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U.S. Department of the Interior

Jean Lafitte National Historical Park and Preserve
New Orleans, LA

Malus-Beauregard House
Historic Structure Report
2021



Cultural Resources, Partnerships, and Science Division

Interior Region 2

Malus-Beauregard House

Jean Lafitte National Historical Park and Preserve

Historic Structure Report

2021

for

Jean Lafitte National Historical Park and Preserve
Interior Region 2: South Atlantic-Gulf, National Park Service

by

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Historic Structure Report
Malus-Beauregard House
Jean Lafitte National Historical Park and Preserve
(JELA)

ETIC : JELA 467 170396

The historic structure report presented here exists in two formats. A traditional, printed version is available for study at the park, at the Interior Region 2: South Atlantic-Gulf office of the National Park Service (NPS), and at a variety of other repositories. For more widespread access, the historic structure report also exists in digital format through the IRMA Portal, Integrated Resource Management Applications, including the NPS Data Store, accessed at <https://irma.nps.gov/App/Reference/Welcome>, a website of the National Park Service. The ETIC number for this report is JELA 467 170396.

Malus-Beauregard House
Jean Lafitte National Historical Park and Preserve
Historic Structure Report
2021

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Foreword

We are pleased to make available this Historic Structure Report, part of ongoing efforts to provide comprehensive documentation for the historic structures of Jean Lafitte National Historical Park and Preserve.

A number of individuals contributed to the successful completion of this work, but we would particularly like to thank the following project team members:

Rebecca Lasell, Deputy Superintendent
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We hope that this study will prove valuable to park management and others in ongoing efforts to preserve the Malus-Beauregard House and to everyone in understanding and interpreting its unique history and its contributions to our understanding of cultural resources across the National Park Service.

Charles E. Hunt
Superintendent
Jean Lafitte National Historical Park and Preserve
National Park Service

Table of Contents

Foreword
Project Team v
List of Figures vii

Management Summary xvii
Historical Overview xviii
Period of Significance xxi
Ultimate Treatment and Use xxi
Project Scope and Methodology xxi
Selected Summary of Recommendations xxiii
Administrative Data xxv

Part I - Developmental History

Historical Background and Context 1
Ignace François Martin de Lino de Chalmet 1
Hilaire and Louis St. Amand 3
Claude Alexandre Baron 3
Josephine Caroline Fabre Cantrelle 5
Jose Antonio Fernandez de Trava y Lineros 5
Rene Toutant Beauregard 6
The New Orleans Terminal Company and a Changing Industrial Landscape 7
Chalmette Monument and National Cemetery 7
Chalmette National Historical Park 8
Selected Park Planning Pertinent to the Malus-Beauregard House 8

Chronology of Development and Use 11
The Malus Period 12
The Cantrelle Period 13
The Galliers 14
The Fernandez Period 14
The Beauregard Period 16
New Orleans Terminal Company Period 17
National Park Service 20
1957-1958 Renovation 23
Continued Research 27
Rising Damp Mitigation 27
Vacant Again 28
Work Plan for FY 1993 31
1993 Rehabilitation Planning 31
Demolition Discoveries 32
The 1993-1994 Rehabilitation 33
A Fitting Name 35
Later Repairs 36

Timeline 37

Physical Description and Condition Assessment 41
Physical Description
Site Overview 41
Architectural Overview 42
Exterior Organization 43
Construction Characteristics 44

Exterior Features 51
Common Interior Features 64
Room-by-Room Descriptions 68

Character-Defining Features 89

Condition Assessment 90
Exterior 90
Interior 94

Significance & Integrity 97
National Register of Historic Places 97
Significance Criteria 97
National Register Status of the Malus-Beauregard House 98
Period of Significance 98
Assessment of Integrity 98

Part II - Treatment and Use

Requirements for Treatment and Use 101
Laws, Regulations, Policies, Planning Documents 101

Ultimate Treatment and Use 107
Alternatives for Treatment and Use 107
Ultimate Treatment and Use 108

Recommendations for Achieving Ultimate Treatment and Use 111
Guidelines for Treatment Recommendations 111
Site 111
Structural System 112
Exterior Features 114
Interior Features 119
Accessibility and Universal Design 122
Resilience to Natural Hazards 123
Climate 123
Vermin and Pests 124
Recommendations for Ultimate Use 125
Recommendations for Further Enhancement 125
Monitoring System 125
Operations and Maintenance Program 125
Condition Monitoring Checklist 126

Bibliography 129

Appendix A

1934 Historic American Buildings Survey (HABS) Documentation Drawings

Appendix B

1957 Construction & Rehabilitation Drawings

Appendix C

Conjectured Development Phase Drawings

Appendix D

Documentation Drawings

Appendix E

Site Survey

Appendix F

Materials Conservation Report by Building Conservation Associates, Inc.

Appendix G

Report on Targeted Structural Issues by Bennett Preservation Engineering PC

Appendix H

Distribution of Stucco Cracking and Potential Delamination

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List of Figures

Management Summary

Figure M1. Regional Map showing the location of the Chalmette Battlefield within the Jean Lafitte National Historical Park and Preserve xvi
Figure M2. Map of the Battlefield indicating location of the Malus-Beauregard House xvi
Figure M3. Malus-Beauregard House with levee of Mississippi River in the background xvii
Figure M4. East wing added by Beauregard in about 1900, showing Italianate windows and bellcast roof. Note the automobile at left. Photographed 1924, Dan Beyer, photographer xviii
Figure M5. The chimney later destroyed by vandals in the 1940s was configured to bring flues from six fireplaces into two flues in the attic that joined to form an inverted Y, exiting the roof in a single stack xix
Figure M6. Second floor photographed in 1951, looking west, showing destruction from deterioration and vandalism xx
Figure M7. Consultant team inspecting probe openings in first-floor ceiling xxii
Figure M8. Joe Oppermann performing assessment of exterior stucco at first floor xxiii

Part I: Developmental History

Historical Background and Context

Figure A1. Pierre Enguerrand Phillipe, undated portrait 1
Figure A2. The Battle of New Orleans, painting by Jean Hyacinthe de Laclotte, after sketches made as eyewitness to the scene, 1815 2
Figure A3. Reconstruction of the 1831 "Plan of the Subdivision of the St. Amand Plantation" by Allou d'Hemecourt. Note the lot numbers 3
Figure A4. Charles F. Zimpel's 1834 "Topographical Map of New Orleans and its Vicinity." Location of the expanded detail below is circled in red 4
Figure A5. Redrawn detail of Zimpel's 1834 "Topographical Map of New Orleans and its Vicinity." 4
Figure A6. Josephine Caroline Fabre Cantrelle, portrait by Bernard, 1862 5
Figure A7. Jose Antonio Fernandez de Trava y Lineros, undated 5
Figure A8. Rene Toutant Beauregard, undated 6
Figure A9. Aerial photo of Chalmette National Historical Park, ca. 1960, showing industrialized site context and remnants of the linear land parcels that were incorporated into the contemporary park 8
Figure A10. Proposed development plan for Chalmette National Historical Park, 1946 9

Chronology of Development and Use

Figure B1. Malus-Beauregard House with levee of Mississippi River in the background. 11
Figure B2. Conjectured sketch of original house built for Madeleine Malus, drawn by architect Samuel Wilson, 1958 12
Figure B3. Y-form joining of chimney flues still in place in attic in 1934 HABS photograph 12
Figure B4. Beaded joist exposed behind later plaster ceiling in first-floor west room 12
Figure B5. Conjectured sketch of house after Caroline Cantrelle's Greek Revival remodeling, drawn by architect Samuel Wilson, 1958 13
Figure B6. Section drawing showing added rafters to raise the height of the roof eaves to accommodate the large new cornice, creating a bellcast roof profile 13
Figure B7. Original rafter is topped by 1856 rafter creating and supporting the bellcast portion of the roof 13
Figure B8. Stuccoed brick west wing added by Fernandez after his 1866 purchase 14
Figure B9. Exterior spiraling stair behind the west wing, both added by Fernandez, leading to enclosed north gallery, photographed in 1934 after years of decline 15
Figure B10. Upper rear gallery enclosed by Fernandez with tall casement windows inserted between columns. Photographed 1938 after loss of exterior stair 15
Figure B11. The house during the Beauregard ownership, labeled "Our Old Home in 1896 or 1898." A wood arbor projects from the east end where the frame wing would soon be built. 16
Figure B12. Yard and back view of the house, showing brick kitchen building, fences, and trees, photographed in the 1890s during the Beauregard ownership 16
Figure B13. Beauregard's east wing photographed in 1938 after years of neglect. The odd overhang form is evident in this image. 17
Figure B14. East wing added by Beauregard in about 1900, showing Italianate windows and bellcast roof. Note the automobile at left. Photographed 1924, Dan Beyer, photographer 17
Figure B15. South elevation showing condition of the house when photographed in 1926. Robert W. Tebbs, photographer 18
Figure B16. Interior of the enclosed north gallery, 1934 18
Figure B17. First-floor plan measured by HABS in January 1934 and drawn April 16, showing both additions in place 19
Figure B18. Second-floor plan measured by HABS in January 1934 and drawn April 21. Plan shows partitions between rooms still in place 19
Figure B19. South elevation showing severe deterioration and missing elements 21
Figure B20. The second floor photographed in 1951, looking west, showing destruction from deterioration and vandalism. Both interior partitions are reduced to only a few feet in height, and mantels and trim have been removed. 21
Figure B21. North elevation showing condition in 1951 and the increased deterioration since the 1926 and 1934 photographs 22
Figure B22. Typical interior in 1956 showing damaged walls, floor, and missing mantel 23
Figure B23. Second-floor exhibit space showing furred out walls covering windows, new door, and tile floor, photographed 1978 23

Figure B24. The house photographed in 1949 before Wilson began his 1957-1958 work 24
Figure B25. The house after Wilson's work 24
Figure B26. Mantel placed in first-floor west room 25
Figure B27. Paving beneath gallery; exterior screen doors 25
Figure B28. Lower stucco removed from walls and columns to allow masonry to dry before dampcourse project began 27
Figure B29. Filled holes at base of exterior wall after completion and before application of stucco 27
Figure B30. *The Creole Queen* tour boat prepares to dock at the levee in front of the house and Chalmette monument 29
Figure B31. Two mantel designs, a paneled mantel identified for the second-floor west room (left) and a more detailed design for the first-floor west room (right). The first-floor mantel was installed, the other was not. 32
Figure B32. The simpler of the two mantel designs for the five new mantels installed in the 1993 project. This is similar to the mantel designed by Wilson in 1956 for a second-floor room, but not installed. 32
Figure B33. Extensive roof repairs underway in January 2007 as part of post-Katrina repairs. Work was completed in 2011 34
Figure B34. Roof repairs, January 2007 34
Figure B35. South elevation after exterior paint color was changed from yellow to pink-salmon 35
Figure B36. New Chalmette Visitor Center completed in 2010. Repairs to the house were complete, allowing it to open to visitors the same year. 36

Physical Description and Condition Assessment

Figure C1. The Malus-Beauregard House viewed from the southeast 41
Figure C2. View of the Malus-Beauregard House (left) from across the southern portion of the Chalmette Battlefield. Chalmette monument is visible at far right, adjacent to the park visitor center 42
Figure C3. View of the house site looking east from the top of the levee. Note River Road in foreground and concrete path extending from the visitor center at left 42
Figure C4. Overview of house site looking north. Park visitor center and Chalmette monument visible through the trees left of the house 42
Figure C5. South elevation 43
Figure C6. East elevation 43
Figure C7. North elevation 44
Figure C8. West elevation 44
Figure C9. Beaded joist exposed in Room 101. Note edge beads 45
Figure C10. Probe opening showing furring strip and metal plaster lath 45
Figure C11. Probe opening showing plaster applied directly to masonry on east wall of Room 104 45
Figure C12. Exposed framing on east wall of Room 203 45
Figure C13. North end of easternmost roof truss. Note vertical members supporting truss and rafters 46

Figure C14. Intersection of hip rafters at king post of truss. (Photograph by BPE) 46
Figure C15. Bell cast rafter joining main rafter at dormer. Note what appear to be salvaged boards at the side wall of the dormer 46
Figure C16. Chimney stack supported between two center trusses. Note bolts of sistered bottom chord at far left 46
Figure C17. Girders and purlins of gallery decks. 47
Figure C18. Diagonal at column. Note deterioration of girder, diagonal, and end beams at left. 47
Figure C19. Edge beam showing significant deterioration at top edge 47
Figure C20. Abandoned furnace in northwest corner of attic 47
Figure C21. Meter and switch east of the house along River Road 48
Figure C22. Electrical panels and entry point for sprinkler system in closet of first-floor stair hall (Room 104) 48
Figure C23. Likely abandoned electrical panel at the west end of the attic 48
Figure C24. Air terminal with decorative stand 49
Figure C25. Severed conductor on west elevation 49
Figure C26. Exterior hose bib on east elevation. The hose bib on the west elevation is similar 49
Figure C27. Abandoned plumbing vent disconnected at attic floor 49
Figure C28. Fire alarm panel (right) and security system keypad (left) in northwest corner of first-floor stair hall (Room 104) 50
Figure C29. Typical ceiling-mounted smoke alarm (top) and motion detector (bottom) 50
Figure C30. Typical fire alarm pull station and beacon, in this case in Room 203 50
Figure C31. Typical upright sprinkler head in attic 50
Figure C32. Typical older sprinkler head on gallery porch ceiling 50
Figure C33. Exposed section of brick masonry at east end of south elevation. Note unfinished stucco above 51
Figure C34. Gouging of brick faces to facilitate stucco adhesion. Also note open joints. 51
Figure C35. Typical stucco finish with scoring 51
Figure C36. Modern vent typical at the base of the north and south elevations 51
Figure C37. Typical column base and plinth 52
Figure C38. Typical column capital 52
Figure C39. Column capital with flashing, entablature, and fascia 52
Figure C40. Detail of entablature 52
Figure C41. Overview of typical exterior doorway 53
Figure C42. Typical exterior door casing 53
Figure C43. Typical marble threshold 53
Figure C44. Pediment above center doorway on south elevation 53
Figure C45. Typical butt hinge of exterior door 54
Figure C46. Typical rim lock of exterior door 54
Figure C47. Typical foot bolt. Note that head bolts are of a similar design 54
Figure C48. Typical exterior knob and keyhole escutcheon 54
Figure C49. Front and back sides of typical exterior doorway shutter 54
Figure C50. Bullet catch and beaded exterior boards of shutter 55
Figure C51. Detail of shutter panels 55

Figure C52. Typical shutter hinge 55
Figure C53. Rim lock and loop catch on inside face of doorway shutter 55
Figure C54. Typical exterior knob and keyhole cover associated with rim lock pictured in Figure C53 55
Figure C55. Slide bolt on interior face of doorway shutter 55
Figure C56. Shutter hook on exterior door jamb 56
Figure C57. Bullet catch keeper on exterior wall 56
Figure C58. Typical six-over-six-light double-sash window design found on the east and west elevations, in this case at the first floor 56
Figure C59. Louvered shutters of second-floor windows on east and west elevations 57
Figure C60. Modern shutter hinges and bullet catches on first-floor window on west elevation 57
Figure C61. Reproduction shutter hinges on east elevation and second-floor west window shutters 57
Figure C62. Typical six-over-nine-light window at second floor with three-louvered-panel shutters 57
Figure C63. Sash cord, pulley, and interior pocket for raised sash at second floor 58
Figure C64. Example of hinged lower sash 58
Figure C65. Window sill serving as threshold at openings with hinged sash 58
Figure C66. Mortised screen door latch on hinged sash 58
Figure C67. Typical shutter fastener at base of second-floor shutters 58
Figure C68. Typical six-over-six-light dormer window 59
Figure C69. Overview of south gallery deck looking east 59
Figure C70. Overview of north gallery deck looking east 60
Figure C71. Modern gallery decking. Note deteriorated balustrade 60
Figure C72. Typical reproduction balustrade 60
Figure C73. Typical attic vent in gallery ceiling 60
Figure C74. Small attic vent near center of north gallery ceiling 60
Figure C75. Modern recessed fixture 61
Figure C76. Reproduction lantern at lower level 61
Figure C77. Brick pavers at ground level 61
Figure C78. Overview of lower level of south gallery looking west 61
Figure C79. Overview of lower level of north gallery looking east 61
Figure C80. Overview of exterior staircase 62
Figure C81. Intermediate landing of exterior stair 62
Figure C82. Detail of treads and risers 62
Figure C83. Upper run of stairs accessing gallery deck from the intermediate landing 62
Figure C84. Slate roof with bell cast 63
Figure C85. Slate roof with clay ridge and hip tiles. Note detached slate on roof 63
Figure C86. Typical dormer with slate-clad sides. Note rot at side casing of window 63
Figure C87. Gutter and downspout on west elevation. The east elevation is similar 63
Figure C88. Collection basin at grade on the east elevation. The west elevation has a similar basin 63
Figure C89. Copper elbow on south elevation 64

Figure C90. Detail of chimney 64
Figure C91. First-floor marble tile flooring 64
Figure C92. First-floor marble tile flooring at cased opening 65
Figure C93. Early second-floor wood flooring. Note burn mark likely from logs rolling out of the nearby fireplace 65
Figure C94. Typical first-floor baseboards 65
Figure C95. Typical second-floor baseboards 65
Figure C96. Plaster walls with wire lath and wood furring 66
Figure C97. Plaster applied directly to masonry on east wall of the stair hall (Room 104) 66
Figure C98. Ceiling probe showing wire lath plaster and edge-beaded ceiling joist 66
Figure C99. Typical six-panel interior door 67
Figure C100. Typical two-knuckle hinge 67
Figure C101. Typical mortised reproduction lockset, knob, and keyhole cover 67
Figure C102. Typical door and window casing 67
Figure C103. Typical window sill 67
Figure C104. First-floor plan. A larger version of this plan can be found in *Appendix D* 68
Figure C105. Room 101 - View looking northwest 69
Figure C106. Room 101 - View looking northeast 69
Figure C107. Room 101 - View looking southwest 69
Figure C108. Room 101 - View looking southeast 69
Figure C109. Room 101 - Overview of fireplace on east wall 70
Figure C110. Room 102 - Overview looking northwest 70
Figure C111. Room 102 - Overview looking northeast 70
Figure C112. Room 102 - Overview looking southwest 71
Figure C113. Room 102 - Overview looking southeast 71
Figure C114. Room 102 - Vault supporting second-floor fireplace in Room 202. Note probe opening at right 71
Figure C115. Room 102 - Eared casing on east doorway 71
Figure C116. Room 102 - Fireplace on east wall 72
Figure C117. Room 103 - Overview looking northwest 72
Figure C118. Room 103 - Overview looking northeast 72
Figure C119. Room 103 - Overview looking southwest 72
Figure C120. Room 103 - Overview looking southeast 73
Figure C121. Room 103 - East doorway holding typical six-panel door 73
Figure C122. Room 103 - Fireplace on west wall. 73
Figure C123. Room 104 - View looking southeast 74
Figure C124. Room 104 - View looking northwest 74
Figure C125. Room 104 - Closet doorway beneath stair 75
Figure C126. Room 104 - Run of stairs connecting landing and second floor 75
Figure C127. Room 104 - Newel post at first floor 75
Figure C128. Room 104 - Example of typical handrail hangers 76
Figure C129. Room 104 - Electrical panels and fire suppression piping in the closet 76

Figure C130. Room 104 - Fire alarm panel, security system panel, and dimmer switches for lighting on the first floor 76
Figure C131. Second-floor plan. A larger version of this plan can be found in *Appendix D* 77
Figure C132. Room 201 - Overview looking northwest 78
Figure C133. Room 201 - Overview looking northeast 78
Figure C134. Room 201 - Overview looking southwest 78
Figure C135. Room 201 - Overview looking southeast 78
Figure C136. Room 201 - Typical six-panel door in east doorway 79
Figure C137. Room 201 - Fireplace on east wall 79
Figure C138. Room 202 - Overview looking northwest 80
Figure C139. Room 202 - Overview looking northeast 80
Figure C140. Room 202 - Overview looking southwest 80
Figure C141. Room 202 - Overview looking southeast 80
Figure C142. Room 202 - Flooring patch near east doorway 81
Figure C143. Room 202 - Fireplace on west wall 81
Figure C144. Room 203 - Overview looking northwest 82
Figure C145. Room 203 - Overview looking northeast 82
Figure C146. Room 203 - Overview looking southwest 82
Figure C147. Room 203 - Overview looking southeast 82
Figure C148. Room 203 - Exposed framing on east wall 83
Figure C149. Room 203 - Fireplace on west wall 83
Figure C150. Room 203 - Typical six-panel door in east doorway. Note fire alarm pull station and dimmer switches at left 83
Figure C151. Room 204 - Overview looking north 84
Figure C152. Room 204 - Overview looking southeast 84
Figure C153. Room 204 - Intermediate landing and winders 85
Figure C154. Room 204 - Winders at top of upper run of stairs, as viewed from attic doorway. 85
Figure C155. Attic - Overview looking northwest 86
Figure C156. Attic - Overview looking southeast 86
Figure C157. Attic - Board-and-batten door to staircase 86
Figure C158. Attic - Abandoned air handler in northwest corner 87
Figure C159. Attic - Likely abandoned electrical panel south of the doorway on the east wall 87
Figure C160. The Malus-Beauregard House viewed from the northwest 89
Figure C161. Example of typical biologic growth, in this case at the base of the east elevation 90
Figure C162. Example of mildew on interior surfaces at window in Room 104 90
Figure C163. Probe opening on north elevation showing apparent good adhesion of stucco 90
Figure C164. Vertical cracking on west elevation 91
Figure C165. Spalled stucco at rusted doorway lintel 91
Figure C166. Typical crack at upper corner of first-floor doorway 91
Figure C167. Cracking and spalling of stucco at base of columns. Varying stages of this deterioration are typical. Note biologic growth 91
Figure C168. Hole at top of entablature on east elevation 92
Figure C169. Deterioration of subsill at east window at first floor 92

Figure C170. Deterioration of shutter stiles and rails and typical warped louvers observed on upper west window 92
Figure C171. Example of extensive deterioration of south gallery framing member. Deterioration is evident at nearly all framing members of both galleries 92
Figure C172. Missing deck boards at north gallery. Note gaps between remaining boards allowing water to sit on framing members 93
Figure C173. Heavily deteriorated bottom rail of balustrade on south elevation 93
Figure C174. Deteriorated decking boards of exterior stair landing 93
Figure C175. Example of displaced slate at east end of south roof slope that has slid down the roof slope (indicated by lower arrow) 93
Figure C176. Joint sealant applied to copper gutters 93
Figure C177. Example of missing (top arrow) and displaced (bottom arrow) slates on side walls of dormer 94
Figure C178. Example of localized rot at base of dormer window casing 94
Figure C179. Moisture damage and evidence of previous patching on interior masonry wall at first floor 94
Figure C180. Overview of termite damage to stringers and wall framing beneath the stair as observed from closet in Room 104 95
Figure C181. Detail view of termite damage to stringer beneath first-floor stair as observed from closet in Room 104 95
Figure C182. Overview of termite damage at landing between second floor and attic 95
Figure C183. Detail of termite damage at southeast corner of landing between second floor and attic 95
Figure C184. Deep mortise cut in trimmer joist below Room 202 at vault supporting fireplace mantel 96

Part II: Treatment and Use

Figure II-1. The Malus-Beauregard House as viewed from the southwest 101
Figure II-2. View of the north gallery deck, looking east 103
Figure II-3. The Malus-Beauregard House as viewed from the northwest 104
Figure II-4. The Malus-Beauregard House as viewed from across the Chalmette Battlefield 107
Figure II-6. Example of extensive deterioration of south gallery framing member. Deterioration is evident at nearly all framing members of both galleries 112
Figure II-7. Spalled stucco at rusted doorway lintel 112
Figure II-5. Trimmer joist connection below Room 202 at vault supporting fireplace mantel 112
Figure II-8. Detail view of termite damage to stringer beneath first-floor stair as observed from closet in Room 104 113
Figure II-9. Overview of termite damage at winder between second floor and attic 113
Figure II-10. Probe opening on north elevation showing apparent good adhesion of stucco 114
Figure II-11. Example of typical biologic growth, in this case at the base of the east elevation 115
Figure II-12. Deterioration of shutter stiles and rails and typical warped louvers observed on upper west window 116
Figure II-13. Deterioration of subsill at east window at first floor 116

Figure II-14. Missing deck boards at north gallery. Note gaps between remaining boards allowing water to sit on framing members 117
Figure II-15. Heavily deteriorated bottom rail of balustrade on south elevation 117
Figure II-16. Deteriorated decking boards of exterior stair landing 117
Figure II-17. Diagonal crack at west end of north walkway. Note broken and eroded perimeter bricks 118
Figure II-18. Joint sealant applied to copper gutters. 118
Figure II-19. Slanted sill and apron in Room 104 119
Figure II-20. Moisture damage and evidence of previous patching on interior masonry wall at first floor 120
Figure II-21. Severed conductor on west elevation 121
Figure II-22. Existing movable plywood ramp 122



Figure M1. Regional Map showing the location of the Chalmette Battlefield within the Jean Lafitte National Historical Park and Preserve. (https://www.nps.gov/carto/app/#!/maps/alphacode/JELA)

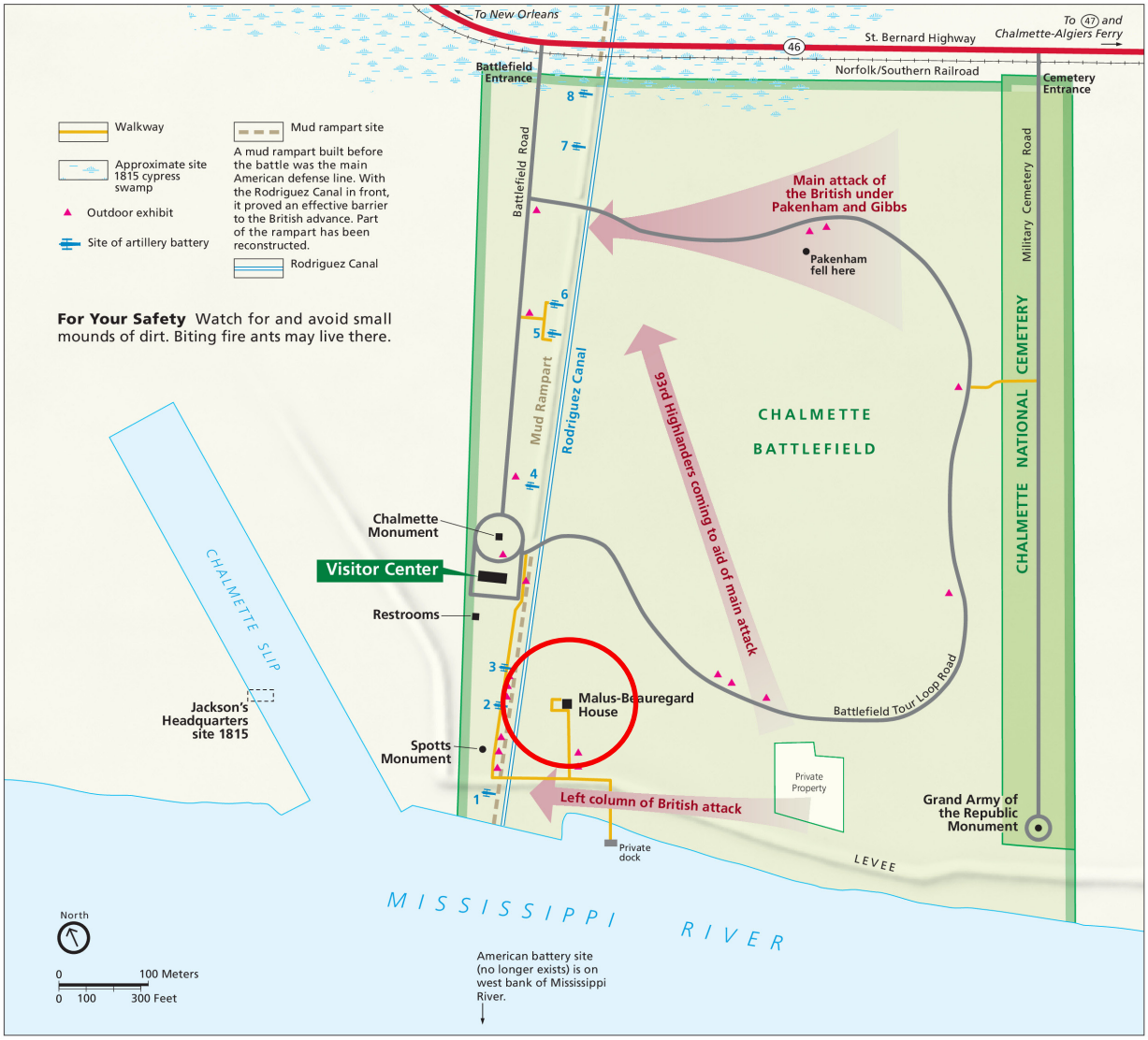


Figure M2. Map of the Chalmette Battlefield with circle indicating location of the Malus-Beauregard House. (https://www.nps.gov/carto/app/#!/maps/alphacode/JELA)

Management Summary



Figure M3. Malus-Beauregard House with levee of Mississippi River in the background. (JKOA 2018)

At the request of the National Park Service (NPS), Joseph K. Oppermann–Architect, P.A. (JKOA) has developed this Historic Structure Report (HSR) for the Malus-Beauregard House at the Chalmette Battlefield Unit of the Jean Lafitte National Historical Park and Preserve (JELA). On the facing page is a regional map showing the location of the Park and Preserve and a map of Chalmette Battlefield showing the location of the house at the southern edge of the battlefield along the Mississippi River (*Figs. M1-M2*).

This HSR documents the development, use, and current condition of the Malus-Beauregard House and examines options for uses and treatments of the house to inform and guide stewardship of this historic structure by the NPS.

Following NPS protocol, the HSR is divided into two major segments, Part *I: Developmental History,* and Part *II: Treatment and Use*. *Part I* is a scholarly report of several chapters documenting the historical background and context; providing a chronology of the evolution of the house; presenting a detailed physical description of the exterior and interior on a room-by-room basis and assessing current conditions; and describing the significance and integrity of the house. It is based on the combined analysis of documentary research and physical examination.

Part II: Treatment and Use contains chapters that review the requirements for treatment and use; present the NPS administratively determined ultimate treatment and use with an evaluation of alternative treatments; address resilience to natural disasters; and offer recommendations to achieve the ultimate treatment and use, coupled with recommendations for further enhancement. Recommendations reflect objectives identified by park management and an emphasis on preserving extant historic material and applying the new information gained.

A bibliography follows Part II. The appendices contain: (A) 1934 Historic American Buildings Survey (HABS) documentation drawings, (B) 1957 construction and rehabilitation drawings, (C) conjectured development phase drawings, (D) JKOA documentation drawings (including plans, elevations, and select architectural details), (E) site survey prepared for this report, (F) Materials Conservation Report prepared for this HSR by Building Conservation Associates, (G) Report on Targeted Structural Issues prepared for this HSR by Bennett Preservation Engineering PC, and (H) elevation drawings showing areas of stucco cracking and potential delamination.

Historical Overview

The Malus-Beauregard House stands within the Chalmette Battlefield unit of JELA. Aside from a shared location, the ca. 1832 house has no direct connection to the 1815 Battle of New Orleans, which is the primary interpretive focus of the park unit. While this lack of connection complicates interpretation of the house, it has little bearing on the importance of its discrete history.

It is often misconstrued that the Malus-Beauregard House, along with many of its no-longer-extant contemporaries, was a plantation house. While the land it occupies was historically a sugar cane plantation, that plantation was subdivided and sold at auction in 1832. The individual parcels of land, including the acreage that would contain the house and was purchased by New Orleans attorney Claude Alexandre Baron, were too small to be cultivated profitably and were instead used for residential or commercial purposes.[1]

Historical documentation indicates that the house's ca. 1832 construction was funded by Baron for his widowed mother-in-law, Marie Madeleine Pannetier Malus. The property remained in the Malus family until 1856, when it was sold to the widowed owner of the adjacent property, Josephine Caroline Fabre Cantrelle.[2] Cantrelle remodeled the house in the Greek Revival style, adding a colonnade of eight full-height columns on front and rear elevations. She altered the interior floor plan to accommodate an interior staircase. Her modifications to the house and its character were substantial.

Subsequent owners retained Cantrelle's changes with minor modifications of their own. In 1866, Cantrelle sold the house to Jose Antonio Fernandez de Trava y Lineros, who claimed to be descended from Spanish nobility. He notably added a two-story brick wing on the west side with an exterior stair at back. He also stuccoed the exterior of the house and wing and enclosed the north gallery with casement windows. After several years of financial difficulty, the house was sold in 1880 to Rene Toutant Beauregard, prominent judge and son of Confederate general Pierre Gustave Toutant Beauregard. Beauregard added a two-story frame addition to the east side of the house (*Fig. M4*). He holds distinction as the property's last residential owner, selling it to the New Orleans Terminal Company in 1904.[3]

Under ownership of the railroad company, the property was neglected, vandalized, and fell into disrepair. In 1949, it was transferred through the State of Louisiana to the National Park Service for incorporation into the existing Chalmette National Historical Park.[4]

1. Jerome Greene, *Historic Resources Study, Chalmette Unit, Jean Lafitte National Historical Park and Preserve (La.)*, National Park Service, 1985, pp. 186-193, 198.
2. Ibid., p. 194; Francis F. Wilshin, "The Rene Beauregard House" (unpublished NPS report, 31 December 1952), pp. 11,13-14, and appendix containing chain of property deeds and 1835 succession and inventory of Alexandre Baron's estate.
3. Wilshin, pp. 17-18 and 35-42; Greene, pp. 285-287, 301.
4. Wilshin, pp. 48-49; Robert W. Blythe, *Administrative History of Jean Lafitte National Historical Park and Preserve* (Organization of American Historians, 2012), pp. 45-46.



Figure M4. East wing added by Beauregard in about 1900, showing Italianate windows and bellcast roof. Note the automobile at left. Photographed 1924, Dan Beyer, photographer. (Wilshin photograph XVIII, 1952 report)



Figure M5. The chimney later destroyed by vandals in the 1940s was configured to bring flues from six fireplaces into two flues in the attic that joined to form an inverted Y, exiting the roof in a single stack. Photographed by HABS, 1934. (HABS LA-18-7)

NPS removed the collapsed west addition and demolished the east wing, both earlier found to be "out of character."[5] While awaiting funding, NPS sealed the house and made exterior repairs.[6]

The extent of deterioration of the building was extreme. Intensive research completed in late 1952 addressed not only the history, but changes made to the house over the decades, and reported,

> The lower stairs have been partially destroyed and removed; the porch railing broken out, the mantels removed if not destroyed; the partitions on the second floor demolished; one back section of the masonry wall torn out; the plaster knock-down [*sic*]; the slate roof torn off and the chimney dismantled. In the destruction of the chimney the vandals removed one of the most interesting architectural features of the house.[7]

The chimney he references was of an unusual Y-shape joining multiple flues into a single stack (*Fig. M5*).

In 1956, NPS engaged prominent New Orleans architect Samuel Wilson to design an adaptive "restoration" for use of the house as an administrative and museum building. The Cantrelle years of 1856-1866 were chosen as the interpretation period because the house retained the remodeled Greek Revival style and had lost the added wings, and because the original appearance was unknown and would require extensive demolition and mostly conjectural reconstruction.[8]

Wilson met a damaged house with few remaining interior features (*Fig. M6*). He introduced or replaced almost all visible features and installed marble floors on the first floor and brick floors at first-floor galleries. He reconfigured the upper floor for exhibit space and added rooms on the lower level.[9] Reproduction mantelpieces were installed, as well as the missing windows, doors, trim, and plaster.

A conscious exception to the 1856-1866 period was retention of the later exterior stucco because the "hacked" brick beneath made removal infeasible. The walls and columns were re-stuccoed and scored.[10]

The building opened in 1958 to enthusiastic use, but the high water table continued to cause problems to the floor.[11]

In 1973, the upper galleries were found to have serious rot extending to the second-floor sills and joists, and the second floor was closed to visitors. In response, an extensive 1979 project addressed moisture retention in exterior walls and columns, drilling and filling interlocking holes with an impermeable cement material to create a moisture barrier. The galleries were extensively repaired.[12]

The house served as the main visitor contact station until 1986 when a new Visitor Center opened nearby. Maintenance declined and the building was closed, the lack of ventilation contributing to more rapid deterioration.

A 1988 report noted the house needed reroofing and repairs to the second floor.[13] An extensive

5. Historic American Buildings Survey (HABS) report, 1935.
6. Blythe, *Administrative History*, p. 66 and fn 9.
7. Wilshin, "Inspection," p. 10.
8. Greene, HRS, p. 282.
9. 1993 report by Karen Lewis, Southwest Regional Office (SWR) Historical Architect, faxed by Gary Hume to Jeff Brown on 25 October 1993 (JELAC 4530).
10. Samuel Wilson, Jr., "Rene Beauregard House: Architectural Survey Report," unpublished report dated 1956, p. 19 (JELAC 3544).
11. Superintendent's monthly report, July 1961 (JELAC 4496, folder D).
12. David G. Battle, *Stabilization of the Beauregard House, 1979-1980* (JELAC 3544). Undated early 1980 (January or February) memo to Superintendent from Chief, SW Cultural Resources Center (JELAC 3544).
13. Development/Study Package Proposal for a



Figure M6. The second floor photographed in 1951, looking west, showing destruction from deterioration and vandalism. Both interior partitions are reduced to only a few feet in height, and mantels and trim have been removed. Wilson rebuilt the westernmost partition and removed the remainder of the eastern partition to create a large exhibit room. (Wilshin, photograph XXIX)

renovation in 1993-1994 changed many of the 1950s alterations, returning the house to the three-room floor plan, installing mantels, replacing woodwork, and partially reconstructing both galleries.[14]

The house was to be interpreted as an unfurnished 1850s river home.[15] A full Cultural Landscape Report (CLR) was recommended, in addition to a complete building investigation, finishes study, and an update of the 1930s HABS drawings.[16] This Historic Structure Report and the 2018 Condition Assessment Report meet the three latter recommendations.

In 1994 the house was rewired and a fire suppression/detection system installed.[17]

The house also received a correction to its name. Until 1995 it was called the Rene Beauregard House; the name was changed to Malus-Beauregard House to reflect the original owner.[18]

Work in 1997 included exterior repairs. In 2003, the deteriorated roof was replaced. Electrical, fire and security systems were upgraded.[19] Replacement of the roof was timely. Hurricane Katrina in 2005 flooded the house, destroying the new systems and severely damaging the new roof. The building was boarded up until repaired in 2007.

The galleries were replaced again in 2008, and the house was opened to the public by 2011, but later closed because of the need for repairs. In 2018, the failure of the galleries after only ten years because of design flaws prompted preparation of a Condition Assessment Report.

Pr.eservation Guide, 4 March 1988 (JELAC 3318).
14. Blythe, *Administrative History,* p. 67.
15. Lewis, "Rehabilitation of the Beauregard House, Jean Lafitte," (Division of Conservation, Southwest Regional Office, NPS, November 1993), pp. 14-15 (JELAC 4530).
16. Ibid., pp. 15, 16.
17. J. Brown, Acting Chief, SWR Division of Conservation, to Associate Regional Director, SWR Resources Management, 15 November 1993, and Purchase Order to rewire house, 27 January 1994 (JELAC 4505).
18. Initiated by call from Marc Cooper of New Orleans to Karen Lewis, SWR. (Telephone Call Record, 13 January 1994, JELAC 4530).
19. Project ID PMIS 119095, at back of the January 2007 Storm Damage Repairs, in JELA uncatalogued folder.

