WARD HALL, GEORGETOWN, KENTUCKY

EXTERNAL ENVELOPE RESTORATION PLAN: PHASE 1

Revised Draft, 17 March 2012

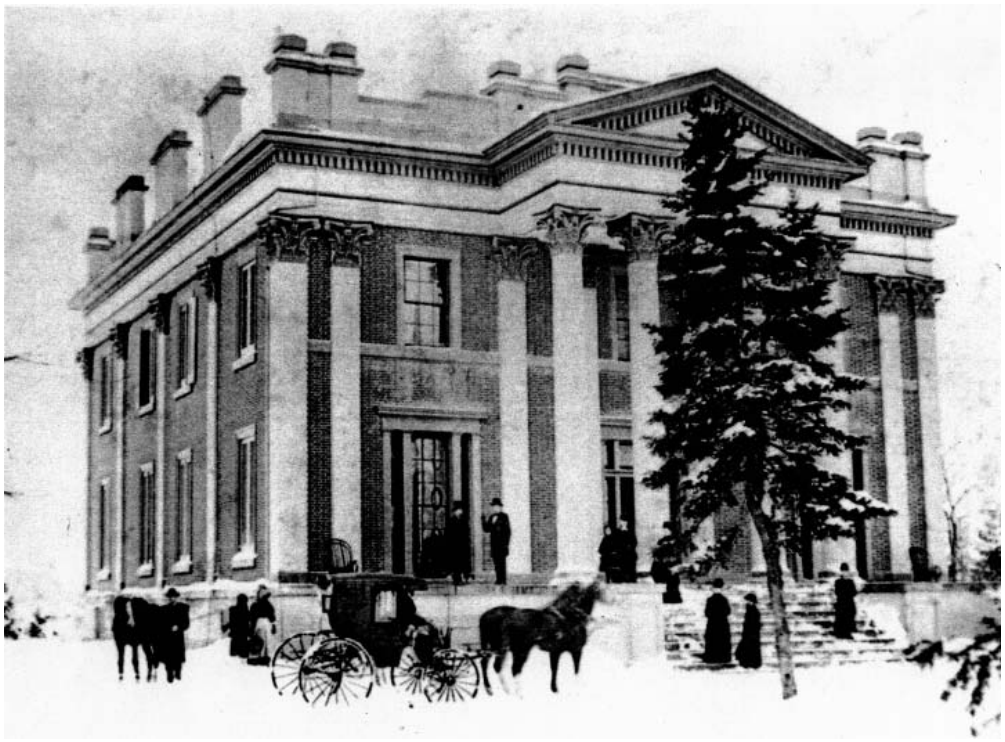


Figure 1. Colonel Milton Hamilton and family, who owned Ward Hall from 1887 to 1904, seen on the North front, circa 1890. The modified gable parapet and absent side parapets confirm that the second roof had been installed by this time, but the chimneys, apparently painted white with all the other brickwork above the cornice, still retain their limestone copings. *Photo, Clay McKnight, Ward Hall Archive.*

PREAMBLE: THE PEOPLE & SIGNIFICANCE OF WARD HALL

ITS ARCHITECT

Ward Hall is Kentucky's preeminent antebellum Greek Revival residence, and one of the finest examples of its kind in the United States.

Lacking documentary evidence from a period in Kentucky history when documentation was somewhat sporadic, and easily scattered or lost, architectural historians have been unwilling to commit to an attribution of the design of Ward Hall to the British military engineer, Major Thomas Lewinski (1800-1881). Certainly, his surviving professional diaries and account books contain no reference to work on Ward Hall, but this may, perhaps, be explained by the fact that by the time this house came to be built in the late 1850s, Lewinski had relinquished his architectural career to renew his vocation in engineering, as Secretary to the rapidly expanding Lexington Gas Company, and only occasionally re-

engaged himself in architecture to accommodate old friends and former clients. Be this as it may, in its architectural composition and detailing, and its dutiful adherence to the treatises of Minard Lafever, which Lewinski most closely followed in matters of the Greek Revival style, Ward Hall bears his unmistakable signature.

In 1842, Thomas Lewinski moved from Louisville, where he had earned a living teaching French at the University, to settle in Lexington and establish an architectural practice that promptly flourished.

Figure 2. Major Thomas Lewinski (c.1800-1881). *Bullock Collection, University of Kentucky*

He married a niece of Henry Clay and performed architectural work for him, including alterations to Ashland, the Clay family home on the Richmond Pike to the east of Lexington, and the design of Mansfield (1845-46) commissioned by Henry for his son, Thomas Hart Clay, a little further east on the Richmond Pike. This was a one-and-a-half story, three bay cottage with a tetrastyle portico whose original elements clearly anticipate those employed at Ward Hall a decade later. Prior to its expansion by Robert McMeekin in 1927, Mansfield was deemed to be “the best of the compact Greek cottages west of the Appalachians”.(1)

Figure 3. Mansfield, Lexington-Richmond Pike (1845-46). *Photo, Robert McMeekin, c.1926*

1. Roger G. Kennedy, *Greek Revival America,* Stewart, Tabori & Chang, New York, 1989, p. 406

Shortly after Mansfield, in the late 1840s, Lewinski built a much grander three bay house for David A. Sayre, fronting on Sayre Avenue in Lexington, which, though much altered by William Stewart in 1890, even more closely prefigures Ward Hall. In fact, in the Kentucky State Historical Society Register, of 1906, George C. Downing goes so far as to say that "the [Ward] mansion "was modeled after that of 'Bell Place,' the home of a friend in Lexington." (2) We may reasonably to assume that if Ward wanted a house like the one Lewinski had built for David Sayre, he would commission Lewinski to design it.

Figure 4. David A Sayre House, Sayre Avenue, Lexington (c.1845), subsequently Bell Place, much altered after being gutted by fire and rebuilt by William Stewart in 1890. *Photo, Anthony Eardley, April 2009.*

Then, coming closer to the date of the commencement of Ward Hall, the repeated elements, and more specifically, the heavy stone caps on the gable front to Lewinski's Institute Hall, (1851-53) on Pearl Street in Natchez, Mississippi -- recently restored as Federal Courthouse -- strongly foreshadow the treatment of the pier caps at Ward Hall.

Figure 5. Institute Hall, (1851-53), Pearl Street, Natchez, Mississippi. *Web photo*

2. GeorgeC. Downing, "The Ward Home Near Georgetown", in *Register of Kentucky State Historical Society*, Globe Printing Company, Louisville, KY, 1906, p. 58.

ITS SIGNIFICANCE

Lewinski's work, and Ward Hall in particular, is included in every scholarly work on Greek Revival architecture in both the Commonwealth and the nation.(3) Among these is Roger Kennedy's authoritative study, *Greek Revival America* of 1989, which we have already cited. Roger Kennedy was Director of the Smithsonian Institution's Museum of American History from 1979 to 1992, and Director of the National Park Service from 1993 to 1997. Appendix C of this study contains a *Gazetteer of Important Greek Revival Buildings in the United States Today,*(4) the compilation of which, he informs us, "required the willing complicity of scores of people, including the Historic Preservation Officers of many states, as well as historians of the period. Travel writers contributing to *The Smithsonian Guide to Historic America*, which was being edited while this work was in its final stages of drafting, caught several prize fish that had eluded other weirs and grids". (5) Hence, we are assured that neither the buildings included in the Gazetteer, nor the rankings ascribed to them, are the result of mere personal preference. As concerns Kentucky, Ward Hall ranks highest on a list that includes such splendid institutional examples of Greek Revival architecture as Gideon Shryock's Third State House in Frankfort, his Morrison College on the Transylvania University campus in Lexington, and his Jefferson County Courthouse; James Dakin's former Bank of Louisville Building, now the foyer to The Actors' Theatre of Louisville; and Theodore Scowden's axially obsessive Louisville Water Company Pump-House complex, now housing the Louisville Visual Arts Association; and then some twenty-three important Greek Revival houses, including, Waveland, now a State Historic Site, erected on Higbee Mill Road south of Lexington, circa 1835.

Figures 6 . Waveland (circa 1835), Higbee Mill Road, south of Lexington. *Photo, Anthony Eardley, June 2006;*

Figure 7. Waveland, birds eye view. *Drawing, Clay Lancaster,* Antebellum architecture of Kentucky*, p. 226.*

3. See Appendix I: Selected Bibliography.
4. Kennedy, op. cit., Appendix C: Gazetteer of Important Greek Revival Buildings in the United States Today, pp. 398-422;
5. Kennedy, op. cit., p. 453.

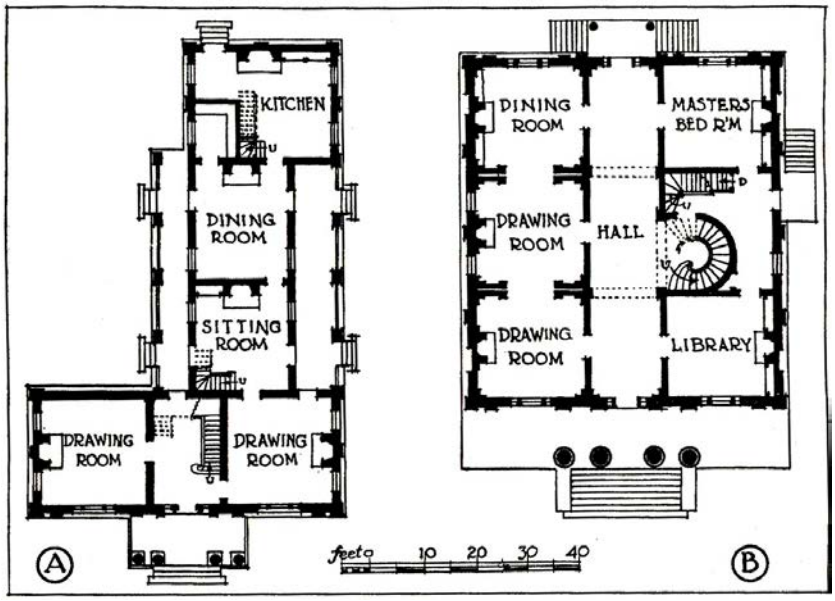


Figure 8. This pairing by Alfred Andrews in his 1942 Master's Dissertation in the Department Of Art and Archeology at Columbia University, *Greek Revival Houses of Kentucky,* , contrasts Waveland (A) -- built circa 1835 and characterized as the typical Kentucky Greek Revival house plan, with a formal front and long rear wing with two-story galleries – with Ward Hall (B) – built circa 1855-59 and exhibiting all the palatial formality and magnificence of the last remaining antebellum years.

