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Architectural Evaluation of the Gardner House

This evaluation is not intended as the definitive source for restoration of the Gardner House. It is intended as a best-practices guide based solely on the author's experience. As opportunities arise, definitive tests should be run to corroborate or refute the findings stated here.

For the purpose of this evaluation, the following terms will be used to designate the level of importance of a specific architectural feature to the overall integrity of the structure as well as its value with respect to any proposed new work:

- *Premier – Indicates an essentially irreplaceable and extremely important element.
- *Important- Indicates an element that is character-defining, original and will be difficult to replicate if lost.
- *Contributing- Used to define an element that is character defining regardless of originality, but may be relatively easily replicated if lost.
- *Non-contributing- Indicates an element that is not original to the structure and may be removed if deemed necessary.

FEATURES AND FINISHES

Exterior features and finishes:

*Premier: The structure consists of site-made brick (remains of kiln located via Archaeological survey by Darlene Applegate, PhD) arranged in a Flemish Bond pattern on all sides of the house. The craftsmanship is quite good, as evidenced by the occasionally visible remains of white penciling (surface treatment) on the joints that have had the most weather protection.

*Premier: A curved brick cornice of the same material as the stretchers and headers is present just below the roofline on the non-gabled sides of the structure.

*Premier: Some glazing is evident on the brick headers, making the Flemish Bond pattern more distinct.

*Premier: Exterior chimneys are centered on each gable of the house, each containing two flues or one for each fireplace open to the chimney.

*Premier: Foundation is cut limestone with obvious and consistent tool marks.

*Premier: Three original nine-over-six windows remain. Some glass assumed to be original remains.

*Premier: Limestone thresholds are intact at all three exterior doorways.

*Important: The structural floor joists are full-length round timber logs with notching at the ends meeting the foundation.

*Important: Two six-over-six windows that are later additions and are believed to have been salvaged from another site based on sash weight rope connection points found on the sashes. The Gardner House does not have sash weight pockets.

*Important: The original buff colored lime mortar is intact in most areas. Penciling is visible in some areas, especially on the Southern façade near the cornice.

*Contributing: A color change is obvious on the Southern facade, presumably due to weather protection afforded by a previously removed Victorian-era addition.

*Non-contributing: The current metal roof is a replacement with the original probably being oak shakes.

*Non-contributing: A shed dormer has been added to the northern façade of the roof. Oral tradition states that the roof pitch was lowered when the metal roof was installed.

*Non-contributing (but necessary): Modern half-round gutters and round downspouts have been added to divert water from structure.

Overall, the original craftsmanship found on the exterior of the building is quite extraordinary.

Interior features and finishes:

See National Register nomination for room by room information. There are, however, two changes to be made to the information contained in the nomination. Namely, the floor has not been replaced in the Hall, nor have the ceilings been replaced; both have been covered by more modern materials, but are still extant barring water and nail damage.

*Premier: Original pine flooring is visible in the Parlor or Western-facing room, while the original Hall flooring has been covered over with a more modern oak flooring material.

*Premier: Staircase is intact.

*Premier: A reeding motif is found in the original splayed window jambs and on the door jambs on the Northern façade as well as all four mantels and the door jamb between Hall and Parlor.

*Premier: Two doors believed to be original remain in the home, the rest have been removed.

*Important: Much of the original plaster is still intact. The plastered ceilings have been covered over by tongue and groove bead-board in all rooms.

*Contributing: Chair-rail is intact in some areas of the house and has been covered with paper in most places.

*Contributing: Original sand and brick hearths are evident in the upstairs rooms, but are in bad repair.

*Non-contributing: Modern material (concrete?) hearths have been installed in both downstairs rooms.

*Non-contributing: Pipe vent cut in Hall chimney.

*Non-contributing: Shelves in the dormer area upstairs.

There are no electrical or plumbing systems in the house. A few electrical lights and outlets were added at some point, but have been disconnected for many years. No plans to reconnect electricity to the building exist.

Proposed Work

This evaluation is not intended as the definitive source for restoration of the Gardner House. It is intended as a best-practices guide based solely on the author's experience. As opportunities arise, definitive tests should be run to corroborate or refute the findings stated here. Also, as new technologies become available, their usefulness to the project should be evaluated by a qualified professional.

Exterior

Brickwork:

--A significant amount of modern Portland cement mortar has been introduced into the structure, causing damage to brick and underlying mortar.

--All cement mortar should be removed using hand tools and brick should be repointed. Much repointing is needed, especially around doorways where some brick needs to be re-laid.