Period of Significance

Documentation was accepted in 1987 for Chalmette Unit, Jean Lafitte National Historical Park Historic District at the national level of significance with a period of significance of 1814-1937. The house is identified as significant in its own right and a contributing structure to the district. The period was developed for the Chalmette Unit as a whole, starting with the battles and continuing to include commemorative aspects.

A more specific period had been selected for the house in 1956 and was repeated in 1993, both in association with upcoming renovation projects. Both were decisions on the period of interpretation rather than a period of significance. The two findings were the same. Because the house retains little physical or documentary evidence of the Malus period, because the exterior was predominantly of the 1856 Cantrelle Greek Revival, and because both the 1866 and ca. 1890 additions were no longer extant, the Cantrelle period of 1856 to 1866 was selected.

Ultimate Treatment and Use

For the Malus-Beauregard House, the NPS administratively determined Management Category is "Must Be Preserved and Maintained," and the Ultimate Treatment is *Preservation*. Further explanation can be found in the *Treatment and Use* chapter, which begins on page 101.

Project Scope and Methodology

Purpose

The purpose of this HSR is to document the historical evolution, significance, and present condition of the Malus-Beauregard House and to provide clear information for use in the planning, repair, maintenance, and preservation of the building. The National Park Service will use this report to inform and guide its stewardship.

NPS Director's Order 28 (DO-28) recognizes an HSR as an optimal first phase of the preservation effort for a historic building, preceding design and implementation of its preservation, rehabilitation, restoration, or reconstruction. It is the primary guide to treatment and use of a historic structure, and considerable loss of information can result if an HSR is not completed. The information gleaned helps the preservation effort and provides information for interpretation. According to DO-28, "In no case should restoration, reconstruction, or extensive rehabilitation of any structure be undertaken without an approved HSR, Parts 1 and 2."[20]

DO-28 provides guidelines for recording and analyzing the history of a property from its construction through subsequent modifications to the present; to document the performance and condition of its materials, features, and stability; and to recommend an appropriate course of treatment based on those findings. NPS prepares a "Part III" completion report after the work is undertaken, which documents the repairs and changes made and becomes part of the HSR.

This HSR, which complies with those guidelines, offers a comprehensive, scholarly assessment of the history, fabric, and current condition of the house, and makes recommendations for future actions. The JKOA project team included Joseph K. Oppermann, FAIA, APT RP, historical architect and principal-in-charge; Christopher M. Woollard, Associate AIA; Jeffrey P. Anderson, Associate AIA; and Langdon E. Oppermann, architectural historian/planner.

20. *NPS Director's Order 28: Cultural Resources Management Guideline*, chapter 8.



Figure M7. Consultant team inspecting probe openings in first-floor ceiling. (JKOA 2019)

Consultants on the JKOA team included Craig M. Bennett Jr., PE of Bennett Preservation Engineering PC (BPE), who completed a targeted structural investigation focused on life safety. Dorothy Krotzer and Chris Gembinski of Building Conservation Associates Inc. (BCA) performed infrared thermography and an in-situ finishes investigation. Both BPE and BCA were closely involved with the on-site investigation and development of recommendations. Their findings have been integrated into the report and full reports of their findings are included as appendices.

This team researched, investigated, documented, and assessed this building and wrote this HSR. The interdisciplinary approach broadens the understanding of building and aids the development of appropriate treatment recommendations.

Document Research

Our findings and recommendations for preservation of the house rely on research of primary and secondary sources, early photographs, maps, and drawings, correlated with our physical investigation of extant building fabric. The Scope of Work for research prescribed by NPS for the Malus-Beauregard HSR project was "limited," explained as "research in readily available published sources, usually of a secondary character; research in documentary sources that are easily accessible and known to be of high yield; brief interviews of readily available persons to answer specific questions… It is anticipated that most research will be within the park's archives."

In accordance with the scope, we studied primary and secondary documents in Park archives and other easily accessible sources and conducted brief interviews, though in order to gather information adequate for the report, we expanded our research to include additional records, both primary and secondary, in local and online collections. This research was performed to gather information about the original construction and past modifications and repairs.

Of particular note, JKOA visited the office of Koch & Wilson Architects, the New Orleans firm that completed the extensive 1950s rehabilitation project, to locate project files related to the house. The office archives provided valuable information including photographs and field notes taken before work began.



Figure M8. Joe Oppermann performing assessment of exterior stucco at first floor. (JKOA 2019)

Other local archives visited include the Historic New Orleans Collection located in the French Quarter, and the Southeastern Architectural Archives' Sam Wilson Jr. Papers collection held at the Tulane School of Architecture.

Recording and Physical Investigation

Proceeding concurrently with the documentary research were the measured recording and investigations of the building. Detailed field drawings were made as the basis for digitized AutoCAD drawings of elevations as well as foundation, floor, and roof plans of the house, and selected historic interior features.

BPE's structural investigation focused on the second-floor framing, gallery decks, and interior stair. Probe openings created by the park for the purposes of this investigation allowed assessment of select portions of the second floor and stair framing elements (*Fig. M7*).

BCA completed an in situ finishes investigation in an effort to identify potential locations of remaining historic finishes. The investigation involved a combination of cratering techniques and field microscopy.

BCA performed Infrared Thermography (IRT) imaging on the building and documented corresponding moisture and surface temperature readings of the interior and exterior walls. The purpose of the IRT assessment was to identify potential locations where water infiltration could exist.

An elevation survey was prepared by R.W. Krebs Professional Land Surveying, LLC to identify potential areas on site to disperse water.

Physical investigation of the house to determine its evolutionary history, known as building archeology, was a large component of the work of identifying the scope and time frame of various changes. These investigations were integrated with the documentary research in a correlative approach to determine how the building was used and adapted over its history, and to understand the people involved.

Condition Assessment

Specialized assessment methodology was used to survey the condition of each exterior feature and each interior room, itemizing features and elements and photographing them in detail. Observations were documented with digital photographs, measured baseline field drawings, and field notes. In accordance with the NPS scope of work, no building system components were tested, and no invasive investigation methods were employed (*Fig. M8*).

Development of History, Chronology of Construction, and Evaluation of Significance

The combined information from documentary research and physical investigations was analyzed, and a narrative context history and building-specific chronology of construction and alterations were written. The narrative physical description was prepared containing a systematic accounting of exterior and interior spaces, features, materials, and condition assessment. All narratives are supplemented by numerous photographs and drawings.

An evaluation of significance was prepared in accordance with the guidelines in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*.[21] The seven aspects of historic integrity were assessed using the same guidelines. These evaluations of history, condition, significance, and integrity provided the basis for the development of recommended treatment alternatives.

Treatment Recommendations

The Secretary of the Interior's Standards for the Treatment of Historic Properties guided the development of treatment recommendations for the significant exterior and interior features of the building. Following the overall treatment approaches of *Preservation* for the house, specific recommendations were developed to address the observed existing conditions as well as long-term preservation objectives.[22] JKOA's consultants prepared reports of their findings, which have been integrated into the treatment recommendations narrative and included in their entirety as appendices to this report.

Condition Monitoring Checklist

A checklist form was developed specific to the house as a guide for regular inspections of the building in a systematic way.

Preparation of Historic Structure Report

Following completion of research, site work, and analysis, this report was prepared summarizing the results of the research and inspection and presenting the recommendations for treatment and future actions. It was compiled following the organizational guidelines of NPS *Preservation Brief 43: The Preparation and Use of Historic Structure Reports* and the NPS Scope of Work for the project.[23]

Selected Summary of Recommendations

The principal issues facing the Malus-Beauregard House are related to structural concerns and moisture infiltration; therefore, the selected recommendations included here focus on these aspects. A complete listing of recommendations and guidelines for maintaining the building are fully described in the *Recommendations for Achieving Ultimate Treatment and Use* chapter, which begins on page 111.

Structural System

Galleries

- Reconstruct the galleries with a slightly modified structure so they can achieve a structural capacity appropriate for assembly use (100 PSF).

Second-Floor Framing

- ***Option 1:*** Repair damaged trimmer joists, then limit access and use to loads that do not exceed 50 PSF.

21. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: National Park Service, National Register of Historic Places, 1990, revised 1997).

22. Anne E. Grimmer, T*he Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, DC: National Park Service, Technical Preservation Services, rev. 2017).

23. Deborah Slaton, *Preservation Brief 43: The Preparation and Use of Historic Structure Reports* (Washington, D.C.: National Park Service, Technical Preservation Services, 2005).

- *Option 2:* Remove the 20th-century plaster ceiling below, sistering the existing historic joists, adding connections in the few places where needed, and replacing the plaster ceiling to achieve a capacity of 100 PSF.

Interior Stair

- Repair the interior stair between the first and second floor and at the attic winders by sistering compromised structural elements where possible and replacing only where damage is irreparable. Care should be taken to retain the potentially early handrail and newel post. The existing treads, risers, spindles and related trim should also be retained, with in-kind replacement only where significantly deteriorated, such as at the attic winders. See *Appendix G* for more details regarding repair.

Exterior Features

Masonry/Stucco

- Following a period of moisture monitoring and subsequent recommended treatments, repair damaged areas of stucco using the formula derived from the materials testing performed for this report. Further information on recommended monitoring and the materials testing can be found in BCA's report in *Appendix F*.

Galleries

- Because the existing gallery design has such minimal structural capacity, and considering the deficiencies in detailing, do not reuse the existing design documents to reconstruct the galleries. Redesign the galleries.
- Ensure that in the new design, the deck sheds rainwater from structural members.
- Construct the gallery balustrades in period-appropriate proportions of elements of period-appropriate dimensions.
- Replace the existing exterior stair as part of the larger gallery replacement project. The new stair should be designed with elements that can effectively shed water, having appropriate detailing for the interpretive period.
- Replace chipped and heavily eroded walkway bricks in kind as necessary to ensure safety.

Roofing and Rainwater Dispersal

- Repair or replace copper gutters and redesign the drainage system to effectively bring water to grade level.
- Install a redesigned subsurface drainage system to carry all rainwater shed from the roof to the drainage ditch west of the house.

Ventilation and Building Systems

- Increase airflow throughout the house by opening windows behind louvered shutters.
- Depending on intended use, consider installation of a basic heating system to prevent sprinkler pipes from freezing, to ensure proper function of smoke detectors, and to help preserve interior finishes.
- Remove vines growing on pole-mounted transformers along River Road.
- Repair broken lightning rod conductor. Have a lightning protection specialist inspect the system to determine whether the air terminal coverage and existing ground rods comply with NFPA 708 Standard for Installation of Lightning Protection Systems.
- Install sprinkler heads beneath the gallery decks.

Accessibility and Universal Design

- In consultation with NPS, consider replacing the existing plywood ramp with a ramp that meets ABA/ADA slope requirements. The ramp should be placed on the south elevation to provide universal access from the house's main elevation. See the *Recommendations for Achieving Ultimate Treatment and Use* section for more information.

Recommendations for Ultimate Use

- In collaboration with park staff, this report outlines two options for ultimate use. Both of these options involve the stabilization of the structure to prevent further deterioration, as well as the reconstruction of the gallery decks. See the detailed explanation of each option on p. 125.

Administrative Data

Locational Data

Building Name: Malus-Beauregard House
Location: Chalmette Battlefield, Jean Lafitte National Historical Park and Preserve (JELA)

County: St. Bernard Parish

State: Louisiana

Real Property Information

Acquisition Date: 1950

Numbering Information

ETIC No. : JELA 467 170396

Size Information

Floor Area: 2,100 square feet ±
Number of Stories: 2
Number of Rooms: 8
Number of Bathrooms: N/A

Cultural Resource Data

National Register Status: Administratively listed October 1966;
Documentation for Chalmette Unit, Jean Lafitte National Historical Park and Preserve Historic District accepted July 1987, with Malus-Beauregard House listed as a contributing structure.

Period of Significance of Historic District: 1814-1937

Proposed Treatment

• The NPS administratively determined management category for the interior and exterior of the Malus-Beauregard House is "Must be Preserved and Maintained." The treatment recommendations in this report continue the established Ultimate Treatment of Preservation. Specific measures that follow The Secretary of the Interior's Standards for Preservation are discussed in this report.

• The recommended ultimate use of the house has been defined in the 1995 amendment to the park's 1982 General Management Plan, and calls for the house to provide interpretive exhibits on its history and be used for group assemblies. Recommendations for new potential uses are discussed on p. 124.

Related NPS Studies

Blythe, Robert W. *Administrative History of Jean Lafitte National Historical Park and Preserve*. Organization of American Historians, 2012.

Greene, Jerome. *Historic Resources Study, Chalmette Unit, Jean Lafitte National Historical Park and Preserve (La.)*. National Park Service, 1985.

Lester, Curtis, and Louis Torres. "Historic Structure Report, Chalmette National Historical Park, Rene Beauregard House." NPS: Denver Service Center, April 1978.

Lewis, Karen. "Rehabilitation of the Beauregard House, Jean Lafitte National Historical Park & Preserve, Chalmette Unit," November 1993.

National Park Service. "Amendment to the General Management Plan, Jean Lafitte NHP and Preserve," 1995.

_____. Annual Report of the Director of the National Park Service to the Secretary of the Interior for the Fiscal Year Ended June 30, 1950.

_____. "Chalmette Unit, Jean Lafitte National Historical Park Amendment to the General Management Plan/Development Concept Plan," April 1990.

_____. "Cultural Landscapes Inventory, Chalmette Battlefield, Jean Lafitte NHP and Preserve-Chalmette Unit," 1998, updated 2008.

Park, Sharon C. "Rising Damp in Historic Buildings II: Case Studies," in NPS, *Cultural Resources Management Bulletin*, Vol. 13, No. 3, 1990.

Risk, Kevin. "Chalmette Battlefield and Chalmette National Cemetery Cultural Landscape Report." National Park Service Southeast Regional Office, August 1999.

Smith, Baird. *Moisture Problems in Historic Masonry Walls: Diagnosis and Treatment*. National Park Service, Preservation Assistance Division, 1984.

Wilshin, Francis F. "The Rene Beauregard House." Unpublished NPS report, 31 December 1952.

Historical Background and Context

This chapter provides general history and context, as well as a chronology of property transactions for the Malus-Beauregard House.

Ignace François Martin de Lino de Chalmet

The Malus-Beauregard House sits on land once owned by the man for whom the city of Chalmette, Louisiana was named, Ignace François Martin de Lino de Chalmet (1755-1815). The surname Chalmette belonged to his great-great-grandmother, Antoinette Chalmette, who married Claude Martin de Lino. Both were natives of Lyon, France. The family name appears in historic documents spelled both "Chalmette" and "Chalmet"; however, Ignace François, hereafter referred to as Chalmet, consistently spelled it without the trailing "te."

Chalmet was born in New Orleans on August 23, 1755, son of Louis Xavier Martin de Lino de Chalmette and Magdélaine Marguerite Broutin, grandmother of the Baroness de Pontalba.[1] He acquired a plantation totaling 22 arpents (a linear unit of measurement equal to 190 feet) of frontage on the Mississippi River in two purchases, one on February 9, 1805, the other on June 14, 1813.[2] This land has a storied history traceable back to the earliest years of the French Colony.

The earlier of the two land acquisitions, the lowermost six arpents, was purchased from Charles Antoine de Reggio, who had acquired it in 1794 from the estate of Chalmet's half-uncle, his mother's half-brother Antoine Philippe de Marigny



Figure A1. Pierre Enguerrand Phillipe, undated portrait. (Louisiana State Museum Collection)

de Mandeville. The property was earlier owned by Antoine's father, François Philippe de Marigny, the first husband of Marie Magdélaine Le Maire, Chalmet's maternal grandmother. At the time she remarried in 1729, the property was owned by her second husband, Ignace François Broutin, Chalmet's maternal grandfather, until his death in 1751 when the property returned to the Philippe branch of the family.[3]

With the exception of the eleven years the land was owned by Charles Antoine de Reggio, it was in possession of the same family since the founding of the colony. Reputedly, it was Antoine Phillipe's son Pierre Enguerrand Philippe who convinced Chalmet to buy the land, returning it to the family.[4]

1. Ned Hemard, "Ignace de Lino de Chalmette [*sic*]," *64 Parishes*, 64parishes.org/entry/ignace-de-lino-de-chalmette. The Baroness de Pontalba was Chalmet's half-niece. Many histories incorrectly attribute the name of Chalmette, LA to Ignace Francois's father Louis Xavier, who never owned the Chalmet Plantation.
2. Samuel Wilson, Jr., "Plantation Houses of the Battlefield of New Orleans," Chalmette Plantation entry, typed manuscript, 1965, p. 1.
3. Ibid., p. 1; Find A Grave memorial no. 113495660, Ignace François Broutin, findagrave.com/memorial/113495660/ignace-francois-broutin.
4. Grace Elizabeth King, *Creole Families of New Orleans* (New York; The Macmillan Company, 1921), p. 321.



Figure A2. *The Battle of New Orleans,* painting by Jean Hyacinthe de Laclotte, after sketches made as eyewitness to the scene, 1815. (Louisiana State Museum Collection)

After a complicated succession of ownership, Chalmet's second land purchase expanded his property upriver by a little over sixteen arpents. He purchased the land from the estate of Charles Mynn Thurston and Thurston's son-in-law, Henry Daingerfield, for $65,000. It is thought to be part of the original Marais land grant. Notably, the land had once been owned by Chalmet's half-cousin, Pierre Enguerrand Philippe, during the time Philippe's father owned the adjacent parcel.[5]

Chalmet's sugar cane plantation was the site of the Battle of New Orleans in January of 1815. The 1985 Historic Resources Study (HRS) notes that the cane would have just been harvested in December, leaving fields of stubble on which the battle took place.[6] According to Chalmet's great-great-granddaughter, Marie Josephine de Verges:

> The family legend is that the elder Chalmette [*sic*] fought valiantly in the battle and escaped injury, and when the battle was won, he went to his townhouse, located on Bourbon Street between Bienville and Conti. Later, he rode back to the site of the battle, gazing sadly over the ruins of his plantation house and the land surrounding it. He felt then he was too old to start all over again, and he died Feb. 10, 1815, of a broken heart.[7]

Chalmet was survived by his wife, Madeleine Victoire Martin de Vaugines, daughter of the Marquis de Vaugines, and their children. Inheritance of the property was contested. Chalmet's widow claimed all paperwork pertaining to the property's succession was in the house when it burned to the ground during the battle. Chalmet's half-brother, Pierre Denis de La Ronde, who owned the plantation immediately downriver and apparently held a mortgage on Chalmet's property, sued Chalmet's estate and was eventually able to purchase it at a "sheriff's sale" on February 20, 1817. De La Ronde sold the property two months later to the brothers Hilaire and Louis St. Amand, free black men living in New Orleans, for $55,000.[8]

5. Wilson, "Plantation," p. 1; Jerome Greene, *Historic Resources Study, Chalmette Unit, Jean Lafitte National Historical Park and Preserve (La.)*, National Park Service, 1985, p. 180. Both Wilson and Greene (who followed Wilson's research) give the name "Pedro" de Marigny de Mandeville in reference to Pierre Enguerrand Philippe de Margny de Mandeville, "Pedro" being the Spanish equivalent of the French "Pierre."
6. Greene, *Historic Resources Study*, p. 5.
7. Wilson, "Plantations," p. 4.
8. Ibid.; Greene, *Historic Resources Study*, pp. 186-187.

Hilaire and Louis St. Amand

The 1985 HRS notes that, "free colored families such as the St. Amand were not uncommon in antebellum Louisiana," and that the St. Amand family, "apparently included several wealthy plantation and slave-owning free men of color."[9]

While family money enabled the brothers' land purchase and the operation of their plantation, it came at a cost. The brothers acquired the property with notes using the land of their relative, Pierre St. Amand, as security and set up the plantation as a sugar cane farm and refinery. The upfront costs for the necessary infrastructure were provided by loans from other family members. The brothers capitalized their debt with mortgages on the property, and by 1832, found it necessary to sell off a portion of the land to repay over $70,000 worth of debt.[10]

Twelve arpents of the land were divided into one arpent lots, six from the upriver side and six downriver, and were sold at auction on March 23, 1832, with proceeds totaling $73,600 (*Fig. A3*). The brothers retained the remaining property and were able to pay off their most immediate debts, but their financial troubles continued.[11]

The HRS notes that by 1841, "all of what had been the Chalmet plantation had been divided into small tracts, none of which was large enough for profitable cane cultivation. These tracts subsequently were used for residential purposes, for gardens, and for commercial uses."[12]

Claude Alexandre Baron

"Lot 2" (*Fig. A3*) was sold at the 1832 auction to Claude Alexandre Baron for $3,700.[13] He is believed to have purchased the land for his mother-in-law, Marie Madeleine Pannetier Malus, widow of Guillaume Malus, a noted New Orleans ironsmith who died in 1822. Baron, a New Orleans attorney who married the Malus's daughter, Marie Annette, had been granted full power of attorney by her mother earlier that year. He placed the property in the widow Malus's name on May 18, 1833. Neither the 1832 deed nor an 1832 notice of sale published in the Louisiana Courier indicate the presence of a house on the land; however, a house appears on

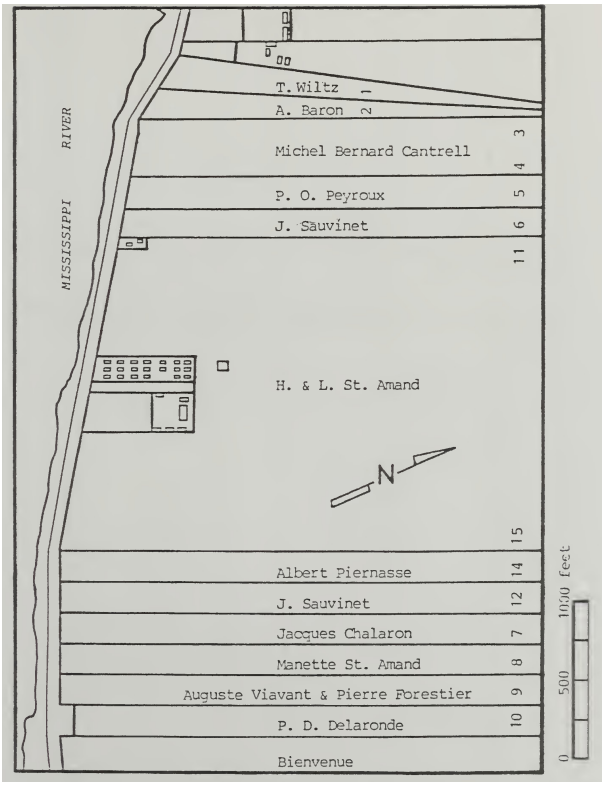


Figure A3. Reconstruction of the 1831 "Plan of the Subdivision of the St. Amand Plantation" by Allou d'Hemecourt. Note the lot numbers. (Ted Birkedal, et al., "Historical and Archeological Investigations at the Chalmette Battlefield, Jean Lafitte National Historical Park and Preserve, Parts I and II," 2009, p. 238)

Charles Zimpel's 1834 "Topographical Map of New Orleans and its Vicinity" (*Figs. A4-A5*). The probable construction date of the house is 1832. Construction was likely authorized by Baron on behalf of Malus, presumably with her close involvement.[14]

Madeleine Malus died at the age of 63 on September 16, 1835.[15] Her death was quickly followed by the death of Baron on December 7. Baron's widow, Marie Anette and her brother, François Malus, took equal possession of the property. Marie Anette apparently "donated her 'undivided half' of the property" to her brother Lucien Malus; however, she continued to live in the house. François and Lucien Malus sold the property on April 11, 1856, to Josephine Caroline Fabre Cantrelle, widow of Michel Bernard Cantrelle, for $6,300.[16]

9. Greene, *Historic Resources Study*, p. 186.
10. Ibid., pp. 186-191.
11. Ibid., pp. 192-193.
12. Ibid., pp. 198.
13. Ibid., p. 194.
14. Francis F. Wilshin, "The Rene Beauregard House" (unpublished NPS report, 31 December 1952), pp. 11,13-14, and appendix containing chain of property deeds and 1835 succession and inventory of Alexandre Baron's estate; *Orleans Death Indices 1804-1876*, vol. 1, p. 176; *Orleans Death Indices 1804-1876*, vol. 5, p. 352.
15. *Orleans Death Indices 1804-1876*, vol. 5, p. 352.
16. Wilshin, pp. 13-14, and appendix containing chain of property deeds and 1835 succession and inventory of Alexandre Baron's estate.



Figure A4. Charles F. Zimpel's 1834 "Topographical Map of New Orleans and its Vicinity." Location of the expanded detail below is circled in red. (louisianadigitallibrary.org/islandora/object/hnoc-p15140coll28%3A190)

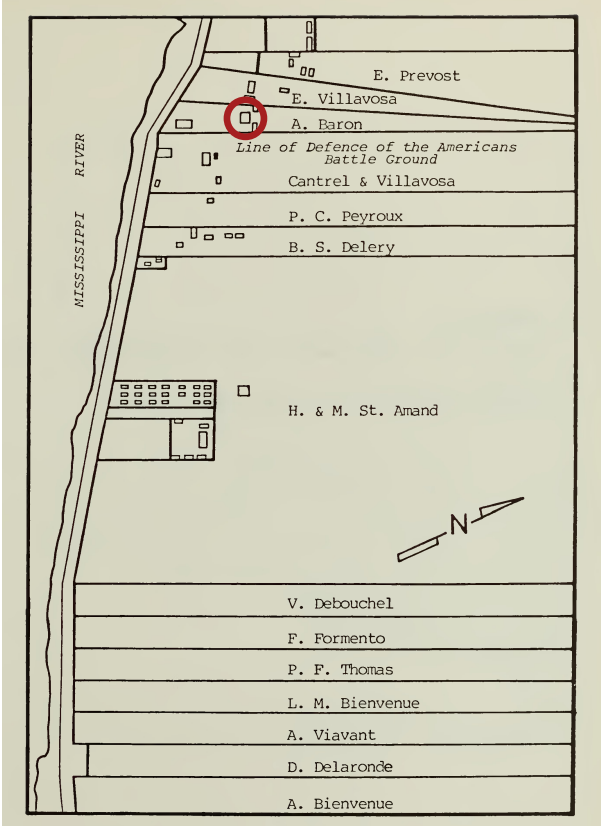


Figure A5. Redrawn detail of Zimpel's 1834 "Topographical Map of New Orleans and its Vicinity." The ca. 1832 house constructed for Marie Madeleine Pannetier Malus is circled in red. It should be noted that the original document inaccurately portrayed the American line of defense. (Greene, *Historic Resources Study*, p. 381)



Figure A6. Josephine Caroline Fabre Cantrelle, portrait by Bernard, 1862. (Louisiana State Museum, "Biennial Report for the Board of Curators for 1920-21," 1922, p. 109)

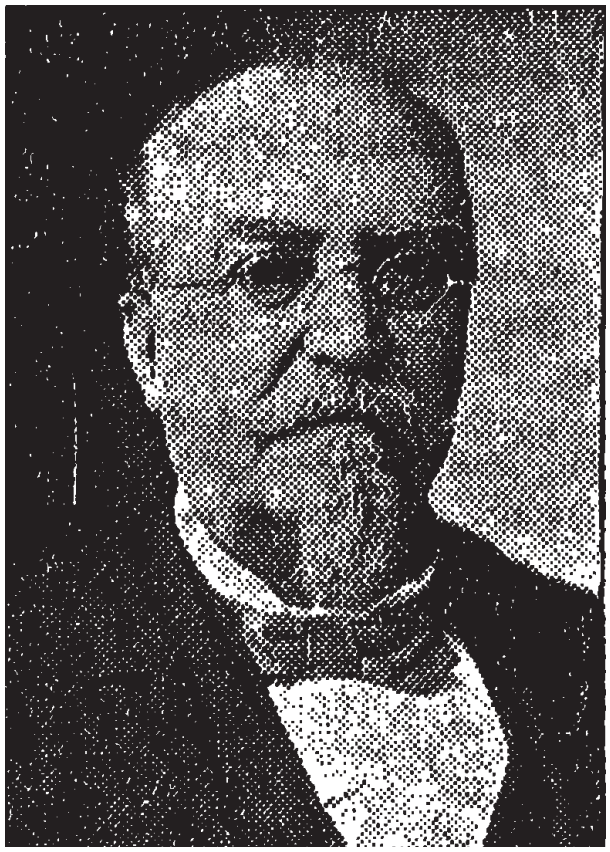


Figure A7. Jose Antonio Fernandez de Trava y Lineros, undated. ("Noted French Resident, Senor J. A. Fernandez de Trava dies at Eighty," *Times-Picayune*, 24 November 1906)

Josephine Caroline Fabre Cantrelle

Josephine Caroline Fabre, called Caroline, married Michel Bernard Cantrelle in 1810. Twenty years later, Cantrelle purchased Lots 3 and 4 (*Fig. A3*) at the March 23, 1832 auction of the land owned by the Amand brothers. Lot 1 (*Fig. A3*), purchased by Theophile Wiltz, was sold in 1833 to Etienne and Auguste Villavosa. The Cantrelle and Villavosa families were related, though perhaps only through marriage when Etienne Villavosa married Lise Cantrelle in November of 1833, and Michel Martin Villavosa married Marie Josephine Cantrelle in December of 1833. It is unclear how the various branches of the family are related. A saw mill on the Cantrelle property was operated by both families, and it was Michel Martin Villavosa who received the Cantrelle property upon Michel Bernard Cantrelle's death in 1845.[17]

It is unclear whether Caroline, Cantrelle's widow, continued to live on the property between 1845 and her 1856 purchase of the Malus property, Lot 2. The next chapter describes her alterations to the house. She held that property for ten years, selling it on July 5, 1866, to Jose Antonio Fernandez de Trava y Lineros for $8,000.[18]

Jose Antonio Fernandez de Trava y Lineros

Jose Antonio Fernandez de Trava y Lineros, hereafter Fernandez, was apparently "highly educated" and is described as being "versed in most of the branches of learning" and "a consummate linguist" who emigrated to the United States in 1849, opening a cigar store near the Vieux Carre. Shortly after assuming residence on the former Cantrelle property in 1866, which he named Buen Retiro (translates to "pleasant retreat"), Fernandez and his wife, Marie Carmen de Lessepe y Ribas, expanded the property by purchasing the adjoining Lot 1 (*Fig. A3*), previously owned by Etienne and Auguste Villavosa. Around 1870, he also bought the Alliance Sugar Plantation

17. *Louisiana Compiled Marriage Index, 1718-1925*; Greene, *Historic Resources Study*, pp. 198, 200-201.

18. Wilshin, pp. 17-18.

in St. Bernard Parish. The 1870 census lists Fernandez as a farmer.[19]

A native of Malaga, Spain, Fernandez sometimes appears in records with the honorific prefix "Don" and is often referred to as the Marquis de Trava. While no contemporary documentation has been found to verify this assertion, his obituary states that he was "scion of one of the most distinguished families, having an uninterrupted heraldic proof of descent from noble lineage dating back to the year 718."[20]

Fernandez did not prosper in the sugar cane business. His obituary notes that he "did not succeed as a planter because of unfavorable weather conditions and crevasses, and he abandoned that occupation to devote himself to commercial pursuits." He sold Lot 1 to his wife's parents, Pierre Auguste Bartholemy de Lesseps and Marie del Carmen Ribas, on February 27, 1873. Then on April 24, 1876, Fernandez's wife filed to dissolve their assets, winning a settlement of over $19,000 and forcing Lot 2 and its house to be sold at auction on July 1, where she purchased it for only $5,000. Marie Carmen sold the property to Rene Toutant Beauregard on June 4, 1880 for $4,100.[21]

Rather than representing marital discord, these actions were more likely taken to address financial distress caused by the failure of the Alliance Sugar Plantation. Fernandez and Marie Carmen are listed as married and living together in both the 1880 and 1900 censuses, having since moved at least twice.[22]

Rene Toutant Beauregard

Rene Toutant Beauregard, eldest son of Confederate General Pierre Gustave Toutant Beauregard, married Alice Cenas in June of 1878.

19. "Noted French Resident, Senor J. A. Fernandez de Trava dies at Eighty," *Times-Picayune*, 24 November 1906; Greene, *Historic Resources Study*, p. 285.
20. "Noted French Resident, Senor J. A. Fernandez de Trava dies at Eighty," 24 November 1906; Greene, *Historic Resources Study*, p. 301. While many publications refer to Fernandez as the "Marquis" de Trava, the correct title, if true, would be "Marquess" or the Spanish "Marqués."
21. "Noted French Resident, Senor J. A. Fernandez de Trava dies at Eighty," *Times-Picayune*, 24 November 1906; Wilshin, pp. 35-42; Greene, *Historic Resources Study*, pp. 285-287, 302.
22. 1880 U.S. Federal Census, Louisiana, Plaquemines Parish, 7th Ward, p. 16; 1900 U.S. Federal Census, Louisiana, New Orleans Parish, 6th Ward, sheet no. 9.



Figure A8. Rene Toutant Beauregard, undated. ("Judge Beauregard Dies," *Times Democrat*, 15 December 1910, p. 2)

The two had five children. Beauregard served as a major under his father during the Civil War, and was a successful attorney by 1880 when he purchased the property. In 1888, he was appointed to Louisiana's Fifth Circuit Court of Appeals.[23]

Beauregard granted the Mississippi Terre Aux Boeufs and Lake Railway Company a right-of-way across the northern limits of his property on September 25, 1882. Like many prior owners of the property, the Beauregards purchased the adjacent Lot 1 (*Fig. A3*) on September 24, 1888 for a reported $3,000 from then-owner Octave Toca.[24]

The turn of the twentieth century saw the birth of the oil industry in Louisiana and the beginnings of industrialization along the Mississippi corridor. The New Orleans and San Francisco Railroad Company was incorporated on December 31, 1902 for the purpose of establishing railroad terminal facilities around New Orleans, and on June 30,

23. New Orleans, Louisiana, Marriage Records Index, June, 1878; "Judge Beauregard Dies," *Times Democrat*, 15 December 1910, p. 2.
24. Wilshin, p. 44.

1903, changed the name to the New Orleans Terminal Company.[25] That same year, the New Orleans and San Francisco Railroad Company began purchasing riverfront property in St. Bernard Parish. A 1903 newspaper article notes that,

> Options have been obtained on nearly all of the properties between Chalmette Monument and Chalmette National Cemetery, and the Frisco Railroad will become the owner of the land, will complete the site for its terminals within a few days.
>
> While there is no official statement to that effect, the report that the Frisco will or already has applied for permissions from the government to build wharves in front of the national cemetery and the Chalmette Monument property, which was recently transferred to the care of the national government, is generally credited and those in position to know say most positively that no difficulty will be experienced in that direction. . . .[26]

"Frisco" here refers to the New Orleans and San Francisco Railroad Company, which had by this point already changed its name to the New Orleans Terminal Company. While "Frisco" may have been a short-lived local nickname, it should be noted that contemporary popular references to the "Frisco" Railway refer to an entirely unrelated railroad company, the St. Louis-San Francisco Railway.

The Beauregards were among the few holdouts, waiting until the next year to sell their land. They sold Lots 1 and 2 to the New Orleans Terminal Co. on November 28, 1904 for a reported $27,500. This was the highest recorded payment made for any portion of the former Chalmet plantation.[27]

The New Orleans Terminal Company and a Changing Industrial Landscape

In 1905, it was announced that the New Orleans Terminal Company would construct a major port facility just west of the house tract, initiating a period of industrialization specifically at Chalmette. Construction of a massive new slip for cargo ships was complete by 1907; the complex included large warehouses and a rail yard. A sugar refinery was constructed just west of the slip. These new facilities permanently altered the semi-rural status the former Chalmet Plantation had held since the 1830s and marked the end of private residential use of the area.[28]

After acquisition of the property by the New Orleans Terminal Company, the Malus-Beauregard House, at that time known by the Buen Retiro name, was intermittently occupied, sometimes by railroad employees who served as resident caretakers. It also served as housing for American troops preparing to leave for Europe during World War I. This sporadic occupation left the property vulnerable to vandalism, and it fell into neglect.[29]

Chalmette Monument and National Cemetery

After a prolonged construction initiated in 1855 and delayed by lack of funding until 1908, the U.S. War Department, in conjunction with the Louisiana Society of the United States Daughters of 1812, completed construction of a monument commemorating the Battle of New Orleans fought at Chalmet Plantation. The monument was placed on a tract of land immediately upriver from Lot 1, on what was historically known as the Rodriguez Plantation, and not far from the house owned by the Terminal Company.[30]

Facing financial and administrative challenges, the Daughters of 1812, who had owned and managed the monument since 1893, asked the War Department to reassume stewardship in 1929. The transition was made official the next year. In August of 1933, the monument tract, along with a number of other War Department properties, was transferred to the National Park Service by executive order.[31]

The Chalmette National Cemetery had been established in 1864 during the Civil War, when land

25. Interstate Commerce Commission, *Decisions of the Interstate Commerce Commission of the United States, Volume 37, Valuation Reports* (Washington, D.C.: United States Government Printing Office, 1931), p. 900.
26. Wilshin, pp. 46-48, citing an article from 3 December 1903 in the *St. Bernard Voice.*
27. Wilshin, pp. 48-49.
28. Robert W. Blythe, *Administrative History of Jean Lafitte National Historical Park and Preserve* (Organization of American Historians, 2012), p. 30.
29. Wilshin, p. 49 and part II pp. 4-5; Greene, *Historic Resources Study*, p. 288. Information on the use of the building for housing troops is included in a letter from J.E. Fitzwilson, vice president of the New Orleans Terminal Company, to Richard Koch, District Officer for the Historic American Buildings Survey in LA, dated 17 April, 1934.
30. Ibid., pp. 24, 27.
31. Ibid., pp. 26, 30-31.