Moreover, when the Gazetteer is examined from a national perspective, we find that Ward Hall is deemed comparable to such great Greek revival houses as Berry Hill (by John E. Johnson, 1842-44), in Halifax County, Virginia, which is described as "the South's greatest temple-form mansion",(6) long allowed to be in disrepair but recently restored as the central element of a resort and conference center, …..

Figure 9. Berry Hill (1842-44), Halifax County, Virginia. *Photo, Virginia Historic Landmarks Commission, 1970*

6. Kennedy, op. cit. p. 421.

and also, Milford Plantation (by Charles Reichardt and Russell Warren, 1838-41), near Pinewood, in Sumpter County, South Carolina, “the most magnificent Greek revival mansion east of the Appalachians”.(7)

Hence, Ward hall is seen as an unmatched treasure to the Commonwealth of Kentucky, and to the nation, as a unique historic monument west of the Appalachians.

Figures 10, 11 and 12. Milford Plantation (1838-41), Sumpter County, South Carolina. *Photos: House front and Drawing Room, Bruce Schwarz, , in Kenny, Brown, Bretter and Thurlow,* Duncan Phyfe: Master Cabinet Maker in New York*, , Metropolitan Museum of Art, Yale University Press, New Haven and London, figs.189 and 196; Portico, John M. Hall, in Kennedy,* Greek Revival America*, p.146.*

7. Kennedy, op. cit., p. 419

ITS BUILDERS AND OWNERS

Ward Hall was built between circa 1856 and 1859 for Junius R. Ward (1802-1883) and his wife, Matilda “Mattie” Viley Ward (1808-1882) on the 500-acre family farm on the Georgetown-Frankfort Pike in Scott County, Kentucky It was to fulfill the dual role of a year-round working farmhouse, and a summer villa providing elegant accommodations for the family and its entourage from May through

Figures 13 and 14. Portraits of Junius and Matilda Ward some years prior to the building of Ward Hall, attributed to John James Audubon (1785-1851). *Photos, ?, August 2010. Ward Hall Archive.*

October of each year. For the cooler six months of the year the family returned to Princeton Landing on the Kentucky Bend property, its vast cotton plantation in the Mississippi Delta.

Construction is said to have cost $50,000 in gold, equivalent to $8 million in today’s currency. The contractor was Taylor Buffington, an itinerant builder from Pennsylvania who had studied architecture in Louisville and worked in Shelbyville, Fayette County and Crawfordsville, Indiana, before returning to central Kentucky to undertake this project. Apprenticed to him was James Bailey, a young black craftsman brought to Georgetown for this purpose from Louisiana, and subsequently credited with several Georgetown houses, Highbaugh Hall on the Georgetown College campus, and a Sadieville bank. Buffington and Bailey brought exacting standards of materials and workmanship to the construction of the villa, and the survival to the present day of its public rooms in almost pristine condition despite decades of neglect is eloquent testimony to their accomplishment.

The Wards were not to enjoy the house for very long, however: the Civil War decimated the family fortunes, and Junius was forced to relinquish the property in a bankruptcy auction in September 1867.

There have been eleven subsequent owners of diverse backgrounds and financial resources, and widely varying durations of occupancy (8), for whom this palatial building, unrelentingly inhospitable to the least modern amenity and flaunting a grandeur that could be sustained only by a corporate-scale of slavery, must have become a progressively less than an ideal and increasingly vexing family domicile, which received a reciprocal level of indifference to its need for care and maintenance.

8. See Appendix II: A List of Owners of Ward Hall.

Figure 15. An 1882 view of Ward Hall, renamed Glaston under the ownership of Victor Kerry Glass from 1880 to 1887. D*rawing in W.H. Perrin,* A History of Bourbon, Scott, Harrison and Nicholas Counties*, O. L. Baskin & Co.,Chicago,1882*

Figure 16. Farm outbuildings seen from the snow-covered South lawn, date unknown. *Photo, Ward Hall Archive.*

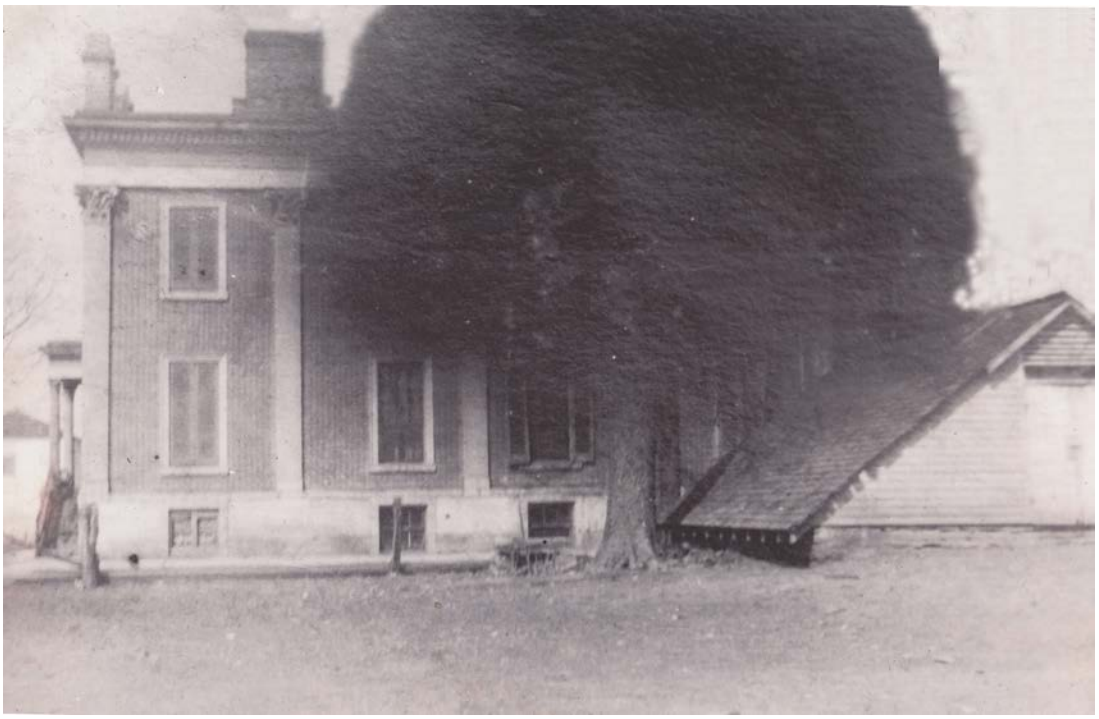


Figure 17. A circa 1930 photograph of not entirely self-evident purpose, which shows the Ice House placed at the north end of the east façade and shaded by both an already mature copper beech and the house, itself. The preponderant factors in the siting of the Ice House appear to have been its convenience of access – quite close to the doors of the Basement coal cellar -- and assurance of protection from the summer sun. These considerations clearly outweighed such other practical concerns, if any, for the permanent gloom the arrangement might impose upon the double windowed Basement Laundry Room and the Middle Parlor above it, alike denied their former invasions of morning sunshine by the proximity of this huge tree; then worse, the total summertime loss of both the daylight and the view to the Day Room, the formerly privileged, double-windowed room on the Second Floor; and, last, the virtual certainty of Fall season gutter blockages caused by such a large and densely leafed tree planted far too close to the house. The blatant formal incongruities of this arrangement, in which the north slope of the Ice House roof is given equal prominence with the most monumental façade of the mansion, would also appear to be of little consequence in the eyes of to the various owners of the property from the turn of the century through the mid-to-late 1940s.
Photo, Ward Hall Archive