--The cornice area is also in need of repointing. While repairs and repointing are necessary in several areas of the structure, as much original material as is possible should be kept. This applies especially to areas where penciling is still evident.

--Brick around the doorway on the Northern façade needs to be removed and re-laid, including the jack arch above the opening, to provide a squared opening for the doorway.

Material to be used:

--All repointing to be done should be accomplished with a 3:1 sand to lime putty mortar using sand from the local river (Biological Preserve Co-Director Albert Meier should be contacted for sand retrieval) adding in pieces of burned limestone (for textural accuracy) collected by Archaeologist Darlene Applegate and housed at the site.

--Missing brick should be replaced with “found” brick, especially from the kiln site, as possible.

--Five to ten gallons of lime putty has been prepared for the projects that require it. If additional lime putty is required, it can be mixed by hand using rotary grade lime available locally from the C.I. Thornburg company (908 Searcy Way Bowling Green, KY, 42103-7168 Phone: 270-843-0852) and slaked (at least one month, stirring daily) or purchased at great expense from the U.S. Heritage Group.

--A tub and slaking rake have been purchased for this project.

Limestone Foundation:

--Very little mortar is evident in the foundation and much of what is evident is cement based mortar.

--All cement based mortar should be removed via appropriate hand-tools. All areas of the limestone foundation should be repointed.

Material to be used:

--The same mortar as recommended for the brickwork.

Limestone steps:

--Local legend has it that the steps leading to the house were limestone and were quite impressive in their size and scale.

--The steps are now missing, but limestone blocks with markings very similar to the foundation in the Gardner House have been located at another house-site on the preserve property.

Materials to be used:

--It is recommended, as the other structure is no longer extant, the stones be re-used in replacing the Gardner House steps.

Wood:

- All wood on the exterior of the building is in need of repair.
- Door jambs exhibit rot at the bottoms, with the doorway on the Northern façade being unsalvageable (and deemed non-original).
- Window sills and jambs exhibit varying degrees of rot and multiple nail holes along with insect damage.
- Window sashes are currently under repair using salvaged and adapted muntins and Abatron products.

Materials to be used:

- Wooden dutchmen made of salvaged first-growth wood may be used at door and window jamb bottoms as well as for window sills.
- It is important that the wood be of an appropriate age for the structure not just due to integrity issues, but to ensure the long-term viability of the repairs.
- Abatron WoodEpoxy and LiquidWood may also be used to solidify rotted or soft wood and to replace missing wood.

- A minimum of one hewn log salvaged from a recently razed barn on the property will be donated by the author for use in these efforts.*
- *Abatron products have been purchased for the project, but more may be required to complete the job.*

--Paint for exterior wood has been purchased from the Allback Company's U.S. representatives, Viking Sales (<http://www.solventfreepaint.com/> ph. 585-924-8070). The color is Old Red.

Window Glass:

--Much window glass is missing from the sashes.

Materials to be used:

--Window glass should be replaced with salvaged wavy glass.

--Much glass has already been salvaged for this project.

--Glass cutting tools have been purchased for this project.

--Window glazing has been purchased for this project from the Allback Company's U.S. representatives, Viking Sales (<http://www.solventfreepaint.com/> ph. 585-924-8070).

Roof:

- The current roof is metal, with a more recent dormer addition.
- The recommendation is that the dormer be removed and the roof replaced using cedar or oak shake.
- Structural items should be documented while the roof is off.
- Repairs should be made using salvaged wood and historic techniques when feasible.

Materials to be used:

- Cedar or oak shake shingles.

- No material has been purchased for this project.*

Interior

Plaster:

--The plaster is in surprisingly good condition. Remaining plaster should be left intact and repairs should be made only in areas with severe damage.

--It is recommended that wooden ceilings, while not original, be left intact to reduce the amount of plaster work required.

Materials to be used:

--Lime-putty based plaster should be applied in a three coat system.

--As the walls will be painted, sand matching is not imperative.

--A 3:1 ratio of sand to lime putty (angular sand, not round) with no large inclusions is recommended for the first two coats, followed by a 1:1 seined sand to putty ratio for the final or skim coat.

--Five to ten gallons of Lime putty has been prepared for the projects that require it. If additional lime putty is required, it can be mixed by hand using rotary grade lime available locally from the C.I. Thornburg company (908 Searcy Way Bowling Green, KY, 42103-7168 Phone: 270-843-0852) and slaked or purchased at great expense from the U.S. Heritage Group. A tub and slaking rake has been purchased for this project.

--No paint has been purchased for the project. Paint should be purchased from the Allback Company and should be applied according to directions over an initial coat of the company's shellac-based interior primer.

