

# REDDICK MANSION HISTORIC STRUCTURE REPORT

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Completed for:  
The Reddick Mansion Association

# PROJECT TEAM

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The Sullivan | Preservation Team was comprised of:

**Sullivan | Preservation: Anne Sullivan, FAIA**

Served as team leader, reviewed architectural issues, worked with consultants during their site visits as appropriate and served as primary author of the HSR.

**Consulting Professionals**

**The Structural Shop - Christopher Botkin** under the supervision of **Ken Veach, PE, SE**

Reviewed structural issues and compiled a report of findings with recommendations.

**Architectural Consulting Engineers - Mark Nussbaum, PE**

Reviewed mechanical, electrical, plumbing and fire suppression issues and compiled a report of findings with recommendations.

**Historic Surfaces - Anthony Kartsonas**

Reviewed existing paint analyses, provided additional paint sampling and exposure windows, and compiled a report of findings with recommendations.

**Cardno ATC - Andrew Nilson** under the supervision of **Ash Memon**

Compiled a hazardous materials report to assess the presence of asbestos-containing products.

# SIGNIFICANCE AND RESTORATION TARGET DATE

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The Reddick Mansion has three periods of significance:

## **The Reddick Family Period: 1856 – 1887**

This period extends the initial design date of c. 1856 through 1887, when Mansion Library Board took possession of the building.

## **The Reddick Library Period: 1888 – 1974**

This period extends from the date the Library opened through when it relocated to 1010 Canal St., Ottawa, IL.

## **The Reddick Mansion Association Period: 1975 – Present**

This period extends from when the fledgling RMA entered into a short-term agreement with the City of Ottawa to operate the building. Ultimately, a longer-term agreement was established in 1978.

We recommend that the Restoration Target Date be set within what we consider the primary period of significance: **The Reddick Family Period: 1856 – 1887.**

# FORMAT

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The Reddick Mansion Historic Structure Report provides:

- A condition assessment report, recommendations and cost study for:
  - Mansion Site Conditions
  - Mansion Exterior Conditions
  - Structural, Mechanical, Electrical, Plumbing and Fire Protection
  - Mansion Interior Conditions
  - Caretaker's House Exterior Conditions



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## RECOMMENDATIONS

# REDDICK MANSION SITE

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SITE

# SITE

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## Site

- The site on which the Mansion sits has a lovely park setting and is well maintained by volunteers.
- The pavement is in fair condition and is spalling in some locations. Stain and seal the sidewalk; site lighting and signage
- The site as it is, does not reflect the Reddick Family Period, when it was quite austere, based on historic photographs.
- The green space around the Reddick Mansion remain landscaped and vibrant in order to attract visitors.
- Parking lot: asphalt, striping, signage and concrete pad
- Iron fence and retaining wall:
  - Reset stone retaining wall as required; clean/paint fence
- Brick wall, west side of site
  - Reset stone cap, repoint/replace bricks as required
- Regrade soil around the Mansion perimeter to prevent water from entering foundation. Retain landscaping





EXTERIOR



# EXTERIOR MASONRY

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## Exterior Masonry

- Short Term:
  - Spot repoint 10% of limestone string courses
  - Undertake mortar analysis to identify original mortar mixture
- Mid Term:
  - Repoint and repair masonry on interior of Boiler Room
  - Repair cracked and broken stone at base of Exterior
  - Disassemble front entry steps; replace steps; reassemble walls and flash appropriately
- Long-Term:
  - Repoint entire building
  - Repair all limestone (remove and replace patches)
  - Install new stone or stone veneer at base
  - Dig ditch around perimeter of building; repoint and damp-proof foundation; install perimeter drain system

# ROOF, CORNICE, GUTTERS, DOWNSPOUTS

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## **Main Roof and Porch Roofs**

- The main roof is stable at this time. Plan to replace in 20-25 years
- The south porch roofs are stable at this time. Plan for their removal and replacement in 10-15 years.
- The east porch roofs are in fair condition at this time. Plan for their removal and replacement (and the associated porch floor's modification/repair to enclose the former fire escape opening) in 5-10 years.
- An EPDM rubberized sheet roofing should be used in the future for these flat roofs

## **Cornice**

- Cornice, fascia and iron brackets should be prepared and painted.