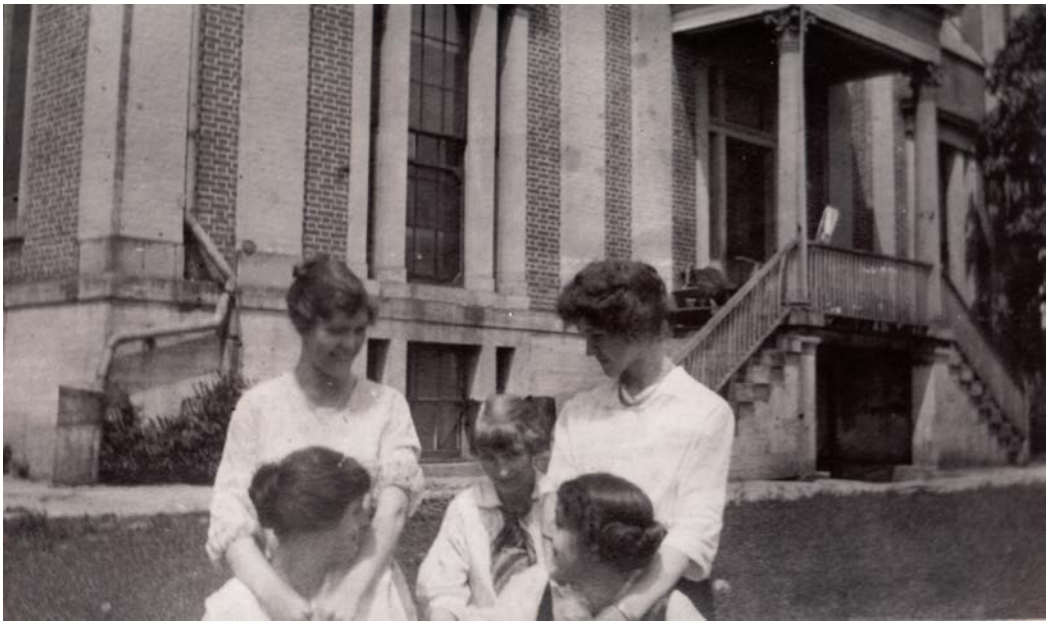


Figure 18. Unknown family members on the South lawn. Note the wooden balustrade to the porch and the “Rube Goldberg” termination of the southwest corner rainwater-pipe, indicating a permanent blockage in the original cast iron pipe system that was intended to convey surface water to the underground storage cistern outside the west Basement doorway *Photo, Ward Hall Archive*

Figure 19. A mid-950s hand tinted aerial view of Ward Hall from the northeast, celebrating the pristine stables and manicured paddocks and pastures of a Bluegrass horse farm during the ownership of Nicholas L. Susong (1950 - 2004). *Photo, Ward Hall Archive.*

The house is now a little more than 150 years of age, and though it has been given quite a lot of mixed attention from time to time it is fair to say that it has received little careful or regular maintenance during the entire period of its existence. Today, its magnificent piano nobile is still largely intact, but it is increasingly jeopardized by a rapidly deteriorating external envelope, in particular the roof, which is in dire need of restoration.

THE PRESERVATION FOUNDATION

The house and some forty acres of the original property came into the care of the Ward Hall Preservation Foundation in May 2004. The Foundation is a non-profit corporation dedicated to the preservation and promotion of the mansion and its grounds as an educational center, to illuminate important aspects of the history and culture of Kentucky and, to some extent in this instance, the antebellum American South, their forms of agriculture and industry.

Ward Hall is presently open to the public on weekends and holidays throughout the temperate season, and on holidays during the winter. Eventually, it is proposed to be open daily.

Figure 20. The recently restored door to the south Basement entry, its porch still in temporary use as a store for the Open House signs. *Photo, Anthony Eardley, September 2010.*

Early in its tenure, the Foundation received a *General Condition Report* on the building from the Kentucky Heritage Council (9), which identified problems with its external envelope, its plumbing and electrical systems, etc. ranging from “critical” to “cosmetic”, , and rightly placed emphasis on the need to deal with water incursion issues. The Foundation has also obtained a *Structural Inspection Report* from BFMJ, structural engineers in Lexington (10).

Local roof and gutter repairs have succeeded in obtaining temporary relief from the most consequential of the water incursion problems, those that have been threatening the integrity of the interior spaces. Additionally, by employing the modest funds that become available to it from time to time, and with the invaluable assistance of individual craftsmen and volunteer groups, the Foundation is engaged in incremental, small-scale repairs to the building, which have begun to address the concerns set out in these reports(11).

Figure 21. Richard Aurelius and Stewart Stoltz, B.Arch. measuring details of the North portico, November 1, 2007. *Photo, Anthony Eardley.*

The Board has also caused the building to be measured and drawn to Historic American Building Survey Standards, a task that has employed several graduate architects for over 1,200 hours between October 2007 and August 2010, and that has resulted in two sets of drawings, one delineating the house in its present condition, the other in a restored condition, with its grounds furnishing all the facilities and amenities needed to support the operations of a major house museum (12).

9. Kentucky Heritage Council, Ward Hall: *A General Condition Report,* Frankfort, Kentucky, 2004.
10. Jerry E. Fryer, P. E., *Structural Inspection Report,* BFMJ Structural Engineers, Lexington, Kentucky, Revised December 2008.
11. See Appendix III: *Ward Hall Minor Restorations Schedule,* Revised March 2012.
12. See Appendix IV: *Ward Hall Measured Drawings: Present and Restored Condition.*

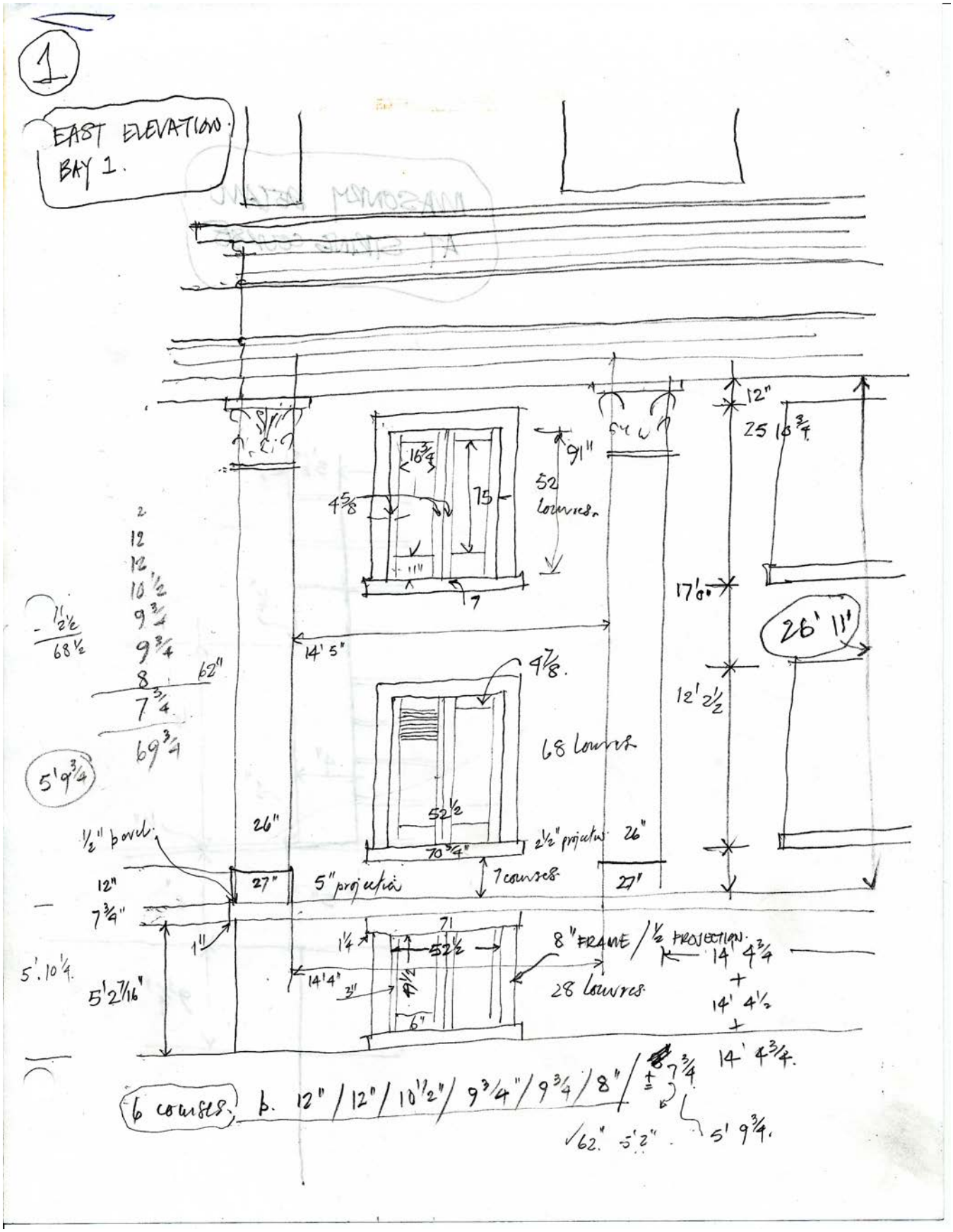


Figure 22. Measurement Note 1, South bay, East Elevation. *Drawing, Anthony Eardley assisted by Stewart Stoltz, B.Arch., October 2007*