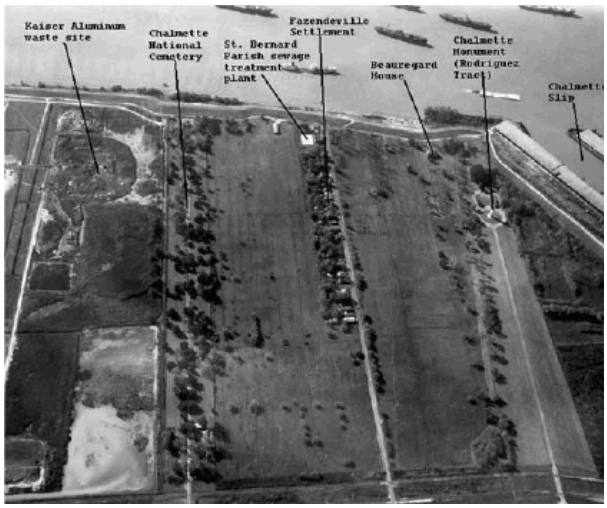


Figure A9. Aerial photo of Chalmette National Historical Park, ca. 1960, showing industrialized site context and remnants of the linear land parcels that were incorporated into the contemporary park. Labels from left to right read, Kaiser Aluminum waste site, Chalmette National Cemetery, St. Bernard Parish sewage treatment plant, Fazendeville Settlement, Beauregard House, Chalmette Monument, Chalmette Slip. ("National Park Service Cultural Landscapes Inventory, Chalmette Battlefield, Jean Lafitte NHP and Preserve-Chalmette Unit," 1998, updated 2008, p. 44.)

downriver from what was then Caroline Canatrelle's house was given to the federal government by the city of New Orleans. Unlike the vast majority of cemeteries in the area that traditionally relied on above-ground tombs because of flooding, Chalmette permitted in-ground burials. The U.S. Army believed that the existing levee at the property would prevent flooding, which turned out not to be the case.[32]

After years of sporadic flooding, disaster struck in 1927, when a flood devastated the Lower Mississippi Valley. In 1928, the Army Corps of Engineers reconstructed the levee at Chalmette, which extended upriver in front of the Malus-Beauregard House. The cemetery remained under the purview of the War Department until 1939, when it was transferred to the National Park Service for inclusion in the existing Chalmette National Historical Park.[33]

Chalmette National Historical Park

Concerted efforts to establish a national park at Chalmette began as early as 1903. After legislation enabling the purchase and transfer of the land to the National Park Service by the state of Louisiana in 1938, House Resolution 4742 was introduced and signed into law on August 10, 1939, establishing Chalmette as the nation's third national historical park.[34]

NPS land holdings at Chalmette were administered by the Vicksburg National Military Park from 1933 to 1943. It was decided early on that the park should give high priority to gaining control of the property between the Chalmette Monument and the national cemetery. While the inclusion of the monument and the cemetery were immediate, acquisition of other battlefield land was delayed by political turmoil in the state of Louisiana. The enabling legislation for the park included no method other than donation for the acquisition of new land, leaving the park with a small, non-contiguous acreage in an overwhelmingly industrial setting.[35]

It would take the state of Louisiana nearly 10 years from the initial 1938 legislation to provide any funding for land acquisition at Chalmette. By 1946, park planning initiatives had produced a concept plan including over 200 acres of additional land, both upriver and downriver from the former Chalmet Plantation site. The 1946 state appropriation of $100,000 was insufficient. Negotiations with the Southern Railway Company, successor of the New Orleans Terminal Company, lasted from 1947 through 1948, culminating with a purchase of only 36.25 acres of the 50-acre tract between the Chalmette Monument and the national cemetery in February of 1949. This land, containing the Malus-Beauregard House, was transferred to the National Park Service in May of 1950.[36]

Selected Park Planning Pertinent to the Malus-Beauregard House

The fate of the Malus-Beauregard House was uncertain before the property was even acquired. A general development plan written in March of 1945 called for its demolition. Debate weighed the potential use of the structure as a museum and administrative offices with very real concerns that the ca. 1832 house only served to complicate interpretation of the site of the 1815 Battle of New Orleans. Further complicating matters were local

32. Ibid., p. 33.
33. Ibid., pp. 31, 35.
34. Ibid., pp. 38, 40-41.
35. Ibid., pp. 41-42.
36. Ibid., pp. 45-46.

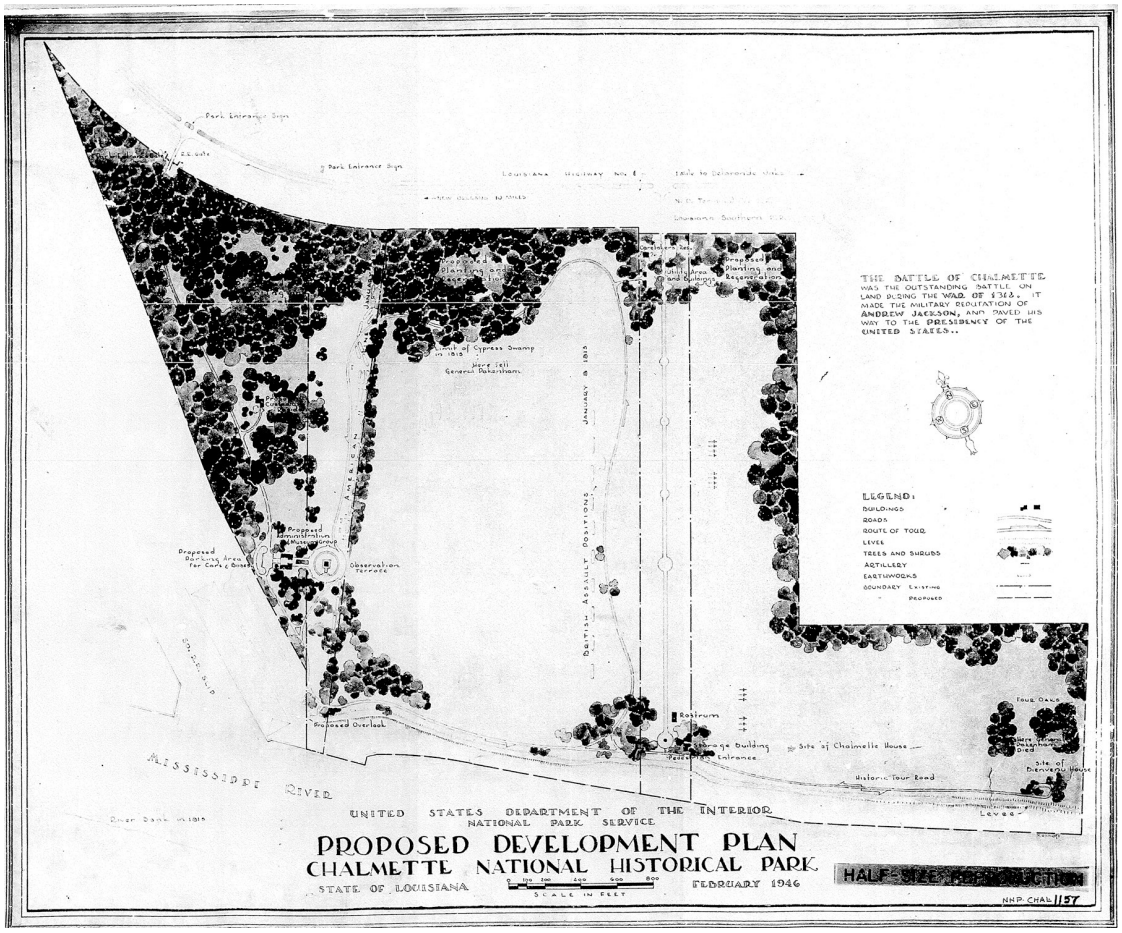


Figure A10. Proposed development plan for Chalmette National Historical Park, 1946. (Blythe, *Administrative History*, p. 45)

traditions that the house was once a plantation house, rather than a suburban retreat designed as a summer residence. It was likely misconceptions about the house's use and its architect that led to its being documented in 1934-1935 by a Historic American Buildings Survey (HABS). Weighing all of these factors, NPS made the decision in 1946 to keep the house once the land was acquired.[37]

Though not the park's first choice, it was decided in 1951 that the house would be used as a museum, park offices, and the main visitor contact point for the park, functions it served until a new facility was constructed in April 1986.[38]

Jean Lafitte National Historical Park and Preserve

With the establishment of the Jean Lafitte National Historical Park and Preserve (JELA) as a multi-site, multi-unit park on November 10, 1978, the Chalmette National Historical Park was reclassified as a JELA unit. The construction of a modern visitor center was one of the earliest JELA planning goals to affect the Malus-Beauregard House.[39]

1995 Amendment to the 1982 General Management Plan

A 1995 amendment to the 1982 General Management Plan (GMP) calls for the Malus-Beauregard House "to interpret its period" and for it to be used for "group assembly." It notes that the "Beauregard house is being preserved on the exterior and adaptively used inside for interpretation of life in the house," and that "After visiting the battlefield, visitors could tour the Beauregard house. Interpretive exhibits will describe the house's history, architecture, and occupants. The original room arrangement on the second floor will be restored and the spaces will be

37. Ibid., p. 61.
38. Ibid., pp. 66-67.
39. Ibid., p. 86.

used as meeting space for small public groups and as facilities for the unit's living history program."[40]

The GMP notes that, "the historical and architectural importance of the building has never been properly interpreted. Research and investigation will be undertaken to develop a plan that will restore its architectural integrity and properly interpret the building's architectural evolution and historical significance."[41]

1999 Cultural Landscape Report

A Cultural Landscape Report (CLR) was prepared by the National Park Service Southeast Regional Office in 1999. About the Malus-Beauregard House, the report says:

> Although archival photographs show the dependency structures and domestic-scaled landscape that surrounded the house in the late-19th and early-20th centuries, these features have long since vanished as the house and grounds have been absorbed into the commemorative battlefield zone. The landscape of the house is now maintained as a manicured extension of the battlefield landscape and retains no integrity and, consequently, no historical significance according to National Register criteria. Although there is little documentation or justification for restoring a specific period setting, the park should reemphasize the house's original riverfront orientation by rerouting circulation paths and by distinguishing the house and grounds from the battle field zone as much as possible. Such measures as reestablishing the historic fence line and planting trees in the riverfront yard and to the rear of the house, as suggested by historic documentation, could aid in the [interpretation] of the Beauregard property, as well as provide a valuable visitor amenity in the form of additional shaded gathering spots.[42]

The CLR then recommends that, "Creating an interpretive landscape setting for the Malus-Beauregard House would highlight the house's distinct historical identity and original riverfront orientation. Altering the pattern of pedestrian circulation to the house would further emphasize the house's function as a separate educational site."[43]

Regarding use of the house itself, the report recommends that it interpret the "secondary theme of antebellum life and country retreats along the river, but also as an orientation point from which to interpret the battlefield. The house could contain a secondary information desk with a selection of educational materials and changing exhibits for riverboat visitors who do not have time to visit the designated visitor center."[44]

2008 Cultural Landscapes Inventory

A Cultural Landscapes Inventory (CLI) was begun in 1998 and completed in 2008, largely following the research of the 1999 CLR. The CLI refers to the Malus-Beauregard House as a disconnected feature of the site, saying, "The Malus-Beauregard House, a post-battle era construction, poses yet another interpretive challenge to the park; its anachronistic presence at the southern end of the commemorative battlefield confounds a clear understanding of the historic battlefield scene."[45] Nevertheless, the CLI acknowledges "the necessity of interpreting its secondary resources and the desirability of conveying something of the historical and cultural continuum that exists at Chalmette."[46]

40. "Amendment to the General Management Plan, Jean Lafitte NHP and Preserve," April 1995, pp. iv, 27.
41. Ibid., p. 28.
42. Kevin Risk, *Chalmette Battlefield and Chalmette National Cemetery Cultural Landscape Report*, National Park Service Southeast Regional Office, August 1999, p. 59.
43. Ibid., p. 65.
44. Ibid., p. 78.
45. "National Park Service Cultural Landscapes Inventory, Chalmette Battlefield, Jean Lafitte NHP and Preserve-Chalmette Unit," 1998, updated 2008, pp. 39, 50.
46. Ibid., p. 54.

Chronology of Development and Use



Figure B1. Malus-Beauregard House with levee of Mississippi River in the background. (JKOA 2018)

The previous chapter provides the historical background, property transactions, and context for the Malus-Beauregard House. This chapter presents a chronology specific to the building from its construction to the present.

The Malus-Beauregard House is a prominent feature of the park's Chalmette Battlefield Unit that commemorates the 1815 Battle of New Orleans, despite its construction almost two decades after the battle. Facing south-southwest on the north bank of the Mississippi River, the house is a small but imposing two-story brick dwelling erected ca. 1832 and altered significantly in the 1850s when it was remodeled in the Greek Revival style, and again a century later in a 1950s adaptive renovation. It retains the original form of a rectangular building one room deep, each room opening to galleries, all covered by a broad hipped roof (*Fig. B1*).[47]

47. For the purposes of this report, the house is described as facing south.

The history of land transactions before construction of the house is described in the previous chapter. The property was further divided in 1832 when Alexandre Baron bought Lot 2 of the former Chalmet Plantation, identified in the March 1832 newspaper notice of sale as "known by the name of Battle Ground."[48] The notice described the property, notably without buildings, and stressed that "these lots would suit for brickyards, sawmills, and gardens."[49]

Baron is believed to have bought the land for his mother-in-law Madeleine Pannetier Malus, widow of noted New Orleans ironsmith Guillaume Malus. A year later Baron transferred the property to her after building a summer house.[50]

48. Chalmet was the contemporary spelling.
49. Greene, p. 284, cites the *Louisiana Courier,* 27 March 1832; Greene, p. 282, cites Conveyance, Hilaire and Louis St. Amand to Alexander Baron, Act of Carlisle Pollock, Notary Public, 10 April 1832, Notarial Archives, St. Bernard Parish, translated from the French, in Notarial Archives, Parish of New Orleans (NONA).
50. Samuel Wilson, Jr., "Plantation Houses," p. 4, cites a reference to the 1833 transfer in an 1848 conveyance

The Malus Period

No description of the house during the Malus period has been found, although much is told by the house itself. The exterior appearance was far different from its later look. The original gallery supports were probably brick posts on the first level and typical Louisiana French wood colonettes above, covered with the hipped roof of today, but without the lower bellcast (*Fig. B2*). The exterior brick was apparently painted red with white "penciling," white paint creating thin lines over the mortar joints. The painted and penciled brick were reported by architect Samuel Wilson in his 1956 investigations of the house, when the brick was visible where later stucco had fallen away. It was common practice in New Orleans to paint the exterior brickwork red in order to protect the soft, poorly burned, locally made bricks from weather erosion, and to pencil the mortar joints with white lead.[51]

Inside, the house contained three rooms on each floor with no hallways and no stairway, instead connected by doorways between rooms. This allowed each room to open to the galleries on two sides, the roof providing shade and covered outdoor living spaces. The east and west rooms on each level were of equal size with an end window providing additional ventilation, the center rooms slightly narrower. Access to the upper floors was by an exterior stair to the upper gallery, all creating a plan well suited to the southern Louisiana climate.

known as Donation, Annette Malus to Lucien Malus, Act of Lucien Hermann, Notary Public, 29 September 1847, bk. 48, fol. 221, NONA.

51. Samuel Wilson, Jr., "Rene Beauregard House, 'Buen Retiro,' An Architectural Survey Report," typed ms, September 1956, (JELAC 3544), p. 15.



Figure B2. Conjectured sketch of original house built for Madeleine Malus, drawn by architect Samuel Wilson, 1958. (Printed in Torres and Lester, *Historic Structure Report*, 1978, p. 129)



Figure B3. Y-form joining of chimney flues still in place in attic in 1934 HABS photograph. Perhaps the last photograph of the Y-form was taken for a 1939 article in *The Progress* (and reproduced in Wilshin); vandals destroyed the flues in the 1940s. (HABS LA-18-7)



Figure B4. Beaded joist exposed behind later plaster ceiling in first-floor west room. (BCA 2019)

Six fireplaces in two chimneys served the six rooms. An unusual feature was the joining of the two chimneys in the attic, each curved to create a brick arch joining the flues and extending as one central chimney above the ridgeline (*Fig. B3*).

One of the few surviving original interior features of the building is the ceiling in the first-floor west room, and probably other ceilings in the house. The joists above are beaded, and the underside of the floorboards retain traces of possible lime wash (whitewash). This indicates the joists were detailed to be visible, though the ceiling would later be covered (*Fig. B4*).[52]

52. JKOA investigations, and those by Wilson in 1956.

Madeleine Malus's use of the house was brief. After her death in 1835, the property went to her son Francois Malus and her daughter Annette, by then the widow of Alexandre Baron. Annette Baron in 1848 transferred her interest to another brother, Lucien Malus, apparently by donation, and it is this conveyance that references the "buildings and improvement" on the property, but provides no further description.[53]

The Cantrelle Period

The Malus family used the house as a summer retreat for almost 25 years before selling it in 1856 to Caroline Fabre Cantrelle, widow of Michel Bernard Cantrelle. The house at the time of sale remained in its 1830s French Colonial style, with any alterations only minor. The *New Orleans Daily Delta* described the house in 1855, still under Malus ownership, as ancient in aspect, suggesting it had changed little:

> There is a handsome villa, quite ancient too in its aspect, standing near the road in the centre of the [battle] lines and about a hundred yards from the ditch. This, however, has been built since the [1815] war.[54]

The house would soon undergo a radical transformation. Caroline Cantrelle remodeled the "ancient" house in the then popular Greek Revival style, adding a prominent colonnade of eight full-height brick columns and a large cornice on front and rear elevations, and updating exterior elements, such as doors and surrounds, to the style. The columns were coated with whitewash or paint; capitals and bases were stuccoed (*Fig. B5*).[55]

Inside, the interior floor plan was altered to add a stair hall on the east side, retaining three rooms on each level, but altering the symmetry by reducing the size of each east room to be smaller than the west and only slightly larger than the central rooms. Greek Revival mantels and trim were added throughout, and an exterior door on the north elevation was added probably at that time to access the stair hall.

Physical evidence of the added columns remains in the roof framing, which indicates that the shape of the lower roof pitch was altered and the dormers rebuilt or moved to a higher level on the roof (*Figs. B6-B7*). This was necessary to accommodate the additional height of the Greek Revival cornice. The changed pitch created the distinctive bellcast form of the roof. Visible in the attic beneath each dormer on the supporting rafters are triangular notches where the original window sills were set. Nail holes in the lower section of the main rafters reveal where earlier

53. Greene, p. 284, cites Donation, Annette Malus to Lucien Malus, Act of Lucien Hermann, Notary Public, 29 September 1847, bk. 48, fol. 221, NONA.
54. Wilson, "Rene Beauregard House," p. 12, cites *New Orleans Daily Delta,* 1855. Alexander Walker wrote a series of articles for the *New Orleans Daily Delta* in 1855 on the Battle of New Orleans, later published in Walker's *Jackson and New Orleans, an Authentic Narrative of the Memorable Achievements of the American Army*, New York, J.C. Derby, 1856, Chapter XV.
55. Wilson, "Plantations," p. 5.

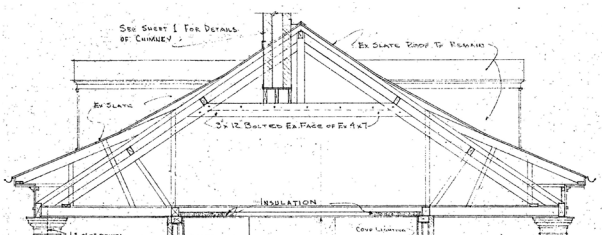


Figure B6. Section drawing showing added rafters to raise the height of the roof eaves to accommodate the large new cornice, creating a bellcast roof profile. (Wilson drawings, 1957, Koch & Wilson archives)



Figure B5. Conjectured sketch of house after Caroline Cantrelle's Greek Revival remodeling, drawn by architect Samuel Wilson, 1958. (Printed in Torres and Lester, *Historic Structure Report*, 1978, p. 129)



Figure B7. Original rafter is topped by 1856 rafter creating and supporting the bellcast portion of the roof. (JKOA 2019)

roof sheathing was removed to accommodate the additional structure for the raised portion of the roof.[56]

The Galliers

There have been claims that New Orleans architect James Gallier, Jr., was the architect for the Cantrelle remodeling. He married the granddaughter of Madame Cantrelle, leading to speculation that he may have worked on the Beauregard House remodeling. Samuel Wilson was careful to qualify his support of the theory, stating, "Unfortunately no drawings in the Gallier collection at Tulane have been found which would confirm this."[57] No evidence of his involvement has been found in other repositories despite research by many historians.[58]

There has also been minor speculation that the father, James Gallier, Sr., designed the original house in 1833, though again, no documentation has been found. The lack of documentation does not rule out either possibility, though documentation of their work on numerous other buildings suggests this house would be similarly recorded.

The Fernandez Period

Caroline Cantrelle's radical transformation of the property after her 1856 purchase connotes anticipated use, presumably for many years, yet she was certainly affected by the Civil War and sold the property soon after in 1866. Her notice of sale reflects the more stately appearance she gave to the property,

> Splendid Summer Retreat Five Miles Below New Orleans, fronting the Mississippi River and one mile from Dauphine Street cars.
>
> That Splendid Summer Retreat, situated in the parish of St. Bernard, in this State left bank of the Mississippi, heretofore forming part of the Hilaire and Louis St. Amand plantation, …. together with all buildings and improvements thereon, which consist of a beautiful two-story brick building, slate roofed, three rooms on the ground floor, and three on the first story, gallery front and rear, pantry, cabinets, etc., brick kitchen, stables for six horses, carriage house, hayloft, negro quarters, etc., also a splendid orchard, containing every variety of rare fruit trees and vegetables, a beautiful flower garden, containing the choicest plants to be found."[59]

The purchasers were Jose Antonio Fernandez y Lineros and his wife Carmen Lessepe Fernandez, who bought the property in 1866 and named it Buen Retiro—translated Pleasant Retreat—(the name often amended to Bueno Retiro but retaining the original Spanish spelling in a 1904 deed). They added a two-story, brick wing to the west end of the building and a spiral exterior staircase just to the north, leading to the gallery. Later photographs and drawings show that the wing consisted of one room on each floor, the same depth as the rooms of the main house, with a flat roof with low parapet and plaster cornice (*Figs. B8-B9*). A significant feature was the stuccoed walls scored to resemble stone. Conditions still evident in the 1950s suggested that the brick walls of the main house were similarly stuccoed at this time. Wilson, in his 1956 investigations for a major NPS project, noted,

> It was at the time that this wing was erected that the house received the exterior coating of stucco, scored and painted to resemble stonecourses. Although the brickwork of the wing is not bonded into the original brickwork of the house, the stucco markings are laid out continuously over both elements.[60]

56. Wilson, "Architectural Survey Report," pp. 16-17.
57. Ibid., pp. 11-12, 18.
58. Blythe, *Administrative History,* p. 61, fn 80, reports: "Talbot Hamlin, in his ground-breaking work *Greek Revival Architecture in America* (London: Oxford University Press, 1940), attributed the house to Gallier; however when asked by the NPS for his source for the attribution, Hamlin could recall only verbal reports provided to him in New Orleans. Talbot F. Hamlin to Elbert Cox, January 11, 1951, Box 106, Region 1 Files, Accession 79-67-A-1022, RG 79, NARA M-A."
59. Greene, p. 285, cites Credit Sale, Mrs. Caroline Fabre, widow of Michel Bernard Cantrelle, to J.A. Fernandez y Lineros, Act of Amadee Ducatel, Notary Public, July 5, 1866, bk. 9, fol. 180, NONA; Notice of sale, unidentified newspaper, attached to conveyance.
60. Wilson, "Architectural Survey Report," p. 18.



Figure B8. Stuccoed brick west wing added by Fernandez after his 1866 purchase. (Photographed 1923, unidentified source)



Figure B9. Exterior spiraling stair behind the west wing, both added by Fernandez, leading to enclosed north gallery, photographed in 1934 after years of decline. (HABS LA-18-7)



Figure B10. Upper rear gallery enclosed by Fernandez with tall casement windows inserted between columns. Photographed 1938 after loss of exterior stair. Frances Benjamin Johnston, photographer, 1938. (LOC LC-J7-LA-1171)

Fernandez also enclosed the upper rear gallery by installing tall casement windows above wood panels between the columns (*Fig. B10*).[61] Wilson determined that the shafts of the brick columns, originally whitewashed or painted, were first stuccoed at this time, evidenced by the setting of the new gallery windows into the stucco.[62]

The Fernandezes suffered financially in the economic depression of the 1870s, forcing them to sell a portion of the property in 1873, but they retained the house. In May the next year, Fernandez advertised the house for sale, "a Splendid Two-Story Brick, slated Mansion, containing all the modern improvements, . . . several outbuildings for kitchen, servants' rooms, carriage house, stables, etc.," and a large orchard.[63]

Despite his attempt to sell, the house and improvements were included in an 1876 judgement that transferred the property to his wife.[64] Four years later, it was she who put the land on the market. As discussed in the previous chapter, the transfer may have been designed for financial rather than marital purposes.

Carmen Fernandez's March 1880 newspaper notice for an "act of sale" describes the property as:

> Bueno Retiro, A delightful Suburban Residence, Farm and orangery, on the city side of the Mississippi River. . .. The charming Suburban Residence property, Model Farm and orange Orchard, known as Bueno Retiro. . .within one mile below the Barracks or the horse car station. . .front[ing] on the public road with batture rights on the Mississippi River. . .. The property is improved by a substantial two-story Brick Mansion and other dependencies, such as stabling and poultry houses, laborers' quarters, and shaded by a magnificent lawn of magnolia and oak trees. The land is exceedingly rich and productive, and under cultivation for vegetables and flowers. The Orchard Contains a fine assortment of fruit trees, comprising Orange, Mespilus, imported Pears and Pecan Trees, beside a large variety of Figs, Grapes, etc., thrifty and bearing. Within half an hour's drive of the centre of the city, a steady demand and market for all that can be produced, and a house of superior comfort and advantages of scenery renders the property desirable, not only for

61. Ibid., Wilson, "Plantations," p. 5.
62. Wilson, "Architectural Survey Report," p. 18.
63. *New Orleans Republican*, 19 May 1874, p. 4. The notice ran from at least May 19 to June 14.
64. Settlement in *New Orleans Republican*, 23 June 1876, p. 3, also 24 and 25 June.

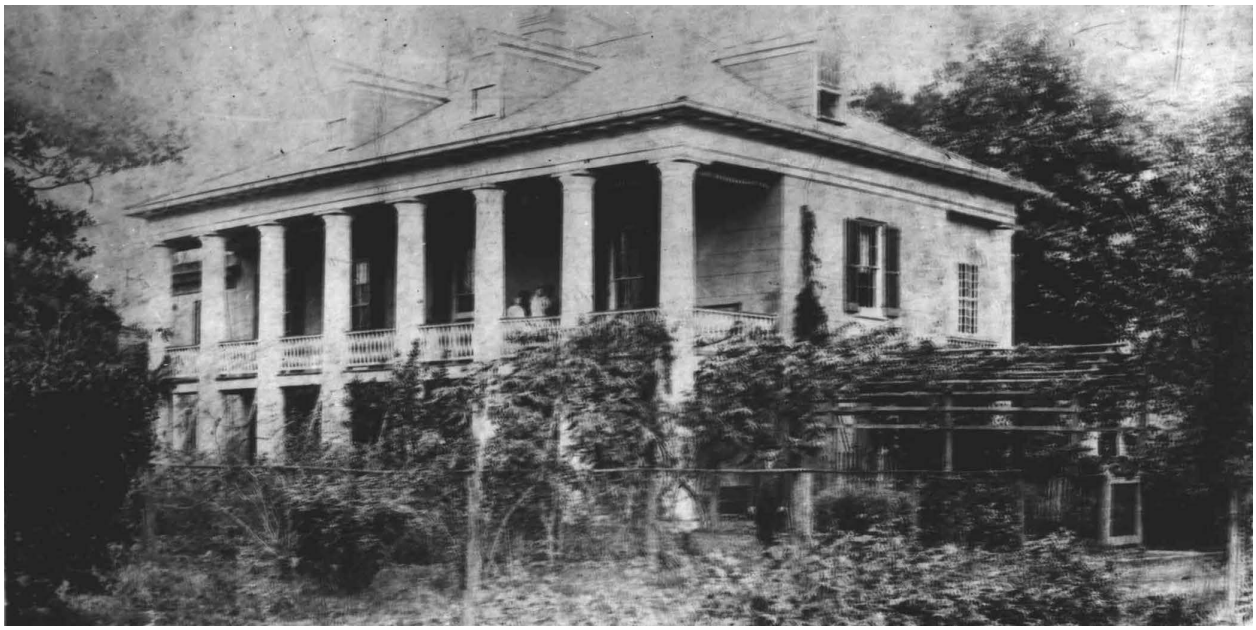


Figure B11. The house during the Beauregard ownership, labeled "Our Old Home in 1896 or 1898." A wood arbor projects from the east end where the frame wing would soon be built. (Cenas Collection, Louisiana State Museum)

> permanent residence, but as an investment of great prominence and productiveness.[65]

This is the first documented mention of year-round residency or investment potential. Previous sales give no indication of income-producing use of the land.

The Beauregard Period

Rene Toutant Beauregard, eldest son of famous Confederate General Pierre Gustav Toutant Beauregard, purchased the property.[66]

The earliest known photographs of the house were taken in the 1890s during the Beauregard family's ownership. One photograph showing an open arbor at the east end is hand-labeled, “Our old house in 1896 or 1898” and identifies the women on the upper gallery as Alice and Hilda (*Fig. B11*).

Other 1890s photographs show a lush landscape with barn, fences, and the brick kitchen building described in the Cantrelle sale notice of 1866 (*Fig. B12*).[67]

65. *The Daily Picayune*, 14 March 1880, p. 10. The notice ran from at least March 14 to April 3.
66. Credit Sale, Mrs. Carmen Lessepe, wife of Jose Antonio Fernandez y Lineros, to Rene T. Beauregard, Act of James Fahey, Notary Public, 1 June 1880, bk. 14 fol. 230, Notarial Archives, Parish of St. Bernard.
67. Wilson believes the brick kitchen may have been demolished when the ca. 1900 addition was built.

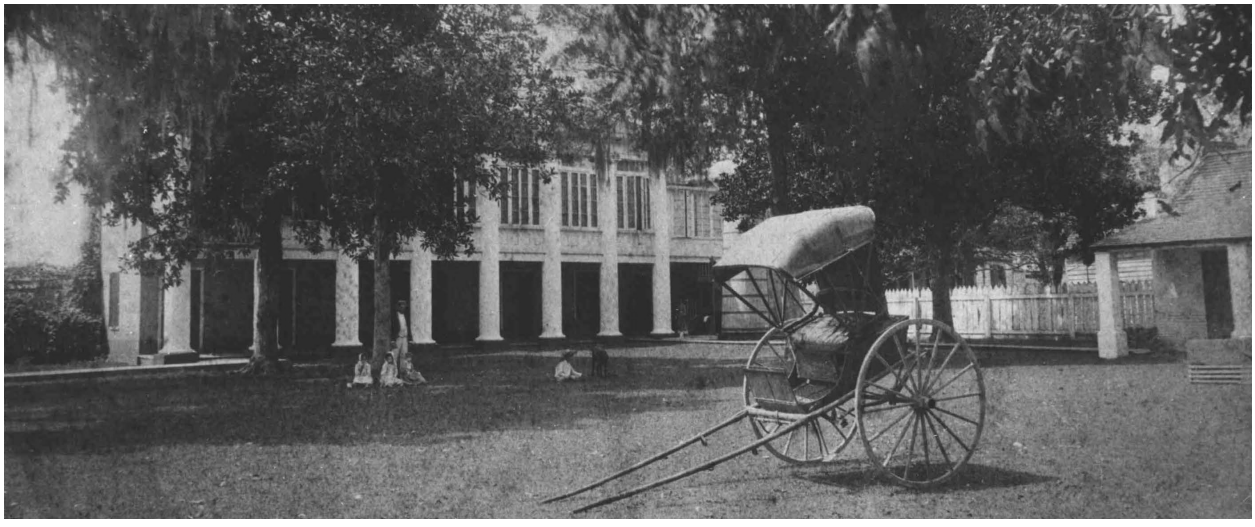


Figure B12. Yard and back view of the house, showing brick kitchen building, fences, and trees, photographed in the 1890s during the Beauregard ownership. (Cenas Collection, Louisiana State Museum)



Figure B13. Beauregard's east wing photographed in 1938 after years of neglect. The odd overhang form is evident in this image. (NPS *Regional Review*, vol. 1 no. 3)

Beauregard's only known change to the house was made about ten years after his purchase, no earlier than 1898, an oddly configured two-story frame addition on the east end of the house (*Figs. B13-B14*). Unlike the west addition, this was set back from the front of the house to leave the east window openings unobstructed to provide light to the stair hall. The second-floor footprint was larger than the lower level. Fenestration was topped with Italianate crowns, and the roof had a pronounced bellcast, perhaps inspired by that of the house. A balcony at the second level tied into the gallery of the house.



Figure B14. East wing added by Beauregard in about 1900, showing Italianate windows and bellcast roof. Note the automobile at left. Photographed 1924, Dan Beyer, photographer. (Wilshin photograph XVIII, 1952 report)

New Orleans Terminal Company Period

During Beauregard's ownership, the character of the surrounding area began to change as heavy industry moved in. The use of the house also changed when, in 1904, he sold the house and an additional parcel to the New Orleans Terminal Company, a railway business. The property was identified as Buen Retiro at the time of that sale and for some time after. The house was occupied by Terminal employees and tenants, and later by World War I troops before it was vacated and began decades of neglect and decline.[68]

In 1926, Robert W. Tebbs photographed the house as part of his photographic survey of Louisiana's plantations. His images show the worsening condition of the house two decades after its purchase (*Fig. B15*).[69]

Soon after in 1928, a levee was built in front of the house to raise the water level and make the river navigable for large ships. As the river rose, so too did the water table, to a level only 14 inches below the surface and the first floor of the house. Ground water was steadily drawn into the walls

68. Blythe, *Administrative History,* p. 32. Wilshin, "Rene Beauregard," Part II, pp. 4-5. New Orleans Terminal Company eventually became part of the Southern Railway System. See herein fn 29 regarding troops.
69. Richard Anthony Lewis, *Robert W. Tebbs, Photographer to Architects: Louisiana Plantations in 1926,* Louisiana State University Press, 2011.

and columns, which decades later was recognized as the cause of structural damage.[70]

By 1934, the house was in visibly worse condition than shown in Tebbs's 1926 images, although it was generally intact when measured and photographed that year by the Historic American Buildings Survey (HABS) (*Figs. B16-B18*).[71] These photographs and drawings are, together with the Beauregard and Tebbs images, important documentation of the house before extensive vandalism eradicated many features. It should be noted that the HABS drawings include inaccuracies, such as an eleven-inch error in the distance of the columns from the house.

The brick west wing added by Fernandez collapsed in 1935 in the midst of the HABS study, before their final report, but fortunately after the 1934 photographs. Soon after, nationally prominent photographer Frances Benjamin Johnston photographed the house in 1938 during a visit to the area. This was followed by continued neglect and years of theft and destruction by vandals.

The nearby Chalmette Monument came under NPS ownership in August 1933 while the house tract remained under Southern Railway (formerly Terminal Company) ownership. On his visit to the monument in November 1933, acting superintendent L. G. Heider thought the Beauregard House was of "great historic significance" and should be acquired and preserved if possible.[72]

The NPS *Regional Review* of September 1938 agreed, describing the house as "a fine ante-bellum mansion, now abandoned and despoiled



Figure B15. South elevation showing condition of the house when photographed in 1926. Robert W. Tebbs, photographer. (Louisiana State Museum)

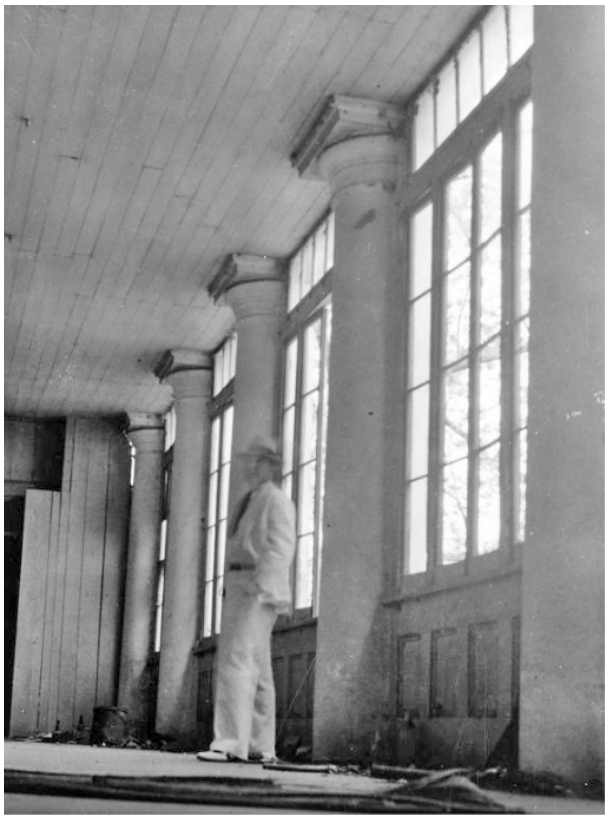


Figure B16. Interior of the enclosed north gallery, 1934. (HABS LA-18-7, LOC control #la0092)

70. Sharon C. Park, "Rising Damp in Historic Buildings II: Case Studies," in NPS, *Cultural Resources Management Bulletin,* Vol. 13, No. 3, 1990, p. 24. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwi504Wi2YPoAhUPmXIEHYdDCtcQFjAAegQIBBAB&url=https%3A%2F%2Fhome1.nps.gov%2FCRMJournal%2FCRMBulletin%2Fv13n3.pdf&usg=AOvVaw2vmwEQNPhFQQoEdlmd0TtF.

71. HABS 1935 text report, p. 9 (LA-18-7). New Orleans architects Richard Koch and Samuel Wilson, of the firm Koch and Wilson, were key members of the team. Wilson was to play a major role in the future use and appearance of the building under NPS ownership.

72. Blythe, *Administrative History,* p. 42, cites Heider's Notes on Inspection, 6 November 1933, boxes 1916, 1917, 1919, Central Classified Files, RG 79, NARA II. From 1933 to 1943, Chalmette was administered by Vicksburg National Military Park, with Vicksburg's superintendent serving as the coordinating superintendent for Chalmette.

of its interior woodwork," and including a photograph (*Fig. B13*). The article reported that recent action of the state legislature would permit the acquisition of most of the historic area for public ownership, with subsequent transfer to the federal government, allowing development and interpretation of the area. Preliminary negotiations had begun.[73]

During this time, the house remained vacant and became increasingly deteriorated. Vandals took advantage of its abandonment, destroyed much, and removed all features of interest or possible value. Almost all the woodwork was torn out, including mantels, doors, windows and even their frames, as well as an interior brick wall and portions of others both interior and exterior. They also destroyed one of the more unusual architectural features of the house, the arched chimney in the attic (*Fig. B3*).[74]

73. Roy Edgar Appleton, "A National Military Park for 'Old Hickory,'" in NPS's *Regional Review*, Vol. 1, No. 3, September 1938. http://npshistory.com/newsletters/regional_review/vol1-3d.htm.