## **Gutter / Downspouts**

- The leaders at the base of all downspouts should be extended, to lead the water as far away from the basement as possible.
- Clear the gutters and downspouts once per year and ensure there are no holes or splits in the downspouts.

# WINDOWS AND DOORS

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## Windows and Doors

- The south-facing Bedroom Level windows are in extremely poor condition and require immediate action. They are easily accessible from the porch roofs.
  - These windows must be stabilized immediately, and considered a first priority for restoration.
    - These six windows could be used as a pilot restoration program to gauge how long / how much a larger program would be.
- A large scale Window and Exterior Door/ Trim Restoration project should be undertaken as a first priority.
  - First priority: Bedroom Level windows
  - Second priority: Main Level.
  - Third priority: Lower Level and Servants' Level lunette windows
- A full "Window and Exterior Trim Restoration" documents were prepared by Basalay, Cary & Alstadt Architects, Lt. of Ottawa, IL in May 2011.
  - These documents can/should be used toward a full or phased restoration!



# PORCHES AND BALCONIES

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## East Porch

- Short term: scrape and paint in order to protect the wood from further damage owing to UV exposure.
  - Small openings in the porch structure should be closed so birds and animals will not nest within.
- Mid-term: The entire east porch should be stripped, sanded, primed and painted with two coats of high-quality exterior paint.
- Former openings on the floors need to be properly enclosed.
- The porch railings should be repaired and rotted elements replaced



## South Porch Railings

- Repair or replace deteriorated spindles or other railing elements
- Railings should be stripped, sanded, primed and painted with two coats of high-quality exterior paint.





MECHANICAL / ELECTRICAL / PLUMBING / STRUCTURAL

# MANSION MECHANICAL

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## Mansion MEP

- A ground-source heat pump (GSHP) system is recommended for ducted air conditioning with supplemental heat/dehumidification.
  - The radiators would be retained and re-used
  - The GSHP system will operate for about the same cost as the current system (\$9,000/year)
    - But will provide cooling and control for humidity.
  - As compared to a standard air conditioning system with reheat:
    - We estimate an annual savings using the GSHP system of about \$2,500.00, but will have a roughly 10-year payback.
  - The new ducted-system can be effectively integrated within the historic structure without disturbing too much historic fabric.



# MANSION ELECTRICAL / PLUMBING / FIRE PROTECTION

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## Plumbing

- Retain water heater until no longer operational
- Install di-electric couplings or di-electric unions at the junction of steel and copper pipes to eliminate galvanic corrosion
- Replace water piping when leaks occur.
- Sanitary and vent piping are adequate; repair or replace in event of a leak



## Electric

- Install new 30 circuit, 100 amp three-phase sub-panel to the main service panel. Remove all split-type 20 amp circuit breakers and shift to the new panel
  - If a new HVAC system is installed, it will require a new 400 amp 120-128 volt, three-phase underground service.
- Remove all abandoned panel boxes; trace and label circuits.
- Install covers on all junction and pull boxes
- Review fire alarm system and replace obsolete detectors



# MANSION STRUCTURAL

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## Structural

- The existing structural system is sound
- If/when mechanical equipment is installed in the Attic, the Attic floor joists may have to be reinforced
- The roof rafters may need reinforcement to ensure they can support the snow load once the attic fully insulated







INTERIOR

# LOWER LEVEL / FIRST FLOOR

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## Lower Level / First Floor

- The rooms at the Lower Level have lost most of their historic integrity due to modernizations.
- However, the Southeast Room might be modified to interpret it as a Servants' Dining or Sitting Room.
- The original Kitchen was probably located in the Northeast Room.
  - This space may be renovated with a new kitchen that is more serviceable
  - It can be designed to be “in keeping” with a historic home of this period
  - A modern kitchen will serve “double-duty” as a catering kitchen for the Main Level event space.



# MAIN LEVEL / SECOND FLOOR

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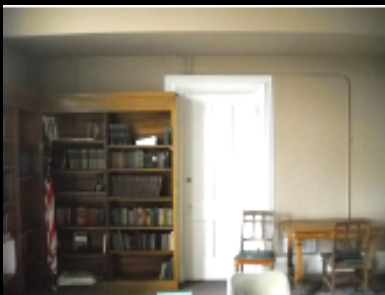
## Main Level

- The Central Hall, the Southeast and Center East Parlors, and the Dining Room remain interpreted historic spaces.
  - Walls and ceilings should be painted in the original paint colors based on our analysis.
- The two west parlors, currently used as rental space, should continue as such. They may be “moderately interpreted.”
  - The walls and ceiling should be painted in the original colors identified in our analysis.
  - Because the original wood grained trim was stripped, it may remain a complimentary solid color.
  - The original floors are covered with a new hardwood floor. It should be stained darker to be more in keeping with the original wood in the house.
- Service areas in the northwest corner should remain neutral service spaces
  - They may ultimately house an elevator shaft that extends from the Lower Level to the Servants’ Level.
  - An accessible unisex restroom can be provided on one or more levels in this area as well.