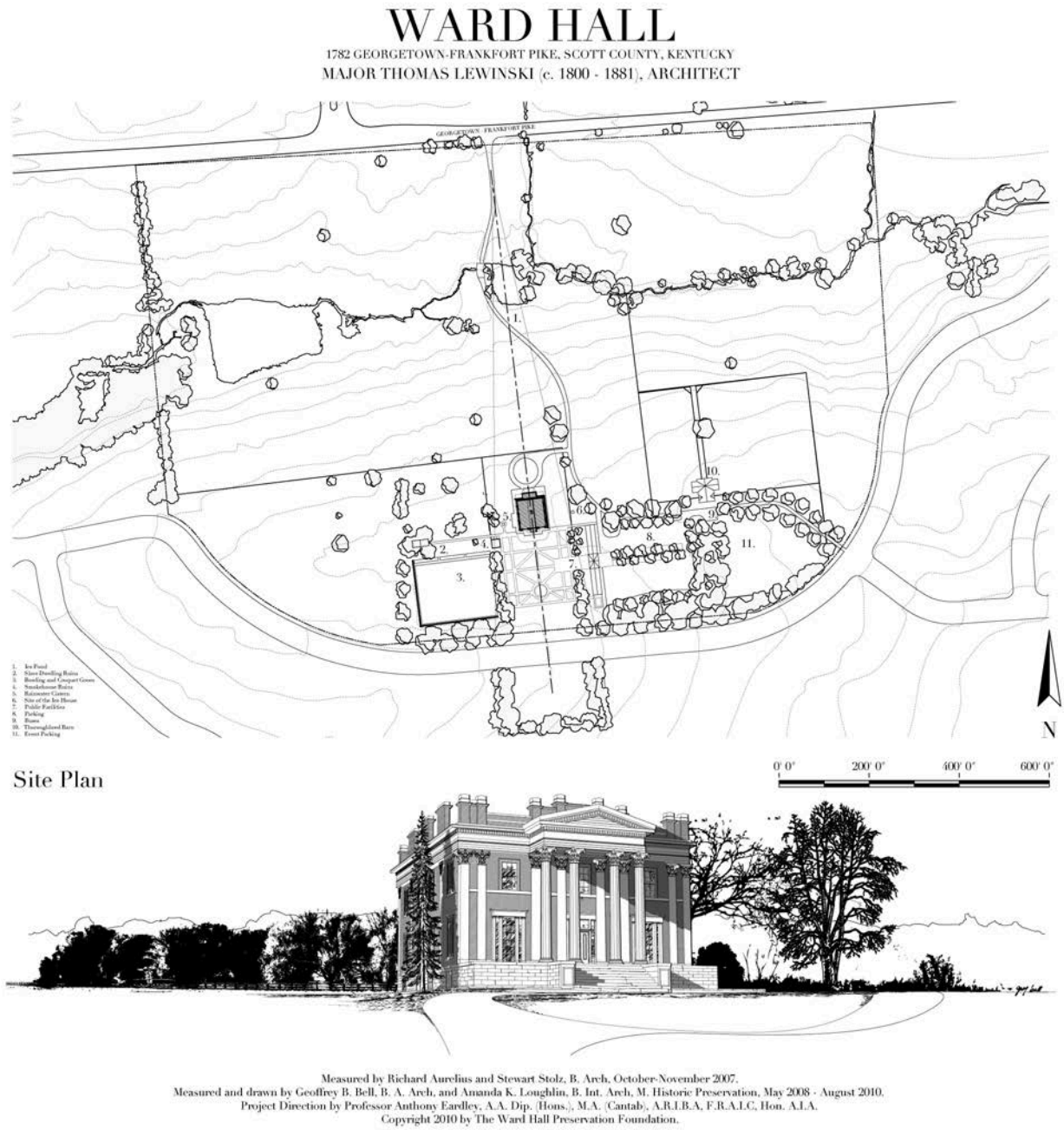


Figure 23. August 2010 Site Plan showing the grounds of Ward Hall in restored condition, with a one-way traffic circulation system entering the property on axis from the north and exiting to the southeast, the main stable and horse paddocks renewed, the one–time formal gardens to the south of the house also renewed, a bowls and croquet lawn to its west and parking, conference and other visitor facilities to its east, together with a caretaker's residence. The pocket of land on axis to the south that extends the vista from the house beyond of the Ward Hall property boundary has been designated as a neighborhood park by Barlow Homes, the developers of the adjoining tract.

Here, we propose a three-phase plan for the major restoration of the external envelope of building, and present a detailed description and an anticipated budget for the first phase.

PHASE 1: There is an urgent need to renew the roof, and thus to stabilize the fabric of the building envelope and protect the interior spaces. In order to obtain the maximum benefit from the presence of the scaffolding facilitating the work on the roof, this phase should also include the renewal of the chimney stacks, parapet walls and entablature of the building,

together with the cleaning and restoration of the pilasters, their capitals, and of the limestone architraves to the door and window openings, together with the repair, replacement in kind and repainting of the windows and shutters themselves;

PHASE 2: Replacement of the severely delaminated monumental North entry steps and podium, the restoration of its two-story portico and, to prevent new water damage to the restored steps and podium below, the redirection of its gutters to drain on to the main roof;

PHASE 3: Restoration of the South and West entry steps, the South portico, the surrounding perimeter paving, and any remaining exterior fabric of the building.

ESTIMATED COSTS FOR PHASE 1		
Erection, dismantling, and one year's rental of perimeter scaffolding, stair tower, stationary lift and safety railing	p.22	$67,000.00
Remove the second roof, clean off the original roof and Install a 40mm high-performance underlayment over 5" of rigid insulation (R 30)		$61,500.00
Take down and rebuild the six chimney stacks, and repair and remodel the parapet walls and gable ends to conform to the original design and stone coping profiles		$75,000.00
Replace the central roof lantern ($18,500.00) and install operable skylights in each of the four lower corners of the roof ($14,000.00)	p.26	$32,500.00
Repair the wooden entablature and lay the cornice to appropriate falls	p.27	$53,600.00
Install a 20-ounce standing seam copper roof system dressed to the new roof lantern, ridge flat, slopes, roof lights, box gutters, flashings, and copper down pipes	p.23	$180,000.00
Remove and pack for shipment, the cast iron acanthus leaves from the pilaster capitals and repair or replace in kind their wooden cores	p.30	$22,600.00
Clean and refurbish ($18,250.00) and replace ($39,000.00) the cast-iron acanthus leaves from the Column and pilaster capitals		$57,250.00
Repair or replace in-kind all the upper-level windows, and fixed and operable Shutters		$33,000.00
Clean the stone architraves around the upper level windows and doors, and prepare, prime and paint the doors, windows, pilasters, capitals and entablature	p.37	$94,500.00
ESTIMATED COSTS		**$676,950.00**
10% CONTINGENCY ALLOWANCE		**$67,695.00**
TOTAL COSTS (not including admin fees)		**$744,645.00**
7.5% CONTRACT ADMINISTRATION FEES		**$55,850.00**
TOTAL COSTS		**$800,495.00**

Figure 24. Estimated costs for Phase 1

PHASE 1

Figure 25. A current condition cross section through the West Entry and the main, nautilus staircase of Ward Hall, looking North . Note the double roofs, the shoring supporting the failed second roof at the chimneys, and the clapboard-sided lantern that has provided little or no light to the Attic landing or. for that matter, the otherwise unlit stairwell, in decades.

It is a curious fact that, for much of Ward Hall's 150-year history, it has supported not one but two roof systems, as seen in the cross-section in Figure 25 above. The late-1850s roof structure has a "ridge flat" that is 12 feet wide and was probably lead-clad, extending the length of the house from the North gable to the South gable of the building. At first, from this ridge flat, slate-clad slopes fell to lead-lined box gutters running along the inside faces of the East and West parapet walls. This was the original roof system.

About twenty years later, probably following closely upon the conversion of the twelve fireplaces from wood-burning to coal hearths, and certainly by 1882, the date of the drawing in Figure 28, a second roof system had been superimposed over the first, its much shallower slopes apparently clad with copper and falling from the ridge flat to the tops of lowered parapet walls, then draining into newly constructed, shallow box gutters built on the cornice of the original entablature outside the walls. Portions of the North and South gable walls show clear

evidence of having been raised at this time to accommodate the higher profile of the second roof.

Figure 26. The second roof projecting over the lowered parapet wall at the southeast corner of the building and in the corners somewhat perversely allowed to occupy the new gutter constructed on the top surface of the cornice to collect its run-off. *Photo, Anthony Eardley, 31 October 2007.*

Figure 27. The Follansbee Steel Company's stamped imprint is legible here in this "reversed image" detail of the terne metal flashing to the south gable cornice. This terne metal must constitute a second surface to the superimposed roof structure, installed, not as Clay Lancaster believed, to replace copper that had been stripped for sale during the Civil War ,when this roof did not yet exist, but some time after the Follansbee plant was establishes in West Virginia in 1902. ,(See *Antebellum Architecture of Kentucky,* p. 230) *Photo. Anthony W. Vince, June 2009.*

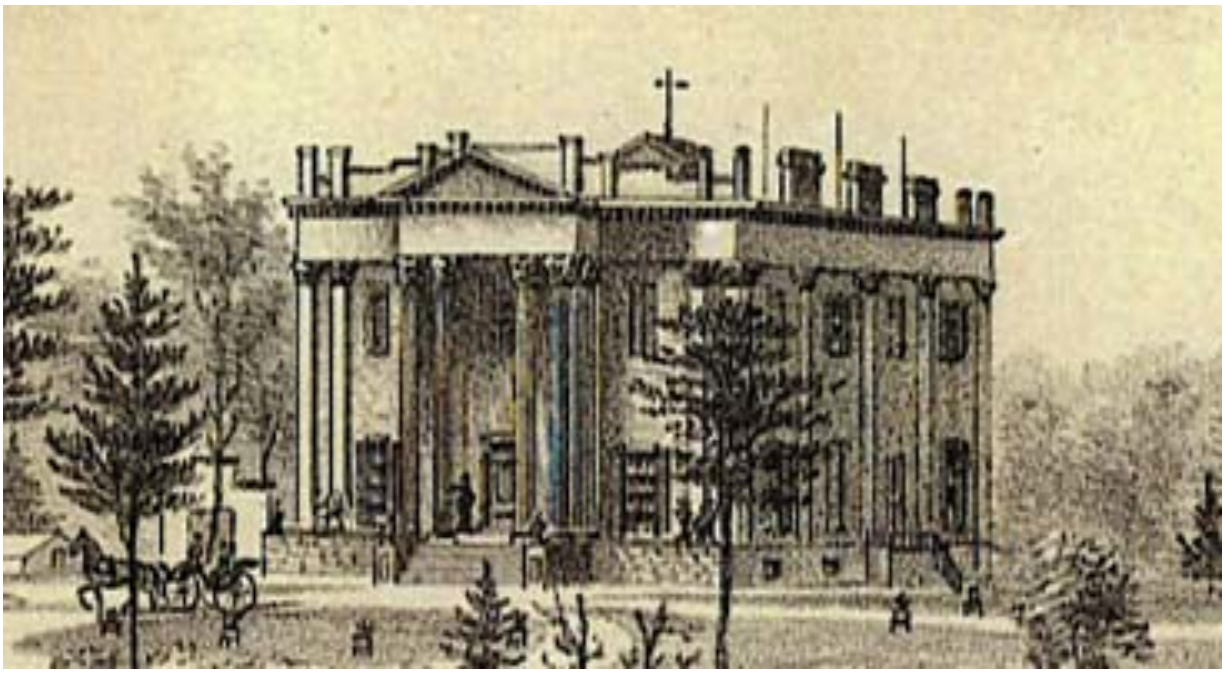


Figure 28. Detail from the drawing in W.H. Perrin's 1882*, History of Bourbon, Scott, Harrison and Nicholas Counties,* seen in figure 15 above.