74. Wilson, "Architectural Survey Report," p. 19.

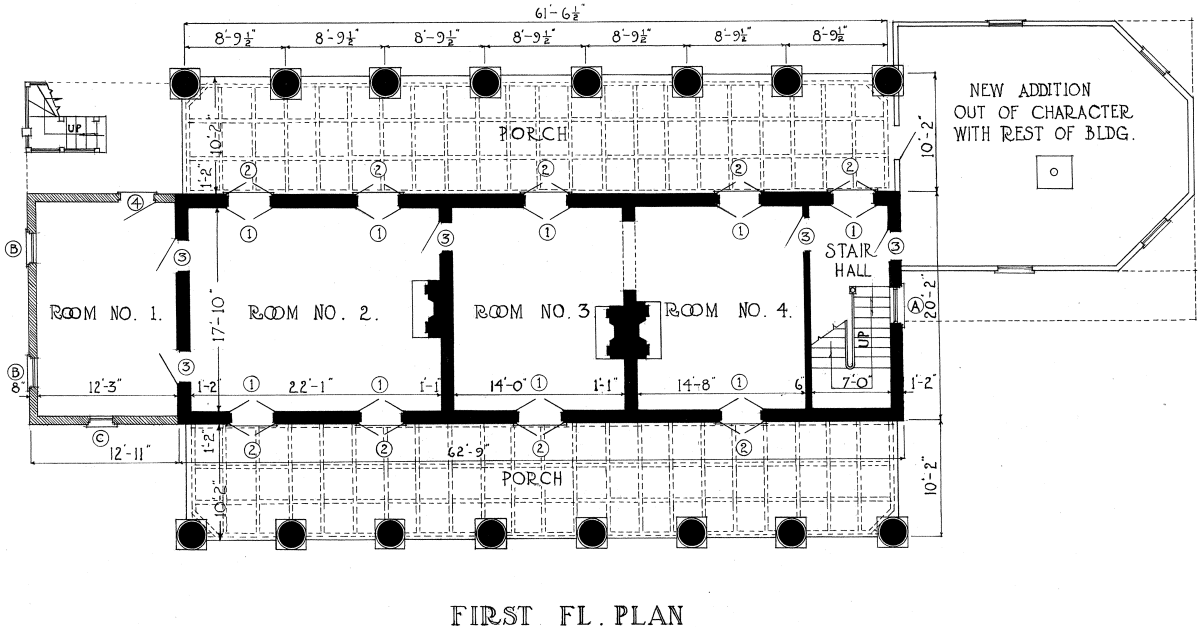


Figure B17. First-floor plan measured by HABS in January 1934 and drawn April 16, showing both additions in place. Room numbers reflect the room in the west brick addition; however, on both levels the rooms in the east frame addition are not numbered, apparently because they were considered incongruous with the house and disregarded. Plan also shows the Cantrelle 1856 stair hall partitioned from the east room, the 1866 exterior covered stair, and the first-story hexagonal bay of the ca. 1900 east wing. Inaccurate drawings show an eleven-inch error in distance of columns from house. (HABS LA,44-CHALM,1- sheet 2/9)

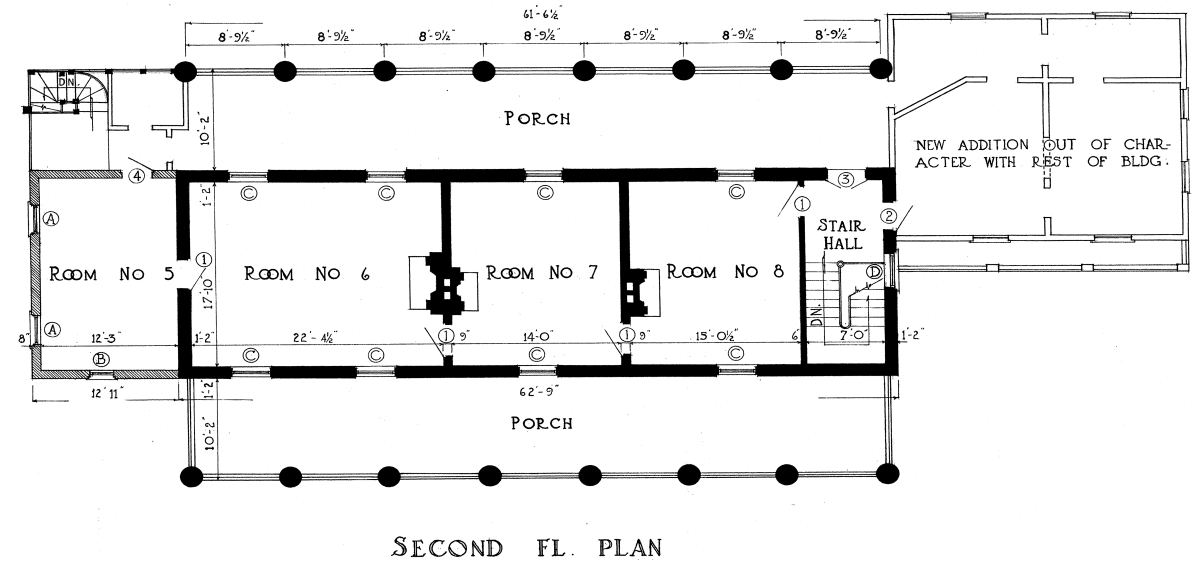


Figure B18. Second-floor plan measured by HABS in January 1934 and drawn April 21. Plan shows partitions between rooms still in place. (HABS LA,44-CHALM,1- sheet 3 of 9)

National Park Service

Fortunately this vandalism was halted by the eventual acquisition of the property by the National Park Service. Severely deteriorated and referred to as "the crumbling mass of the Rene Beauregard House,"[75] the property's acquisition by NPS was slow and unsure. Ownership had been contemplated for some time; the house was suggested as early as 1938 for use as a museum and park office, and NPS completed an inspection report and recommendations in 1938 and 1939.[76]

Debate continued after the park was created in 1939. The park's general development plan, approved in March 1945, called for the house to be demolished.[77] Others, including NPS historian Roy Appleman, recognized both architectural and historical significance and recommended it be saved and converted for use as a museum and park administrative offices. The NPS regional director expressed his contrasting opinion that because the house was built well after the battle—the reason for the Chalmette park—its presence on the site made interpretation of the battle difficult.[78] NPS Director Newton Drury, who had approved the demolition of the house in March 1945, determined in October 1946 that the house would be saved and preserved, though its use was not finalized.[79]

An aspect of the debate was the flawed belief that the house had been a plantation house and could be interpreted as such, thereby serving as a substitute for actual plantation houses that played a role in the battle but were no longer standing.[80] This house, however, was built as a suburban retreat with no income-producing purpose. The plantation terminology would resurface in the 1980s and 1990s.

Land owned by Southern Railway just west of the proposed park was eyed as the location for an administration and visitor building, but as early as August 1938, the superintendent suggested to the Region that the house be adapted for that use instead. The suggestion was repeated in 1944 by the Chalmette custodian. Ultimately it was Southern Railway's refusal to donate their land that clinched the decision to use the house, and in June 1951, the NPS director confirmed the decision to restore the exterior to its "period appearance" and adaptively reuse the interior for museum and offices. The condition of the house and extensive loss of features simplified the approach to the interior.[81]

The focus on the battlefield also damaged the historic landscape around the house. In 1949 when the state acquired the house tract for the park, "an allee of pecan trees extended from the north side of the house towards the St. Bernard Highway."[82] These and other remnants of its domestic landscape were altered as part of the park's efforts to recreate the battlefield scene, transforming it to read primarily as an open field. The Cultural Landscapes Inventory (CLI) states, "the house now stands perplexingly out-of-context at the southwestern edge of the battlefield."[83]

The house itself needed immediate attention to secure it from both the weather and further vandalism. Vandals had removed all sash and doors, as well as most frames, leaving gaping openings.[84] NPS found the extent of deterioration difficult to describe (*Figs. B19-B20*). An NPS form reported,

> Extensive roof repairs necessary, all the doors and windows need protection and must be worked from the frames out. The first floor flooring is entirely gone. It will be necessary to repair interior foundations. Most of the 2nd floor partition walls are gone. Porches for both the 1st and 2nd floors extend the length of the building, front and back and will require some repair work, as will the columns. Each porch has 640 sq. ft., porches total sq. ft. equals 2560. Stairway from 1st to 2nd floor is gone. Attic portion of house is in the best condition, in spite of the poor roof.[85]

75. Francis F. Wilshin, "The Rene Beauregard House," Part I (unpublished NPS report, 31 December 1952), p. 51.
76. Blythe, *Administrative History*, p. 66. Greene, fn, p. 281. Wilshin, "Rene Beauregard House," Part II "Detailed Inspection," p. 10.
77. Blythe, *Administrative History*, p. 61.
78. Ibid.
79. Ibid.
80. Ibid.
81. Ibid., p. 66, fn 9 cites Coordinating Superintendent J. Walter Coleman to Region 1 Director, 8 August 1938; Custodian Clarence Johnson to Region 1 Director, 16 November 1944; Charles Peterson to Chief, Eastern Office of Design & Construction, 11 April 1956, Region 1 Files, Accession 79-67-A-1022, RG 79, NARA M-A.
82. "National Park Service Cultural Landscapes Inventory, Chalmette Battlefield, Jean Lafitte NHP and Preserve-Chalmette Unit," 1998, updated 2008, p. 55. The house was transferred to NPS in 1950
83. Ibid., pp. 55-56.
84. Samuel Wilson, Jr., "Rene Beauregard House, 'Buen Retiro,' An Architectural Survey Report," typed ms, September 1956, p. 20 introduction to photographs (JELAC 3544); hereinafter Wilson, "Architectural Survey Report."
85. Undated, untitled typed form signed by Supt. Russell A. Gibbs, probably 1950; a later note is dated 12/29/51 (Acc JELAC 100 JELA 007/02.06 JELAC 4503).



Figure B19. South elevation showing severe deterioration and missing elements. (Louisiana Digital Library, 3A8569)



Figure B20. The second floor photographed in 1951, looking west, showing destruction from deterioration and vandalism. Both interior partitions are reduced to only a few feet in height, and mantels and trim have been removed. Wilson rebuilt the westernmost partition and removed the remainder of the eastern partition to create a large exhibit room. (Wilshin, photograph XXIX)



Figure B21. North elevation showing condition in 1951 and the increased deterioration since the 1926 and 1934 photographs. (Wilshin, photograph XXVII)

Measures to safeguard the house began while planning for its new use continued. The park removed the remains of the 1866 west wing, which had collapsed in the 1930s, and demolished the ca. 1890 frame east wing. They "sealed the house against the weather, repaired exterior woodwork, painted the house, and replaced the slate roof."[86] The superintendent wrote in his November 1950 monthly report,

> Beauregard House: boarding up openings, repairs to the cypress rafters and sheathing and reroofing with 90-pound mineral surfaced roofing paper have been completed…. We have cleaned the building of debris from attic to ground floor. Paint and oil is on order for repainting the barracades [*sic*] and exterior woodwork. As the roofers finished, the immediate grounds were cleaned up. A fence has been constructed around the Beauregard House. We used salvaged railway ties for posts and 3 strand barbed wire to enclose the area.
>
> The Beauregard House re-roofing job was awarded to Usner Bros. Sheet Metal & Roofing Co. for $515.00. The roof repair is a separate job and will cause some delay as the cypress rafters and sheathing are odd sizes and must be ordered from the mill. Boarding up the building had started at the end of the month…. Permission to remove the dining-living room partition has been received and estimates are being obtained for the job.[87]

The FY 1949 NPS Annual Report to the Secretary (ending June 1950) includes the repairs to the roof and gutters, explaining that the house was "boarded up until the house can be restored as an administration and reception center."[88]

The park was aware that it lacked adequate information on the history of the house, and in 1952 historian Francis F. Wilshin was detailed from Vicksburg to Chalmette. Wilshin conducted extensive research and corrected decades of inaccurate accounts of construction date and

86. Blythe, *Administrative History,* p. 66, fn 9 cites Charles Peterson to Chief, Eastern Office of Design & Construction, 11 April 1956, Region 1 Files, Accession 79-67-A-1022, RG 79, NARA M-A.

87. Superintendent Russell A. Gibbs, November 1950 Monthly Narrative Report, 4 December 1950, JELA 4514.

88. NPS, *Annual Report of the Director of the National Park Service to the Secretary of the Interior for the Fiscal Year Ended June 30, 1950*, p. 361, https://books.google.com/books?id=Gh2IneeBJ-sC&pg=RA1-PA361&lpg=RA1-PA361&dq=nps+national+park+beauregard+moisture&source=bl&ots=xcmqMXxpbK&sig=ACfU3U3KPTDotg1ZSqePS-C4xZvbO-fwyA&hl=en&sa=X&ved=2ahUKEwib8NC76IPoAhWXmXIEHX0aD2UQ6AEwAHoECA0QAQ#v=onepage&q=beauregard&f=false.

speculation about an original architect. His research report describes the original construction and subsequent changes to the building. He and others inspected the building to assess structural details and the extent of damage caused by vandals, reporting,

> The lower stairs have been partially destroyed and removed; the porch railing broken out, the mantels removed if not destroyed; the partitions on the second floor demolished; one back section of the masonry wall torn out; the plaster knock-down [*sic*]; the slate roof torn off and the chimney dismantled.[89]

Wilshin's photographs were among several taken in the early 1950s that document the alarming change from the HABS photos of 1934 (*Figs. B20-B21*).

1957-1958 Renovation

Funds to remodel the interior became available in 1956-1957.[90] Prominent New Orleans architect Samuel Wilson, who was on the HABS team documenting the house in 1934-1935, was hired to design and convert the house for use as an administrative and museum building. The project was termed a restoration of the exterior and renovation of the interior, with the exterior restored,

> more or less to the appearance it probably had when Madame Cantrelle completed her project of 1856, with the exception of the exterior stucco. It would be practically impossible to remove this stucco and restore the original brick surface as the brick was too deeply hacked to provide a bond for the stucco when it was applied.[91]

Wilson met a damaged house, not only severely deteriorated, but missing a vast amount of architectural material (*Figs. B22, B24-25*). The project required much new material to replace missing and damaged elements. Wilson reconfigured the floor plan at both levels to facilitate the new use by adding and removing walls. Almost all remaining visible historic fabric was removed or replaced.



Figure B22. Typical interior in 1956 showing damaged walls, floor, and missing mantel. (Wilson, "Architectural Survey Report," photo 8 JELA_467_D130_0064pg)

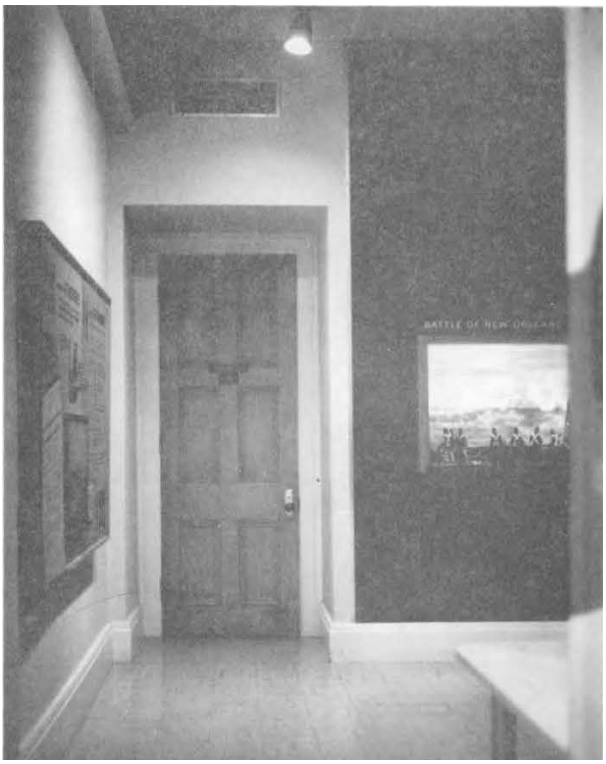


Figure B23. Second-floor exhibit space showing furred out walls covering windows, new door, and tile floor, photographed 1978. (Lester and Torres, HSR, photo 35B, JELA_467_D1303)

89. Wilshin, "Rene Beauregard House" Part II, "Detailed Inspection, p. 10.
90. Blythe, *Administrative History,* p. 66, fn 9 cites Charles Peterson to Chief, Eastern Office of Design & Construction, 11 April 1956, Region 1 Files, Accession 79-67-A-1022, RG 79, NARA M-A.
91. Wilson, "Architectural Survey Report," pp. 16-17, 19. Blythe, p. 67, inaccurately states that no period was established for the 1957 project.



Figure B24. The house photographed in 1949 before Wilson began his 1957-1958 work (JELAC 4500). On the back of a negative print (JELAC 3280) is written, "Courtesy Lloyd Deano, Victory Oil, 1949."



Figure B25. And after. (JELAC archives, uncatalogued)

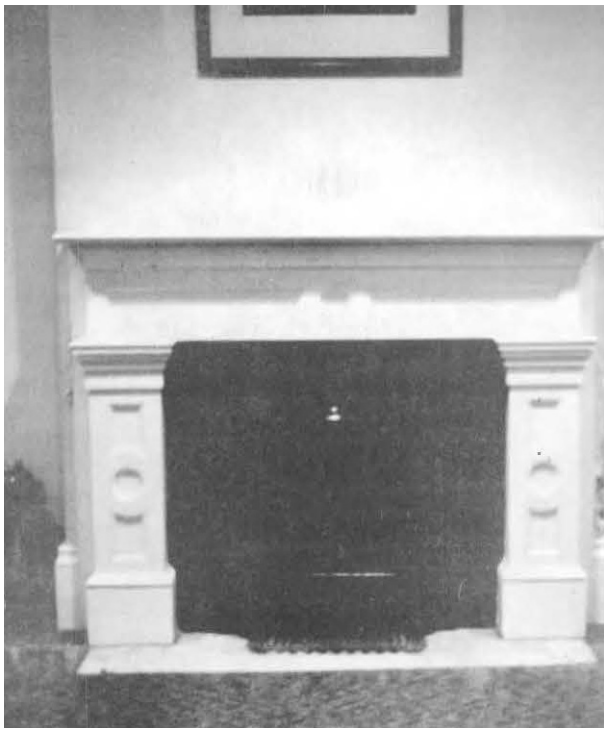


Figure B26. Mantel placed in first-floor west room. (Lester and Torres, HSR, photo 30A, JELA_467_D1303)

On the first floor, he added angled partitions flanking the south entrance to the center room to create spaces for a closet on the west and a restroom with tile floor on the east. Because the cypress floorboards were severely rotted, Wilson first proposed a brick or brick tile floor, but ultimately replaced the wood floor with checkerboard grey and white marble laid on a poured concrete slab. A marble floor was also placed in the stair hall.[92]

The interior stairs to the second floor were "rebuilt," or repaired using salvaged parts where available. The winder stair to the attic was in better condition. Investigations for this HSR indicate portions of the stair rail may be original, made of a dark wood, perhaps mahogany, originally with a varnish finish before later application of paint.[93]

On the second floor, the wall between the west and center rooms was rebuilt with modern brick and the fireplace was not reconstructed. In contrast, the remains of the wall and chimney between the center and east rooms was removed and the floor patched to create a large exhibit room, changing the floor plan from three rooms to two. Some of the tall "slip-head" sash windows were replaced, others configured to open on hinges and operate as doors. Three of the four replaced windows in the large new room were covered with new plaster walls installed to accommodate exhibits. Vinyl tile covered most floors.[94]

Throughout the house, closets, bookcases, built-in display cases and HVAC components were added (*Fig. B23*). New, lowered cove ceilings were installed to allow can lights for illumination. Doorways between rooms were added, others closed. A few remaining doors were used if their conditions allowed; otherwise, new doors, baseboards, and door and window surrounds were introduced. Oddly, Wilson's design for such new trim did not match the molding profiles documented by the HABS team, of which he was a part.

The HABS documentation included one photograph of a mantel with panels. Wilson

92. Blythe, *Administrative History*, p. 67. Wilson, "Architectural Survey Report," "work to be undertaken" section, np.

93. Building Conservation Associates, Inc. (BCA), "Materials Conservation Report," p. 15 (see *Appendix F*).

94. Slip-head windows are constructed to allow the lower sash to recede into the hidden head above, providing a larger, taller opening.



Figure B27. Paving beneath gallery; exterior screen doors. (Lester and Torres, HSR, photo 327B, JELA_467_D1303)

plastered over all fireplaces except that in the first-floor west room, where he installed a mantel of different design (*Fig. B26*). A mantel similar to the HABS photograph was designed for the second floor but never installed.[95]

Photographs and later evidence indicate that the original wall plaster was applied directly to the bricks; however, most was lost during the years of deterioration. Wilson furred out walls and plastered with cementitious plaster on wire lath; the scratch coat on the ceilings was covered with acoustic tiles.[96]

HVAC equipment was installed, a false chimney was added to extend above the roofline, and new ornamental lightning rods matching the HABS documentation were installed.

The approach to the exterior was called a restoration, which was an appropriate term in the 1950s, and by necessity included a significant amount of reconstruction, some conjectured. As Superintendent Gibbs and Wilshin stated earlier, all fenestration was open, the doors, sash and almost all frames having been stolen or destroyed, and had been boarded up since the 1951 NPS effort. Gutters and downspouts were missing or beyond repair. The columns leaned, the central chimney was gone, and the exterior had suffered. The ends remained exposed where previously covered by the wings.[97]

The remaining concrete floors beneath both galleries were removed and replaced with brick in a pattern matching the paving of the old kitchen floor discovered in the rear yard (*Fig. B27)*.[98]

Wilson's drawings note that the columns were to be straightened, though no further information is provided. Doors and paneled shutters were fabricated and installed on north and south elevations, as well as windows and shutters on the ends. Screen doors were added to first-floor doorways between the shutters and doors; they remain stored in the attic and are visible in post-restoration photos (*Fig. B27*). Fixed screens were installed at some other openings.

On the second-floor exterior, the sash windows on east and west ends were replaced "as they appear in H.A.B.S. photographs and drawings." The slip-head windows on north and south elevations were recreated, some then covered on the interior.[99]

Conscious exceptions to the 1856-1866 interpretation period were not only the introduction of marble floors, but retention of the stucco on the exterior brick walls. Despite his discovery that the walls were painted red and penciled during the Cantrelle ownership, Wilson reconfirmed the hacked condition of the brick, ruling out removal of the stucco, and the house was re-stuccoed and scored.

Wilson installed a new exterior stair with a landing and second run, the design perhaps inspired by other Greek Revival stairs in the region. The exterior stair shown in the HABS photographs was that installed by Beauregard ca. 1900 when his east frame addition was added, and destroyed with that wing (*Fig. B9)*.

The park had earlier removed most trees on the house tract, and apparently removed all historic yard features before or during the 1957-1958 project. Non-historic ornamental plantings, including boxwood and azaleas popular in the 1950s, were planted around the house and along new visitor pathways.[100]

In May 1958, the building opened with the superintendent's office and a visitor desk on the first floor and exhibits on the second. Seven thousand visitors were reported in the first week. The old caretaker's house that had served as a temporary museum since 1956 was demolished after the new museum opened.[101]

Despite Wilson's efforts, wet conditions plagued the building. As early as 1961, the superintendent complained that water seeped through the marble floor in his office and dampened the rubber mat

95. Lester and Torres, HSR, 1978 "non-existing" note on drawings, JELA_467_D1303.
96. Asbestos in those ceilings is reported in Lewis, "Rehabilitation," p. 9; Wilson, "Architectural Survey Report," "work to be undertaken" section, np.
97. Wilson, "Architectural Survey Report," "work to be undertaken" section, np.
98. Ibid., p. 19, states that the kitchen was probably demolished in about 1890 when the east wing was built.
99. Ibid. Wilson proposed to replace the two outer slip-head windows on the north and south elevations "with paneled doors and transoms, blinds to match original," but there is no indication this was done.
100. Cultural Landscapes Inventory, p. 38.
101. The superintendent's office had been in the cemetery lodge, Blythe, *Administrative History*, p. 28 fn 20, pp. 61, 63, 66-67.

and rug, "creating a dead rat odor that defied elimination until we carried them up to the attic to dry out." The HVAC system also required attention. By 1963 the attic ducts required reinsulation, and in 1964 the furnace was replaced.[102]

Continued Research

Until 1964, planning for the park's internal tour road called for it to run between the house and the river; however, the route was altered and realigned after locals persuaded Senator Russell Long to intervene.[103]

Visitation to the house increased after tour boats began traveling to the site in 1970. By the mid-1980s such boats included the 1,000-passenger *Creole Queen*. Visitation to the park increased; however, many visitors "never got beyond the house and left without learning much about the Battle of New Orleans," due in part to the proximity of the house to the boat dock (*Fig. B30*).[104]

Just three years after the tour boat surge, the second floor was closed to visitors when extensive rot was found in the upper galleries, extending to the second-floor sills and joists. Rising damp was causing structural damage and penetrating the walls to the extent that paint could not be kept on interior plaster.[105]

Research and planning for the house continued, and in 1978 a Historic Structure Report was prepared, providing three "restoration alternatives" for preservation, all based on exterior and interior preservation (stabilization), partial exterior restoration, and adaptive interior restoration, with the latter changing for the use outlined in each alternative. Alternative A was for a Visitor Center, B for public first floor and semi-public second, and C for public first and second floors.[106]



Figure B28. Lower stucco removed from walls and columns to allow masonry to dry before dampcourse project began. (Photograph of poor resolution; created from 1979 slide, Koch & Wilson archives)



Figure B29. Filled holes at base of exterior wall after completion and before application of stucco. (Photograph of poor resolution; created from 1979 slide, Koch & Wilson archives)

A Classified Structures inventory form of 1979 offered the opinion that, "although much of the structural fabric is original, only the general form of the structure bears any resemblance to its original appearance. Neither interior nor exterior surface materials are authentic, some being completely new materials installed by the National Park Service, other being holdovers from later additions to the structure which have since been removed."[107]

Rising Damp Mitigation

To address the rising damp identified in 1973, in 1979 a project titled "Stabilization" was implemented under David G. Battle, Regional Historical Architect, and supervised by Douglas Hicks, Regional Exhibit/Restoration Specialist, both of the Southwest Regional Office (SWR). The intent was to address moisture retention in the exterior walls and columns.[108]

102. Superintendent's monthly report, July 1961 (JELAC 4496, folder D) and 1963 and 1964 (JELAC 4496, folders B,C).
103. Blythe, *Administrative History,* p. 62, cites R.H. Morvant, Battle of New Orleans Sesquicentennial Celebration Commission, to R. E. Hunter of Senator Long's office, 26 May 1964.
104. Ibid., p. 88.
105. David G. Battle, SWR Historical Architect, to SWR Director, 3 July 1972 (JELAC 3544); Park, "Rising Damp," p. 24.
106. Curtis Lester and Louis Torres, "Historic Structure Report, Chalmette National Historical Park, Rene Beauregard House," NPS: Denver Service Center, April 1978, p. 225.
107. 1981 memo enclosing forms, JELA 3348.
108. David G. Battle, *Stabilization of the Beauregard House, 1979-1980* (JELAC 3544); Wayne B. Cone, SWR Acting Regional Director to Sandra S. Thompson, SHPO office, requesting Section 106 review, 8 February 1979 (JELAC 3544).

Although rising damp is usually confined to three or four feet above grade, the dense cement stucco applied in 1957 prevented the walls from drying out. A 1990 article explains that it is likely that the concrete slab installed as the ground floor in 1957 probably increased pressure on the foundation and forced ground moisture into the walls where evaporation was limited. This in turn caused the moisture to travel higher in the walls and columns than is normally associated with rising damp. Meter readings taken in 1979 before work began found high moisture on the second floor, explaining the dry rot fungus in porch beams.[109]

The first phase of Battle's extensive two-year project was to remove the lower 3½ feet of exterior stucco and interior plaster and allow the 16-inch-thick walls to dry for over a year (*Fig. B28*). The second phase was drilling and filling to create a moisture barrier, or dampcourse, to prevent capillary action.[110] Interlocking 1¼-inch-diameter holes ten inches apart were drilled around the perimeter of the building and just above the brick pavement level. The holes were then filled with a waterproof cement product and tamped. Another series of holes, also ten inches apart, was drilled two inches from the first set. The staggered sequence was to avoid undermining the structure, and was repeated until the entire perimeter was completed. The columns were similarly dampcoursed (*Fig. B29*). [111]

A total of 22 meters, or "moisture cells," were imbedded into the walls and in one column above the dampcoursing for periodic monitoring before interior plaster and exterior stucco were replaced. Later testing showed a substantial reduction of moisture content of the walls.[112]

The Malus-Beauregard House was among the earliest dampcoursing projects in the country. Ten years after its completion, NPS architect Sharon Park assessed the project as one of two case studies in a national review of the process. The assessment showed that the dampcourse layer was effective in reducing rising damp.[113]

109. Park, "Rising Damp," p. 24.
110. Dampcoursing is also known as the Massari system; Baird Smith, *Moisture Problems in Historic Masonry Walls: Diagnosis and Treatment,* National Park Service, Preservation Assistance Division, 1984, p. 40.
111. Park, "Rising Damp," pp. 24-25.
112. Ibid., p. 25.
113. Ibid., pp. 23-27.

Concurrent with the drilling project was work on the north and south galleries, though the extent is unclear. In pre-work reports the project is termed stabilization or restoration, with a recommendation for replacement of deteriorated parts, though it was reported that a great deal was deteriorated. However, a January or February 1980 memo reports that the second-floor galleries were "reconstructed."[114] The same memo reports that the exterior walls and columns were restuccoed and doors and windows were repaired.

The exterior was repainted after these projects, but in June 1980, it was to be repainted after the color was found to be "too pink in the opinion of Mr. Wilson," and pinker than the anticipated color. The new approved color (De Voe color N-14, Munsell Scale 5YR-8/4) was to become "the official paint color designation for any future repainting of the walls."[115]

Vacant Again

The house served as the main visitor contact station for 28 years until April 1986, when the museum and office functions moved to a new Chalmette Visitor Center and the house lost its use.[116] The building was closed, but the lack of ventilation contributed to more rapid deterioration.

During this time, documentation was approved and accepted for the National Register of Historic Places listing of the Chalmette Unit of the park as an historic district at the national level of significance, with a broad period of significance of 1800-1899. Although not associated with the 1815 Battle of New Orleans, the house is noted as significant in its own right and a contributing structure in the district, described as "architecturally significant in that it embodies the distinctive characteristics of French Colonial architecture as well as that of the Greek Revival period," and that the building was "accurately restored…in 1956-57," when in fact, the building was substantially remodeled in the 1957 project for use as the visitor center.[117]

114. Chief, SW Cultural Resources Center, to Superintendent, undated early 1980 (January or February) memorandum (JELAC 3544).
115. Chief, Division of Conservation, SERO, to Superintendent, 17 June 1980, JELA 3348.
116. Blythe, *Administrative History*, pp. 67, 86. Reduced funding resulted in a Visitor Center of only 1,200 square feet.
117. Greene. The park was administratively listed in the Register with passage of the National Historic Preservation



Figure B30. *The Creole Queen* tour boat prepares to dock at the levee in front of the house and Chalmette monument. (public domain photograph)

With concern for the condition of the mothballed building growing, the park submitted a proposal In March 1988 for preparation of a detailed Preservation Guide for the continued maintenance and preservation of the house. The proposal explained that the house had been unoccupied since 1986, and "exterior and interior maintenance needs are not now being met in a timely or expeditious manner." The purpose of the Guide was to allow park management to plan a cyclic program of maintenance and preservation projects necessary to preserve the structure, and would provide for periodic inspections and establish methodologies. The proposal emphasized that the house was slowly deteriorating and needed reroofing, repainting, and repairs to the second floor. The proposal was approved by the regional director in May.[118]

This was followed by a preliminary analysis of the structural integrity of the second floor made in March 1989 by SWR Historical Architect Steven N. Burke, who found the loading capacity insufficient for visitors and office use, citing the deterioration of the joist ends. He referenced David Battle's 1979 findings that most joists had rotted ends as a result of water wicking up the masonry walls. Burke advised that significant structural rehabilitation would be necessary to bring the second floor to code.[119]

In 1990 the new Development Concept Plan, which amended the 1945 general development plan, addressed the rehabilitation of the house but did not alter the alternatives set out in the 1978 HSR, stating, "…the interior (of the Beauregard House) will be adaptively used and the exterior will be preserved."[120] This was the first official change to the 1945 plan's call for demolition of the house.

In September 1991, preservation staff from the Southwest Region inspected the house and recommended the park address cyclic maintenance items, including replacement of unspecified deteriorated front and rear gallery wood structure; repair of gutters and downspouts that were causing deterioration of adjacent stucco; refastening of all roof slates where the early cut nails were rusting; and the need to move heavy cabinets from the centers of upstairs rooms, where they were causing deflection.[121]

Also prepared in 1991 was an in-depth Inventory/ Condition Assessment Program (ICAP) inspection of individual features of the building. The ICAP findings were immediately useful. In the fall of 1991, Senator J. Bennett Johnston, Jr. received a letter from the tour boat company expressing concern about the condition of the Beauregard House, noting that 200,000 passengers visited the battlefield each year, most to see the house (*Fig. B30*).

In response to Johnston's subsequent inquiry, the SWRO regional director confirmed the need for maintenance, while pointing out that the house in recent years had "received critical preservation treatments, including asbestos abatement, repainting, termite control, and new interpretive

Act in October 1966. NPS List of Classified Structures (LCS 021367) mistakenly lists state level of significance.

118. Superintendent M. Ann Belkov to SWRO Regional Director, "Development/Study Package Proposal," 4 March 1988, approved 19 May 1988, JELAC 3318, Proposal 10-238 (JELAC 3318).

119. "Structural, Life Safety, and Hazardous Materials Analysis of the Second Floor, Rene Beauregard House," 24 March 1989, Acc JELAC 101 JELA 007/02.10 JELAC 4514.

120. National Park Service, "Chalmette Unit, Jean Lafitte National Historical Park Amendment to the General Management Plan/Development Concept Plan," April 1990, p. 11.

121. Trip Report of 25 September 1991 from SWR Supervisory Architect to SWR Acting Director and Division Chief Barry Sulam, 11 December 1991, Acc JELAC 101 JELA 007/02.10 JELAC 4514.

displays." Pressing current needs included "continuation of repairs and tests for termite damage of wood decking and structural members; reinforcing the staircase; and interior replastering, painting, and millwork." He cited the ICAP report that approximately $145,000 would be needed over a two-year period to correct those conditions.[122]

The director assured Johnston that "all necessary evaluations and preparations have been accomplished for placing the Beauregard House in a target classification for cyclic maintenance funding," but explained that the SWRO budget might not be adequate to cover all major deficiencies.[123]

He explained that restoration of the house "to its original condition is not a viable management option. The structure has undergone significant modification since its original construction, and therefore represents no distinctive period in history," and that NPS policy called for preservation rather than full reconstruction.[124]

In July 1991, before Johnston's letter, the park had submitted an environmental assessment for an interior rehabilitation project to reverse elements of the 1957 adaptation for use as the visitor center. The project was driven by the need to install sprinkled fire protection before the upcoming celebration of the anniversary of the Battle of New Orleans. The design and installation depended on completed removal of 1950s enclosures and infrastructure before installation.[125]

Planning for the improved fire protection at the unoccupied house was aided by a May 1992 visit from a Structural Fire Protection Specialist from the NPS Fire Management office in Idaho. His summary of the visit included concern about the structural stability of upper floors; a recommendation for automatic sprinkler systems; suggestions to turn off electric power for safety, except for alarm systems; the need to test water pressure and availability; and suggestions regarding alarm systems and coordination with the fire department.[126]

In April 1993, a request was made for an A&E team to conduct an analysis of the Beauregard House, to include a condition assessment for deterioration problems and safe loading calculations for floors, roofs, and galleries. The SWR preservation crew would be involved in the early stages of the project, including opening the floors for termite inspection and treatment.[127]

Burke's 1989 inspection and continued concerns about the structural condition of the second floor were addressed in May 1993 in an engineering analysis by J.F. Sato and Associates of Littleton, Colorado. At that time used for offices, the second floor was proposed for multi-purpose use, including a meeting room. A knife-probe test of a single joist end at its connection to the masonry north wall showed it to be solid and the masonry dry but soft. A structural analysis, noted as limited by lack of visibility, concluded that the framing system was adequate for public use "assuming no deterioration of the timber and the supporting walls," and recommended that park staff research areas where rotten joists were reported. In the meantime, they advised infrequent use with only small meetings.[128]

Planning for the house acknowledged its worsening condition. In an undated discussion paper addressing the need for direction on the use and interpretation of the house to help guide elements of the rehabilitation work, the author emphasized that certain work was critical no matter the use, including repairs to the slate roof and dormer windows; structural repairs to the upper galleries; reinforcement to the floor joists of the second-floor west room; upgrading or replacement of the electrical system; and installation of unobtrusive lighting fixtures in the first-floor ceilings followed by replastering of the ceilings.[129]

122. Warren L. Reuther, Jr., President, New Orleans Paddlewheels, to the Delta Region Preservation Commission (DRPC), 7 October 1991; John E. Cook, SWRO Regional Director, to Johnston, 3 December 1991, JELA 4514.
123. Ibid.
124. Ibid.
125. Assessment of Actions Having an Effect on Cultural Resources, July 1991, Acc JELAC 101, JELA117/02.09, JELAC 4513. Superintendent Robert Belous to Claudia Nissley, Western Office, Advisory Council on Historic Preservation, 29 October 1993, Acc JELAC 101, JELA117/02.09, JELAC 4513.
126. James W. Farrel to Gary Hume, Chalmette Unit Manager, 3 June 1992, JELA 4514.
127. Barry Sulam, Chief, SWR Division of Conservation, to Kevin Brandt, SWR Office of Planning, 12 April 1993, Acc JELAC 101 JELA 007/02.10 JELAC 4514.
128. James F. Sato, P.E. and Jose M. Cornejo, P.E., to Bridget Wanderer, Denver Service Center, 4 June 1993, etic file JELA_467_D96_0004pg; a pre-revision version of the letter dated 25 May 1993 is in Acc JELAC 101 JELA 007/02.10 JELAC 4514.
129. Undated, unsigned 5-page discussion paper, "Chalmette," possibly 1992 or 1993, JELA 4514.

The paper then listed the work necessary to restore the original room configuration, including removal of restroom, closets, display cases and bookcases; removal of certain ducts, lights, and tile; reintroduction of the interior masonry wall; opening of infilled windows and doorways; and installation of reconstructed surrounds, baseboards, doors, and mantels. Most of the work could be carried by the skilled carpenter and other maintenance workers on JELA staff. Removal of the 1958 base plantings and asphalt walks was also recommended, with reference to descriptions of vegetation in the early sales notices and the lush plantings in the 1890s photographs (*Figs. B11-B12*).[130]

Work Plan for FY 1993

Anticipated work on the house similar to the paper's list is outlined in a July 1993 memo and listed in more detail in an undated Work Plan for FY 1993.

The park determined that its inspection of the joists would be conducted when the ceiling below was removed to install the sprinkler system, and that the Southwest Preservation crew could help with that and other work necessary before sprinkler installation.[131]

The project was to be phased, with Phase I the stabilization and preparation for installation of the fire suppressant sprinkler system, Phase II the installation, and Phase III the restoration and rehabilitation of the interior spaces.[132]

In August 1993, lab tests found no asbestos in the tile floor of an added closet, and a 1%-5% content in the ceiling tile of the 1957 restroom. Specifications for removal of the asbestos-containing tiles were prepared the next month.[133] In September, Express Air Conditioning and Heating of Chalmette was hired to remove most components of the unused heating and air conditioning system.

Also in September, Donald Del Cid, Professor of Preservation Studies at the Tulane School of Architecture, inspected the house after planned demolitions had begun and found significant structural weaknesses. The cased opening between the center and east rooms of the first floor did not support the joists of the floor above, in part because a row of brick was missing between the header and the plate. He also found joists that were cut when ducts were installed.[134]

In the attic, some of the roof struts were missing their bracing members. Del Cid recommended the vents in the second-floor ceilings be closed since the HVAC system was no longer used, an unfortunate decision that would reduce ventilation of the attic. He found the 1957 chimney stack's wood support system to be compromised and showing deflection, and recommended reconstruction of the original arched base.[135]

1993 Rehabilitation Planning

Karen Lewis of the SWRO Division of Conservation directed the comprehensive project, first preparing a report summarizing the background of the house before presenting plans for its rehabilitation. She reiterated that the loss of fabric in the 1930s to 1950s together with the extensive alterations of 1957 made a restoration impossible, as details and finishes specific to any period before 1957 could not be determined.[136] The overall approach of the project was to preserve the exterior and focus on the interior with the first floor as public space and the second as semi-public space.[137]

Determination of a period of interpretation for the project mimicked Wilson's conclusion in 1956. There was little physical or documentary evidence of the Malus period, and the exterior of the house was predominantly the Cantrelle 1856 Greek Revival. Because both the 1866 and ca. 1890 additions were no longer extant, the Cantrelle period of 1856 to 1866 was again selected. Interior architectural elements and finishes would be created in accord with the Secretary of the Interior's Standards and as funding permitted. The project would be a combination of reconstructed

130. Ibid.
131. Hume, Chalmette Manager, to Sulam, 3 June 1993, and Hume to Superintendent, 12 July 1993, both in Acc JELAC 101 JELA 007/02.10 JELAC 4514.
132. Hume to JELA Superintendent, 12 July 1993 suggesting use of Southwest Preservation crew, Acc JELAC 101 JELA 007/02.10 JELAC 4514.
133. ASSAIGAI Analytical Laboratories, Inc., Albuquerque, NM, "Bulk Asbestos Analysis," 25 August 1993, JELA 3525; "Specifications for Asbestos Removal at the Beauregard House," September 1993, JELA 3525.
134. "Inspection of the Beauregard House by Donald Del Cid," 27 September 1993, JELA 4514.
135. Ibid. No arch was reconstructed, but the wood trusses supporting the chimney have been sistered at their bases.
136. Karen Lewis, "Rehabilitation of the Beauregard House, Jean Lafitte National Historical Park & Preserve, Chalmette Unit," November 1993, p. 6.
137. Lewis, "Rehabilitation," p. 2.

elements, of elements typical to the period of interpretation, and of existing features.[138]

The house was to be interpreted as a river home during the 1850s with the building itself serving as an exhibit. In accord with the 1990 Development Concept Plan, it would be neither furnished nor climate controlled, and would not serve as a typical house museum. Instead, interpretative efforts were to be through displays about river houses and lifestyle. Public access was to the first floor only. The hope was for interpretation to eventually include the landscape around the building, after completion of a full Cultural Landscape Report.[139]

Demolition Discoveries

The Phase I selective demolition revealed hidden historic elements. During removal of the 1957 first-floor ceiling, the team saw what Wilson had seen: the original joists were beaded and finished, and the undersides of the floorboards were apparently whitewashed, indicating they were designed to be a visible feature.[140]

The team also identified small areas of lime plaster remaining on the interior brick that had been retained in 1957 when the cementitious plaster was applied to the majority of wall surfaces. In the first-floor center room about five feet above the floor was a patch of original plaster, applied directly onto the brick, a peach color over a white finish plaster and visible streaks of wallpaper paste. Two areas of historic plaster were found on the fireplace of the first-floor east room, both white with little or no color. On the second floor, on the west wall of the west room were several small areas of historic plaster with a blue finish.[141]

138. Reconstructed features were to follow the Design for Missing Historic Features section of the Secretary of the Interior's Standards.
139. Lewis, "Rehabilitation," pp. 12-15.
140. Ibid., p. 18.