# BEDROOM LEVEL / THIRD FLOOR

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## Bedroom Level / Third Floor



- The Central Hall and Southeast Bedroom are interpreted museum spaces and should remain as such.
  - Walls and ceilings in all rooms on this level should be painted in the original paint colors identified in our analysis.
- The Central Hall's partitions should be removed, as they confuse the interpretation of the space. RMA will have to negotiate with local fire dept. and code officials
- The Northeast Bedroom, Center East Bedroom, Southwest Bedroom and Center West Dressing Room are now vacant and available for interpretation.
  - Restore the Northeast Bedroom to represent Elizabeth Funk Reddick's bedroom, and interpret to depict daily life of a 19<sup>th</sup> c. young woman.
  - The Southwest Bedroom and adjacent Dressing Room should be restored for interpretation as Mrs. Eliza Reddick's bedroom suite.
- The Center East Bedroom would be most appropriately interpreted to represent the Reddick Library era
  - The Library's bookshelves should remain. A display describing the **Reddick Library Period: 1888 – 1974** should be prepared for this space.

# SERVANT'S LEVEL / FOURTH FLOOR

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## Servant's Level / Fourth Floor



- The rooms on the Servant's Level should be refurbished and used for museum offices or office rental
  - Plaster must be repaired or replaced and painted
  - Without a second means of access, (and due to the steep existing stairs) it would not be possible to have public visitation on this level.
  - Once the elevator is installed, these spaces may become available for museum use or office rental.

## Attic



- We recommend that ducted central heating/air conditioning be installed, and powered by a ground source heat pump system
  - The attic should be insulated between the roof rafters.
  - The floor joists and roof rafters may have to be structurally supplemented to support the mechanical equipment



CARETAKER'S HOUSE EXTERIOR

# CARETAKER'S HOUSE EXTERIOR

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## Caretaker's House Exterior

- Brick masonry is in fair to poor condition, and in general need of re-pointing.
  - There are some seriously deteriorated areas in need of patching or possible replacement.
- The wood cornice is suffering from spot deterioration.
  - Repairs should be made to the cornice as soon as possible to prevent bird and animal infestation.
- The windows and doors are in overall fair condition



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# COST STUDY



# COST STUDY

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The Final Cost Study was organized to provide two planning options :

- A **large-scale** restoration project
  - to be undertaken over a one- to two-year period following one year of planning and construction document preparation.
- A **phased** restoration approach
  - whereby money is raised over the next five years in order to start restoration in the sixth year. Work would spread out over a twenty-year period:
    - Priority 1: 6-10 years
    - Priority 2: 11-15 years
    - Priority 3: 15-20 years
- A third category was provided, entitled **Maintenance & Repair**, into which critical items or scopes of work that can be categorized as maintenance were placed.

# EXPLAINING CONTINGENCIES

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How \$100.00 becomes \$130.00 to allow for contingencies (the safest way to plan)

ITEM	PHASE 2: 1-5 yrs Restoration
	\$100
General Conditions / Bond / Insurance (9%)	\$9
<b>subtotal</b>	\$109
Contractor's Fee (5%)	\$5
<b>subtotal</b>	\$114
Design Contingency (5%)	\$6
<b>Total estimated bid price</b>	<b>\$120</b>
Construction Contingency (8%)	\$10
<b>Estimated Total w/Contingencies</b>	<b>\$130</b>

What are these contingencies for?