Later, the false stack in the center of the West wall was taken down, as seen in Figure 29. In more recent times, certainly after this 1940's photograph was taken, the limestone caps to the five remaining stacks in the East and West walls……

Figure 29. Detail from the 1940's aerial view of Ward Hall from the Northeast, seen in figure 18 above.

Figure 30.Two of the three East side chimney stacks. *Photo, Anthony Eardley, October 2007*

were removed and replaced with brick. These stacks have been subjected to various crude attempts at repair with Portland cement mortars and are now in very poor condition. So too, are the pilaster capitals and much of the classical entablature below the stacks..

Figure 31. West side entablature. *Photo, Anthony Eardley, June 2008*

Figure 32. The underside of the cornice at the southeast corner. *Photo, Kentucky heritage Council report, December 2004, figure 12*

It is the advice of our roofing consultants that the second roof system was not installed to correct any deficiency in the impermeability or water-shedding capacities of the original roof. Certainly, by the standards of current practice, the pitch of the original roof is too shallow for slate, as we shall elucidate below, but if water incursion through the slate courses had been the sole, or even chief problem of the roof design, it would have been a simple matter to replace the slate with metal, with no need for any radical reconfiguration. Nor was the sizing and design of the gutters, hoppers and downpipes inadequate.

Rather, the purpose of the second roof system would appear to have been to reduce the incidence of negative wind pressure on the roof, and to ameliorate the severity of the problems of wind induced downdraft that must have plagued the original configuration, as evidenced by the heavy accumulations of soot on the inside faces of the parapet walls, and seen in Figures 33 and 36.

Figure 33. The hopper end of one of the original gutters running inside the East and West parapet walls, stripped of its lead lining some time after the installation of the second roof above it. Note the contrast between the soot-grimed walls, exposed to chronic downdraft smoke effects for perhaps the first twenty years of the life of the building, and the clean, formerly protected brickwork to the outside of the gutter. *Photo, Geoffrey Bell, November 2008*

It may be useful to recall that these were the days when the Bernoulli principle was quite widely apprehended, but chimney caps employing the Venturi effect had yet to be invented, and might not have served the need in these severe conditions in any case. It is not known whether the second roof system overcame the downdraft smoke problems but its weight imposes a substantial additional load on the original roof structure below,….

Figure 34. This shows the rafters of the second roof lying overlapped across a mid-slope purlin, which bears on posts supported by the original slate roof. *Photo, Jerry Fryer,* Structural Inspection Report, *Revised December 5, 2008, BFMJ Structural Engineers, Lexington, Kentucky.*

Figure 35. View across the Western slope of the second roof, showing the impediments to drainage created by the chimney stacks. *Photo, Kentucky Heritage Council* Report*, December 2004, figure 78*

and its water shedding capacity has always been compromised by the presence of the six broad blades of the chimney stacks and their inexplicable abutments, which, having no crickets on this shallow slope, to divert the flow of water around them, severely hamper its fall to the cornice-top gutters out beyond them. Numerous failures in both the first metal membrane and the flashing at the intersection of the second roof with these chimney stacks has led to leaks, rot and structural failures, replacement metal, new leaks and further structural failure, recreating a state of progressive disrepair and causing the interior of the house to become increasingly vulnerable to water damage (13).

Figure 36. The space between the first and second roofs, showing the shoring typically necessitated by the failure of the upper roof structure at the chimney stacks. *Photo, Geoffrey Bell, November 2008*

Since Junius Ward built this house as a summer villa, to afford relief for his family from the miasmal heat of his Mississippi Delta plantations, he might well have expressed some passing regret at a malfunctioning of his wood-burning fireplaces, but it is doubtful that he would have been nearly so exercised by their inefficiencies as subsequent owners of the

13. Clay Lancaster's *Antebellum Architecture of Kentucky* (p. 230) represents as fact, a popular old saw to the effect that "the sheet copper that covered the roof was removed and sold during the Civil War". Though Lancaster visited the house in 1940 and again in 1964, he clearly was not aware that this building has duplicate roof systems. This is an unlikely phenomenon that is neither readily apparent nor easily detected in the cave-like gloom of the windowless attic, but had he suspected its existence we can be certain that he would have investigated it with vigor. Hence, he could not have known that the first roof, which would have been no more than, say, two years old by the outbreak of the Civil War, still possessed the abundance of delaminating slate on its slopes and remnants of sheet lead in the gutters that we see there today. Moreover, the coating of soot found on the parapet walls between the old roof and the new is the accumulation of decades, not just one or two seasons, so that the addition of the second roof was by no means immediate, but some time prior to 1882 and the "Glaston" drawing (figure 15) . The first metal membrane on this new roof would, indeed, appear to have been standing seam copper (see figure 27), and when this failed it was replaced by terne metal, but not before 1902 at the earliest, when Follansbee Steel, the terne metal manufacturer, first established its plant in West Virginia .

building, for whom it was their permanent, year-round residence, and who almost certainly compounded any original problems by converting their hearths to coal. Given that the building will no longer have to rely on its fireplaces for its heating, the Board has determined that its purpose of restoring the house to its late antebellum, Ward-era condition, would best be served by the removal of the second roof system and the restoration of the original roof.

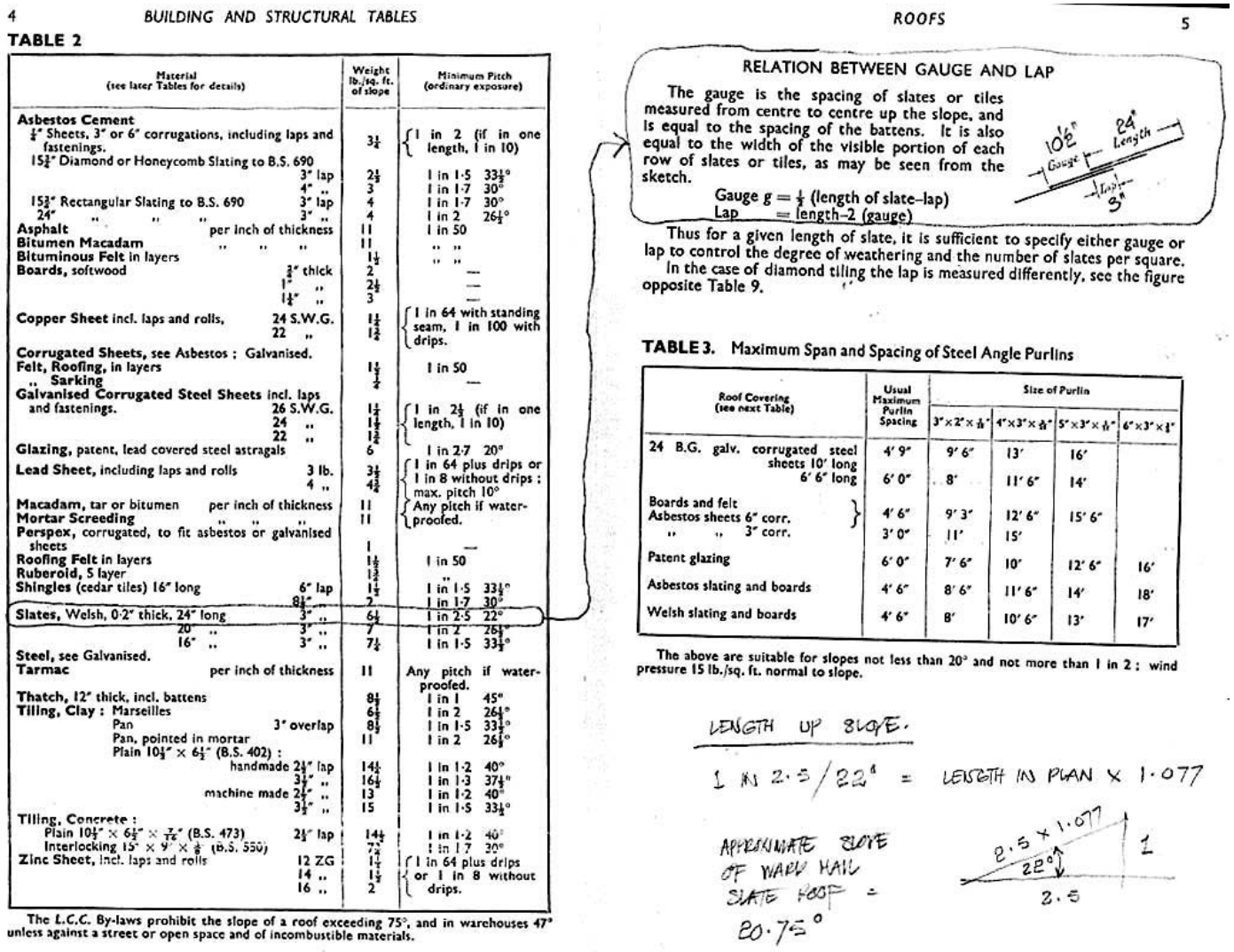
The first task will be to erect a scaffold around the perimeter of the building from one side of the North entry portico to the other, rising to the height of the cornice and incorporating a stair tower, stationary lift, temporary fencing and safety railings. This is expected to take a competent scaffolding contractor five days to complete. Once erected, the scaffold will remain in place for the duration of Phase 1, to be used sequentially by each of the different trades involved in the work: roofers; masons; carpenters and painters. The cost for its erection, dismantling and one year of rental is estimated at **$67,000.00**.