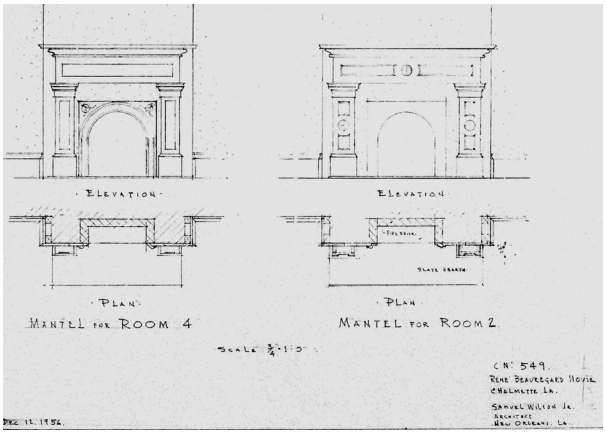


Figure B31. Two mantel designs, a paneled mantel identified for the second-floor west room (left) and a more detailed design for the first-floor west room (right). The first-floor mantel was installed, the other was not. (Wilson drawings, sheet 10A of 11, JELA_467_3050, etic)



Figure B32. The simpler of the two mantel designs for the five new mantels installed in the 1993 project. This is similar to the mantel designed by Wilson in 1956 for a second-floor room, but not installed. (JELA uncatalogued album of MB House Rehab Photos)

Another discovery was the use of metal as part of the vaulting beneath each second-floor hearth. Lewis wrote, "A series of three curved, wrought iron straps were discovered at each second-floor hearth location. These straps had a flange that was set into the brick wall and a lip that fit into a small cut out on the 4x12 cypress beam and was attached with a wrought iron strap. These straps then held a series of wood supports and an arch of bricks set on the stretcher side. The vault was then filled in with brick chips and mortar and covered with a hearth. During architectural investigations, a small piece of purple slate was discovered in the second-floor fireplace debris and it is assumed that this was a historic hearth material."[142] A section of ceiling in the first-floor center room was opened to allow visitors to see the vaulting.

141. Ibid., p. 19.
142. Ibid., p. 17.

Lintels over the doors in the original first-floor partition between the west and center rooms, which at that time opened to the 1957 bathroom and closet, were also thought to be from original construction. Lewis described them as, "set into the exterior wall, are full dimension 4 x 12's, have reciprocating saw marks, and the wood had a mortar shadow where the brick wall ended at one time." She stated her concern that the lintels had been cut during the 1957 ductwork, leaving only four inches of bearing. A similar lintel was in place over the north door between the first-floor west and center rooms.[143]

The 1993-1994 Rehabilitation

The bulk of the 1993 project addressed reconfiguring the house to its pre-1950s layout and reinstalling features and finishes using the 1930s HABS documentation as a guide.[144] On the first floor, the multiple 1957 partitions, casework, and HVAC equipment were removed and doorways restored to original locations. New baseboards and surrounds were milled as needed to match the existing 1957 trim. Surrounds are consistent throughout the house and are similar to the HABS documentation; HABS did not document the baseboards.[145]

The approach to the second floor was similar. In the west room, display cases, floor tiles, and a closet were removed. The center room required more extensive work. A new wall was built to reestablish the three-room plan that was eliminated when the 1957 project removed the vandalized remains of the original partition between the center and east rooms. The windows that were covered with plaster partitions in the 1957 project were uncovered and retained, including those that had been hinged to operate as doors, a closet was removed, and new interior doors were installed.

Of the six fireplaces originally in the house, only one remained; the others had been plastered over or destroyed. All were reintroduced, but non-functional and lacking flues. Those on the second floor were built of wood rather than brick, and covered with plaster.[146] Much consideration was given to the reproduction of mantels (*Figs. B31-32*). The only mantel in the house was in the first-floor west room, the design introduced in the 1957 project. A simple paneled mantel similar to that photographed by HABS and included in Wilson's 1957 drawings was one of two designs used in the 1993 project. The other was simpler still, a plain mantel to define the openings but avoid a false historical appearance, since the designs of other Cantrelle mantels were not known.[147]

Most of the interior cementitious plaster introduced in the 1957 renovation was retained because it was generally sound. Lime plaster was applied on expanded metal lath in the first-floor center room and many second-floor walls. Funding constraints helped guide this decision.[148]

Repairs were made to the windows of the attic dormers that were allowing water infiltration at the sill due to the lack of a seal at the junction of the dormer and slate roof. The team found rags stuffed into the space between roof and sill to reduce the leakage.[149]

On the exterior, the stucco was in generally good condition and the painted lines were sound, with some areas needing repair. The stucco of the columns was also in good condition, but the three-foot-height line was visible between the 1957 stucco and the stucco applied in 1979 after the waterproofing dampcourse installation, and the stucco had begun to blur the outline of the base and capital molding. The many rotten wood elements of the second-floor galleries were replaced, including joists, fascia boards, and decking.[150]

The marble floors of the first floor were proposed for replacement with new three- to four-inch tongue-and-groove cypress boards, in part because the marble and concrete slab did not prevent water infiltration, and in part because the floor material caused confusion for visitors. However, funding was not available and the marble remained. On the second floor, the vinyl and underlayment were removed and the wood floors repaired and patched.[151]

Another hope was correction of the roof color. The original roof slate was the deep purple admired

143. Ibid., p. 19.
144. Ibid., p. 12.
145. Cypress closet doors were to be saved. "Work Plan for FY 1993," undated, JELA 4514.
146. Lewis, "Rehabilitation," p. 17.
147. Ibid., p. 16.
148. Ibid., p. 18.
149. Ibid., p. 11.
150. Ibid.
151. Ibid., p. 18.



Figure B33. Extensive roof repairs underway in January 2007 as part of post-Katrina repairs. Work was completed in 2011. (Wikimedia Commons https://commons, wikimedia.org/wiki/File:ChalmetteBattlePlantationHouseWork.jpg)



Figure B34. Roof repairs, January 2007. (Wikimedia Commons, https://commons.wikimedia.org/wiki/File:ChalmetteBattlefieldPlantationRoofWork.jpg)

in various historical writings, and in 1978 was described in the HSR as dark browns and purple. By 1993 it was a mix of buff, green, and purple slates and had a mottled appearance. Because the roof color was an important visual element of the building, the rehabilitation proposed to replace the green and light color slates with darker brown and purple, but roof repairs were not included in the 1993 phase of work, although the FY 1993 Work Plan reported about twenty "minor leaks."[152]

The project was completed in 1994. Olivier, Inc. of Slidell was contracted to rewire the house, and Hydro Air, Inc., of Arabi installed the new water line and components of the sprinkler system.[153] When the attic was heated to protect the sprinkler pipes, the gallery ceiling grilles were covered as earlier recommended, reducing attic ventilation.

The regional office recommended a comprehensive land survey of the park and a full Cultural Landscape Report (CLR), although a CLR had been completed in August 1999.[154] A complete building investigation, to include a finishes study, was also recommended because the 1993 report was limited to address only the project at hand. Finally, an update of the 1930s HABS drawings was recommended and the need explained.[155]

A Fitting Name

The house received a correction to its name in 1995. It had been called Buen Retiro from Fernandez's 1866 purchase until well after Beauregard's 1904 sale to the Terminal Company, and some years later became better known as the Rene Beauregard House or the Beauregard House. In 1995 the name was changed to Malus-Beauregard House to reflect the original owner after a Malus descendant provided documentation.[156]

152. Ibid., "Work Plan for FY 1993," undated, JELA 4514.
153. Fire sprinkler/waterpipe, Acc JELAC 007/02.07 JELAC 4505. J. Brown, Acting Chief, SWR Division of Conservation, to Associate Regional Director, SWR Resources Management, 15 November 1993, and Purchase Order to rewire house, 27 January 1994 (JELAC 4505).
154. Risk, *Cultural Landscape Report*, 1999.
155. Lewis, "Rehabilitation," pp. 15-16.
156. Initiated by call from Marc Cooper of New Orleans to Karen Lewis, SWR. (Telephone Call Record, 13 January 1994, JELAC 4530). Blythe, *Administrative History*, p. 32 fn 30, cites DRPC minutes, April 12, 1995.



Figure B35. South elevation after exterior paint color was changed from yellow to pink-salmon. (JKOA 2019)



Figure B36. New Chalmette Visitor Center completed in 2010. Repairs to the house were complete, allowing it to open to visitors the same year.

Later Repairs

Work in 1997 included exterior wood repairs, gutter replacement, and roof repairs, apparently extensive. It was not until 2003 that the roof was replaced after a thorough inspection reported deterioration, leaking and inadequate flashing. New slates were installed in darker colors to better resemble the earlier roof. The electrical, fire alarm, and security systems were upgraded, perhaps at the same time.[157]

The 2003 replacement of the roof was timely. Hurricane Katrina in 2005 flooded most of the Chalmette Unit, bringing 3.5 or 4.5 feet, depending on reports, into the Malus-Beauregard House. Though the new roof provided protection to much of the house, the roof itself was severely damaged and the gutters were destroyed, as were the new electrical, fire, and security systems. The building was boarded up until a storm damage project was underway by 2007, including the roof, doors, windows, shutters and other interior and exterior features (*Figs. B33-B34*).[158]

The 1998 Cultural Landscapes Inventory of the Battlefield was updated in 2008 using information from the 1999 CLR and additional research and assessments. It states that in 2000-2008, several of the recommendations in the 1999 CLR were implemented, "including….removal of ornamental vegetation around the Malus-Beauregard House." The report suggests that the house be given a landscape setting of its own that acknowledges the original riverfront orientation and distinguishes the house and grounds from the battlefield zone.[159]

By 2007, severe rot was found in most components of the north and south galleries. Hartrampf, Inc., of Atlanta was hired to design and construct replacement galleries and repair damaged stucco of the columns. Instructions on the drawings were to maintain the existing floor slope, though the slope is not indicated. The existing bearing pockets in walls and columns were enlarged to allow installation of new 6 x 12 members. The work was completed in 2008.[160]

Post-Katrina work included construction of a new Visitor Center, needed after the park's small 1986 Visitor Center was destroyed in the storm. The new, larger Visitor Center opened in 2010 (*Fig. B36*). Work on the house was completed and it was opened to the public by 2011, but was later closed because of the need for repairs. The 2008 galleries were failing due to the replacement design.

In response to recommendations in the 1999 CLR, in 2012 a walkway from the house to the Visitor Center was removed and converted to grass in order to reorient visitors to the front of the house.

In the fall of 2017, a newspaper notice invited volunteers to help with clean-up and repair projects at the house on a Saturday morning, though the work items are not described.[161]

In 2018 a Condition Assessment Report (CAR) was prepared by the firm of Joseph K. Oppermann—Architect, P.A. (JKOA). The assessment was prompted by the failure of the two galleries, but addressed all components of the building and provided recommendations ranked by priority. Among the high priority items was a new design for replacing the galleries. Other high priority items included improvements to the rainwater collection and dispersal system, repairs to the roof, and promoting increased ventilation of the house interior to discourage mildew, condensation, and rot.

157. Project ID PMIS 119095, at back of the January 2007 Storm Damage Repairs, uncatalogued JELA folder.
158. Blythe, *Administrative History,* p. 182, reports 42 inches.
159. Cultural Landscapes Inventory, pp. 23, 55, 79.
160. Hartrampf, Inc., "Final Design Analysis, Restore Failing Galleries of Malus-Beauregard House, PMIS #67261" May 2007, and "Specifications," 18 May 2007 (etic JELA_467_D184).
161. "September 30 Clean-Up and Repair," in *The St. Bernard Voice*, 29 September 2017, p. 18.

Timeline

1718	The French found the city of New Orleans.
1762	France cedes the Louisiana Territory to Spain.
1800	The secret Treaty of San Ildefonso returns the Louisiana Territory to France.
1803	The United States purchases the Louisiana Territory from France.
1805	Ignace Francois Martin de Lino de Chalmet purchases 6 arpents of frontage along the Mississippi River.
1812	Louisiana admitted as the 18th state of the United States.
____	The United States declares war on Great Britain, starting the War of 1812.
1813	Chalmet purchases an additional 16 arpents of frontage immediately upriver from his land.
1815	Battle of New Orleans.
1817	The former Chalmet Plantation is sold to brothers Hilaire and Louis St. Amand, free black men.
1832	The St. Amand Plantation is divided into lots and sold at auction. Claude Alexandre Baron purchases Lot 2 and subsequently constructs a summer home for his widowed mother-in-law, Madeleine Pannetier Malus.
1855	Construction of Chalmette Monument begins.
1856	Caroline Fabre Cantrelle purchases house and remodels in Greek Revival style, adding colonnade of eight full-height columns on front and rear elevations, altering interior floor plan to add interior staircase, and adding Greek Revival trim.
1861	Civil War begins.
1864	Chalmette National Cemetery established.
1865	Civil War ends.
1866	Cantrelle sells to Jose Antonio Fernandez de Trava y Lineros, who continues the use as a summer house and names it Buen Retiro. Adds two-story brick wing on west side with exterior stair at back, stuccoes exterior of house and wing, and encloses north gallery with casement windows.
1874	Fernandez advertises house for sale.
1876	Property awarded to wife Carmen Lessepe Fernandez in settlement.
1880	Rene Toutant Beauregard, son of famous Confederate general, purchases property.

ca. 1890	Beauregard builds two-story frame addition on east side.
1904	New Orleans Terminal (railway) Company purchases house tract as surrounding area is taken over by industrial development. House occupied by Terminal employees and tenants, later by World War I troops, then vacated and begins years of neglect and decline.
1907	Chalmette Monument and Grounds established by Congress.
1933	U.S. War Department transfers the Chalmette Monument to the National Park Service.
1934-35	House is measured and photographed by the Historic American Buildings Survey (HABS). In poor condition but generally intact. West wing collapses 1935 during HABS study.
1938-39	NPS completes inspection report and recommendations regarding use of house as museum and park office.
1939	Chalmette National Historical Park established.
1930s-1940s	Neglect continues, as well as theft and destruction of features by vandals.
1949-1950	Property is transferred through the State of Louisiana to the National Park Service. NPS demolishes east frame wing, "seals" the house against weather, repairs exterior woodwork, replaces slate roof, and paints house while beginning research and seeking funding.
1951	NPS form describes extent of deterioration.
1952	Historian Francis F. Wilshin conducts extensive research and corrects decades of inaccurate reports of original architect and construction date. Research report describes original construction and subsequent changes to house, and assesses condition and extent of vandalism.
1956	NPS receives funding for interior remodeling, hires prominent New Orleans architect Samuel Wilson to design for use as administrative and museum building with a "restoration" period of 1856-1866.
1957	Restoration requires much new material to replace missing and damaged elements, including walls, mantels, interior plaster, doors, windows, and trim. Among exceptions to 1856-1866 restoration period are introduction of marble floors, change to second-floor plan from three rooms to two, and retention of later exterior stucco to conceal damaged brick.
1958	Building opens with superintendent's office and visitor desk on first floor and exhibits on second. Seven thousand visitors reported in first week.
1961	Water seeping through first-level floors.
1963	HVAC system reinsulated.
1964	Furnace replaced.
1966	Chalmette administratively listed in National Register of Historic Places.
1973	Second floor closed to visitors when extensive rot found in upper galleries, extending to second-floor sills and joists.
1978	Chalmette National Historic Park becomes the Chalmette Unit of the newly established Jean Lafitte National Historical Park and Preserve.

1979	Stabilization project drills lower levels of brick walls and columns and fills with impermeable cement to reduce rising damp. Galleries partially or fully reconstructed, exterior walls and columns restuccoed, and doors and windows repaired.
1986	House closed when new Visitor Center opens. Lack of ventilation leads to more rapid deterioration.
1987	Documentation accepted for Chalmette Unit, Jean Lafitte National Historical Park Historic District at the national level of significance. Identifies house as significant in its own right and a contributing structure to the district.
1988	Proposal for Preservation Guide for cyclical inspections and maintenance; house in need of reroofing, repainting, and repairs to second floor.
1991	Inventory/Condition Assessment Program (ICAP) inspects building elements.
1993	Extensive repairs include roof repair, plastering and painting, repair and replacement of front and rear galleries, repairs to marble floors, installation of surrounds and other woodwork, and replacement of interior wall removed during 1957 project. House to remain unfurnished and interpreted as 1850s river house.
____	Regional office of NPS recommends comprehensive land survey of the park and full Cultural Landscape Report (CLR), as well as a complete building investigation including finishes study. Update of 1930s HABS drawings recommended.
1994	House rewired and fire suppression/detection system installed. Gallery ceiling grilles in attic are covered, hindering ventilation.
1995	The name Beauregard House is corrected to Malus-Beauregard to reflect new historical documentation.
1997	Exterior wood repairs, gutter replacement, extensive roof repairs.
2003	Roof replaced in response to severe deterioration, leaking, and inadequate flashing.
2005	Hurricane Katrina floods house; destroys electrical, fire, and security systems; destroys gutters; and damages roof, doors, windows, shutters, and other interior and exterior features. House boarded.
2007	Storm damage repairs.
2008	Galleries replaced.
2010	House is opened to the public, then closed because of need for repairs. Lack of ventilation increases mildew, condensation, and rot.
By 2011	Galleries failing due to design of 2008 replacement.
2018	Condition Assessment Report.
2021	Historic Structure Report.

Physical Description and Condition Assessment



Figure C1. The Malus-Beauregard House viewed from the southeast. Unless otherwise noted, all photos in this section were taken by JKOA and its consultants in 2018-2019.

General Description

The Malus-Beauregard House faces south-southwest. For the purposes of this report, the house is said to face south.

Site Overview

The Malus-Beauregard House lies near the southern boundary of the Chalmette Battlefield, about 200 feet from the levee separating the site from the Mississippi River (*Figs. C3-C4*). The house has the unique interpretive challenge of being part of a larger historic site, while also an historic site in its own right. The site is almost entirely flat, with the exception of a shallow drainage ditch about 250 feet west of the house. Grade level across the site lies at or below the level of the river for the majority of the year, resulting in a very high water table and a consistently high ground moisture content.

Site circulation includes a concrete sidewalk connecting the park visitor center, parking area, restrooms, and the Chalmette monument to the northeast to the house site. Visitors approach the house on-axis with the center of the south elevation after passing through a low wrought-iron fence (*Fig. C4*). River Road passes between the sidewalk and the levee, and is a single-lane gravel road that is not open to public traffic (*Fig. C3*).

Climate

The site is approximately 45 miles from the Gulf of Mexico to the south and about 5 miles east of New Orleans. Summers are long, with both high temperatures and high humidity; the winter season is short, cool, and windy. The hottest portion of the year extends from mid-May to late September; the coldest period extends from early December to late February. The warmest month is July with



Figure C2. View of the Malus-Beauregard House (left) from across the southern portion of the Chalmette Battlefield. Chalmette monument is visible at far right, adjacent to the park visitor center.



Figure C3. View of the house site looking east from the top of the levee. Note River Road in foreground and concrete path extending from the visitor center at left.



Figure C4. Overview of house site looking north. The park visitor center and the Chalmette monument are visible through the trees left of the house.

an average high temperature of 90°F and average nighttime low of 78° F. The coldest month is January with an average high of 62°F and low of 48°F. The hottest and coldest temperatures on record are 102°F in 1980 and 11°F in 1989.

The wettest month is July, and the driest is October. Most rain falls during the 31-days surrounding June 30th, with an average rainfall of 5.6 inches during this period. Average annual precipitation is about 63 inches. Humidity is generally high and temperatures rarely fall below freezing.

Recommendations for addressing Resilience to Natural Hazards are found in Part II: Treatment & Use, p. 124.

Architectural Overview

The Malus-Beauregard House is a two-story, stucco-clad masonry structure with distinctive Greek Revival elements (*Figs. C5-C8*). Two-level gallery porches extend the full length of both the north and south elevations, and are lined by eight Tuscan columns supporting a simple wood entablature.

The slate-clad hip roof is punctuated by six gable dormers, two on each of the north and south roof slopes and one on each of the east and west.

Door and window openings are largely consistent in size and type, with each doorway at the ground level holding identical pairs of sash doors and paneled shutters. Window openings at the second level



Figure C5. South elevation.

are aligned above the doors below, have louvered shutters, and provide access to the gallery decks. Both the east and west elevations have smaller sash windows with paneled and louvered shutters and the first and second levels, respectively.

Exterior Organization

South Elevation

The south elevation is dominated by the eight Tuscan columns forming the two-level south gallery porch (*Fig. C5*). A brick walkway lines the entirety of the elevation behind the columns, and provides access to a modern stair at the east end accessing the second floor of the gallery. The exterior wall of the body of the house is divided into six bays, four of which contain exterior doorways at the first-floor and window openings at the second floor. At the roof level are two gable dormers with window openings. A non-functional brick chimney is at the center of the roof ridge.

East Elevation

The east elevation is flanked by the two galleries at the north and south ends with the masonry block of the house at the center (*Fig. C6*). The entablature spans the entire elevation and a gable dormer is centered on the roof slope. Two window openings, smaller than those found on the long elevations, are at each of the first and second floors.

North Elevation

The north elevation is a near mirror image of the south elevation, except that it has one additional first-floor doorway and corresponding



Figure C6. East elevation.



Figure C7. North elevation.

second-floor window opening the easternmost bay (*Fig. C7*). The upper deck of the north gallery can only be accessed from the interior, as there is no exterior stair.

West elevation

The organization of the west elevation is a mirror image of the east elevation; however, the second-floor window opening is lower on the west elevation than on the east elevation (*Fig. C8*).



Figure C8. West elevation.

Construction Characteristics

Structural System

Foundation & Floor Framing

The footings of the exterior walls and columns are concealed below grade. A modern poured-in-place concrete slab is consistent throughout the interior at the first floor.

As part of the investigations for this report, probe openings were created in select areas of the first-floor ceiling to assess the floor structure of the second floor. Beaded-edge joists measure 3⅞" wide by 10¾" deep and are spaced at 29" on center (*Fig. C9*). Joists run north-south, except for those beneath Room 202, which run-east west. There is no subfloor; the underside of the second-floor flooring is visible through the probe openings. Evidence of possible limewash on both the joists and flooring, as well as the decorative edge beads on the joists, suggest that the floor structure was originally exposed on the ceiling.

The attic floor level framing is largely concealed by flooring; however, floor joists appear to be about 4 inches by 11 inches at approximately 24 inches on center running north-south.



Figure C9. Beaded joist exposed in Room 101. Note edge beads.

Wall Framing

Exterior walls are of load bearing brick masonry and measure about 16" thick. In most locations, modern wood furring strips have been added to the interior to provide a nailing surface for the wire lath plaster finishes (*Fig. C10*). One probe location opened as part of the investigations for this report showed plaster applied directly to the masonry on the east wall in Room 104 (*Fig. C11*). The plaster on the two major interior cross walls also appears to be directly applied to the masonry; however, probes were not opened on these walls.



Figure C10. Probe opening showing furring strip and metal plaster lath.



Figure C11. Probe opening showing plaster applied directly to masonry on east wall of Room 104.

With the exception of the wall separating the stair hall at the first floor, second floor, and attic levels, all interior walls are of brick masonry construction. At the first floor, interior walls measure about 16" thick overall, while at the second floor, interior walls measure about 9" thick overall.

The wood frame partition walls forming the stair hall at each level measure 6" thick. Wall framing is exposed on a portion of the east wall in Room 203 and have 2" by 4" studs turned perpendicular in the wall cavity (*Fig. C12*). Random-width plank board sheathing appears continuous behind the plaster walls and measure about ¾" thick.

Roof Framing

The roof is supported by four trusses running north-south. Each of the four trusses is supported on vertical posts supported on the north and south exterior walls of the structure (*Fig. C13*). The outboard ends of the trusses are supported on the gallery columns. Two purlins span across the along the top chords of the trusses. The upper purlin is located within a foot of the intersection of the horizontal bottom chord and the diagonal top chord. The lower purlin is located halfway between the horizontal bottom chord and the base of the diagonal chord. All major connections are pegged mortise and tenon. Hip rafters tie into the far eastern and western roof trusses at the top of the king posts.



Figure C12. Exposed framing on east wall of Room 203.



Figure C13. North end of easternmost roof truss. Note vertical members supporting truss and rafters (Photograph by BPE)

The king post extends approximately 12 inches above the intersection of the two diagonal top chords to support a rafter. Rafters measure 3½" wide by 4½" deep. The rafter is supported at the top of the king post, at the upper purlins, at the lower purlins, and at the top of the gallery columns (*Figs. C13-C14*). A rafter supporting the bell-cast measures 3¾" wide by 7" deep and joins the first rafter approximately half-way between the upper and lower purlins (*Fig. C15*). It is believed that the bell cast was added when the Greek revival entablature was added, which necessitated a higher eave line.

The bottom chords of the center trusses have been sistered on both sides. The sisters are bolted to the truss as approximately 24" on center with a half-inch diameter bolt (*Fig. C16*). A reconstructed brick chimney stack is supported by three wood beams measuring 12" on center that span between the two center trusses (*Fig. C16*).



Figure C14. Intersection of hip rafters at king post of truss. (Photograph by BPE)

It is possible that the trusses have double bottom chords. It appears that there is a lower chord under the attic floor, but this could not be confirmed. There is a member visible under the attic floor that appears to be approximately 12" to 14" deep by 4" wide. This is a size expected for a lower chord. Visual investigation was not able to confirm the connection of the top chord and the intermediate pieces to this member, which would allow it to act as a truss.

Gallery Porch Deck Framing

Framing of the two gallery decks includes north-south girders spanning between the exterior wall and each of the eight columns, an east-west edge beam spanning between the columns at each bay,



Figure C15. Bell cast rafter joining main rafter at dormer. Note what appear to be salvaged boards at the side wall of the dormer.



Figure C16. Chimney stack supported between two center trusses. Note bolts of sistered bottom chord at far left.

and three purlins also running east-west (*Figs. C17-C19*).

The north-south girders and edge beams measure 5⅞" wide by 11⅞" deep. The purlins measure 3" wide by 5⅜" deep. The center to center spacing from the edge beam to the first purlin is 44"; from the first purlin to the second purlin is 32"; from the second purlin to the third purlin, which is against the building, is 32½".

Diagonals at each column span between the girders and the edge beam (*Fig. C18*). The diagonals are approximately the same dimension as the purlins.

The purlins are let into the girders at half the girder's depth. This has caused the top halves of the girders to be effectively cut away, resulting in a structural depth of only 6½" for the girders (*Fig. C17*). Nearly all elements of the gallery deck structure are in poor condition.



Figure C17. Girders and purlins of gallery decks.



Figure C18. Diagonal at column. Note deterioration of girder, diagonal, and end beams at left.



Figure C19. Edge beam showing significant deterioration at top edge.

Utility Systems

Mechanical System

The house currently has no active mechanical system for heating or cooling. Abandoned remnants of a gas furnace with air conditioning coils is in the northwest corner of the attic (*Fig. C20*). When operational, the unit was vented through the chimney stack (*Fig. C16*). Ducts remaining from the previous forced-air system are visible in the attic but have been cut off above the second-floor ceiling.

Electrical System

The house is served with a 120/208 volt, three phase electrical service served by utility poles lining River Road. A meter mounted on one of the poles feeds a 400 amp switch with 200 amp fuses (*Fig. C21*). Wires from the switch pass underground to the house. The cables in the switch appear to be 500 MCM, which are capable of carrying more current than they are presently fused for.

The closet beneath the stairs in Room 104 contains two electrical panels, one with a 200A breaker and another with a 100A breaker (*Fig. C22*).



Figure C20. Abandoned furnace in northwest corner of attic.



Figure C21. Meter and switch east of the house along River Road.

The panel containing the 200A breaker contains a 100 amp 3-pole breaker that is unlabeled, but is suspected to serve the sewer lift station for the visitor center restrooms. Disconnect wiring in the top of the panel once served a panel on the east wall of the attic, which now appears to be abandoned; the panel once fed the air conditioning system (*Fig. C23*).

The 100A panel contains single-pole breakers for lights and receptacles throughout the house.



Figure C22. Electrical panels and entry point for sprinkler system in closet of first-floor stair hall (Room 104).



Figure C23. Likely abandoned electrical panel at the west end of the attic.

Interior lighting is a mixture of modern recessed can lights, pendant fixtures, and ceramic lamp holders. There are no emergency egress lights with emergency power.

Lightning Protection System

The lightning protection system consists of two symmetrically placed air terminals mounted on the roof ridge. Each air terminal has a two-legged stand with scrolled brackets (*Fig. C24*). Conductors run across the roof and down the east and west elevations. The east conductor is presumably connected to a grounding rod. The west conductor is severed near grade (*Fig. C25*).

Plumbing System

The house has no active plumbing on the interior; however, hose bibs are found at the north ends of both the east and west elevations (*Fig. C26*).

Evidence of an abandoned modern plumbing vent stack remains in the attic (*Fig. C27*).

An abandoned gas meter rig is near the east end of the fence in front of the house, along River Road.

Fire Alarm System

The house is equipped with an addressable fire alarm system manufactured by Silent Knight. The fire alarm panel is on the north wall of the first-floor stair hall (Room 104) (*Fig. C28*).



Figure C24. Air terminal with decorative stand.

Rooms on the first and second floor have smoke detectors, while the attic is protected by heat detectors (*Fig. C29*). Tamper and flow switches from the sprinkler system are tied into the fire alarm system. An alarm pull station is in the southwest corner of Room 101 and northeast corner of Rooms 103 and 203. Alarm beacons are mounted in the southwest corner of Rooms 101 and 201, and the northeast corners of Rooms 102, 103 and 203 (*Fig. C30*).



Figure C25. Severed conductor on west elevation.



Figure C26. Exterior hose bib on east elevation. The hose bib on the west elevation is similar.



Figure C27. Abandoned plumbing vent disconnected at attic floor.

Fire Sprinkler System

The fire suppression system is an automatic wet-pipe system fed from a main running beneath River Road. A post indicating valve is adjacent to the road. The line has a backflow preventer outside the house, then enters the building at the southeast corner. The fire department connection for the sprinkler system is adjacent to the Post Indicator Valve. A manhole cover near the fire department connection is locked, but is suspected to contain the check valve for the fire department connection.

The main riser for the sprinkler system runs vertically through the stairwell (Rooms 104 and 204) to horizontal branches above the first-floor ceiling and attic. The system serves both interior floors, the attic, and the upper level of the gallery porches. The lower level of the galleries is not protected by the sprinkler system.



Figure C28. Fire alarm panel (right) and security system keypad (left) in northwest corner of first-floor stair hall (Room 104).

Sprinkler heads on the first and second floor are concealed-type heads with plastic cover plates. Sprinkler heads in the attic are upright heads (*Fig. C31*). The sprinklers in the porch ceilings have dry-barrel heads to protect them from freezing. The porch sprinklers are of an older design and have fusible links for activation (*Fig. C32*).

Security System

A Gemini- branded security system control panel is mounted on the west wall of the first-floor stair hall (Room 104) (*Fig. C28*). Rooms typically have ceiling-mounted motion detectors. The northern doorway of Room 103, which serves as the primary point of entry for park personnel, is equipped with an entry sensor.



Figure C29. Typical ceiling-mounted smoke alarm (top) and motion detector (bottom).



Figure C30. Typical fire alarm pull station and beacon, in this case in Room 203.



Figure C31. Typical upright sprinkler head in attic.



Figure C32. Typical older sprinkler head on gallery porch ceiling.

Exterior Features

The majority of exterior features, including window sash, doors, window and door frames, hardware, gallery decks, gallery balustrades, roofing, pavers, and chimney were recreated as part of the 1957 exterior restoration project. Early sections of stucco may remain high on the north and south elevations, due to protection provided by the gallery ceilings. Similarly, the entablature likely contains a large amount of early material due to being protected from weather and out of reach of vandals.

Exterior Walls

The exterior brick masonry walls is largely concealed by cement stucco. An area of exposed brick construction at the east end of the south elevation reveals red-orange brick typically measuring 2¼" tall by 8" long *(Fig. C33)*. The brick appears to be laid in a common bond pattern, and shows evidence of being gouged to allow the stucco finish to adhere (*Fig. C34*).

The stucco has a uniform, lightly textured finish and is scored to give the appearance of cut stone blocks in a running bond pattern. Each block typically measures 4'-10" wide by 1'-6" tall with ¼"-wide concave joints painted dark brown (*Fig. C35*).



Figure C35. Typical stucco finish with scoring.

Modern cast metal vents are spaced along the base of the north and south elevations, four on the south elevation and three on the north (*Fig. C36*). Modern brick masonry can be observed through the vents. Each vent appears to open to the wall cavity behind the finished interior plaster. It is suspected, though unconfirmed, that the vents were designed to provide airflow within the wall construction to prevent moisture from building up behind the plaster. It appears that the addition of the vents was part of the 1957 design, based on their absence in historic photographs.

Columns & Entablature

The north and south gallery porches are each supported at their outer bearing by eight Tuscan columns. The columns are constructed of brick masonry finished with smooth stucco with a subtle textured finish similar to that found on the main block of the house.



Figure C33. Exposed section of brick masonry at east end of south elevation. Note unfinished stucco above.



Figure C34. Gouging of brick faces to facilitate stucco adhesion. Also note open joints.



Figure C36. Modern vent typical at the base of the north and south elevations.



Figure C37. Typical column base and plinth.



Figure C38. Typical column capital.



Figure C39. Column capital with flashing, entablature, and fascia.

Each column rests on a plinth measuring 3'-4" square by approximately 6" tall from grade and 4" tall from the brick paving of the lower level of the gallery (*Fig. C37*). The column bases are formed by a 5"-tall torus and an approximately 3"-tall cimbia. The shaft of each column measures 2'-6" in diameter at the base, 2'-3" at the second floor, and 2'-0½" at the capital. Each capital consists of an astragal, collarino, and echinus capped with a square wood abacus with molding at its upper edge. The abacus extends roughly 5" beyond the face of the entablature, forming a ledge that is covered with copper flashing (*Figs. C38-C39*).

A simple entablature spans the gallery columns and continues around the east and west sides of the main block of the house. Based on historic photos, much of entablature appears to have been intact immediately prior to the 1957 project and may contain examples of early materials.

The entablature measures about 2'-0" tall and consists of a flat architrave and frieze that sits slightly proud of the stuccoed exterior walls and about 5" inside the abacus of the column capitals (*Figs. C39-C40*). A square taenia molding separates the upper and lower portions of the entablature. An ovalo molding at the top of the frieze marks the beginning of the cornice. Above the molding, rectangular block mutules extend approximately 10" beneath the soffit and are spaced at approximately 2'-6" on center. The plank fascia board measures about 1" thick and serves as the mounting point for the half-round gutters.

Exterior Doors

The house has a total of nine exterior doorways, four on the south elevation and five on the north. The doorways are spaced such that they are aligned between the north and south elevations in plan,



Figure C40. Detail of entablature.

with the exception of the easternmost doorway on the north elevation, which does not have a corresponding south doorway.

Each doorway measures 3'-11½" wide by 8'-3½" tall overall and have a 5 ½"-tall marble threshold (*Figs. C41, C43*). Each doorway is spanned by a ferrous lintel. Molded exterior casings measure 3¾" wide on each doorway, and are nearly flush with the surrounding stucco, extending only ⅛" at their outer edge (*Fig. C42*). The center of each jamb has a 1⅞" wide by ½" thick trim piece, likely covering a seam. The doorway in the center bay of the south elevation has a projecting wood pediment measuring 5'-4" wide and extending 4" from the exterior wall (*Fig. C44*).

Each doorway holds a pair of reproduction eight-light-over-one-flat-panel sash doors. Dimensions vary slightly from one doorway to another, but typically measure 1'-11¾" wide by 8'-3½" tall. Stiles measure 3" wide and top, lock, and bottom rails measure 3", 10", and 9" tall, respectively. The panels have applied molded sticking. Each door is hung with three 4"-tall, two-knuckle butt hinges (*Fig. C45*). The primary leaf of each doorway has a reproduction rim lock measuring 5⅞" wide by 3½" tall by ⅞" thick with a 2"-diameter brass knob and 2¼"-tall oval keyhole escutcheon (*Figs. C46, C48*). Each secondary leaf has head and foot bolts made up of ⅜" square stock (*Fig. C47*). Head bolts measure 2'-6" long, while foot bolts measure 1'-0" long (*Fig. C47*). The base of each doorway has a beveled wood threshold measuring 4" wide by ¾" tall. All doors and door casings are painted white, while hardware is painted black.



Figure C42. Typical exterior door casing.



Figure C43. Typical marble threshold.



Figure C41. Overview of typical exterior doorway.



Figure C44. Pediment above center doorway on south elevation.



Figure C45. Typical butt hinge of exterior door.



Figure C48. Typical exterior knob and keyhole escutcheon.



Figure C46. Typical rim lock of exterior door.

Each of the exterior doorways has a pair of exterior shutters functioning as exterior doors with three-solid-panels on their interior face (*Fig. C49*). Each leaf measures 1'-11¾" wide by 8'-3½" tall with a ¾"-wide rounded astragal at the meeting edge. The exterior face of the doors is made up of 7½"- wide single-beaded boards with 3/16"-wide beads (*Fig. C50*). These backside of these boards form the field of the panels. The interior face has three solid flat panels with



Figure C47. Typical foot bolt. Note that head bolts are of a similar design.



Figure C49. Front and back sides of typical exterior doorway shutter.



Figure C50. Bullet catch and beaded exterior boards of shutter.



Figure C53. Rim lock and loop catch on inside face of doorway shutter.



Figure C51. Detail of shutter panels.



Figure C54. Typical exterior knob and keyhole cover associated with rim lock pictured in Figure C53.

molded sticking (*Fig. C51*). Stiles measure 5” wide and top and cross rails each measure 5” tall, while bottom rails measure 9” tall. Each shutter is hung with three two-knuckle butt hinges measuring 2½” tall with a 5” overall spread allowing the shutter to open flat against the exterior wall (*Fig. C52*). Reproduction rim locks and head and foot bolts on select shutters match those found on the inner pair of doors (*Fig. C53*). Exterior keyholes have swiveling covers (*Fig. C54*). Some doors have slide bolts measuring about 6" long rather than a rim lock (*Fig. C55*).

When in a closed position, each shutter is held in place with a 1’-0” long iron hook mounted to the door jamb with a 3” tall by 2” wide mounting plate



Figure C52. Typical shutter hinge.



Figure C55. Slide bolt on interior face of doorway shutter.



Figure C56. Shutter hook on exterior door jamb.