Wood trim:

--All trim work is currently covered in a peeling paint. It is recommended that all paint be removed and trim be repainted.

Materials to be used:

--Paint removal should be accomplished via heat or chemical stripping.

--Heat tools to be used are specifically the "Silent Paint Remover" product or an electric heat plate.

--It is not recommended to use heat guns due to high heat and air movement that increases the risk of combustion.

--Chemical stripping should not be undertaken without a clear understanding of the neutralization requirements of the product.

--Paint to be used is linseed-oil paint.

--Paint has been purchased for this project from the Allback Company's U.S. representatives Viking Sales (<http://www.solventfreepaint.com/>), ph. 585 924-8070). Colors are Barley White and Lichen.

Wood flooring:

--The flooring in the Parlor is original to the house and is in moderately good repair with the main problems being knot holes that have fallen away and mouse gnaw-holes.

--The visible flooring in the Hall is covering the original flooring which can be seen as being intact from the bottom with the exception of the area around the north doorway.

--There is significant damage to both levels of the flooring in the Hall around the doorway on the northern side.

--Two potential paths may be followed in the flooring repair in the Hall: remove the top level of flooring and repair the original with salvaged Heartpine or repair the top level of flooring using salvaged Red Oak.

--If the decision* is made to repair the original floor, it will take less time in the installation and materials (only one or two long strips parallel to the door and wall will need to be replaced with little chisel work to be done) but will require the careful removal of the top level of wood. Repair of the top level of wood will require the chiseling of each individual board in a staggered pattern to allow the repairs to be as visually seamless as possible.

--Knot holes should be filled with salvaged wood by cutting the wood to fit the hole, with angled sides that allow the patch to be seated in a self-supporting fashion (glued in place).

--Flooring on the top floors is currently covered by linoleum. The recommendation is that the covering be removed and the flooring be treated in the same way as the first floor flooring.

Materials to be used:

--Salvaged Heartpine or Red Oak (have existing wood analyzed by Dr. John Andersland of WKU Biology Department to be sure of wood type prior to purchase), depending on level of floor to be repaired.

--Floors should be cleaned well, sanded very lightly and have several coats of Allback Raw Linseed Oil applied as a finish.

*The decision has been made to repair the top layer of flooring due to the fact that all trim in the room had been cut off to accommodate the additional flooring layer.

Fireplace Hearths:

--Modern concrete hearths have been installed in both the Hall and Parlor.

--It is recommended that the modern hearths be removed and replaced with brick and sand in an historic configuration using the upstairs hearths as models.

--Upstairs hearths are intact, yet in poor repair due to the loss of sand over time.

Materials to be used:

--Brick salvaged from the kiln site should be re-laid in Hall and Parlor hearths using upstairs as models for brick configuration.

--Seined river sand with few tiny inclusions should be used to lock brick into place using gentle tamping and compaction of spheres to pressurize the mixture.

--Upstairs hearths should be re-laid using the same technique.

Materials Providers List

Linseed Paint Products:

Paint:

Allback Paint via Viking Sales: <http://www.solventfreepaint.com/> ,
phone 585-924-8070

Masonry Products:

Lime:

C.I. Thornburg, 908 Searcy Way Bowling Green, KY, 42103-7168,
phone: 270-843-0852

Sand:

Dr. Albert Meier, 270-745-6525 or albert.meier@wku.edu (1st choice)

OR

Lee Brick and Block, 309 Dishman Lane, Bowling Green, Ky. 42101,
phone 270-781-9813.

Pre-mixed Mortars:

U.S. Heritage Group, <http://www.usheritage.com/index.html>
3516 N Kostner, Chicago, IL 60641, phone 773-286-2100.

Masonry Cleaner (D2):

Cathedral Stone Products, www.cathedralstone.com
7266 Park Circle Drive, Hanover, MD 21076
phone 800-684-0901.

Wood Products:

Flooring and Salvaged Wood:

Goodwin Heart Pine Company,

goodwin@heartpine.com, 106 SW 109th Place, Micanopy, FL

32667-9442, phone 1-800-336-3118 or (352) 466-0339

OR

Longwood Antique Woods,

<http://www.longwoodrestoration.com/contact.html>

330 Midland Place #3 Lexington, KY 40505, phone: (859) 233-2268

Flooring Finishes:

Allback Paint via Viking Sales, <http://www.solventfreepaint.com/>

phone 585-924-8070

GH Materials List/Budget

- 1) Roofing materials: wood shingles, nails, plywood sheathing Figured on 21 squares of Cedar SHINGLE (not shake) at \$172.00/square plus estimated sheathing costs (\$4300.00 BuildDirect.com)
- 2) Replacement flooring for area around door... (\$200.00 Longwood Antique Woods)
- 3) "Old" glass (\$0.00 – salvage)
- 4) Linseed window glazing (\$60.00 Solvent-free Paint Allback)
- 5) Linseed paint for windows and interior trim (\$200.00 Solvent-free Paint Allback)
- 6) Linseed paint for walls and ceilings (\$500.00 Solvent-free Paint Allback)
- 7) Linseed oil (\$60.00 Solvent-free Paint Allback)
- 8) Linseed oil maintenance wax (\$30.00)
- 9) Glazier's points (\$5.00 – Ace Hardware)
- 10) Salvaged wood for doors and replacing missing window parts (\$2500.00)
- 11) Oil for refinishing flooring
- 12) Sandpaper (various grits) (\$100.00 Ace Hardware)
- 13) Lime and sand for lime-based plaster (\$55.00)

TOTAL: \$8070.00

Equipment List/Budget

- 1) Hand Planes for profiling wood trim (\$150.00)
- 2) Ladders (10' A-frame-\$200.00, 30' extension-\$300.00)
- 3) Miscellaneous replacement parts/repair parts for tools (\$300.00)

TOTAL: \$950.00

GH Assistantship Timeline

Spring 2008:

Assistantship work: Complete the repair and finishing of 7 sashes. Begin work on window sills.

Workshop Spring 2008: Workshop with Architectural History grad students (3) to replace the lug sills on most windows OR Remove top layer of flooring in the hall. ** Began chisel work to lace in new flooring with the top layer of flooring in the hall.

Fall 2008:

Assistantship work: Complete window jamb and sill repair and re-install sashes. Prepare and paint all exterior trim. Install flooring near north doorway. Work on masonry, especially missing brick and north doorway.

Winter work: Complete repairs or replacement of 3 remaining sashes and re-install. Create (or have created) replacement doors. Interior wood prep and upstairs linoleum removal as weather permits.

Workshop Fall 2008: Masonry repairs OR Interior wood preparation for painting OR Plaster repairs.

Spring 2009:

Assistantship work: Plaster repairs, masonry repairs and painting interior wood and walls.

Workshops Spring 2009 (Early): Plaster, painting.

Preventative Maintenance Plan

Please note: Deferred maintenance is not an option for historic structures such as the Gardner House. It is imperative that maintenance occur in a timely and correct manner to ensure the structural and aesthetic stability of the building.

Watershed maintenance:

Gutters and downspouts must be cleaned Spring and Fall.

Window sills and sashes should be inspected at least once a year. Check for cracking or peeling paint, splitting wood and separation of joints.

Masonry Maintenance:

Masonry should be cleaned approximately every three to five years using an architectural anti-microbial (D2), available from Cathedral Stone Products, phone 800-684-0901.

Masonry should be inspected once a year for mortar and brick failure.

Wood Maintenance:

Exterior wood will be painted using Linseed Oil Paint that requires maintenance every five years in the form of cleaning with linseed soap, waxing with linseed wax, or the application of an additional coat of Linseed Oil Paint, all available from Viking Sales, phone 585-924-8070.

Interior wood will also be painted with products from Viking Sales, but should only require maintenance every eight to ten years.

Plaster Maintenance:

Plaster will be painted using products from Viking Sales, phone 585-924-8070. Additional coats may be required every five to ten years. Monitor yearly for cracking.

Roof Maintenance:

Currently, the tin roof requires monitoring and tightening (re-nailing) in various spots each season.

The new wood roof will require conditioning and maintenance as prescribed by the maker. NOTE: Special care must be taken to keep any chemicals used in weatherproofing or conditioning the roof from contacting the masonry.

Semester Breakdown of Gardner House Maintenance

Please note: Maintenance issues to be addressed on a non-semester based schedule assumes the start date of Spring 2009.

Fall:

- Clean gutters and downspouts.
- Check watershed issues, especially at cellar entrance.
- Visually check window sills and sashes.
- Rinse sashes, wash glass.
- Sweep interior (twice, beginning and end of semester). Damp mop at least once.
- Monitor flooring, look for evidence of insect and/or rodent damage.

Spring:

- Clean gutters and downspouts
- Check watershed issues, especially at cellar entrance.
- Visually check masonry for cracking.
- Visually check window sills and sashes.
- Sweep interior (twice, beginning and end of semester). Damp mop at least once.
- Visually check plaster for cracks.

Every five years:

- Clean, wax or reapply exterior paint.
- Gently scrub exterior masonry with soft bristled brush and D2 solution.

Every ten years:

- Clean, wax or reapply interior paint.