The first trade involved in the project will be the carpenters, who will have to work in the space between the two roofs to rebuild the original box gutters before the second roof can be removed in collaboration with the roofers, one section at a time, one side at a time. As each section of the original roof is exposed, all of its remaining and severely delaminated, spalled and crumbling slate will be removed, and the exposed roof boarding will be covered with a 5" layer of rigid insulation, providing an R-value of 30, and 5/8" plywood sheathing, to which a 40 millimeter, high performance underlayment will be applied. This latter will make the roof watertight while the masonry work is being carried out. This stage of the work will take about 10 days and cost **$61,500.00,** including $16,000.00 for the cost of the insulation material.

Next, masons employing their own, additional scaffolding from the cornice level of the house on up, will dismantle and rebuild all six chimney stacks, recovering and cleaning as much of the original brick as may be possible, mixing in other, closely matching old brick as necessary, and capping the rebuilt stacks with newly fabricated limestone replicas of the original caps. These caps appear in Figure 1, and one or two of their broken components have been located in the foundation of a former henhouse, about 150 yards away from the mansion. Since each of these stone elements will weigh about 500 pounds, a mobile crane will be used to facilitate setting them in place. The portions of the North and South gable walls that were raised to conceal the higher, second roof profile will be taken down, and the top courses of the original parapet walls that were taken down to cornice level to facilitate the second roof's construction, will be rebuilt with limestone coping stones to match the original, their height to coincide with the limestone string courses built into the outer flanks of the North and South gable ends. The mortar will be an appropriate lime mortar in compliance with The Secretary of the Interior's Standards for the Treatment of Historic Properties. The finish joints will be struck and ruled to match the original masonry joints. This work is expected to take between 15 and 20 days and to cost of approximately **$75,000.00,** of which about $15,000.00 will be expended on materials: matching bricks, dimensioned limestone and mortar.

Once the chimney stacks have been rebuilt, the roofers will be able to return to the project. It should also be possible for the carpenters to begin work on the restoration of the wooden entablature.

The slope of the original slate roof is 20.75°, which is less than the recommended minimum pitch for the 18” long slates that were installed in the late 1850s, or indeed, less than would be prudent for even 24” slates. The latter can still be made weather-tight at a minimum pitch of 22° but the former need a slope of approximately 30° (see the tables in Figure 37, below).



4 BUILDING AND STRUCTURAL TABLES

TABLE 2

Material (see later Tables for details)		Weight lb./sq. ft. of slope	Minimum Pitch (ordinary exposure)
Asbestos Cement			
¼" Sheets, 3" or 6" corrugations, including laps and fastenings.		3½	1 in 2 (if in one length, 1 in 10)
15½" Diamond or Honeycomb Slating to B.S. 690	3" lap	2½	1 in 1·5 33½°
	4" "	3	1 in 1·7 30°
15½" Rectangular Slating to B.S. 690	3" lap	4	1 in 1·7 30°
24" " " "	3" "	4	1 in 2 26½°
Asphalt	per inch of thickness	11	1 in 50
Bitumen Macadam	" " "	11	" "
Bituminous Felt in layers		1½	" "
Boards, softwood	¾" thick	2	—
	1" "	2½	—
	1¼" "	3	—
Copper Sheet incl. laps and rolls,	24 S.W.G.	1½	1 in 64 with standing seam, 1 in 100 with drips.
	22 "	1¾	
Corrugated Sheets, see Asbestos ; Galvanised.			
Felt, Roofing, in layers		1½	1 in 50
" **Sarking**		¼	—
Galvanised Corrugated Steel Sheets incl. laps and fastenings.	26 S.W.G.	1½	1 in 2½ (if in one length, 1 in 10)
	24 "	1¾	
	22 "	1¾	
Glazing, patent, lead covered steel astragals		6	1 in 2·7 20°
Lead Sheet, including laps and rolls	3 lb.	3½	1 in 64 plus drips or 1 in 8 without drips ; max. pitch 10°
	4 "	4½	
Macadam, tar or bitumen	per inch of thickness	11	Any pitch if water-proofed.
Mortar Screeding	" " "	11	
Perspex, corrugated, to fit asbestos or galvanised sheets		1	—
Roofing Felt in layers		1½	1 in 50
Ruberoid, 5 layer		1¾	"
Shingles (cedar tiles) 16" long	6" lap	1½	1 in 1·5 33½°
	8½" "	2	1 in 1·7 30°
Slates, Welsh, 0·2" thick, 24" long	3" "	6½	1 in 2·5 22°
20 "	3" "	7	1 in 2 26½°
16 "	3" "	7½	1 in 1·5 33½°
Steel, see Galvanised.			
Tarmac	per inch of thickness	11	Any pitch if water-proofed.
Thatch, 12" thick, incl. battens		8½	1 in 1 45°
Tiling, Clay : Marseilles		6½	1 in 2 26½°
Pan	3" overlap	8½	1 in 1·5 33½°
Pan, pointed in mortar		11	1 in 2 26½°
Plain 10½" × 6½" (B.S. 402) :	handmade 2½" lap	14½	1 in 1·2 40°
	3½" "	16½	1 in 1·3 37½°
	machine made 2½" "	13	1 in 1·2 40°
	3½" "	15	1 in 1·5 33½°
Tiling, Concrete : Plain 10½" × 6½" × $\frac{7}{16}$" (B.S. 473)	2½" lap	14½	1 in 1·2 40°
Interlocking 15" × 9" × ⅜" (B.S. 550)		7½	1 in 1·7 30°
Zinc Sheet, incl. laps and rolls	12 ZG	1¼	1 in 64 plus drips
	14 "	1½	or 1 in 8 without
	16 "	2	drips.

The L.C.C. By-laws prohibit the slope of a roof exceeding 75°, and in warehouses 47° unless against a street or open space and of incombustible materials.

ROOFS 5

RELATION BETWEEN GAUGE AND LAP

The gauge is the spacing of slates or tiles measured from centre to centre up the slope, and is equal to the spacing of the battens. It is also equal to the width of the visible portion of each row of slates or tiles, as may be seen from the sketch.

Gauge $g = \frac{1}{2}$ (length of slate–lap)
Lap = length–2 (gauge)

Thus for a given length of slate, it is sufficient to specify either gauge or lap to control the degree of weathering and the number of slates per square.

In the case of diamond tiling the lap is measured differently, see the figure opposite Table 9.

TABLE 3. Maximum Span and Spacing of Steel Angle Purlins

Roof Covering (see next Table)	Usual Maximum Purlin Spacing	Size of Purlin			
		3"×2"×⅜"	4"×3"×⅜"	5"×3"×⅜"	6"×3"×½"
24 B.G. galv. corrugated steel sheets 10' long	4' 9"	9' 6"	13'	16'	
6' 6" long	6' 0"	8'	11' 6"	14'	
Boards and felt / Asbestos sheets 6" corr.	4' 6"	9' 3"	12' 6"	15' 6"	
" " 3" corr.	3' 0"	11'	15'		
Patent glazing	6' 0"	7' 6"	10'	12' 6"	16'
Asbestos slating and boards	4' 6"	8' 6"	11' 6"	14'	18'
Welsh slating and boards	4' 6"	8'	10' 6"	13'	17'

The above are suitable for slopes not less than 20° and not more than 1 in 2 ; wind pressure 15 lb./sq. ft. normal to slope.

LENGTH UP SLOPE.

1 IN 2·5 / 22° = LENGTH IN PLAN × 1·077

APPROXIMATE SLOPE OF WARD HALL SLATE ROOF = 20·75°

2·5 × 1·077 / 22° / 1 / 2·5

Figure 37. Roofing Tables taken from Frederick Hyde Blake, *Building and Structural Tables For Architects, Builders and Engineers,* London, Chapman & Hall,1947

In light of this discouraging data, reroofing with new slate of any size would appear to be imprudent and considering also the prohibitive cost of slate in today’s economy, the Board has opted, instead, to use standing seam 20oz copper as a more suitable alternative material for the entire roof system: the ridge flat, the shallow slopes, box gutters, flashings and downpipes brought to grade. This work will take about 35 days and is expected to cost **$180,000.00.**

Work to the roof will be completed with the replacement of the present Attic landing penthouse. For many years, the need to provide access to a perpetually failing second roof

system has entirely supplanted any concern for the provision of daylight to the major vertical circulation system of the house, and the incongruous and leaky appendage presently found on the attic landing roof more closely resembles an abandoned dog kennel, inexplicably put back into service up there, than the proud ornament that so frequently crowns Greek Revival buildings.