(*Fig. C56*). A loop catch with similar mounting plate is found on the lower lock rail of the shutter (*Figs. C53, C55*). When opened against the exterior wall, the shutters are held by a bullet catch (*Figs. C50, C57*). The shutters are painted dark green and all hardware is painted black.

Windows

The house has two window designs: six-over-six wood double-sash windows on the east and west elevations and dormers, and six-over-nine-light sash windows on the north and south elevations at the second floor. All window sash and shutters appear to be modern reproductions. Four of the nine six-over-nine configuration windows have a hinged lower sash to allow easy entry to the gallery decks. This design was introduced as part of the 1957 rehabilitation. The remaining second-floor windows operate as double-sash windows where the bottom sash extends into the top of the window frame when fully raised, allowing unobstructed access to the gallery decks and reflecting the historic design.



Figure C57. Bullet catch keeper on exterior wall.

The six-over-six-light windows at the first floor measure 3'-2" wide by 5'-10" tall, while those at the second floor measure 3'-2" wide by 6'-8" tall (*Figs. C58-C59*). Each is secured with a sash lock. The window frames form the casings at each of these openings, measures 2" wide, and is inset within the masonry opening. Wood subsills measure 1¾" thick and are slightly pitched to shed water (*Figs. C60-C61*).

Shutters at the east and west elevations are of a two-solid-panel design at the first floor and a two-louvered-panel design at the second floor. The shutters measure 1'-7" wide by 5'-10" tall at the first floor and 1'-7" wide by 6'-8" at the second floor (*Figs. C58-C59*).

The solid panel shutters match the design found on the first floor doorways, except that they have two



Figure C58. Typical six-over-six-light double-sash window design found on the east and west elevations, in this case at the first floor.



Figure C59. Louvered shutters of second-floor windows on east and west elevations.



Figure C60. Modern shutter hinges and bullet catches on first-floor window on west elevation.



Figure C61. Reproduction shutter hinges on east elevation and second-floor west window shutters.

solid panels rather than three. The west shutters at first floor are each hung with two 2½" tall, two-knuckle hinges and slide bolt matching those found on the first-floor doorway shutters. The other east and west shutter hinges are of the same size, but are reproductions of a more historic design (*Figs. C60-C61*). Both pairs of first-floor shutters have bullet catches matching those found on the first-floor doorways.

The window openings on the north and south elevations are of a six-over-nine-light double-sash design and each measure 3'-9" wide by 9'-10½" tall (*Fig. C62*). The bottom sash measures 5'-10½" tall, while the top sash measures 3'-11" tall. The top sash are designed to extend into an interior pocket at the head of the window, creating a larger opening when the bottom sash is fully opened to allow easy access to the gallery decks (*Fig. C63*).



Figure C62. Typical six-over-nine-light window at second floor with three-louvered-panel shutters.



Figure C63. Sash cord, pulley, and interior pocket for raised sash at second floor.



Figure C64. Example of hinged lower sash.



Figure C65. Window sill serving as threshold at openings with hinged sash.



Figure C66. Mortised screen door latch on hinged sash.

Window subsills measure 3" thick, and sloping window sills measure 2¾" thick at their interior edge and slope to 1¾" thick at the exterior (*Figs. C62*, *C65*).

The eastern and westernmost window openings on both the north and south elevations have been modified such that the bottom sash are hinged to operate as an inward-swinging door (*Fig. C64*). The sash are hung with two 4" tall, two-knuckle butt hinges and are secured with two-inch barrel bolts paired with either a 5" pull handle or a modern mortised screen door latch (*Fig. C66*). The window sill serves as a threshold, and a second threshold spanning the interior jamb of the modified openings measures 7⅛" wide by ⅞" thick and has a beveled inside edge (*Fig. C65*).

Window frames double as exterior casings and measure 2" wide, inset within the larger masonry opening. All elements of the window sash and frame are painted white. The subsills are painted grey (*Fig. C62*).



Figure C67. Typical shutter fastener at base of second-floor shutters.

Each window opening on the north and south elevations has a pair of three-louvered-panel shutters (*Fig. C62*). Each shutter measures 1'-10" wide by about 9'-10" tall and is hung with three modern 2½"-tall, two-knuckle hinges matching those found on the first-floor doorways. Shutter stiles measure 2½" wide, while top, cross, and upper rails measure 2¾" tall, and bottom rails measure 7¾" tall. Shutters are held in a closed position at their base by a mixture of hook-and-eye latches and shutter fasteners that lock to the window sill (*Fig. C67*). Each pair of shutters has a slide bolt measuring 6½" long mounted on the lower cross rail. Unlike the shutters at the first floor doorways, there is no hardware to hold the second floor shutters in an open position.

The dormer windows are of a six-over-six-light double-sash design and measure 2'-11" wide by 4'-8" tall (*Fig. C68*). Each opening has an approximately 6"-wide plank board exterior casing with simple molded caps at the tops of the side casings.

Gallery Porches

Stacked gallery porches extend the length of both the north and south elevations. The upper gallery decks on both elevations can be accessed from each window opening at the second floor; however, the south gallery deck can also be accessed by an open exterior stair at its eastern end. All elements of the galleries are modern, with the exception of the masonry columns.

Each gallery deck measures about 9'-3" deep and extends the length of the north and south elevations, or about 62'-0" (*Figs. C69-C70*). An opening at the east end of the south gallery deck accommodates the exterior stair. Plank decking boards measure 6" wide by 1¼" thick and have rounded corners (*Fig. C71*). Although the decks are sloped slightly toward the outward edge to shed water, gaps between each board allow water to saturate the framing elements below. Porch framing is described in the *Construction Characteristics* section.

The balustrade of both galleries is identical and measures 3'-2" tall from floor level. The top and bottom rails measure 3" by 3" and have a slightly convex top surface. The bottom rail lies about 5" above the floor. Pickets have an intersecting V-shaped design and each measure 1⅛" square. The point of each "V" is spaced at 6" on center along both the top and bottom rails (*Figs. C71-C72*).



Figure C68. Typical six-over-six-light dormer window.



Figure C69. Overview of south gallery deck looking east.



Figure C70. Overview of north gallery deck looking east.



Figure C71. Modern gallery decking. Note deteriorated balustrade.



Figure C72. Typical reproduction balustrade.



Figure C73. Typical attic vent in gallery ceiling.



Figure C74. Small attic vent near center of north gallery ceiling.

The gallery ceiling lies about 12’-3” above the floor level and is finished with tongue-and-groove boards measuring about 5” to 5½” wide running in the east-west direction. Screened vents, two at each gallery, once provided ventilation to the attic (*Fig. C73*). The vents lie at the far eastern and western ends of the galleries and measure about 2’-0” north-south by 5’-0” east-west. An additional vent opening at the north gallery is near the center of the ceiling and measures about 1’-0” square. It appears this vent may have been related to a previous mechanical system (*Fig. C74*).

Each gallery has two modern recessed ceiling fixtures measuring 1’-0” square as well as six sprinkler heads (*Fig. C75*). At the lower level, each elevation has a modern lantern fixture with clear glass and scrolled bracket support (*Fig. C76*).

Walkways with brick pavers line the north and south elevation at ground level, directly beneath



Figure C75. Modern recessed fixture.



Figure C76. Reproduction lantern at lower level.

the footprint of the decks above (*Figs. C77-C79*). The red-orange brick pavers are mortared in place and are laid in a herringbone pattern with a soldier band at the outside edges. Each paver measures 4¾" wide by 7½" to 7¾" long with about ½"-wide mortar joints. The top surface of the walkways lie about 2" to 3" above grade and terminate near the centerline of the gallery columns. The distance between the walkways at the underside of the gallery deck is about 9'-7" tall.



Figure C77. Brick pavers at ground level.



Figure C78. Overview of lower level of south gallery looking west.



Figure C79. Overview of lower level of north gallery looking east.

Exterior Stair

A U-shaped exterior staircase accesses the east end of the south gallery deck from the first-floor exterior walkway (*Fig. C80*). All elements of the stair consist of modern dimensional material. Each run of the stair measures 3'-9" wide. Nine treads measuring 10½" deep and ten 7¼"-tall risers access the intermediate landing. The landing is rectangular and measures 7'-11¼" north-south by 4'-5" east-west with tongue-and-groove deck boards measuring 3⅛" wide (*Fig. C81*). Six treads



Figure C80. Overview of exterior staircase.



Figure C81. Intermediate landing of exterior stair.



Figure C82. Detail of treads and risers.



Figure C83. Upper run of stairs accessing gallery deck from the intermediate landing.

and seven risers of the same dimension as the lower run continue along the south exterior wall to the gallery deck (*Fig. C83*). Beveled stair nosings extend about 1" and are the underside of the nosings are lined with a cove molding measuring ⅞" tall (*Fig. C82*).

The stair railing measures 3'-0" tall and has a 2 ½"-wide rounded handrail. Pickets terminate into the stair treads at their base and measure 1⅛" wide by ⅞" thick, spaced at 5" on center (*Figs. C82-C83*). Newel posts with 6"-tall finial caps at the landing and base of the stair vary in size; however, most measure 4" by 4" square and several are made up of multiple laminated pieces.

Roof & Rainwater Dispersal

The house has a hip roof with subtle bell cast at the lower third of the roof slope (*Fig. C84*). The roof is clad with modern Vermont slate with variegated coloration ranging from dark to light grey to purplish. Clay ridge and hip tiles are laid flush with one another and appear to have a salt glazed finish, ranging in color from brown-orange, to brown, to purplish (*Fig. C85*).

Six identical gable dormers rise from the roof slope, two on the each of the north and south



Figure C84. Slate roof with bell cast.

elevations and one on each of the east and west. The roofs and sides of the dormers are clad with the same slate found on the main roof (*Fig. C86*). The front face consists of a six-over-six double sash-wood window with approximately 6”-wide side casings with molded top caps beneath a pediment formed by an approximately 8” tall fascia with cove-and-ovolo molding (*Fig. C86*). Copper flashing lines the valleys at the intersection of the dormer roofs with the main roof.

Half-round copper gutters line the perimeter of the roof and measure 6” wide (*Fig. C87*). The gutters are hung from the fascia board by copper straps. The gutters are drained by two 4”-diameter downspouts and two approximately 2”-diameter elbows (*Figs. C87, C89*). The elbows drain from the southeast and southwest corners to grade. The downspouts are at the northwest and northeast corners of the main block of the house, and each



Figure C85. Slate roof with clay ridge and hip tiles. Note detached slate on roof.



Figure C87. Gutter and downspout on west elevation. The east elevation is similar.



Figure C86. Typical dormer with slate-clad sides. Note rot at side casing of window.



Figure C88. Collection basin at grade on the east elevation. The west elevation has a similar basin.



Figure C89. Copper elbow on south elevation.

drain to a brick collection basins (*Fig. C88*). The basins are connected to a subsurface drainage system that is suspected to drain toward the drainage ditch to the west; however, the system appears to no longer be functional.

Two copper air terminals with scrolled decorative stands are spaced along the roof ridge. The lightning protection system is described in the *Utility Systems* section.

Chimney

A red-orange reconstructed brick chimney is centered on the southern roof slope near the ridge. The chimney measures about 3'-8" east-west and about 2'-0" north-south (*Fig. C90*). A corbeled band near the center of the chimney's height extends about 1" in all directions. The chimney cap consists of five corbeled courses, the center and uppermost extend slightly more, the lower extends about 1", while the upper extends about ½". The chimney appears to contain two flues and does not appear to be capped. Copper flashing lines the intersection of the chimney with the roof.



Figure C90. Detail of chimney.

The existing chimney stack is a product of the 1957 project. The stack rests on a wood platform supported by the roof trusses in the attic, and thus never served the interior fireplaces as the original did. The current chimney once vented the mechanical systems, as indicated by a flue opening in the attic; however, the chimney presently serves only as decoration.

Common Interior Features

Nearly all interior finishes are modern replacement material and date to either the 1957 or 1993 work campaigns. There is no clear difference between trim elements introduced in 1993 versus 1957, suggesting many 1957 elements were reused or copied in 1993. Select elements currently found in the building, such as door sticking, door and window jambs, and muntins, do not appear to match the 1934 HABS documentation, nor the field notes recorded by Koch & Wilson Architects prior to the 1957 project. The inconstancies call into question the historical accuracy of these elements.

Flooring

First Floor

Modern blue-grey and white marble tile flooring is consistent throughout the first floor, and was installed as part of the 1957 project (*Fig. C91*). Each tile measures 1'-0" by 1'-0" and is laid in on-point in a checkerboard pattern. The thresholds of both cased openings on the first floor have an alternate pattern with isolated blue-grey tiles surrounded by a white marble tile band (*Fig. C92*). The marble tile extends into the firebox in all three first-floor rooms; however, the fireplace in Room 101 has white marble tile hearth.



Figure C91. First-floor marble tile flooring.



Figure C92. First-floor marble tile flooring at cased opening.

Second Floor

The second floor has tongue-and-groove flooring with widths ranging between 4¾" and 5½" wide by likely ¾" thick. Much of this flooring appears to be early or original, as indicated by evidence of limewash on the underside of the flooring observed through probe openings, as well as burn marks in the flooring near fireplace hearths (*Fig. C93*). Flooring typically runs in the east-west direction; however, the flooring in Room 202 runs north-south. All flooring is varnished with the exception of that in the stair hall (Room 204), which is painted brown.

Baseboards

Historic baseboard profiles are not found in either the HABS drawings, nor the Koch & Wilson field notes for comparison with the current versions.

First Floor

Baseboards on the first floor appear to be modern replacements and measure 10½" tall overall by 1¼" thick with a 2¼"-tall integrated molded cap (*Fig. C94*). The same profile is found on the skirt boards of the interior stair. A portion of the stair skirt at the first floor was noted as having additional layers of accumulated paint, and may hold earlier finishes.

Second Floor

With the exception of those in the stair hall (Room 204), which shares the same baseboards found on the first floor, second floor baseboards measure 8⅞" tall overall by 1¼" thick with a 1⅞"-tall integrated molded cap (*Fig. C95*). The profile of the cap is slightly different than that found on the first floor. Similar to the first floor, all second-floor baseboards appear to be modern, with the possible exception of the baseboard at the west end of the



Figure C94. Typical first-floor baseboards.



Figure C93. Early second-floor wood flooring. Note burn mark likely from logs rolling out of the nearby fireplace.



Figure C95. Typical second-floor baseboards.

south wall of Room 201, which has additional layers of accumulated paint.

All locations of potential early finishes are indicated in BCA's report, found in Appendix F.

Walls and Ceilings

All exposed wall finishes are modern. Walls are finished with plaster on wire lath. At most exterior walls, the finishes are applied to wood furring strips attached vertically to the inside face of the exterior masonry walls (*Fig. C96*). At a probe location on the east exterior wall, the plaster is applied directly to the masonry (*Fig. C97*). The plaster of the interior cross walls also appear to be applied directly to masonry.

Ceilings are modern plaster applied to metal lath (*Fig. C98*). Probe openings created by the park to observe the structural members of the second floor reveal edge-bead ceiling joists and what appears to be limewash or other early finish on the underside of the flooring above. This evidence indicates that the second-floor joists were initially exposed and decoratively treated. They were later covered with a wood-lath plaster ceiling as indicated in historic photographs before the current wire-lath plaster ceilings were installed.



Figure C96. Plaster walls with wire lath and wood furring.



Figure C97. Plaster applied directly to masonry on east wall of the stair hall (Room 104).



Figure C98. Ceiling probe showing wire lath plaster and edge-beaded ceiling joist.

Interior Doors

With the exception of the attic doorway and closet beneath the first-floor landing, all doors are of the same six-flat-panel design (*Fig. C99*). All doors and associated hardware are modern reproductions. Stile and rail dimensions vary slightly from one door to another; however, overall door dimensions are largely consistent throughout the house. Applied molded sticking measuring 1½" wide is typical at all panels.

Each six-panel door is hung with two, two-knuckle butt hinges measuring 4" tall (*Fig. C100*). Mortised locksets have 2"-diameter brass knobs with round rosettes and swiveling keyhole covers (*Fig. C101*). No examples of early hardware are noted.

Door and Window Casings

Door and window casings are consistent throughout the house, and appear to match those depicted in the HABS drawings and the field notes by Koch & Wilson Architects. With few possible exceptions, all current casings appear to be modern. Casings measure 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied cove-and-ovolo molded backband and 3" wide field (*Fig. C102*). Typical bullnose window sills at east and west window openings measure 1¼" thick and have a plank board apron measuring 3½" tall by ⅞" thick (*Fig. C103*).

In situ paint investigation identified the northern casing of the west doorway in Room 104 as having



Figure C99. Typical six-panel interior door.

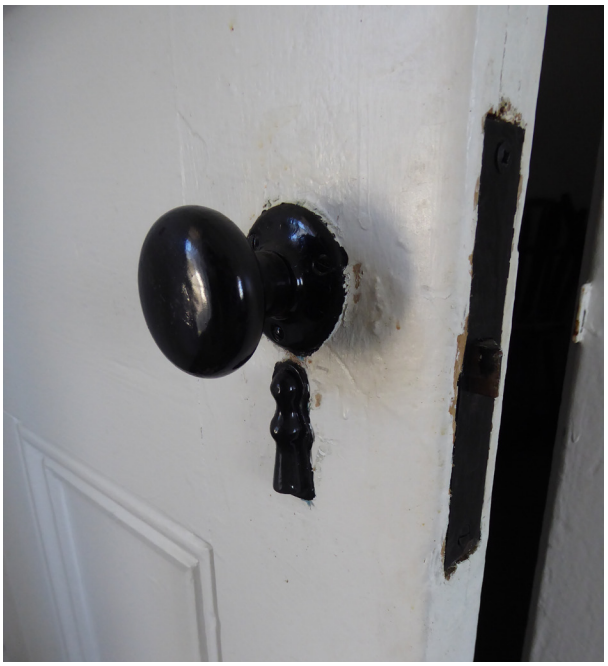


Figure C101. Typical mortised reproduction lockset, knob, and keyhole cover.



Figure C102. Typical door and window casing.



Figure C100. Typical two-knuckle hinge.



Figure C103. Typical window sill.

a greater accumulation of paint layers, possibly suggesting the presence of earlier finishes.

All locations of potential early finishes are indicated in BCA's report, found in Appendix F.

Fireplaces
All elements of the fireplaces on both the first-and-second floors are modern and are non-functional, lacking flues. The mantel in the western room on the first floor (Room 101) dates to 1957, while all others were reconstructed in 1993 based on the design of a mantel depicted in a HABS photograph.

Room-by-Room Description

First-floor Overview
The first floor consists of four directly connected rooms, the easternmost of which contains a stair ascending to the second floor (*Fig. C104*).

Room 101 – Western Room on First Floor
Room 101 lies at the western end of the first floor and measures about 17'-4" north-south by 21'-8" east-west with a floor-to-ceiling height of about 9'-3" tall (*Figs. C105-C108*).

Flooring
Typical blue-grey and white modern marble tile flooring measuring 1'-0" by 1'-0" is consistent throughout the room. The threshold of the cased opening on the east wall has an alternate decorative pattern.

Baseboard
A modern baseboard typical of the first floor measures 10½" tall overall by 1¼" thick with a 2¼"-tall integrated molded cap.

Walls and Ceiling
The walls and ceilings are both finished with modern cement plaster on metal lath. Probe openings in the ceiling suggest that the floor structure above was once exposed (*Fig. C98*).

Doorways
The room has five doorways, two on each of the north and south walls and one on the east wall. The east doorway is a cased opening and the remaining

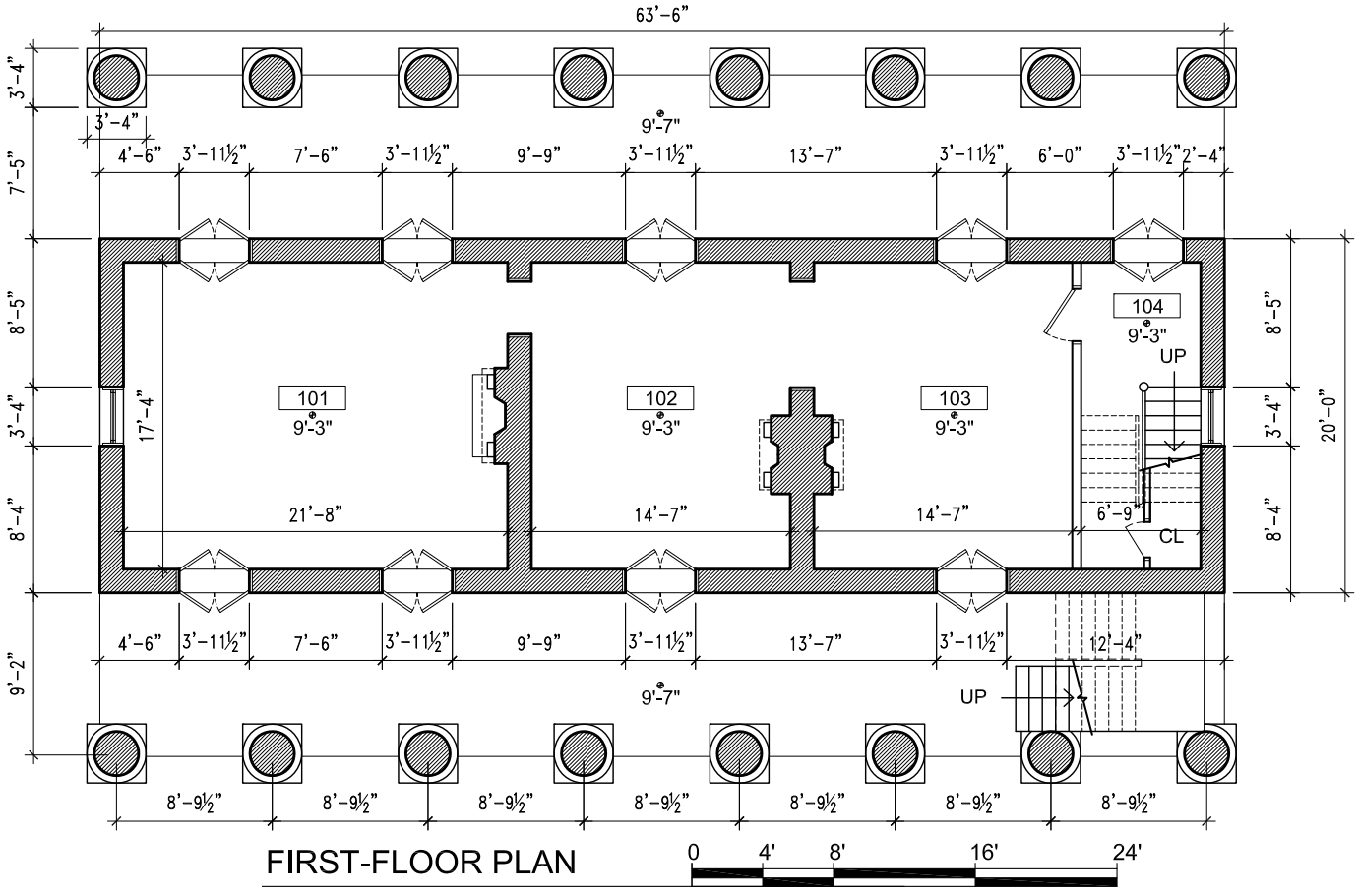


Figure C104. First-floor plan. A larger version of this plan can be found in *Appendix D*.

four doorways are typical exterior doorways as described in the *Exterior Features* section.

The east cased opening measures 2'-11¾" wide by 8'-2" tall (*Fig. C106*).

Each doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅜" wide by 1¼" thick applied molded backband and 3"-wide field.

Windows

One six-over-six-light wood double sash window is centered on the west wall and measures 3'-2" wide by 5'-10" tall.

Window casing matches the door casings. The bullnose window sill measures 1¼" thick and has a plank board apron measuring 3½" tall by ⅞" thick.

Fireplace

The fireplace on the east wall has a modern mantel dating to 1957, and measures 5'-4¾" wide by 4'-0" tall with three recessed panels on each pilaster and across the mantel header (*Fig. C109*). Each pilaster has a plinth with similar to the room's baseboard and a molded pilaster cap. The mantel shelf measures 8" deep by 1" thick and has molded edges.

The marble hearth is flush with the surrounding flooring and measures 4'-10" wide by 10" deep.

The firebox is lined with tan firebrick, and a cast metal arched screen is mounted in the opening. The masonry surrounding the screen is pargeted and painted black.

Finishes

All surfaces, with the exception of the floor, are painted. The walls, baseboards, mantel, and casings of the east doorway are painted white. The ceiling is painted light blue and the exterior doors, window sash, and casings are painted light grey.

Mechanical Systems

There is no evidence of any mechanical systems.



Figure C105. Room 101 - View looking northwest.



Figure C107. Room 101 - View looking southwest.



Figure C106. Room 101 - View looking northeast.



Figure C108. Room 101 - View looking southeast.



Figure C109. Room 101 - Overview of fireplace on east wall.

Electrical System

Eight modern recessed can lights are on the ceiling. The fixtures are controlled a centralized bank of dimmer switches in Room 104.

Recessed outlets are typical on each wall.

Plumbing System

There is no evidence of any plumbing system.

Fire Protection and Security Systems

Four concealed-head sprinklers are on the ceiling.

A wired smoke detector is centered on the ceiling and a fire alarm pull station and strobe is at the far west end of the south wall.

A motion detector for the security system is mounted on the ceiling near the smoke detector.

Room 102 – Center Room on First Floor

Room 102 is in-line with the central bay of the house and measures about 17'-4" north-south by 14'-8" east-west with a floor-to-ceiling height of about 9'-3" tall (*Figs. C110-C113*).

Flooring

Typical blue-grey and white modern marble tile flooring measuring 1'-0" by 1'-0" is consistent throughout the room. The thresholds of the cased openings on the east and west walls have an alternate decorative pattern.

Baseboard

A modern baseboard typical of the first floor measures 10½" tall overall by 1¼" thick with a 2¼"-tall integrated molded cap.

Walls and Ceiling

The walls and ceilings are both finished with modern cement plaster on metal lath. Probe openings in the ceiling suggest that the floor structure above was once exposed (*Fig. C98*).

The brick vaulting supporting the fireplace hearth in Room 202 above is exposed along the west wall (*Fig. C114*). The vault appears to have been reconstructed and left exposed for interpretive purposes.

Doorways

The room has four doorways, one on each wall. The west doorway is a cased opening described in the *Room 101 – Western Room at First Floor* section, while the north and south are typical exterior doorways as described in the *Exterior Features* section.

The east cased opening measures 6'-0¼" wide by 8'-2" tall (*Fig. C111*).

Each doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼"



Figure C110. Room 102 - Overview looking northwest.



Figure C111. Room 102 - Overview looking northeast

thick applied molded backband and 3"-wide field. The head casing of the east cased opening has 1" projecting ears that are unique to this opening (*Fig. C115*).

Windows
The room has no windows; however the exterior sash doors provide daylight.

Fireplace
The fireplace on the east wall has a modern mantel and measures 4'-8" wide by 3'-11⅝" tall (*Fig. C116*). Simple square pilasters have plank board caps and the header is topped with an 8" deep square-edged mantel shelf. The firebox is lined with red-orange brick at the rear and the masonry between the firebox and the mantel is pargeted. The surrounding floor tiles extend into the firebox.

Finishes
All surfaces, with the exception of the floor, are painted. The walls, baseboards, mantel, and casings of the east doorway are painted white. The ceiling is painted light blue and the exterior doors and casings are painted light grey.

Mechanical Systems
There is no evidence of any mechanical systems.

Electrical System
Six modern recessed can lights are on the ceiling. The fixtures are controlled a centralized bank of dimmer switches in Room 104.

Recessed outlets are recessed within the baseboard.

Plumbing System
There is no evidence of any plumbing system.

Fire Protection and Security Systems
Two concealed-head sprinklers are on the ceiling.



Figure C112. Room 102 - Overview looking southwest.



Figure C114. Room 102 - Vault supporting second-floor fireplace in Room 202. Note probe opening at right.



Figure C113. Room 102 - Overview looking southeast.



Figure C115. Room 102 - Eared casing on east doorway.



Figure C116. Room 102 - Fireplace on east wall.



Figure C118. Room 103 - Overview looking northeast.

A wired smoke detector is centered on the ceiling, adjacent to a motion detector for the security system. A fire alarm beacon is at the east end of the north wall (*Fig. C111*).

Room 103 – Eastern Room on First Floor

Room 103 measures about 17'-4" north-south by 14'-7" east-west with a floor-to-ceiling height of about 9'-3" tall (*Figs. C117-C120*).

Flooring

Typical blue-grey and white modern marble tile flooring measuring 1'-0" by 1'-0" is consistent throughout the room.

Baseboard

A modern baseboard typical of the first floor measures 10½" tall overall by 1¼" thick with a 2¼"-tall integrated molded cap.

Walls and Ceiling

The walls and ceilings are both finished with modern cement plaster on metal lath. Probe openings in the ceiling suggest that the floor structure above was once exposed (*Fig. C98*).



Figure C119. Room 103 - Overview looking southwest.



Figure C117. Room 103 - Overview looking northwest.

Doorways

The room has four doorways, one on each wall. The west doorway is a cased opening described in the *Room 102 – Center Room at First Floor* section, while the north and south are typical exterior doorways as described in the *Exterior Features* section.

The east doorway accesses Room 104 and holds a typical modern six-flat-panel door measuring 3'-0 ¼" wide by 8'-3 ¼" tall by 1 ¾" thick (*Fig. 121*). The panels have applied cove-and-ovolo molded sticking measuring 1½" wide. The door is hung with two, two-knuckle butt hinges measuring 4" tall. The door has a typical mortised lockset.

Each doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.



Figure C120. Room 103 - Overview looking southeast.



Figure C122. Room 103 - Fireplace on west wall.

The head casing of the west cased opening has 1" projecting ears that are unique to this opening.

Windows

The room has no windows; however the exterior sash doors on the north and south walls provide daylight.

Fireplace

The fireplace centered on the west wall has a modern mantel of identical design to that described in Room 102 and measures 4'-8" wide by 3'-11⅝" tall (*Fig. C122*). The firebox is lined with red-orange brick at the sides and tan fire brick at the rear. Unlike the fireplace in Room 102, the brick surrounding the firebox is not pargeted. The surrounding floor tiles extend into the firebox.



Figure C121. Room 103 - East doorway holding typical six-panel door.

Finishes

All surfaces, with the exception of the floor, are painted. The walls, baseboards, mantel, and casings of the east doorway are painted white. The ceiling is painted light blue and the exterior doors and casings are painted light grey.

Mechanical Systems

There is no evidence of any mechanical systems.

Electrical System

Six modern recessed can lights are on the ceiling. The fixtures are controlled a centralized bank of dimmer switches in Room 104. Recessed outlets are typical on each wall.

Plumbing System

There is no evidence of any plumbing system.

Fire Protection and Security Systems

Two concealed-head sprinklers are on the ceiling.

A wired smoke detector is centered on the ceiling, adjacent to a motion detector for the security system.

A fire alarm pull station and alarm beacon are at the north end of the east wall (*Figs. C118, C121*).

Room 104 – Stair Hall at First Floor

Room 104 contains the staircase accessing the second floor and contains entry and control points

for many of the building's systems. The space measures about 17'-4" north-south by 6'-9" east-west with a floor-to-ceiling height of about 9'-1" tall at the foot of the stairs (*Figs. C123-C124*).

Flooring
Typical blue-grey and white modern marble tile flooring measuring 1'-0" by 1'-0" is consistent throughout the room.

Baseboard
A modern baseboard typical of the first floor measures 10½" tall overall by 1¼" thick with a 2¼"-tall integrated molded cap. The baseboard extends up the stair as a skirt board.

Walls and Ceiling
The walls and ceilings are both finished with modern cement plaster on metal lath.

Doorways
The room has three doorways, one on each of the west, north, and east walls. The west doorway is described in the *Room 102 – Eastern Room at First Floor* section, while the north is a typical exterior doorways as described in the *Exterior Features* section.

The east doorway accesses a closet beneath the stair and holds a modern board-and-batten door measuring 2'-0" wide by 4'-0" tall by ¾" thick (*Fig. C125*). The door is hung with two, two-knuckle butt hinges measuring 4" tall. The door is hung with two modern cabinet hinges and has a pull handle and cabinet knob. Holes are drilled in the door for ventilation.

With the exception of the north doorway each doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field. The casing on the north doorway matches that of a typical exterior door casing and measures 3¾" wide.

Based on the findings of the in situ finish investigation, the northern casing of the west doorway has more accumulated paint layers and may have earlier finishes.

Windows
One six-over-six-light wood double sash window is centered on the east wall and measures 3'-2" wide by 5'-10" tall (*Fig. C123*).



Figure C123. Room 104 - View looking southeast.



Figure C124. Room 104 - View looking northwest.



Figure C125. Room 104 - Closet doorway beneath stair.

The window casing matches the door casings. The bullnose window sill measures 1¼" thick and has a plank board apron measuring 3½" tall by ⅞" thick.

Staircase

The U-shaped staircase accessing the second floor extends along the east wall to an intermediate landing at the south end of the room before turning to meet the second floor (*Figs. C123, C126-C127*). The 1957 project documentation suggests that portions of stair between the first floor and landing may contain early material, including the newel post and portions of the handrail (*Fig. C127*).

The lower run of stairs consists of eight treads measuring 11" deep by 3'-3 ½" wide by 1" thick and nine 8"-tall risers (*Fig. C123*). Treads have rounded nosings with ⅞"-tall cove moldings along the underside. The rectangular intermediate landing measures 6'-9" east-west by 3'-9½" north-south and has tongue-and-groove flooring measuring between 5 and 5½" wide. Six treads and seven risers of the same dimension reach the second floor from the landing (*Fig. C126*).

Turned spindles measure 1⅛" in diameter at their widest point and support a 2½"-diameter handrail.

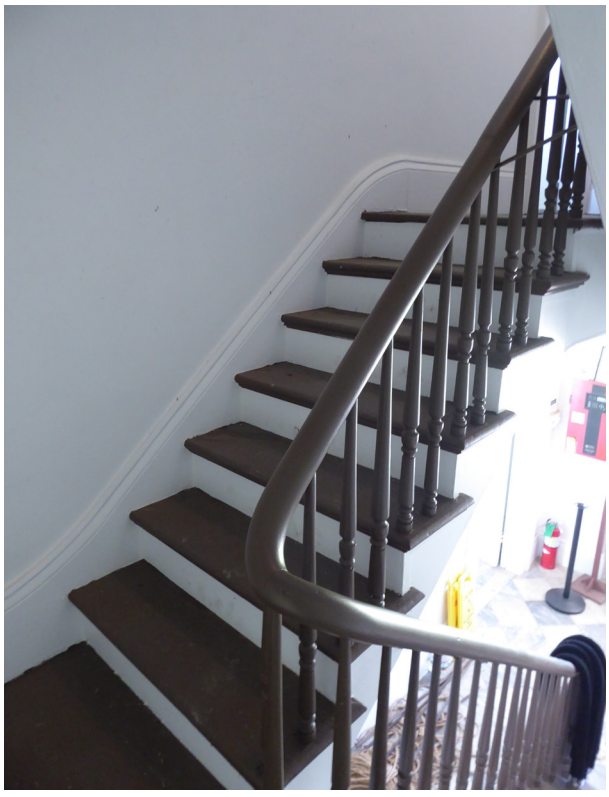


Figure C126. Room 104 - Run of stairs connecting landing and second floor.



Figure C127. Room 104 - Newel post at first floor.



Figure C128. Room 104 - Example of typical handrail hangers.

The handrail curves to serve the second run of stairs and the landing. Two square stock hangers provide additional support to the railing near the landing (*Fig. C128*).

A turned newel post at the base of the stair measures 6" in diameter at its widest point and rests on a plinth measuring 6⅝" wide by 5⅞" deep by 9⅞" tall (*Fig. C127*).

Closet

A closet beneath the stair contains equipment for the fire suppression and electrical systems (*Fig. C129*). These systems are fully described in the *Utility Systems* section. The closet measures about 3'-0" east-west and extends from the south wall to the base of the lower run of stairs, or about 10'-0" in the north-south direction.

Finishes

All surfaces except those contained within the closet, and the flooring, are painted. The walls, ceiling, baseboards, stair risers, stair skirts, and casings of the west doorway are painted white. The exterior doors, window sash, and casings are painted light grey. The stair treads and balustrade are painted brown.

Unpainted brick masonry is exposed on the interior of the closet. The framing members of the stairs visible within the closet are unpainted.

Mechanical Systems

There is no evidence of any mechanical systems.

Electrical System

The closet contains two electrical panels, one with a 200A breaker and another with a 100A breaker



Figure C129. Room 104 - Electrical panels and fire suppression piping in the closet.



Figure C130. Room 104 - Fire alarm panel, security system panel, and dimmer switches for lighting on the first floor.

(*Fig. C129*). The electrical system is fully described in the *Utility Systems* section.

A modern cylindrical pendant fixture is centered on the ceiling at the base of the stairs. The closet is lit by a ceramic lamp holder.

Dimmer switches in the northwest corner control the lighting in Rooms 101, 102, and 103. A switch south of the doorway to Room 103 controls the light at the bottom of the stairs.

A recessed outlet is on the west wall.

Plumbing System

There is no evidence of any plumbing system.

Fire Protection and Security Systems

The control panel for the fire alarm is mounted just west of the exterior doorway (*Fig. C130*).

Two concealed-head sprinklers are on the ceiling.

The water entry point and main riser for the sprinkler system runs vertically through the closet beneath the stairs and into the stair hall (Rooms 104 and 204) to horizontal branches above the first-floor ceiling and attic (*Fig. C129*).

A wired smoke detector is centered on the ceiling.

A Gemini- branded security system control panel is mounted on the west wall, just north of the doorway to Room 103 (*Fig. C130*).

Second-Floor Overview

The second floor has a nearly identical configuration as the first floor, except that circulation between the major rooms occurs along the south elevation rather than the north. Large window openings aligned above the exterior doorways on the first floor provide access to the gallery decks (*Fig. C131*).

Room 201 – Western Room on Second Floor

Room 201 lies at the western end of the second floor and measures about 17’-4” north-south by 22’-2” east-west with a floor-to-ceiling height of about 12’-0” tall (*Figs. C132-C135*).

