed by U.S. Heritage – Chicago, Illinois
- Ceramic Tile – American Restoration Tile – Mabelvale, AR
- Brick Pavers for entry walkway – to be found
- Plaster and unique painting finish – lime putty plaster custom mixed to match original by Henry Frerk Sons- Chicago IL in cooperation with testing lab.
- Magnesite flooring custom fabricated by Henry Frerk Sons, Inc. (magnesium oxychloride)
- Brass Hardware & floor grilles– for windows, doors and cabinetry – Custom fabrications, repairs and refinishing completed by Wilmette Hardware
- Brass Light fixtures custom fabrication required – Completed by
- Fabrication of furniture which we have documentation on but is no longer extant. (future project)

Plaster & Painting Info

- “The original interior wall and ceiling finishes of Robie House are an integral combination of paint and plaster that result in a light and airy appearing finish that changes in appearance as lighting conditions in the space changes. The paint is applied as a thin consistent wash of oil paint that lightly covers the lime past of the plaster while leaving the protruding particles of sand exposed. This wash applied paint finish is often accented with one of two additional paint treatments. Some walls are treated with a thin semi- transparent colored glaze that adds a visual depth to the finished appearance. Other walls are accented with a flash applied paint accent applied by brush to the highpoint of the exposed sand of the plaster creating a soft mottled appearance.”
- The restoration plaster is a blend of aged (4+ year old) lime putty plaster and custom blended aggregates.
- The sand blend is comprised of nine individual sands that replicate the original in both appearance and particle size.
- The original interior wall and ceiling finishes of Robie House are an integral combination of paint and plaster that result in a light and airy appearing finish that changes in appearance as lighting conditions in the space
 - Smooth Plaster – Kitchen and Servant’s wing
 - Semi- Smooth Plaster – Primary Living areas – Living Room, Dining Room, Upper Entry and Main Stair
 - Semi Rough Plaster – Ground Floor – Entry, Billiard Room, Playroom
 - Rough Plaster - Second Floor Guest Bedroom, Third Floor Bedroom Bedrooms and Rear Stair Hall

Magnesite Floor Restoration

- This newly installed magnesite flooring was custom made to match the original as closely as possible
- The original floor featured a buff field color and a reddish in set stripe.
- Magnesite flooring is a cement made from a mixture of calcined magnesite and magnesium chloride solution with various fillers such as wood flour, sawdust, and sand.
- This restoration material features a customized blend of fine aggregate, five grades of wood flour and sawdust, two types of fiber, and pigments. It is finished with Tung oil to protect it.
- We had to source specific wood species to avoid lignin staining. The use of fiber or sawdust with a low lignin creates a more color stable floor. Newspaper is high in lignin and deteriorates quickly in sunlight, and high-quality paper is low in lignin.
- It took around 50 color samples to achieve the approved colors which are matched to original samples and an area of the surviving magnesite on the steps.
- The materials team performed archival research to develop installation procedures, as the last known Chicago area magnesite installation was the FLW Home and Studio in the 1980s. We utilized the documentation of the Home and Studio installation as well as numerous articles, manufacturer’s brochures, and books from the early 20th century.

Magnesite Highlights

- Was very popular in the early twentieth century
- Was durable, easy to install, and cheap
- Used in schools, hospitals, commercial buildings
- Was popular for kitchens and stores because it is more comfortable to stand on than cement
- Originally developed in France in the 1860s by Stanislas Sorel; it is sometimes also known as Sorel cement
- In the early 20th century magnesite flooring was also known as composite flooring
- It allowed architects to achieve floor designs using multiple colors of poured concrete. Options included:
 - Marbleizing, Inlays and Borders
- At the height of its popularity magnesite was readily available in Chicago. Today, magnesite is only mined domestically in the western United States and its availability as a building material is extremely limited.