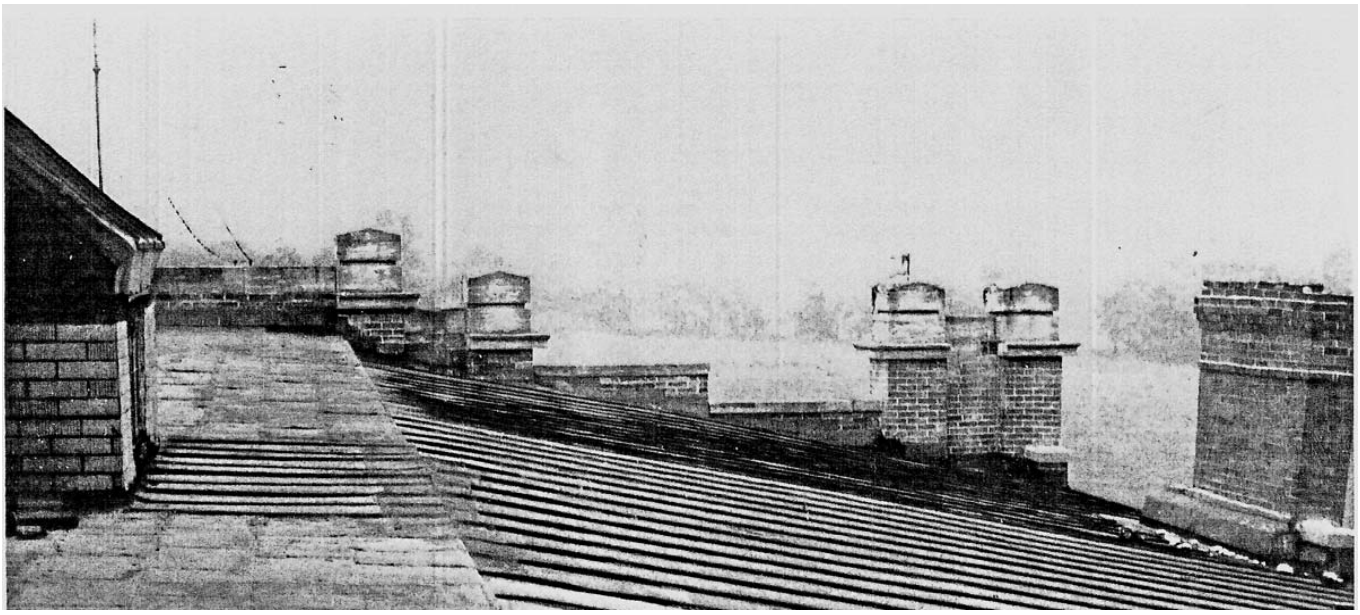


Figure 38. A vintage photo of unknown date, but taken after the chimneys had lost their coping stones, and showing the first cladding surfaces to the second roof – appearing to be a medley of original lead to the ridge flat and standing-seam copper to the slopes -- and in which an extremely tall penthouse exhibits no ambitions to offer the Attic below the amenities of a lantern, but appears, instead, to be built of brick or block. Note the raised half bay in the lower gable wall. *Photo, Ward Hall Archives.*

Figure 39. The present clapboard and sheet metal structure with a door and two meager windows. *Photo, Anthony Eardley, October 2007*

Figure 40. Interior of the present penthouse on a bright day. Note the need for supplemental lighting. *Photo, Anthony Eardley, April 2010*

Lacking any image of the original lantern, if, indeed there ever was an original “lantern”, and offered neither a Minard Lafever or other pattern book precedent, nor any earlier Lewinski lantern that might have informed a design for Ward Hall – clearly Lewinski never ever thought about a building’s need for daylight -- the Board has opted to replace the present structure, with a low profile, insulated, copper framed skylight with clear insulated glass such as is seen in figure 41, below, this to be equipped with an electronically operated ventilator and damper.

Figure 41. A gable ended double-glazed skylight installed at the restored US Marine Hospital in Louisville, Kentucky.
Photo, New England Skylights

A sum of **$18,500** has been allowed to build, ship and install a replacement lantern.

The North and South Attic rooms are both unfinished and without any form of natural light. Dormer windows are not to be contemplated: their light would be quite ineffectual in these big, non-reflective spaces, and their addition would seriously compromise the architectural integrity of the building. However, four low-profile, operable *Velux* skylights, could be inserted close to the North and South gable walls at a height from which the gutter hoppers could be conveniently inspected, and at which the skylights, themselves, would be hidden behind the renewed East and West parapet walls. These skylights would provide a modicum of daylight and natural ventilation to the two Attic spaces, and multiple roof access options besides. The cost for the purchase and installation of these skylights should not exceed **$14,000.00**

The six-feet-high wooden entablature, soffit and cornice embracing the building (but not including the North portico, which will be renewed in Phase 2, once the podium has been rebuilt), have a surface area of roughly 2,500 square feet. Much of this surface has deteriorated as a result of cornice leaks, water penetration, and repairs with inferior materials, as seen in Figure 42.

Figure 42. An example of past entablature repairs with inappropriate and inferior materials.
Photo, Kentucky Heritage Council Report, December 2004, figure 7

It will be not possible to arrive at an accurate estimate of the time and materials costs for the carpentry repairs to the entablature until the scaffolding has been erected and a close inspection of the deterioration can be made. For the present purposes, an allowance of about

120 man days (one team of two carpenters for 60 days or two teams for 30 days) and a cost of **$53,600.00** with appropriate materials, is assumed.

Alison Brown's study for the *Conservation of the Cast Iron Pilaster Capitals at Ward Hall in Georgetown, Kentucky*, a 2007 Masters Project in the University of Kentucky Department of Historic Preservation, provides a reliable basis for estimating the probable cost of replacing the broken and missing components of these capitals. The four elevations of the house comprise a total of twenty-six pilasters crowned by Corinthian capitals, all but the corner pilasters containing fourteen separate pieces of cast-iron acanthus leaf ornamentation, attached with screws to a robustly constructed timber substructure.

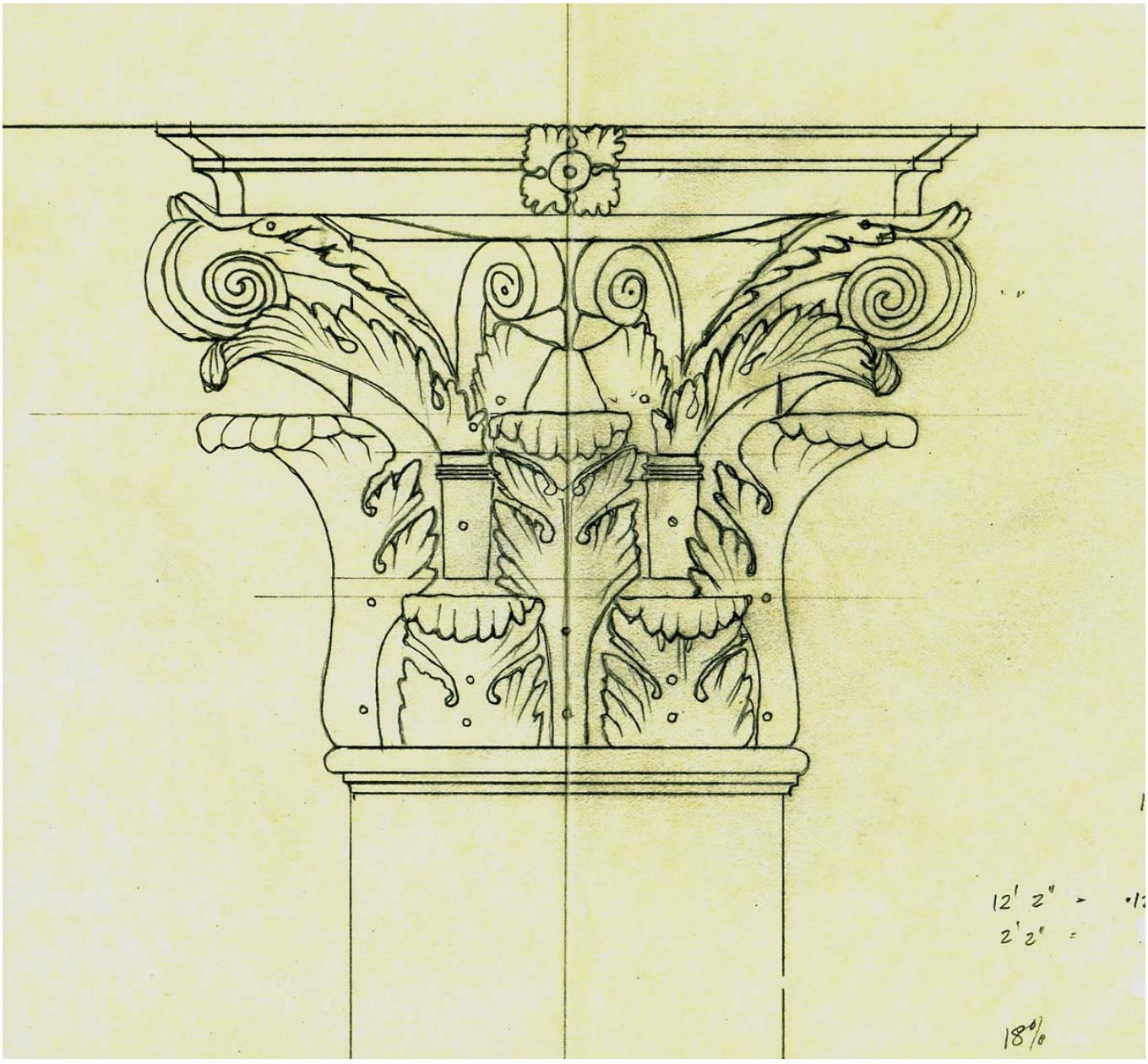


Figure 43. A typical pilaster capital.
Drawing, Anthony Eardley

Figure 44. Corner pilaster capital, detail.
Photo from Alison Brown, Conservation of the Cast Iron Pilaster Capitals at Ward Hall in Georgetown, Kentucky, *Spring 2007*

On the four corner pilasters, the lower perimeter piece is shared between two capital faces, and two “interior” scroll components typically found above it are rendered redundant. Thus, there were originally a total of 352 component parts in these pilaster capital assemblies, the smaller pieces weighing about five pounds apiece and the largest as much as fifteen pounds.