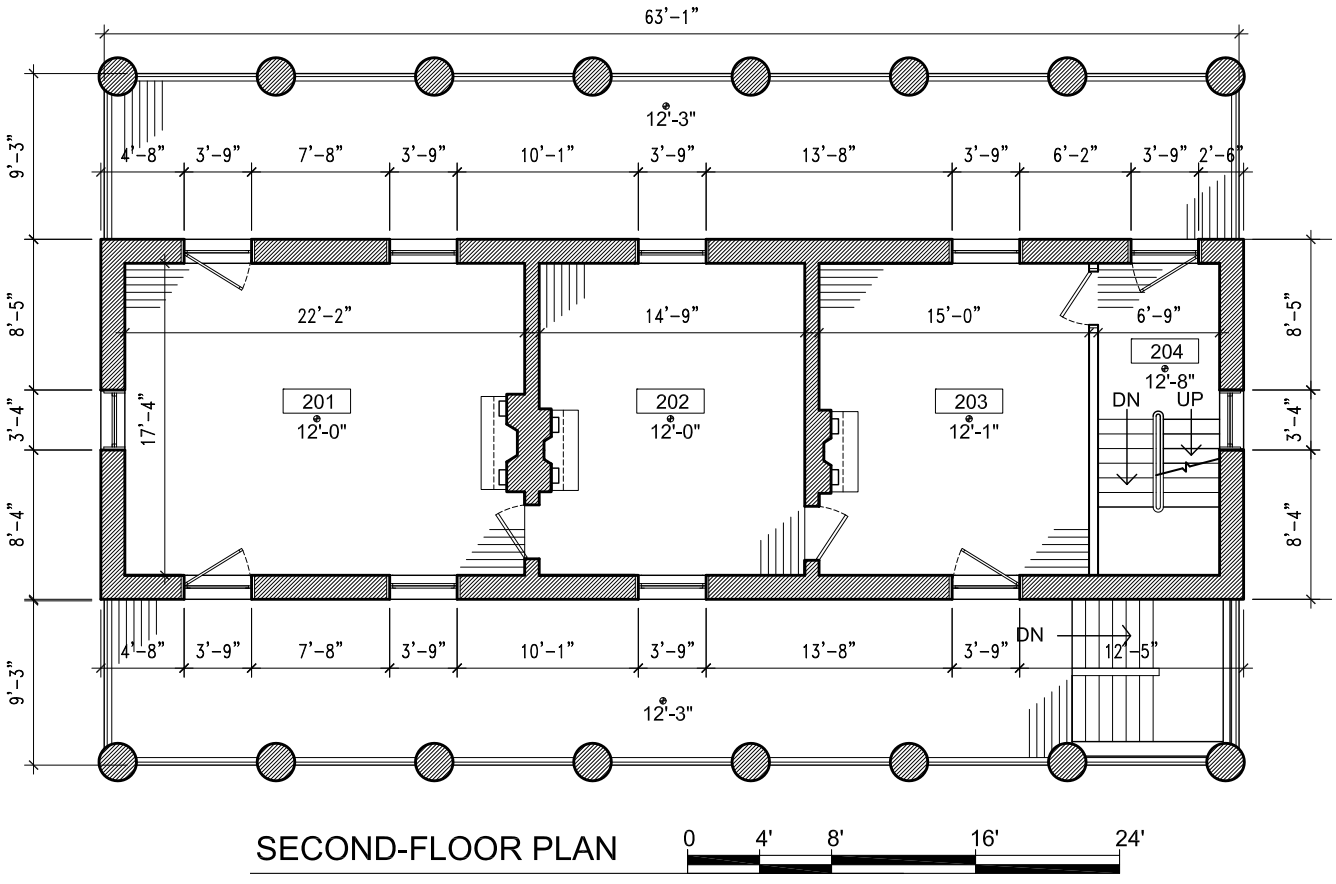


Figure C131. Second-floor plan. A larger version of this plan can be found in *Appendix D*.

Flooring

Tongue-and-groove flooring typical of the second floor has widths ranging between 4¾" and 5½" wide by likely ¾" thick. Flooring runs in the east-west direction.

Baseboard

A modern baseboard typical of the second floor measures 8⅞" tall overall by 1¼" thick with a 1 ⅞" tall integrated molded cap.

Based on the findings of the in situ finish investigation, a section of baseboard at the far western end of the south wall has more accumulated paint layers, and may contain earlier finishes.

Walls and Ceiling

The walls and ceilings are both finished with modern cement plaster on metal lath.

Doorways

The room has one interior doorway on the east wall accessing Room 202 that holds a typical six-panel door measuring 2'-11⅝" wide by 8'-2¼" tall by 1¾" thick (*Fig. C136*). The panels have applied cove-and-ovolo molded sticking measuring 1½" wide. The door is hung with two, two-knuckle butt hinges measuring 4" tall. The door has a typical reproduction mortised lock.

The doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.

Windows

The room has five windows, one on the west wall and two on each of the north and south walls.

The six-over-six-light wood double sash window centered on the west wall measures 3'-2" wide by 6'-8" tall. The bullnose window sill measures 1¼" thick and has a plank board apron measuring 3½" tall by ⅞" thick.

The windows on the north and south walls are typical six-over-nine-light double-sash design



Figure C132. Room 201 - Overview looking northwest.



Figure C134. Room 201 - Overview looking southwest.



Figure C133. Room 201 - Overview looking northeast.



Figure C135. Room 201 - Overview looking southeast.



Figure C136. Room 201 - Typical six-panel door in east doorway.

and each measure 3'-9" wide by 9'-10½" tall. The bottom sash of both western openings are hinged to open inward, while the lower sash of the eastern openings lift into an interior pocket at the head of the window. More detailed descriptions of these window designs can be found in the *Exterior Features* section.

The sills of the north and south windows are at the floor level and measure 7⅛" wide by ⅞" thick and have a beveled inside edge. The inner edge of the 2¾"-thick exterior sill is visible at the base of the bottom sash.

Each window opening has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.



Figure C137. Room 201 - Fireplace on east wall.

Fireplace

The fireplace on the east wall has a modern mantel that measures 5'-2½" wide by 3'-11¾" tall (*Fig. C137*). Each pilaster has a plinth with similar to the room's baseboard and a molded pilaster cap. The mantel shelf measures 8½" deep by 1" thick and has molded edges.

The pargeted hearth is slightly proud of the surrounding floor and measures 5'-4 ½" wide by 1'-4 ½" deep.

The firebox and surrounding masonry is pargeted and a cast metal arched screen is mounted in the opening. The masonry surrounding the screen and the firebox are painted black.

Finishes

All surfaces, with the exception of the varnished floor, are painted. The walls, baseboards, mantel, and door and casing of the east doorway are painted white. The ceiling is painted light blue and the, window sash and casings are painted light grey.

Mechanical Systems

There is no evidence of any mechanical systems.

Electrical System

Eight modern recessed can lights are on the ceiling. The fixtures are controlled a centralized bank of dimmer switches in Room 203.

An outlet is recessed within the baseboard on the south wall.

Plumbing System

There is no evidence of any plumbing system.

Fire Protection and Security Systems

Four concealed-head sprinklers are on the ceiling.

A wired smoke detector is centered on the ceiling and a fire alarm strobe is at the far west end of the south wall.

A motion detector for the security system is mounted on the ceiling near the smoke detector.

Room 202 – Center Room on Second Floor

Room 202 measures about 17'-4" north-south by 14'-9" east-west with a floor-to-ceiling height of about 12'-0" tall (*Figs. C138-C141*).

Flooring

Tongue-and-groove flooring typical of the second floor has widths ranging between 4¾" and 5½" wide by likely ¾" thick. Flooring runs in the north-south direction. An area of patched flooring along the east wall is near the doorway to Room 203, and has boards measuring 3¼" wide (*Fig. C142*).

Baseboard

A modern baseboard typical of the second floor measures 8⅞" tall overall by 1¼" thick with a 1⅞"-tall integrated molded cap.

Walls and Ceiling

The walls and ceilings are both finished with modern cement plaster on metal lath.

Doorways

The room has two doorways, one on each of the east and west walls. The west doorway accesses Room 201 and is described in the *Room 201 – Western Room on Second Floor* section.

The eastern doorway accesses Room 203 and holds a typical six-panel door measuring 2'-11¾" wide by 8'-2 ½" tall by 1 ¾" thick. The door is hung with two typical, two-knuckle butt hinges measuring 4" tall and has a typical reproduction mortised lock.

Each doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.

Windows

The room has two typical six-over-nine-light double-sash windows that extend to the floor, one on each of the north and south walls. Each measures 3'-9" wide by 9'-10 ½" tall and has a



Figure C138. Room 202 - Overview looking northwest.



Figure C140. Room 202 - Overview looking southwest.



Figure C139. Room 202 - Overview looking northeast.



Figure C141. Room 202 - Overview looking southeast.



Figure C142. Room 202 - Flooring patch near east doorway.



Figure C143. Room 202 - Fireplace on west wall.

lower sash that lifts into an interior pocket at the head of the window.

The windows sills are at the floor level and measure 7⅛" wide by ⅞" thick and have a beveled inside edge. The inner edge of the 2¾"-thick exterior sill is visible at the base of the bottom sash.

Each window opening has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.

Fireplace

The fireplace on the west wall has a modern mantel that measures 4'-5" wide by 3'-11½" tall (*Fig. C143*). The pilasters have recessed panels, molded plinths similar to the room's baseboard, and molded caps. The mantel header has a similar recessed panel centered beneath an 8" deep mantel shelf with molded edge. The design of this mantel is similar to the one shown in a HABS photograph.

The firebox and hearth are pargeted and painted black. The hearth measures 4'-4" wide by 1'-5" deep and sits slightly proud of the surrounding flooring. An approximately 2"-wide modern trim board lines the outer edge of the hearth.

Finishes

All surfaces, with the exception of the floor, are painted. The walls, baseboards, mantel, doors and door casings are painted white. The ceiling is painted light blue and the window sash and casings are painted light grey.

Mechanical Systems

There is no evidence of any mechanical systems.

Electrical System

Six modern recessed can lights are on the ceiling. The fixtures are controlled a centralized bank of dimmer switches in Room 203.

Outlets are recessed within the baseboard.

Plumbing System

There is no evidence of any plumbing system.

Fire Protection and Security Systems

Two concealed-head sprinklers are on the ceiling.

A wired smoke detector is centered on the ceiling, adjacent to a motion detector for the security system.

Room 203 – Eastern Room on Second Floor

Room 203 measures about 17'-4" north-south by 15'-0" east-west with a floor-to-ceiling height of about 12'-1" tall (*Figs. C144-C147*).

Flooring

Tongue-and-groove flooring typical of the second floor has widths ranging between 4¾" and 5½" wide by likely ¾" thick. Flooring runs in the east-west direction.

Baseboard

A modern baseboard typical of the second floor measures 8⅞" tall overall by 1¼" thick with a 1⅞"- tall integrated molded cap.

Walls and Ceiling

The walls and ceilings are both finished with modern cement plaster on metal lath. A portion of wall framing is exposed at the south end of the east wall (*Fig. C148*).

Doorways

The room has two doorways, one on each of the east and west walls. The west doorway accesses Room 202 and is described in the *Room 202 – Center Room on Second Floor* section.

The eastern doorway accesses Room 204 and holds a typical six-panel door measuring 2'-11¾" wide by 8'-1" tall by 1¾" thick (*Fig. C150*). The door is hung with two typical, two-knuckle butt hinges measuring 4" tall and has a typical reproduction mortised lock. A hole is cut in the door for a modern deadbolt.

Each doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.

Windows

The room has two typical six-over-nine-light double-sash windows that extend to the floor, one on each of the north and south walls. Each measures 3'-9" wide by 9'-10 ½" tall. The northern window has a lower sash that lifts into an interior pocket at the head of the window, while the south window has a hinged lower sash. More detailed descriptions of these window designs can be found in the *Exterior Features* section.

The window sills are at the floor level and measure 7⅛" wide by ⅞" thick and have a beveled inside edge. The inner edge of the 2¾"-thick exterior sill is visible at the base of the bottom sash.

Each window opening has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.

Fireplace

The fireplace on the west wall has a modern mantel and measures 4'-5½" wide by 3'-11¾" tall (*Fig. C149*). The design of the mantel is identical to that described in Room 202, except that it lacks recessed panels.



Figure C144. Room 203 - Overview looking northwest.



Figure C146. Room 203 - Overview looking southwest.



Figure C145. Room 203 - Overview looking northeast.



Figure C147. Room 203 - Overview looking southeast.



Figure C148. Room 203 - Exposed framing on east wall.

The firebox and hearth are pargeted and painted black. The hearth measures 4'-7" wide by 1'-6" deep and sits slightly proud of the floor. A mitered wood band in the flooring follows the base of the hearth and measures about 5" wide.

Finishes
All surfaces, with the exception of the floor, are painted. The walls, baseboards, mantel, doors and door casings are painted white. The ceiling is painted light blue and the window sash and casings are painted light grey.

Mechanical Systems
There is no evidence of any mechanical systems.



Figure C149. Room 203 - Fireplace on west wall.

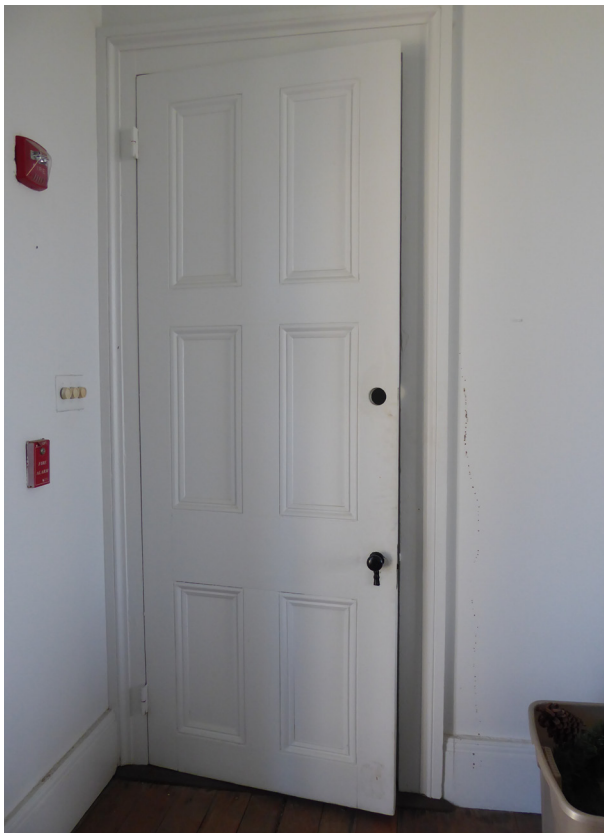


Figure C150. Room 203 - Typical six-panel door in east doorway. Note fire alarm pull station and dimmer switches at left.

Electrical System
Six modern recessed can lights are on the ceiling.

Three dimmer switches at the east end of the north wall control light fixtures for Rooms 201, 202, and 203 (*Fig. C150*).

Plumbing System
There is no evidence of any plumbing system.

Fire Protection and Security Systems
Two concealed-head sprinklers are on the ceiling.

A wired smoke detector is centered on the ceiling, adjacent to a motion detector for the security system.

A fire alarm pull station and strobe are at the east end of the north wall (*Fig. C150*).

Room 204 – Stair Hall at Second Floor
Room 204 contains staircases descending to the first floor along the west wall and ascending to the attic along the east wall. The room measures 17'-4" north-south by 6'-9" east-west with a floor-to-ceiling height of about 12'-8" tall (*Figs. C151-C152*).

Flooring
Tongue-and-groove flooring typical of the second floor has widths ranging between 4¾" and 5½" wide by likely ¾" thick. Flooring runs in the east-west direction.

Baseboard
A typical modern baseboard matching that found on the first floor measures 10½" tall overall by 1¼" thick with a 2¼"-tall integrated molded cap. The baseboard extends up the stair as a skirt board.

Walls and Ceiling
The walls are finished with modern cement plaster on metal lath. The ceiling is finished with tongue-and-groove boards running in the north-south direction and measuring about 5" wide.

A rectangular ceiling hatch measuring about 3'-0" east-west by 5'-0" north is made of the same boards as the surrounding ceiling and is fixed in place.

Doorways
The room has one doorway on the west wall that is described in the *Room 203 – Eastern Room on Second Floor* section. The doorway has a typical casing measuring 5⅝" wide overall by 1" thick with a 2⅝" wide by 1¼" thick applied molded backband and 3"-wide field.



Figure C151. Room 204 - Overview looking north.



Figure C152. Room 204 - Overview looking southeast.

Windows
The room has two window openings, one on each of the north and east walls. The window on the north wall is a typical six-over-nine-light double-sash window measuring 3'-9" wide by 9'-10 ½" tall (*Fig. C151*). The opening has a hinged lower sash. More detailed descriptions of the window design can be found in the *Exterior Features* section.

One six-over-six-light wood double sash window is centered on the east wall and measures 3'-2" wide by 6'-8" tall (*Fig. C152*). The east window has a bullnose sill measuring 1¼" thick and lacks the plank board apron found on other windows of this type.

The sill of the north window is at floor level and measures 7⅛" wide by ⅞" thick with a beveled inside edge. The inner edge of the 2¾"-thick exterior sill is visible at the base of the bottom sash.

Both window openings have typical casings measuring 5⅝" wide overall by 1" thick with a 2⅝"

wide by 1¼" thick applied molded backband and 3"-wide field.

Staircase

The U-shaped staircase accessing the attic floor extends along the east wall to a small landing at the southeast corner before turning with winders to reach the attic level (*Figs. C152-C154*). The 1957 project documentation suggests that portions of the stair may contain historic material, including portions of the handrail.

The lower run of stairs consists of six treads measuring 11" deep by 3'-3 ½" wide by 1" thick and seven 8"-tall risers. Treads have rounded nosings with ⅞" tall cove moldings along the underside. The intermediate landing measures about 3'-3 ½" east-west by 3'-9 ½" north-south and has tongue-and-groove flooring measuring between 5 and 5½" wide (*Fig. C153*). Eight winders transition from the landing around the southwest corner to reach a second run of three treads along the west wall. Finally, four winders at the top of the stair turn west to reach the attic doorway (*Fig. C154*).



Figure C153. Room 204 - Intermediate landing and winders.



Figure C154. Room 204 - Winders at top of upper run of stairs, viewed from attic doorway.

The balustrade of the second floor stair is identical to that of the first floor. Turned spindles measure 1⅛" in diameter at their widest point and support a 2½"-diameter handrail that curves with the changing direction of the staircase. Two square stock hangers provide additional support to the railing near the landing. At the top of the stair, the handrail is mortised into a framing member for stability (*Fig. C154*).

Finishes

All surfaces are painted. The walls, ceiling, baseboards, stair risers, stair skirts, and door and casing of the west doorway are white. The window sash and casings are painted light grey. The stair treads, balustrade, and flooring are painted brown.

Mechanical Systems

There is no evidence of any mechanical systems.

Electrical System

A modern cylindrical pendant fixture is centered on the ceiling at the base of the stairs.

Two light switches are on the north wall, west of the window opening. A switch on the south wall controls the attic light fixture.

Plumbing System

There is no evidence of any plumbing system.

Fire Protection and Security Systems

Two concealed-head sprinklers are on the ceiling, one is near the attic stair landing. A sprinkler pipe carrying water to the ceiling-mounted sprinklers of the second floor and the attic sprinklers rises through the stair at the southwest corner.

A wired smoke detector is centered on the ceiling.

Attic

The attic level consists of a single space accessed from the top of the stair ascending from Room 204. A wood partition wall separates the top of the stair hall from the main attic. The space extends above the gallery ceilings and measures about 40'-2" north-south by 63'-5" east-west (*Figs. C155-C156*).

Flooring

Tongue-and-groove flooring varies slightly in width but generally ranges between 10½" and 11½" wide by 1¼" thick and runs in the east-west direction. It is suspected that much of this flooring is early if not original.



Figure C155. Attic - Overview looking northwest.



Figure C156. Attic - Overview looking southeast.

Openings for four gallery vents, two at each of the north and south sides of the space, are covered with plywood on the interior. More information on these vents can be found in the description of the gallery porches in the *Exterior Features* section.

Baseboard

The room has no baseboard.

Walls and Ceiling

The roof framing described in the *Construction Characteristics* section is exposed throughout the attic. Portions of the wall sheathing at the sides of select dormers are salvaged painted boards. Graffiti is visible on many of the salvaged pieces, suggesting they were installed before the house's vacancy.

Doorways

The doorway on the east wall accesses the stair descending to Room 204 and holds a modern Z-brace board-and-batten door measuring 2'-10" wide by 6'-8" tall by 1" thick (*Fig. C157*). The door is made up of 4¼"-wide tongue-and-groove



Figure C157. Attic - Board and batten door to staircase.

boards and is hung with two surface-mounted five-knuckle butt hinges. A likely reproduction rim lock measures 4¼" wide by 3" tall and has a 1¾"-diameter brass knob and sliding keyhole cover.

Windows

The attic has a total of six window openings, two on both the north and south roofs slopes and one on each of the east and west. Each is a six-over-six-light double-sash window measuring 2'-11" wide by 4'-8" tall. The east window is contained within the partitioned area at the top of the stair hall. There are no casings on the interior.

Finishes

All surfaces with the exception of the window sash and attic door are unpainted. The sash are painted white and the door is dark green. Select dormers have salvaged elements making up their side walls that are painted grey.

Mechanical Systems

An abandoned air handler is near the northwest corner of the attic, and remnants of ductwork remain along the northern edge of the space (*Fig.*



Figure C158. Attic - Abandoned air handler in northwest corner.

C158). None of the mechanical systems present in the attic appear functional.

Electrical System

A ceramic lamp holder is mounted within the framing members near the center of the space and is controlled by a switch at the intermediate landing to the attic.

An electrical panel south of the doorway to the attic appears to be abandoned (*Fig. C159*). The panel appears to have served previous mechanical equipment.

Plumbing System

A remnant of a previous plumbing vent stack is near the southeast corner and has been cut off at the floor. The house currently has no interior plumbing.



Figure C159. Attic - Likely abandoned electrical panel south of the doorway on the east wall.

Fire Protection and Security Systems

Sprinkler pipes and heads are floor-mounted throughout the space. The fire suppression system is described in detail in the *Utility Systems* section.

There do not appear to be any security system components at the attic level.



Figure C160. The Malus-Beauregard House viewed from the northwest.

Character-defining Features

Exterior

- The stucco-clad exterior brick masonry walls with scored, penciled blocks.
- The stucco-clad columns of the north and south galleries, including their capitals and bases.
- The slate-clad hipped roof with bell cast and tile-clad hips and ridge.
- The six gable dormers with six-over-six-light double-sash windows.
- The rhythm and semi-regular spacing of window and door openings on the north and south elevations.
- The brick chimney stack.
- The two decorative lightning rod stands on the roof ridge.
- The perimeter entablature, which likely contains a large amount of early material.
- The historic design of the six-over-nine-light double sash windows at the second floor.
- The historic design of the six-over-six-light double-sash windows on the east and west elevations.
- The three-louvered-panel and two-louvered-panel shutter designs on the second floor.
- The three-solid-panel and two-solid panel shutter designs on the first floor.
- The eight-light-over-one-panel paired sash door design at the first floor.
- The historic design of the intersecting V-shaped pickets of the gallery balustrades.

Interior

- The floor plans at both the first and second floor, each consisting of four interconnected rooms.
- The early or original tongue-and-groove flooring of the second floor.
- The historic design of the six-panel interior doors.
- The plausibly accurate Greek Revival door and window casings.
- The remaining original edge-bead ceiling joists concealed on the first floor.
- The exposed framing in Room 203 and in the attic.
- The likely original tongue-and-groove attic flooring.
- The historic design of the interior stair, with potentially early elements such as newel post and portions of handrail.

Condition Assessment

General

- The majority of exterior features and finishes are modern, having been installed as part of the 1957 exterior restoration. Examples of possible early materials may include stucco in protected areas, such as below the gallery ceiling. The entablature is also expected to contain early material due to appearing intact in historic photos and being somewhat protected from weather.
- Similar to the exterior, the vast majority of interior features are modern, dating to either the 1957 or 1993 projects, with the exception of structural elements, portions of the interior stair, and possibly select interior trim identified as having comparatively more layers of finishes. It is unclear what percentage of material dates to 1957 versus 1993.
- Select elements of interior and exterior features including door panel sticking, window muntins, and window and door jambs vary from those documented in the 1934 HABS drawings. These discrepancies call the historical accuracy of these interior elements into question.
- Field notes recorded by Koch & Wilson Architects prior to the 1957 restoration and adaptation project depict window and door jamb designs that differ from the HABS documentation as well as from the current jambs.
- Baseboards are not documented by HABs or Koch & Wilson Architects' field note drawings, leaving the basis for their profiles uncertain.



Figure C162. Example of mildew on interior surfaces at window in Room 104.

- Current interior door and window casings appear to be consistent with those found in the HABS documentation and Koch & Wilson Architects' field notes.
- Nearly all exterior surfaces have some level of biologic growth, a common occurance in humid climates (*Fig. C161*).
- Mildew, common where there is little ventilation and a humid climate, is prevalent on many interior surfaces, most notably on the first-floor doorways and windows (*Fig. C162*).

Exterior

Exterior Walls

- A hollow sound was prevalent across the north and south elevations when tested with a mallet, suggesting delamination of stucco; however, a probe opened by the park in one of these areas showed good adhesion of the stucco (*Fig. C163*). Additional probe locations on these



Figure C161. Example of typical biologic growth, in this case at the base of the east elevation.



Figure C163. Probe opening on north elevation showing apparent good adhesion of stucco.



Figure C164. Vertical cracking on west elevation.



Figure C165. Spalled stucco at rusted doorway lintel.



Figure C166. Typical crack at upper corner of first-floor doorway.

elevations are warranted to confirm overall conditions.

- Similarly, sounding of the east and west elevations using a mallet suggest localized delamination at multiple locations. *See Appendix H for drawings that map potential areas of delamination.*
- Stucco cracking was observed on all four elevations. Cracking on the west elevation is most notable, with vertical cracking extending the majority of the elevation's height (*Fig. C164*). On the north and south elevations, most cracks appear to be associated with corrosion of the modern steel doorway lintels (*Figs. C165-C166*).
- At the head of some doorways, the rusting lintels have caused small sections of stucco to detach completely (*Fig. C165*).
- Infrared thermography performed by BCA noted areas of moisture at the base of the exterior walls, especially near the downspouts. *See BCA's report in Appendix F for more information.*

Columns and Entablature

- Column base stucco exhibits varying degrees of cracking, likely associated with rising damp. In some cases, sections of the base moldings have spalled (*Fig. C167*).
- A hole in the entablature on the east elevation creates an entry point for insects (*Fig. C168*).

Doors and Windows

- In general, doors, window sash and elements of exterior trim are in good condition, but exhibit biologic growth.



Figure C167. Cracking and spalling of stucco at base of columns. Varying stages of this deterioration are typical. Note biologic growth.

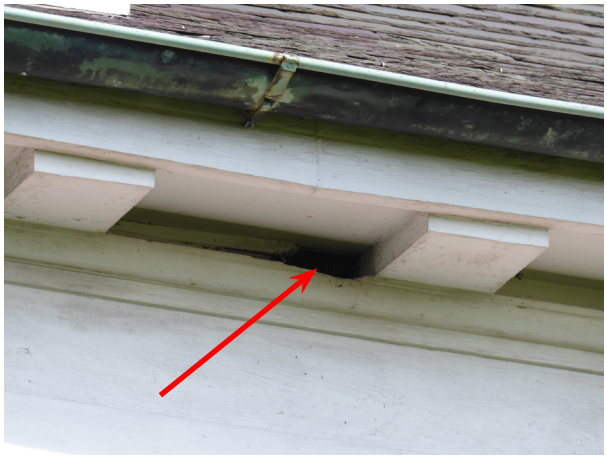


Figure C168. Hole at top of entablature on east elevation.



Figure C170. Deterioration of shutter stiles and rails and typical warped louvers observed on upper west window.

- The window sills at the east and west window openings show signs of rot and have little slope to effectively shed water (*Fig. C169*).
- Select pieces of hardware, including keyhole escutcheons and one large securing shutter hook, are missing. The missing hook is at the westernmost south elevation doorway. The shutter is a secondary leaf and is therefore secured by the overlapping primary leaf.

Shutters

- The paneled shutters at the lower level are in generally good condition.
- The louvered shutters at the upper level commonly have warped louvers, and in many cases have seized hardware due to lack of use.
- Stiles and rails of the east and west louvered shutters at the second floor exhibit rot at the ends of members (*Fig. C170*).

Gallery Decks

- Nearly all elements of the gallery decks are in poor condition due to design flaws (*Figs. C171-C172*).
- Wood structural members are extensively rotted, due in part to the historically inappropriate plank deck boards allowing water to sit on the top of each framing member (*Fig. C172*).
- Decking boards have been removed in several locations on the north gallery (*Fig. C172*).
- The gallery balustrade, although approximating the appearance of that shown in historic photos, lacks proper detailing to adequately shed water from its bottom rails.
- In some locations, the bottom rails have deteriorated extensively, disconnecting from the gallery column and pickets (*Fig. C173*).

Walkways

- The brick walkways beneath the gallery decks at grade level have scattered examples



Figure C169. Deterioration of subsill at east window at first floor.



Figure C171. Example of extensive deterioration of south gallery framing member. Deterioration is evident at nearly all framing members of both galleries.



Figure C172. Missing deck boards at north gallery. Note gaps between remaining boards allowing water to sit on framing members.



Figure C174. Deteriorated decking boards of exterior stair landing.



Figure C173. Heavily deteriorated bottom rail of balustrade on south elevation.



Figure C175. Example of displaced slate at east end of south roof slope that has slid down the roof slope (indicated by lower arrow).

of eroded and broken bricks at their perimeter, which present trip hazards.

Exterior Stair

- The exterior stair lacks appropriate historic dimensions and detailing for the interpretive period.
- Stair elements such as the newel posts, have been constructed using multiple laminated pieces, resulting in elements that are highly susceptible to moisture.
- The deck boards at the stair landing are deteriorated (*Fig. C174*).

Roof and Rainwater Dispersal

- The roof appears to be in generally good condition; however, there are localized examples of missing and displaced slates. The majority of the missing slates are localized to the side walls of the dormers (*Figs. C175, C177*).
- Dormer window casings and fascia exhibit localized areas of rot (*Fig. C178*).
- The copper gutter seams have been repeatedly patched with sealant (*Fig. C176*).
- The number of downspouts is insufficient for the amount of water shed from the roof. The resulting overflow at the gutters



Figure C176. Joint sealant applied to copper gutters.



Figure C177. Example of missing (top arrow) and displaced (bottom arrow) slates on side walls of dormer.



Figure C178. Example of localized rot at base of dormer window casing.

contributes to moisture at the base of the building, accelerating deterioration.

- The south gallery gutter elbows discharge from the roof level to grade, creating splash at the base of the building and at the gallery deck, accelerating deterioration of building elements.
- The subsurface drainage system is non-functional and the collection basins cannot drain.

Lightning Protection System

- The west conductor has been completely severed at grade level.

Chimney

- The chimney appears to be in good condition. It is currently unused and it is unknown whether it has been capped to prevent water infiltration.

Interior

Walls and Ceilings

- Interior plaster walls exhibit evidence of multiple repair campaigns at the lower level.
- Water damage is localized near the base of the walls at the first floor, most frequently at the interior masonry cross walls (*Fig. C179*).
- In general, the plaster ceilings and second-floor plaster walls appear to be in good condition.

Trim and Casings

- All or nearly all wood trim elements, including baseboards and door and window casings, appear to be modern era replacements dating to either 1957 or 1993. Trim elements are in generally good condition.
- Select examples of trim elements with a larger number of paint layers were identified during the in situ paint investigation by BCA. These locations may warrant paint analysis to determine whether they are earlier material. *See BCA's report in Appendix F for more information.*
- The sill and apron of the east window of Room 104 is canted toward the window sash; however, this appears to be a carpentry issue rather than an indication of deterioration (*Fig. C162*).

Staircase

- The intermediate landing between the first and second floors is sloping to the west. *See structural report by Bennett Preservation Engineering in Appendix G.*



Figure C179. Moisture damage and evidence of previous patching on interior masonry wall at first floor.



Figure C180. Overview of termite damage to stringers and wall framing beneath the stair as observed from closet in Room 104.



Figure C182. Overview of termite damage at landing between second floor and attic.



Figure C181. Detail view of termite damage to stringer beneath first-floor stair as observed from closet in Room 104.



Figure C183. Detail of termite damage at southeast corner of landing between second floor and attic.

- Extensive termite damage was observed at the lowest run of the stair in Room 104, as well as at the intermediate landing between the second floor and attic (*Figs. C180-C183*).

Floor Framing

- In general, the second-floor wood framing appears to be in good condition. The framing was observed through exploratory probes.
- The framing supporting the floor of Room 202 was found to be compromised by large mortises cut in the joists supporting the fireplace hearth above (nearly 4" wide by 8" deep) (*Fig. C184*). These connections have been strengthened with bolts and steel angles, but are not strong enough be assigned a load capacity.
- Load capacity will dictate potential uses of the second floor. *See structural report by Bennett Preservation Engineering in Appendix G.*

Roof Framing

- Minor structural creep was observed in roof joists and trusses; however, no issues appear to require attention at this time.

Mechanical Systems

- The house currently has no form of heating or cooling, leaving the building interior exposed to extreme conditions of heat and humidity in the summer and freezing temperatures in the winter.
- The absence of heat presents a risk of sprinkler pipes freezing, and may interfere with proper function of smoke detectors.

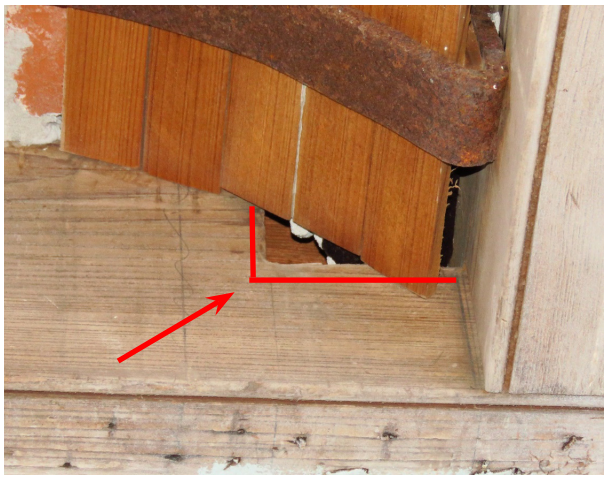


Figure C184. Deep mortise cut in trimmer joist below Room 202 at vault supporting fireplace mantel.

Electrical System

- The electrical system is in generally good condition; however, vines growing on the pole holding transformers on River Road may cause power outages.
- Abandoned elements of the electrical system are common, and include a panel in the attic and various conduits.

Fire Alarm System

- The fire alarm system appears to be in good condition; however, the lack of heating in the house may prevent smoke detectors from working properly in low temperatures.

Fire Sprinkler System

- The sprinkler system is in overall good condition; however, the lack of heat in the building could result in the system freezing, resulting in interior damage.
- The sprinkler heads in the gallery ceilings are of an older, obsolete design.
- There are no sprinkler heads below the gallery decks. Significant damage would likely occur if a fire were to start beneath the decks.

Significance and Integrity

National Register of Historic Places

The National Register of Historic Places is the official list of the nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966 and overseen by the National Park Service, it is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.[162]

The significance evaluation identifies the important historical associations of a property and comments on its architectural, archaeological, and social value as they relate to the National Register. A property's significance is tied to a discrete period of time in which its important contributions were made, and to relevant national, state, and local historic contexts.

Significance Criteria

In order for a property to be eligible for inclusion in the National Register, it must possess significance under at least one of four criteria. The Criteria for Evaluation for listing state:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That has yielded, or may be likely to yield, information important in prehistory or history.
>
> *Criteria Considerations*
> Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> a. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
>
> b. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
>
> c. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or
>
> d. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
>
> e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
>
> f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
>
> g. A property achieving significance within the past 50 years if it is of exceptional importance.[163]

162. National Park Service, "National Register of Historic Places." https://www.nps.gov/subjects/nationalregister/index.htm.

163. Code of Federal Regulations, Title 36, Part 60, "The National Register Criteria for Evaluation" (36 CFR Part 60).

National Register Status of the Malus-Beauregard House

Chalmette Battlefield was administratively listed in the National Register of Historic Places in October 1966 with passage of the National Historic Preservation Act. Documentation for the Chalmette Unit registration was approved and accepted in July 1987 as the Chalmette Unit of Jean Lafitte National Historical Park Historic District at the national level of significance. The district encompasses sixteen significant sites and structures in about 143 acres. The primary resources are those relating to the Battle of New Orleans. The Malus-Beauregard House is recognized as significant in its own right and a contributing structure in the district.[164]

Two National Register criteria were selected as applicable: "A. Property is associated with events that have made a significant contribution to the broad patterns of our history," and "C. Property that embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction."

Criterion A was fulfilled by the site's contribution to the military history of the nation, including Civil War resources and later commemorative aspects of the battle. Criterion C was fulfilled by the significance of resources associated with the social development of southern Louisiana as "facets of the economic and social life and architectural style that typified southern Louisiana before and after 1815."[165]

The findings of this HSR concur with those of the National Register documentation that the house is a contributing feature of the district and meets Criterion C.

Period of Significance

The additional documentation for the Historic District was prepared in the mid-1980s with the period of significance of 1814-1937, starting with the battles and continuing to include commemorative aspects. The period was developed for the Chalmette Unit as a whole.

A more specific period was selected for the house in 1956 and again in 1993, both in association with upcoming renovation projects. Both were decisions on the period of interpretation rather than a period of significance. The two findings were the same. Because the house retains little physical or documentary evidence of the Malus period, because the exterior was predominantly of the 1856 Cantrelle Greek Revival, and because both the 1866 and ca. 1890 additions were no longer extant, the Cantrelle period of 1856 to 1866 was selected.

Assessment of Integrity

An assessment of integrity is to be based on an evaluation of the existence and condition of the physical features that date to a property's period of significance, taking into consideration the degree to which the qualities of integrity are present. The *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* defines integrity as "the ability of a property to convey its significance."[166]

The property must retain the essential physical features that enable it to convey its historical significance, those features that define both why a property is significant (National Register criteria) and when it was significant (period of significance).[167]

The seven aspects of integrity as defined in the National Register Criteria for Evaluation are location, design, setting, materials, workmanship, feeling, and association. These are explained in *Bulletin 15:*

> Location is the place where the historic property was constructed or the place where the historic event occurred. . . . Design is the combination of elements that create the form, plan, space, structure, and style of a property. . . . Setting is the physical environment of a historic property. . . . Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. . . . Workmanship is the physical evidence of the crafts of a particular

164. Jerome A. Greene, "Chalmette Unit of Jean Lafitte National Historical Park Historic District," 1987 (NR66000889). NPS List of Classified Structures (LCS 021367) mistakenly lists state level of significance.
165. Ibid., p. 8.1.
166. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, (Washington, D.C.: National Park Service, National Register of Historic Places, 1990, revised 1997). pp. 44– 45.
167. Ibid.

> culture or people during any given period in history or prehistory. . . . Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. . . . Association is the direct link between an important historic event or person and a historic property.[168]

JKOA investigations and evaluations for this HSR include assessments of the historic integrity of the Malus-Beauregard House.

Integrity of Location
The house retains integrity of location, remaining on the site where originally constructed.

Integrity of Design
The house retains integrity of design in its overall form, plan, space, structure, and style during the period of interpretation.

Integrity of Setting
The house retains integrity of setting facing the Mississippi River and close to the battlefield, despite significant modification of landscape design and elements present during the period of interpretation and through the nineteenth century.

Integrity of Materials and Workmanship
The house retains integrity of materials and workmanship to the 1950s and 1990s rehabilitations, when new materials were added in efforts to return the appearance to the period of interpretation.

Integrity of Feeling
The house retains integrity of feeling. The structure was originally built as a residence and continued that use during the period of interpretation. It retains the floor plan and relation of exterior and interior spaces so important to a summer residence of that period.

Integrity of Association
The house retains integrity of association as an example of a southern Louisiana summer residence of affluent families and of the architecture of the region.

168. Ibid.

Part II: Treatment and Use

Requirements for Treatment and Use

The treatment and use of all historic properties maintained by the NPS are guided by federal laws and regulations as well as NPS policies, directives, and functional requirements. In addition to protecting cultural resources, they address safety, fire protection, energy conservation, universal accessibility, and abatement of hazardous materials. If rigidly interpreted, some of these requirements may be contradictory or at cross purposes. Any treatment must be carefully considered to ensure that the historic fabric of the structure is preserved.

The National Historic Preservation Act

The 1966 National Historic Preservation Act (NHPA), as amended, establishes programs for the preservation of historic and cultural properties, including buildings, landscapes, and archaeological sites. Its implementation has established laws and authorities that are binding on the NPS.

Section 106

Section 106 of the NHPA requires a consultative process prior to any federal agency undertaking, or federal involvement in an undertaking, that might affect historic properties listed or eligible for listing in the National Register of Historic Places. The regulations are codified at 36 CFR Part 800, "Protection of Historic Properties." The agency must initiate consultation; identify and evaluate historic properties; assess effects to historic properties; take steps to avoid, minimize, or mitigate adverse effects; and give the Advisory Council on Historic Preservation "a reasonable opportunity to comment with regard to such undertaking."