- General Conditions / Bond / Insurance (9%):
  - Contractor's Bond and Insurance to meet limits of liability set by the City
  - General Conditions are for scaffolding, fencing, safety, on-site setup, etc.
- Contractor's Fee (5%): Profit for the Contractor
- Design Contingency (5%):
  - Allowance for changes that occur over the process of the design process; this percentage should diminish as the construction documents become finalized
- Construction Contingency (8%):
  - Allowance for unforeseeable conditions encountered during construction

# EXPLAINING CONTINGENCIES AND BIDDING

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Cost Estimates are *a planning tool*

Real Costs come from Competitive Bidding

- Based upon Construction Documents (prepared by an architect and engineer)
- And a well-organized Scope of Work and Bid Document
- So that all the contractors are *pricing the same exact thing!*

# LOWER LEVEL / FIRST FLOOR

SUMMARY ITEM	MAINTENANCE Maintenance & Repair	ALTERNATE 1: LARGE SCALE RESTORATION		REVISED ESTIMATE		
		PHASE 1: Plan/Design Fees	PHASE 2: 1-5 yrs Restoration	TOTAL: Restoration + Maintenance	TOTAL: Fees	PROJECT ESTIMATED TOTAL
SUBTOTAL: MANSION EXTERIOR	40,675	80,500	748,950			
SUBT: MANSION MECHANICAL / ELECTRICAL / PLUMBING	4,000	35,500	337,450			
SUBTOTAL: MANSION STRUCTURAL (RELATED TO HVAC)	0	7,200	60,000			
SUBTOTAL: MANSION INTERIOR	0	98,000	1,107,255			
SUBTOTAL: MANSION TOTAL	44,675	221,200	2,253,655			
Estimated Total w/Contingencies	57,982	221,200	2,924,935	2,982,917	221,200	3,204,117
SUBTOTAL: CARETAKER'S HOUSE EXTERIOR	33,790	24,000	265,000			
Estimated Total w/Contingencies	43,855	24,000	343,934	387,788	24,000	411,788
SUBTOTAL: SITE	18,394	4,700	61,500			
Estimated Total w/Contingencies	23,873	4,700	79,819	103,691	4,700	108,391
	Maintenance & Repair	PHASE 1: Plan/Design Fees	PHASE 2: 1-5 yrs Restoration	TOTAL: Restoration +	TOTAL: Fees	PROJECT ESTIMATED
PROJECT TOAL WITH CONTINGENCIES	125,710	249,900	3,348,688	3,474,397	249,900	3,724,297

# ESTIMATES FOR PROFESSIONAL FEES

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For a Historic Site like the Reddick Mansion:

It is highly recommended that you utilized the professional services of licensed architects and engineers to prepare Construction Documents

## Estimating Professional Fees

Due to the complexity of Historic Preservation projects and the vast number of unknowns in older and historic buildings

- Professional fees run between 9-11% of estimated construction cost (before contingencies)
- Undertaking a large scope of work will likely result in lower professional fees than undertaking a number of small, independent projects
  - Therefore – there is economy of scale
  - The fee estimates provided are for planning purposes

# EXPLAINING THE DESIGN PROCESS

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What happens once you hire a design team (Architect / Engineer):

1. The Historic Structure Report serves as a “Schematic Design” Document, laying out what work needs to be undertaken.
2. “Design Development” Documents are prepared (these are more in-depth), and another cost estimate is produced.
  - Once these costs are known, a final “Scope of Work” is identified
3. At this point, several General Contractors should be “Prequalified” to ensure that they have experience working on historic buildings
4. “Construction Documents” are finalized. These are comprised of:
  - Detailed Drawings
  - Specifications
  - Bid Form and proposed Contract
5. Once a Successful Contractor is selected, a contract is signed
6. The Architect and Engineer continue involvement throughout construction to:
  - Ensure that the work is being undertaken as shown in the Const. Documents
  - Reviewing and approving payments to the contractor

# PHASING THE PROJECT

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Many Restoration Projects are “Phased” over several years.

- This distributes the allocation of money over a longer period of time  
BUT
- Costs escalate over time, so the project will cost more

You want to avoid stretching the project over too many years

- How \$130.00 (\$100 before contingencies) escalates each year:

<b>Estimated cost for 2014</b>	<b>\$130</b>	
add 7% each for each year (compounded)	\$139	cost in 2015
	\$149	" " 2016
	\$159	" " 2017
	\$170	" " 2018
	\$182	" " 2019
<b>What it will cost in five years</b>	<b>\$195</b>	" " 2020
<b>What it will cost in ten years</b>	<b>\$274</b>	" " 2025
<b>What it will cost in fifteen years</b>	<b>\$384</b>	" " 2030

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Thank You