Figure 45. A 2007 view of the worst deterioration of the pilaster capitals on the West façade, the closest of which is now entirely disintegrated. *Photo from Alison Brown,* Conservation of the Cast Iron Pilaster Capitals at Ward Hall in Georgetown, Kentucky*, Spring 2007*

Ms. Brown's 2007 tabulations showed that some 76 pieces of these assemblies were missing, having been either removed or fallen from the capitals and broken on the perimeter paving below. There are still more components with corroded screws and rusting baling wire attached to rotting wooden cores that exhibit imminent likelihood of the same outcome. There are some six components that, though still in place, are broken, and for these Ms. Brown recommended repair.

This is not the recommendation of the foundry we have consulted, however, who informed us that repairs to cast iron are not reliable and, given that we shall have to make new molds and castings for every component part of the capitals in any case, that it will be more economical and effective simply to replace the broken pieces with new castings.

The work will take eight to ten weeks from the foundry's receipt of sample components and is expected to cost **$39,000.00**. This will include the making of all eleven of the different casting patterns, some 80 or more castings, machining for the mounting holes, pre-prime painting with zinc-rich urethane, priming with two–component epoxy and delivery from the Robinson Iron Foundry in Alexander City, Alabama, to the site.

The approximately 260 cast-iron components still in place will need to be removed for cleaning and restoration, and to permit the necessary repairs to the deteriorated timber bases. The cleaning of these pieces by the Robinson Iron Foundry would take three to four weeks and cost **$18,250.00.** This would include the costs of pick up and delivery to Ward Hall, cleaning via glass-bead blasting, and pre-priming and priming as described above.

There is some degree of deterioration to the wooden elements of every one of the twenty-six pilaster capitals. A number appear to need only modest attention while others, especially on the West façade will clearly need to be entirely rebuilt. An allowance of five weeks and **$22,600.00** for time and materials is believed to be adequate to cover the removal and packing of the cast iron components for shipping, the repair and replacement in kind of the wooden components of the capitals, and the reattachment of the cleaned cast iron after the restored woodwork has been primed and painted.

All of the window frames of the building have suffered some deterioration, especially to the bottom rails of the sashes, which need repair or replacement in kind. The glazing putty needs to be replaced throughout. The fixed shutters covering blind windows are similarly deteriorated, and all the windows on the East and West sides lack operable shutters. It should be said, in passing, that there is no evidence of the existence of external shutters on the North and south facades. The windows on those elevations are equipped with internal shutters.

There are ten double-hung, 'six over six', second-floor windows, each measuring 7' x 4', that should be repaired and repainted while the scaffolding is in place, and on the principal floor there are three larger double-hung, 'nine over six', windows, measuring 9' x 4' (see Figure 21, above) and two very large tripartite windows (11' x 6' 9") each containing 30 panes of glass,. Eight fixed shutters should also be repaired, and there are seven windows on the East and West facades that need new shutters. This work is expected to take approximately ten weeks and to cost **$33,000.00**

Figure 46. A nine over six double hung sash window in the East façade of the building, exhibiting typical problems of painted stone architraves staining the brickwork beneath the sill, paint loss to the woodwork, glazing putty loss, and failed frame connections to deteriorated bottom rails. There are no operable shutters to be found for these East and West side windows. *Photo, Anthony Eardley, October 2007*

Finally, except for the new paintwork to all but a very few recently restored Basement windows and doors, the exterior paint surfaces of the house are in exceedingly poor condition, whether on stone, brickwork or woodwork. All the wooden surfaces made accessible by the scaffolding, need to be cleaned with a trisodium phosphate solution prior to careful and thorough preparation for painting. The prepared surfaces should first be coated with a bonding primer, applied to both the bare wood and the unexposed areas. Two coats of premium finish paint with anti-mold/fungal properties should then be applied.

The brick pilasters and the painted stone window architraves will need to be stripped of any loose paint and then cleaned with appropriate special agents, the waste material being controlled and disposed of in accordance with state and federal regulations. An appropriate masonry primer should be applied to the pilasters and followed with a premium masonry paint.

Since the cast iron acanthus leaf moldings are to be coated with two primers at the foundry, they will need only to be sprayed with a top coat of premium paint prior to remounting on the pilaster the capitals.

The labor costs for this work should be approximately $60,000.00, and the cost of prepping agents, caulk, primers, and paint, should not exceed $3000, the total estimated cost being **$94,500.00.**

This figure brings the total estimated Phase I restoration costs to **$676,950.00**

A 10% contingency sum of **$67,695.00** is deemed to be prudent, and since this is a diversified and complex restoration project involving the work and coordination of many trades. We believe that it will need close supervision by an architect with restoration experience. Hence we have allowed a fee of 7.5% of the total restoration costs, in the amount of **$55,850.00** for this service.

Thus the total projected cost of this first phase in the proposed restoration program for Ward Hall is **$800,495.00**.

APPENDIX I: SELECTED BIBLIOGRAPHY

Alfred Andrews, *Greek Revival Houses in Kentucky*, Master's Dissertation, Department of Art & Archeology, Columbia University, 1942;

Ann Bolton Bevins, *A History of Scott County As Told by Selected Buildings,* Revised Edition, Georgetown, Kentucky, 1981.
Contains, among other things, a complete list of the owners of Ward Hall, the dates of their ownership, and the diminishing acreage that accompanied sales of the property;
-- , Frederick A. Johnston, and Lindsey Apple, *Scott County, Kentucky: A History,* Scott County Historical Society, 1993;
-- , Frederick A. Johnston, and Lindsey Apple, *Georgetown and Scott County: Images of America,* Arcadia Publishing, Charleston, South Carolina, 1998.
A pictorial sequel to the *History* of 1993;

Alison Brown, *Conservation of the Cast Iron Pilaster Capitals at Ward Hall in Georgetown, Kentucky*, Masters Project in the University of Kentucky Department of Historic Preservation, Spring2007

George C. Downing, "The Ward Home Near Georgetown," in *Register od the State Historical Society, Frankfort Kentucky*, The Globe Printing Company, Louisville, KY, 1906. Pp. 54-58

Jerry E. Fryer, P.E., *Ward Hall Structural Inspection Report, Revised,* BFMJ Structural Engineers, Lexington, Kentucky, December 2008.

Talbot Hamlin, *Greek Revival Architecture in America*, Oxford University Press, London, 1944, pp. 246 and 352 and plates XCIII and LXVIII;

Roger G. Kennedy, *Greek Revival America*, Stewart, Tabori & Chang, New York, 1989.
This authoritative study was sumptuously produced under the auspices of The National Trust for Historic Preservation. It contains an indispensable Gazetteer of Important Greek Revival Buildings in the United States Today.

Kentucky Heritage Council, *General Condition Report,* Frankfort, Kentucky, 2004.

Minard Lafever, *The Young Builder's General instructor,* Newark, New jersey, 1829.
-- , *The Modern Builder's Guide,* New York, 1833.
-- , *The Beauties of Modern Architecture,* New York, 1835. Reprint, Da Capo Press, New York, 1968.

Clay Lancaster, "Major Thomas Lewinski: Emigre Architect in Kentucky", *Journal of the Society of Architectural Historians,* 11, December 1952, pp. 12-20;
-- , *Vestiges of the Venerable City: A Chronicle of Lexington, Kentucky*, Lexington-Fayette County Historic Commission, 1978, pp. 71,75, and 112-113.
-- , *Antebellum Architecture of Kentucky*, University Press of Kentucky, Lexington, Kentucky, 1991, pp. 229-231.

Rexford Newcomb, *Old Kentucky Architecture*, Bonanza Books, New York, 1940. Pl. 98;

William Scott Jr., editor, *A History of the Profession of Architecture in Kentucky*, Gateway Press,

Louisville, Kentucky 1987. pp. 11-13;

Edward Shaw, *Civil Architecture,* Boston, 1836.

Elizabeth M. Simpson*, Bluegrass Houses and Their Traditions,* Transylvania Press, Lexington, Kentucky, 1932.

APPENDIX II: OWNERS OF WARD HALL

c.1856 - 67. Junius R. Ward, who built the villa on 500 acres of family land at a reported cost of $50,000.00.

1867 – 71. L. R. Moore, of Alabama, who purchased the house with 300 acres at a bankruptcy auction on 7 September 1867. He paid $130.55 per acre, for a total cost of $39,165.00
The remaining 200 acres sold for $101.60 per acre, or $20,320.00.
Thus the land with the house cost $28.95 more per acre and the cost of the house was $8,685.00.
The total price for the property was $59,485.00.

1871 – 80. Bettie de Long. [**Anne, Clay Lancaster calls her Allie and doesn't mention L. R. Moore]**

1880 – 87. Victor Kerry Glass, who renamed the property as "Glaston".

1887 – 1904. Colonel Milton Hamilton.

1904 – 05. J. W. Robinson, who purchased the house with 150 acres for $20,500.00
The remaining 150 acres sold for $19,500.00.
Thus the total price for the property was $40,000.00, and the cost of the house was $1,000.00.

1905- 27. W.T. Armstrong.

1927 - 31. Glover Watson.

1931 - 44. J. W. Bridges.

1944 - 50. L. R. Cooke.

1950 - 2004. Nicholas L. Susong, of Tennessee.

May 2004. The Ward Hall Preservation Foundation, Inc., which purchased the house with 40 acres at a cost of $957,000.00.