Figure II-1. The Malus-Beauregard House as viewed from the southwest.

Section 106 strives to ensure that all interested parties have a voice in the preservation of our nation's cultural heritage. The published regulations require, among other things, consultation with State Historic Preservation Officers (SHPOs) and other appropriate parties, which may include local governments, government or nongovernment applicants, Tribal Historic Preservation Officers (THPOs) and tribal leaders, other parties, the general public, and the Advisory Council.

The regulations establish criteria under which the Advisory Council may comment, but the vast majority of federal undertakings do not involve Advisory Council review.

A programmatic agreement among the Advisory Council for Historic Preservation, the National Conference of State Historic Preservation Officers, and the NPS expedites the Section 106 review process. With certain conditions, routine repairs and maintenance that do not alter the appearance of the historic structure or involve widespread or total replacement of historic features or materials are not subject to review outside the NPS.

Director's Order 28

Director's Order 28 is the NPS Cultural Resources Management Guideline, which requires planning for the protection of cultural resources on park property.

The Secretary of the Interior's Standards

The Secretary of the Interior's Standards for the Treatment of Historic Properties articulate best practices for protecting a wide range of historic properties. They provide a philosophical rationale for historic preservation that is almost universally accepted in the United States and applies to a wide variety of resource types, including buildings, sites, structures, objects, and districts. Revised in 2017, the Standards are codified at 36 CFR Part 68.

The Standards describe four broad approaches to the treatment of historic properties: Preservation, Rehabilitation, Restoration, and Reconstruction. Definitions of each of these treatments are found in the *Alternatives for Treatment and Use* subsection of this report (p. 107).

Americans with Disabilities Act of 1990 and Architectural Barriers Act of 1968

The 1990 Americans with Disabilities Act (ADA) establishes comprehensive civil rights protection for disabled Americans, both in employment and in their right to free, unaided access to public buildings.

The 1968 Architectural Barriers Act (ABA) applies to facilities designed, built, altered, or leased with certain federal funds. The law is intended to provide unaided access to federal buildings. While people with restricted mobility have most benefited, the protections of ADA and ABA extend to those with impaired vision, hearing, or other disabilities.

Requirements for full compliance with ADA and ABA regulations are extensive and easiest to apply to new construction. Full compliance for historic buildings is more difficult. When a project would require significant alterations to their historic character, the regulations authorize a process for arriving at alternatives that can preserve historic character while maximizing disabled visitors' access.

Director's Order 42

Director's Order 42 concerns the NPS goal to ensure that all people have the highest reasonable level of accessibility to NPS programs, facilities, and services in conformance with relevant regulations and standards. The level of accessibility to be provided will be consistent with the obligation to conserve park resources and preserve the quality of the park's experience. A fundamental principal of the order is to "seek to provide the highest level of accessibility that is reasonable, and not simply provide the minimum level that is required by law. Consequently, managers are encouraged to exceed the requirements for visitor accessibility through innovative techniques and partnerships whenever possible and reasonable."

The five objectives of the Director's Order are:

- Incorporate the long range goal of providing the highest level of accessibility that is reasonable for people of all abilities in all facilities, programs, and services, instead of providing "separate" or "special" programs;



Figure II-2. View of the north gallery deck, looking east.

- Implement this goal within the daily operation of the NPS, its policies, organizational relationships, and implementation strategies;
- Provide further guidance and direction regarding the NPS interpretation of laws and policies;
- Establish a framework for the effective implementation of actions necessary to achieve the highest level of accessibility that is reasonable; and,
- Ensure the implementation of "universal design" principles within the national park system.

Building Code Requirements

Treatment of the Malus-Beauregard House may be guided by the following codes:

- International Building Code (IBC), 2018
- International Existing Building Code (IEBC), 2018
- International Energy Conservation Code (IECC), 2018
- International Plumbing Code (IPC)
- National Electrical Safety Code (NESC)
- National Fire Protection Association (NFPA) Code 914
- NPS Guiding Principles of Sustainable Design

The NPS is not legally bound to local or state building codes. The 2018 IBC and its appendices, as well as the 2018 IEBC with appendices and Resource A, are currently referenced by the NPS Denver Service Center for design and construction.

The National Fire Protection Association (NFPA) has promulgated codes for historic buildings, most notably NFPA 909, "Code for the Protection of Cultural Resources Properties - Museums, Libraries, and Places of Worship," and NFPA 914, "Code for Fire Protection of Historic Structures." As a matter of policy, NPS provides a reasonable level of fire protection for all historic buildings and structures.[169]

Threats to public health and safety must be eliminated, but alternative ways to prevent them are always sought when full code compliance would needlessly compromise the integrity of a historic building.

Consulting with the NPS Branch Chief of Structural Fire located at the National Interagency Fire Center (NIFC) in Boise, Idaho regarding the requirements of fire protection for this historic structure is recommended. NPS Regional Structural Fire Managers (RSFMs) are also responsible for NPS structural fire program management within their regions and should also be consulted.

Abatement of Hazardous Materials

Repairs to the house were made in an era when hazardous materials such as lead-based paint and asbestos were commonly used. Asbestos, considered a miracle product for decades, was used as an additive to provide fireproof qualities and additional strength to a wide variety of building materials through the late 1970s. Examples of building materials commonly containing asbestos include, but are not limited to:

- Plaster and Stucco

169. NPS Structural Fire Reference Manual 58, 2015, https://www.nps.gov/subjects/fire/upload/reference-manual-58.pdf.



Figure II-3. The Malus-Beauregard House as viewed from the northwest.

- Flooring tiles and tile mastic or grout
- Insulation
- Gypsum wallboard
- Mortar
- Acoustic ceiling tiles
- Electrical wire insulation

If left undisturbed, lead-based paint and asbestos-containing materials pose no threat to building occupants. However, appropriate abatement measures should precede any future work on building elements suspected to contain hazardous materials.

NPS Management Policies

NPS General Management Policies (2006), especially chapter 5, "Cultural Resource Management," guide its oversight of historic properties. Based on the authority of some nineteen Acts of Congress and many more Executive Orders and regulations, these policies require planning to ensure that decision-making and priority-setting processes integrate information about cultural resources and consultation and collaboration with outside entities. They also support good stewardship to ensure that cultural resources are preserved and protected, receive appropriate treatments (including maintenance), and are made available for public understanding and enjoyment.

Section 5.3.5, Treatment of Cultural Resources
This section of NPS General Management Policies provides specific directives, including a stipulation that "the preservation of cultural resources in their existing states will always receive first consideration."

It also states:

> ... treatments entailing greater intervention will not proceed without the consideration of interpretive alternatives.... Pending treatment decisions reached through the planning process, all resources will be protected and preserved in their existing states. Except for emergencies that threaten irreparable loss without immediate action, no treatment project will be undertaken unless supported by an approved planning document appropriate to the proposed action. (p. 50)

The park's *Long Range Interpretive Plan* (LRIP) is an example of an approved planning document. HSRs and CLRs are intended to inform the planning process.

Park Planning Documents Addressing Treatment of the Malus-Beauregard House

With the establishment of the Jean Lafitte National Historical Park and Preserve (JELA) as a multi-site, multi-unit park on November 10, 1978, the decision was made to reclassify the Chalmette National Historical Park as a JELA unit. The construction of a modern visitor center was one of the earliest JELA planning goals to affect the Malus-Beauregard House, which until that point had served as the park's visitor center.[170]

1995 Amendment to the 1982 General Management Plan

A 1995 amendment to the 1982 General Management Plan (GMP) calls for the Malus-Beauregard House "to interpret its period" and for it to be used for "group assembly." It notes that the "Beauregard house is being preserved on the exterior and adaptively used inside for interpretation of life in the house," and that "After visiting the battlefield, visitors could tour the Beauregard house. Interpretive exhibits will describe the house's history, architecture, and occupants. The original room arrangement on the second floor will be restored and the spaces will be used as meeting space for small public groups and as facilities for the unit's living history program."[171]

The GMP notes that "the historical and architectural importance of the building has never been properly interpreted. Research and investigation will be undertaken to develop a plan that will restore its architectural integrity and properly interpret the building's architectural evolution and historical significance."[172]

1999 Cultural Landscape Report

A CLR was prepared by the NPS Southeast Regional Office in 1999. About the Malus-Beauregard House, the report says:

> Although archival photographs show the dependency structures and domestic-scaled landscape that surrounded the house in the late-19th and early-20th centuries, these features have long since vanished as the house and grounds have been absorbed into the commemorative battlefield zone. The landscape of the house is now maintained as a manicured extension of the battlefield landscape and retains no integrity and, consequently, no historical significance according to National Register criteria. Although there is little documentation or justification for restoring a specific period setting, the park should reemphasize the house's original riverfront orientation by rerouting circulation paths and by distinguishing the house and grounds from the battlefield zone as much as possible. Such measures as reestablishing the historic fence line and planting trees in the riverfront yard and to the rear of the house, as suggested by historic documentation, could aid in the [interpretation] of the Beauregard property, as well as provide a valuable visitor amenity in the form of additional shaded gathering spots.[173]

The CLR then recommends that, "Creating an interpretive landscape setting for the Malus-Beauregard House would highlight the house's distinct historical identity and original riverfront orientation. Altering the pattern of pedestrian circulation to the house would further emphasize the house's function as a separate educational site."[174]

Regarding use of the house itself, the report recommends that it interpret the "secondary theme of antebellum life and country retreats along the river, but also as an orientation point from which to interpret the battlefield. The house could contain a secondary information desk with a selection of educational materials and changing exhibits for riverboat visitors who do not have time to visit the designated visitor center."[175]

2008 Cultural Landscapes Inventory

A Cultural Landscapes Inventory (CLI) was begun in 1998 and completed in 2008, largely following the research of the 1999 CLR. The CLI refers to

170. Robert W. Blythe, *Administrative History of Jean Lafitte National Historical Park and Preserve* (Organization of American Historians, 2012), p. 86.
171. "Amendment to the General Management Plan, Jean Lafitte NHP and Preserve," April 1995, pp. iv, 27.
172. Ibid., p. 28.
173. Kevin Risk, *Chalmette Battlefield and Chalmette National Cemetery Cultural Landscape Report*, National Park Service Southeast Regional Office, August 1999, p. 59.
174. Ibid., p. 65.
175. Ibid., p. 78.

the Malus-Beauregard House as a disconnected feature of the site, saying, "The Malus-Beauregard House, a post-battle era construction, poses yet another interpretive challenge to the park; its anachronistic presence at the southern end of the commemorative battlefield confounds a clear understanding of the historic battlefield scene."[176]

Nevertheless, the CLI acknowledges "the necessity of interpreting its secondary resources and the desirability of conveying something of the historical and cultural continuum that exists at Chalmette."[177]

176. "National Park Service Cultural Landscapes Inventory, Chalmette Battlefield, Jean Lafitte NHP and Preserve-Chalmette Unit," 1998, updated 2008, pp. 39, 50.
177. Ibid., p. 54.

Ultimate Treatment and Use



Figure II-4. The Malus-Beauregard House as viewed from across the Chalmette Battlefield.

This chapter presents the Ultimate Treatment and Use, introduced by the NPS Alternatives considered.

Alternatives for Treatment and Use

The United States Department of the Interior is responsible for establishing professional standards and providing advice on the preservation and protection of all cultural resources listed in or eligible for listing in the National Register of Historic Places. Accordingly, the National Park Service developed The Secretary of the Interior's Standards for the Treatment of Historic Properties ("Secretary's Standards," or "Standards"), which are intended to be applied to a wide variety of resource types, including buildings, sites, structures, objects, and districts.[178]

The Standards address four treatments: preservation, rehabilitation, restoration, and reconstruction. These are neither technical nor prescriptive, but are intended to promote responsible preservation practices.[179] The NPS defines the four major treatments as follows:

> ***Preservation*** is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical,

178. The Standards were developed in 1978, updated in 1983 and again in 1995 before the most recent 2017 revisions. They are codified at 36 CFR Part 68.

179. Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, DC: National Park Service, Technical Preservation Services, rev. 2017).

electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.[180]

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.[181]

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.[182]

Reconstruction is defined as the act or process of depicting by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.[183]

Ultimate Treatment and Use

For the Malus-Beauregard House, the NPS administratively determined Management Category is "Must Be Preserved and Maintained," and the Ultimate Treatment is ***Preservation***. This treatment allows for the efforts necessary to preserve, maintain, and repair historic materials and features, and permits minor modifications as needed to address new information regarding historic integrity and to meet the needs of contemporary interpretation. The ***Preservation*** treatment retains historic features, permits removal of non-historic features, and allows selective restoration of character-defining elements where missing or altered, when appropriate archival or physical documentation is available.

Rehabilitation focuses on work towards a compatible use for a property, and may be a viable option for the Malus-Beauregard House. Rehabilitation of the interior would allow the house to be used for a number of different activities. Given that no early historic material has been identified on the first and second floors beyond framing and masonry interior walls, the park may wish to pursue changing the administratively determined management category from Preservation to Rehabilitation.

Restoration would return the house to its appearance during the period of significance. The exterior was restored in the 1950s as part of the project, with the exception of retaining the later stucco coating, which was left in place due to the underlying masonry being heavily damaged during its application. The interior was restored in the 1990s to the plan configuration shown in the HABS documentation. Much of what is seen in the house today was installed as part of this work campaign.

Reconstruction does not apply as the house is in place. The demolished east and west wing additions do not warrant reconstruction, as they fall outside the interpretive period, are largely undocumented, and were of little architectural merit.

JKOA recommendations determined during the investigations and assessments for this HSR for achieving the NPS administratively determined treatment of ***Preservation*** are found in the *Recommendations for Achieving Ultimate Treatment and Use* chapter that follows, and further addressed in the *Cultural Resource Management* subsection.

A summary of the recommended ultimate treatments and uses is as follows:

• The NPS administratively determined management category for the interior and exterior of the Malus-Beauregard House is "Must be Preserved and Maintained." The treatment recommendations in this report continue the established Ultimate Treatment of Preservation. Specific measures that follow The Secretary of the Interior's Standards for Preservation are discussed in this report.

• The recommended ultimate use of the house has been defined in the 1995 amendment to the park's 1982 General Management Plan, and calls for the house to provide interpretive

180. **Preservation** Treatment Standards, www.nps.gov/tps/standards/four-treatments/treatment-preservation.htm.
181. **Rehabilitation** Treatment Standards, www.nps.gov/tps/standards/four-treatments/treatment-rehabilitation.htm.
182. **Restoration** Treatment Standards, www.nps.gov/tps/standards/four-treatments/treatment-restoration.htm.
183. **Reconstruction** Treatment Standards, www.nps.gov/tps/standards/four-treatments/treatment-reconstruction.htm.

exhibits on its history and be used for group assemblies. Recommendations for new potential uses are discussed on p. 125.

Standards for Preservation Treatment

The Secretary of the Interior's Standards include individual standards addressing each of the four treatments. The *Standards for Preservation* are to be applied taking into consideration the economic and technical feasibility of each project. They are as follows:

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place and use. Work needed to stabilize, consolidate and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archaeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.[184]

184. Preservation Treatment Standards, https://www.nps.gov/tps/standards/four-treatments/treatment-preservation.htm.

Recommendations for Achieving Ultimate Treatment and Use

The Recommended Ultimate Treatment for the Malus-Beauregard House is Preservation, as administratively determined by the National Park Service. The house has previously been restored to its ca.1850s appearance by NPS.

The Recommended Ultimate Use, also administratively determined by the National Park Service, is to provide interpretive exhibits on the house's history at the lower level and serve as a group assembly space on the second floor.

Guidelines for Treatment

Recommendations have been formulated based on the guidelines provided by The Secretary of the Interior's Standards for Preservation and reflect the administratively determined ultimate treatment. The full list of Preservation standards are provided in the *Ultimate Treatment and Use* chapter. Other guiding documents are outlined in the *Requirements for Treatment and Use* chapter.

Recommendations that further enhance the ultimate treatment of preserving the house are based on the findings of this HSR and are included in the *Further Enhancement* subsection at the end of this chapter. That discussion includes recommendations for performing additional studies and addressing matters relating to interpretation of the resource.

Implementation of the recommendations provided by this report should adhere to the following guidelines:

- Undertake all work in compliance with The Secretary of the Interior's Standards for Preservation.
- Retain the historic character of the building and its surroundings by protecting the building and significant site features.
- Ensure that any proposed new elements or construction are compatible with the historic character of the building and site.
- Protect adjacent natural resources during construction projects.
- Document through photography, written narratives, and detailed as-built drawings, all changes and treatments to the building and its immediate site. Maintain records of treatments and preserve documentation according to professional archival standards. Maintain a copy of these records in NPS archives.
- Retain features and materials of both the exterior and interior of the building that survive from the period of significance to the greatest extent possible.
- Incorporate sustainable design principles in future projects that respect preservation principles.

Recommendations

The actions recommended below are organized by feature and are intended to provide a conceptual framework for achieving the recommended ultimate treatment and use. They do not and are not intended to provide the detailed guidance of architectural/ engineering plans and specifications.

Site

Observations

The house site poses a variety of challenges with regard to both interpretation and rain and groundwater management. The smaller house site is contained within the larger context of the battlefield, to which the house is historically unrelated. The interpretive challenge created by the relation of the house to the battlefield is discussed in both the 1998 Cultural Landscapes Inventory (CLI) and the 2008 Cultural Landscape Report (CLR).

Also problematic is the site's low elevation in relation to the adjacent river, combined with its nearly flat topography. The resulting high water table leaves the house highly susceptible to rising damp, and provides few options for adequately dispersing water from the building's immediate perimeter.

Recommendations

- Consult the existing CLI and CLR for guidance on treatment of the historic landscape.
- Redesign and implement a functional subsurface drainage system as described in the *Roof and Rainwater Dispersal Recommendations* section.
- Evaluate site for flood avoidance under potentially heavier rainfall, possibly including the introduction of features such as swales to divert or direct water.
- Consult the *Exterior Masonry and Stucco Recommendations* section for specific measures to address moisture threats.



Figure II-5. Example of extensive deterioration of south gallery framing member. Deterioration is evident at nearly all framing members of both galleries.



Figure II-6. Spalled stucco at rusted doorway lintel.

Relevant NPS Preservation Briefs

- Preservation Brief 36: *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*

Structural System

Below is a selected summary of the structural system observations and recommendations. See the full report by BPE in Appendix G for complete findings.

Observations

Galleries

The majority of structural members of the two second-floor galleries are heavily deteriorated and require reconstruction with a corrected design for any use (*Fig. II-5*).

Doorway Lintels

The embedded ferrous metal lintels are corroding, damaging the north and south walls of the house, and will ultimately cause significantly more damage if left in place (*Fig. II-6*).

East and West End Walls

The minimal depth of the deformations in the east and west end walls leads us to conclude that those end walls are not yet unstable. However, because they are not plumb and not tied to the diaphragms, over time the deformations will increase until the walls do become unstable.

Second-Floor Framing

The second-floor framing supporting the middle room (Room 202) is severely limited by the connections of the header joist into the two trimmer joists (*Fig. II-7*). See *Appendix G* for specific loading information for the second floor.

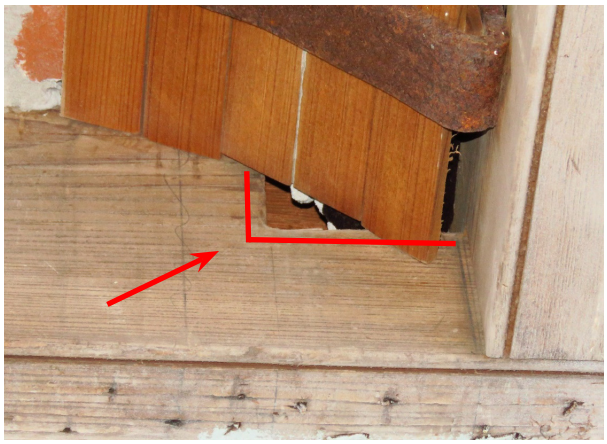


Figure II-7. Trimmer joist connection below Room 202 at vault supporting fireplace mantel.



Figure II-8. Detail view of termite damage to stringer beneath first-floor stair as observed from closet in Room 104.



Figure II-9. Overview of termite damage at winder between second floor and attic.

Conclusions about the second-floor framing are based on inspection of a small sampling of the total framing for the second floor. While we believe that what we have sampled provides a relatively good representation of the overall framing conditions, if the use for the second floor will change significantly, we recommend that the 20th-century plaster now in place be removed in more places than has been done in order that additional areas can be evaluated.

Interior Stair

The first flight of the stair system going from the first floor to the second floor is so severely termite damaged that, in its present condition, it cannot safely carry traffic to the second floor (*Fig. II-8*). The winders between the second and third floors are likewise severely damaged by termites, and the treads have been partially removed and left open with the intent of limiting access (*Fig. II-9*).

Recommendations

Galleries

- Reconstruct the galleries with a slightly modified structure so they can achieve a structural capacity appropriate for assembly use (100 PSF). Strengthening the galleries will provide the park with more flexibility if use of the building changes in the future. A 100 PSF capacity can be achieved without making major changes to the historic structure by:
  - Changing the connections of the purlins to the girders;
  - Slightly increasing the depths of the purlins; and
  - Reducing the spacing of the purlins.
- *See Appendix G for greater explanation of structural recommendations.*

Doorway Lintels

- Remove existing ferrous metal lintels and replace with stainless steel lintels of appropriate sizing.

East and West End Walls

- Tie back both the east and west exterior walls to the second floor and attic diaphragms using tie rods and pattress plates. See *Appendix G* for more information.

Second Floor Framing

- ***Option 1:*** Repair damaged trimmer joists, then limit access and use to loads that do not exceed 50 PSF.
- ***Option 2:*** Remove the 20th-century plaster ceiling below, sister the existing historic joists, adding connections in the few places where needed, and replacing the plaster ceiling to achieve a capacity of 100 PSF.

Interior Stair

- Repair the interior stair between the first and second floor and at the attic winders by sistering compromised structural elements where possible and replacing only where damage is irreparable. Care should be taken to retain the potentially early handrail and newel post. The existing treads, risers, spindles, and related trim should also be retained, with in-kind replacement only where significantly deteriorated, such as at the attic winders. See *Appendix G* for more details regarding repair.

Exterior Features

Masonry/Stucco

Observations

The exterior brick masonry walls, originally exposed, are covered with a modern stucco, the vast majority of which is thought to date to the 1950s.

Although the majority of the stucco appears to be in sound condition, localized areas of delamination were observed on the east and west elevations, and were mapped on elevation drawings during our investigation (see *Appendix H*). The stucco on the north and south elevations, below the gallery decks, had a hollow sound when tested using a mallet, suggesting delamination; however, a probe on the north elevation showed good adhesion (*Fig. II-10*).

The steel lintels above the doorways on the north and south elevations have rusted, resulting in cracking and loss of stucco at select doorways (*Fig. II-6*).

Biologic growth is prevalent on most exterior stucco surfaces. The presence of biologic growth retains additional moisture on surfaces (*Fig. II-11*).

Recommendations

- Regularly monitor stucco for new and worsening cracks.
- Following a period of moisture monitoring and subsequent recommended treatments, repair damaged areas of stucco using the formula derived from the materials testing performed for this report. Further information on recommended monitoring and the materials testing are found in BCA's report in *Appendix F*.
- When repointing of the underlying masonry is required, use an appropriate mortar as recommended by the mortar analysis performed for this report.
- Ensure that electric saws and grinders are not used to remove mortar from historic masonry. These tools are imprecise and pose a high risk of damage to historic material. Repointing should be performed by skilled masons with experience working with historic buildings. Appropriate methods of mortar removal include the use of hand tools or a combination of hand tools and small pneumatic chisels.
- Clean biologic growth from surfaces, testing a wide range of cleaning methods and materials before use of a chosen cleaning system.
- Always test cleaning methods in a small, inconspicuous area to gauge effectiveness.
- Test cleaning methods by progressing from the gentlest solution, such as presoaking with warm water, to mild non-ionic detergents, and finally to more aggressive commercial cleaners as necessary to remove soiling or staining. All methods should be agitated with a soft, natural bristle brush to prevent damaging the surface of the material being cleaned.
- Clean masonry elements using the lowest level of abrasion and mildest cleaning solution possible while achieving the desired results.
- Ensure that pressure washing with water is performed at a low psi (garden hose level up to about 300-400psi) with a fan-tip nozzle and a minimum distance of 30 inches from nozzle tip to masonry surface.
- Prohibit use of high-pressure washing (in excess of 400 psi) to clean historic masonry. The pressure exerted on the surface by a pressure washer can result in damage or loss of material, and also exposes historic materials to large volumes of water.
- Blasting with hard material (sand, nutshells, glass beads, etc.) should never be considered as an option for cleaning or removing coatings from masonry.



Figure II-10. Probe opening on north elevation showing apparent good adhesion of stucco.



Figure II-11. Example of typical biologic growth, in this case at the base of the east elevation.

Relevant NPS Preservation Briefs:

- Preservation Brief 1: *Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings*
- Preservation Brief 2: *Repointing Mortar Joints in Historic Masonry Buildings*
- Preservation Brief 6: *Dangers of Abrasive Cleaning*

Wood Elements

Observations

Exterior wood elements include window sash, shutters, exterior doors, and all door and window casings. Also included are elements of the entablature, gallery decks, exterior stair, and dormers. Specific recommendations pertaining to doors and windows, as well as the galleries, are described in their respective sections. The recommendations described here address the general treatment approach for exterior wood elements.

With the exception of entablature, which has been largely protected from exposure, all exterior wood elements appear to be replacement material. The vast majority of elements are thought to have been installed during the 1950s exterior restoration project.

Recommendations

- Maintain protective coatings on exterior face of all wood elements, including exterior doors, window sash and casings, shutters, the entablature, dormers, and gallery framing, railings, and decking.
- Prepare surfaces appropriately to achieve a sound protective coating. Painted surfaces should be scraped to remove loose paint, the edges feathered, and sound paint cleaned of dirt, oil, and moisture before repainting. Clean painted wood surfaces using mild detergents and a natural bristle brush. Rinse with tap water to remove residue.
- Ensure that pressure washing with water is performed at a low psi (garden hose level up to about 300-400psi) with a fan-tip nozzle and a minimum distance of 30 inches from nozzle tip to wood surface.
- Prohibit use of high-pressure washing (in excess of 400 psi) to clean wood. The pressure exerted on the surface by a pressure washer can result in damage or loss of material, and also exposes historic materials to large volumes of water.
- Follow manufacturer's instructions for chosen coating and stay within one system, as paint formulations are frequently evolving.
- Ensure that replacement material and patches are primed on all six faces to maximize the life of the wood and applied coatings by sealing it from moisture.
- Use more durable species of wood or treated wood in areas exposed to moisture. Considering the difference in quality between early and mid-20th-century woods and those available today, it is not always preferable to match the existing wood species.
- Utilize wood which is relatively free of knots and checks in order to assure a longer life for replacement materials.
- Ensure that replacement material is installed such that it integrates well with early material. For example, while it is generally preferred to retain as much early material as possible when making repairs, the use of very small pieces is not advisable in areas commonly exposed to moisture.
- With the exception of elements noted to be of non-historic dimension and detailing, including the existing gallery decks and exterior stair, new elements should be in-kind replacements matching the existing dimensions and profiles. See the *Galleries Recommendations* section for more information.

Relevant NPS Preservation Briefs

- Preservation Brief 1: *Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings*
- Preservation Brief 6: *Dangers of Abrasive Cleaning*
- Preservation Brief 10: *Exterior Paint Problems on Historic Woodwork*
- Preservation Brief 39: *Controlling Unwanted Moisture in Historic Buildings*

Windows, Exterior Doors, and Hardware

Observations

All extant examples of window sash, exterior doors, shutters, and associated framing and casings are replacements thought to have been installed as part of the 1950s rehabilitation.

Several of the shutters, particularly those of louvered-panel design, exhibit warping of louvers and deterioration of stiles and rails (*Fig. II-12*).

Many window sash and shutters are stuck in place or have non-functional hardware. Not only does this issue reduce the ability to provide air circulation to the interior, it also traps moisture between the sash and shutters, accelerating deterioration of wood elements and providing habitats for insects and vermin.

Wood exterior window sills on the east and west elevation have little slope to effectively shed water. The first-floor window sill on the east elevation is significantly deteriorated (*Fig. II-13*). Infrared thermography performed for this report indicates that the east and west window sills may be a source of water intrusion.



Figure II-12. Deterioration of shutter stiles and rails and typical warped louvers observed on upper west window.



Figure II-13. Deterioration of subsill at east window at first floor.

The current profile of elements such as the door panel sticking, door and window jambs, and window muntins, differ from those recorded in the 1930s HABS documentation. Field notes recorded by Koch & Wilson Architects in the 1950s depict yet another set of profiles. The reason for these inconsistencies is unknown.

Hardware throughout the house consists of reproduction pieces. No examples, nor physical evidence (ghost marks, patterns, etc.) of early hardware were observed during the investigation for this report, with the exception of two partial locksets installed in salvaged doors stored in the attic. Both of these doors are suspected to have once been installed in the west exterior wall, based on historic photographs. If so, these doors and their hardware likely date from the construction of the west wing addition, and may not reflect designs from the interpretive period.

Recommendations

- Maintain protective coatings on all elements of exterior doors, window sash, frames, and casings in accordance with the guidelines in the preceding *Exterior Wood Elements* section.
- Ensure that all windows and shutters are in operable condition as part of maintenance campaigns. Associated maintenance tasks may include periodic lubrication of hinges and locking mechanisms, as well as ensuring that shutters and sash are opened on a regular basis.
- Plan for phased repair or replacement of the deteriorated louvered shutters. Design of the louvered shutters should be guided

by existing historic photographs and detailed appropriately for the interpretive period.

- Replace exterior wood sills on the east and west elevation with designs that effectively shed water while maintaining the existing overall appearance.
- Consider installing inconspicuous door sweeps as necessary on exterior doors to better seal the house when not open to the public. Gaps at the base of exterior doors provide easy entry for pests and vermin.
- Regularly maintain hardware, applying lubricants, replenishing paint finishes as appropriate, and making repairs to extend the life of the hardware.
- Retain and catalogue the salvaged doors and their hardware stored in the attic.
- Recognize the contradictions in the recording of building elements (1930s HABS and 1950s K&W) and therefore the uncertainty of historic accuracy. Remain vigilant for more definitive evidence, such as the discovery of known original artifacts that could resolve these discrepancies.

Related NPS Preservation Briefs

- Preservation Brief 9: *The Repair of Historic Wooden Windows*
- Preservation Brief 10: *Exterior Paint Problems on Historic Woodwork*

Galleries

Observations

The general design characteristics of the galleries are plausible for the period of interpretation (board deck, round handrail, unadorned square-edged balusters, etc.); however, the scale, proportions and construction detailing of the individual elements are inappropriate. The unfortunate result is a somewhat cartoonish representation of reconstructed important historic character-defining features.



Figure II-15. Heavily deteriorated bottom rail of balustrade on south elevation.

All wood elements of the galleries, including the structure, decking, and balustrades exhibit moderate to heavy deterioration due to design flaws, and require redesign and replacement (*Figs. II-14, II-15*).

The present design of the galleries is detailed in ways that minimize the capacity for shedding water, and thus significantly increases the rate of deterioration of the wood components.

Both research and discussions with park staff confirm that the construction documents for the existing gallery design have been reissued for



Figure II-14. Missing deck boards at north gallery. Note gaps between remaining boards allowing water to sit on framing members.



Figure II-16. Deteriorated decking boards of exterior stair landing.

construction multiple times and have failed within about ten years.

The wood exterior stair is in fair condition; however, the decking at the landing is deteriorated and the detailing of the balustrades is neither historically dimensioned nor well suited to shed water (*Fig. II-16*).

The brick walkways beneath the galleries have a few chipped and heavily eroded bricks at their perimeter that may present potential trip hazards (*Fig. II-17*).

Recommendations

- Because the existing gallery design has such minimal structural capacity, and considering the deficiencies in detailing, do not reuse the existing design documents to reconstruct the galleries. Redesign the galleries.
- Reconstruct gallery structural design in accordance with *Structural Recommendations* section.
- Ensure that in the new design, the deck sheds rainwater from structural members.
- Construct the gallery balustrades in period-appropriate proportions of elements of period-appropriate dimensions.
- Choose wood species for durability in this year-round high-humidity, temperate climate.
- Replace the existing exterior stair as part of the larger gallery replacement project. The new stair should be designed with elements that can effectively shed water having appropriate detailing for the interpretive period.



Figure II-17. Diagonal crack at west end of north walkway. Note broken and eroded perimeter bricks.



Figure II-18. Joint sealant applied to copper gutters.

- Replace chipped and heavily eroded walkway bricks in kind as necessary to ensure safety.

Roofing and Rainwater Dispersal

Observations

The current slate roof appears to be in good condition. There are a few instances of loose and displaced slates.

The seams in the existing copper gutters appear to have been patched multiple times with sealant (*Fig. II-18*).

Currently, there are two copper downspouts, one on the northern half of each of the east and west elevations. Each downspout drains to a brick catch basin that connects to an undocumented underground drainage system that is no longer functional. Two elbows at the ends of the south elevation discharge to grade.

Recommendations

- Repair or replace missing and displaced slates at locations noted in the Condition Assessment.
- Repair or replace copper gutters and redesign the drainage system to bring water effectively to grade level. The redesign should include an adequate number of downspouts to accommodate shedding rainwater, and placement of the downspouts should minimize their visual impact, particularly on the major north and south elevations.
- Install a redesigned subsurface drainage system to carry all rainwater shed from the roof to the drainage ditch west of the house. The underground pipe should be monitored regularly to ensure that it does not become clogged by debris or roots. An archaeologist

should monitor excavation for the new underground drainage system to retain and catalogue the location of earlier drainage systems or other artifacts.

Relevant NPS Preservation Briefs

- Preservation Brief 4: *Roofing for Historic Buildings*
- Preservation Brief 39: *Controlling Unwanted Moisture in Historic Buildings*

Interior Features

Flooring

Observations

The marble tile flooring and underlying slab at the first floor was added as part of the 1950s rehabilitation.

Portions of the tongue-and-groove wood flooring at the second floor appear to be early, potentially dating to the house's interpretive period.

Similarly, flooring at the attic level appears to be mostly early and may date to the interpretive period.

Recommendations

- Retain marble flooring at first floor.
- Retain tongue-and-groove flooring at the second floor and use only renewable finishes when the floors next require refinishing. Unlike non-renewable finishes such as polyurethane, renewable finishes do not require sanding before application, meaning that less historic material is lost, and the interlocking tongue-and-groove system is not compromised by repeated refinishing.
- Retain attic flooring.



Figure II-19. Slanted sill and apron in Room 104.

Architectural Trim

Observations

Throughout the two occupation levels of the interior, the wood architectural trim is painted, and was installed as part of either the 1950s rehabilitation, or the subsequent interior work in the 1990s. Field microscopy was unable to identify any material with the number of paint layers that would be expected to be found on early material. *Please see BCA's report in Appendix F for more information*.

The profiles and dimensions of elements such as door panel sticking and door and window jambs differ slightly from those recorded in the HABS documentation. Field notes recorded by Koch & Wilson Architects, who guided the 1950s rehabilitation, depict yet another set of dimensions. The reason for these inconsistencies is unknown. Frustratingly, elements such as baseboards were not recorded by either the HABS nor Koch & Wilson teams.

The vast majority of interior trim appears to be in good condition; however, the sill and apron of the window in Room 104 is out of position (*Fig. II-19*).

Recommendations

- Retain all existing interior wood elements and maintain protective coatings.
- Understand that the contradictions in recording of building elements creates some uncertainty as to their historical accuracy. Without more definitive evidence, such as the discovery of confirmed building artifacts, it is difficult to confirm definitively the original profiles.
- Adjust the level of the wood window sill and apron in Room 104.

Walls and Ceilings

Observations

The vast majority of the house interior has plaster walls and ceilings that are applied to modern wire lath. The plaster is applied to wood furring strips on most exterior walls and is applied directly to the masonry interior walls. All plaster appears to be modern. The ceilings in Room 204, as well as at both upper level galleries, are tongue-and groove-boards. Some of these boards may be early.

Localized areas of plaster damage are found at the first floor, primarily on the interior cross walls (*Fig. II-20*).



Figure II-20. Moisture damage and evidence of previous patching on interior masonry wall at first floor.

Recommendations

- Retain tongue-and-groove board ceilings in Room 204 and at both upper level galleries, which may contain early material.
- Following a period of moisture monitoring and subsequent treatment, repair damaged plaster using formula determined by material analysis performed as part of this HSR. Further information on recommended monitoring and the materials testing can be found in *Appendix F*.

Interior Stair

Observations

Based upon the 1957 project documents, the interior stair is thought to contain portions of historic material. The drawings identify the newel post at the first floor and portions of the handrail as being retained, and portions of the stair being "repaired and replaced" as necessary. The findings of the BCA finishes investigation prepared for this report support the idea that some early stair elements may remain.

Recommendations

- Perform necessary structural repairs outlined in the *Structural Recommendations* section while retaining the existing balustrade, newel post, treads (where possible), risers, and trim elements of the stair.
- Consult BCA's finishes investigation in *Appendix F* for more information on potential historic finishes.
- Maintain protective coatings on all elements of the stair.

Special Features

Observations

Special features include the mantels and casework. All existing mantels are reconstructions. The mantel in Room 101 was installed as part of the 1950s rehabilitation, while all others were installed in the 1990s. Unfortunately, the 1930s HABS documentation does not include drawings of the mantels; however, mantels installed in the 1990s were designed based on a HABS photograph.

Recommendations

- Retain all reproduction mantels and maintain painted coatings.
- Remove firewood currently present in first-floor fireboxes to avoid attracting wood-damaging insects.

Building and Site as Artifacts

Observations

It is important to think of the house and its surroundings as an archaeological site. Evidence of the creation and evolution of this place is embodied in the building and site features, and sometimes hidden below the ground's surface.

Recommendations

- As part of any project requiring ground disturbances, have an archaeologist on call to review any potential findings.
- Select representative samples of building elements to retain, label, and archive when they have deteriorated such that they can no longer serve their intended function.
- Be aware of the importance of fasteners such as nails and screws, the markings of the tools that created elements (such as the types of saws or hand tools), and the methods of construction. All of these aspects are a testimony to the characteristics of this building and have interpretive potential.

Ventilation and Building Systems

Observations

General Considerations

The introduction of any new building systems, including mechanical, electrical, plumbing, and life safety, can result in damage or loss of historic fabric if care is not taken in its design, installation, and operation.



Figure II-21. Severed conductor on west elevation.

Ventilation
Providing airflow throughout the house is critically important in high-moisture climates such as the New Orleans area. The moisture held within the building due to lack of airflow can result in mold growth, deterioration of plaster, and will attract wood damaging insects. The house's plentiful and large window openings present many opportunities to provide air circulation.

Currently, the park is regularly opening second-floor windows behind the louvered shutters, and is regularly running a large fan at the second floor. These are both good approaches that should be continued and expanded.

Mechanical Systems
The house currently has no functioning mechanical systems for heating, cooling, or ventilation. An abandoned furnace with cooling coil is in the attic; however, no ductwork for this system remains in place below the attic level.

The absence of a heating system may result in improper function of smoke detectors, and could result in freezing of the sprinkler system.

Electrical System
Vines were observed growing on pole-mounted transformers on River Road.

The lightning protection system is compromised by a broken conductor cable on the west elevation (*Fig. II-21*).

The current main electrical panels located beneath the stair in Room 104 are installed in a location that has potential for being flooded, a special concern in this region known for frequent tropical disturbances.

Plumbing System
The house has no plumbing system other than two exterior spigots.

Fire Sprinkler System
The sprinkler heads in the gallery ceilings are of an older design.

There are currently no sprinklers installed beneath the gallery decks as required by building code. If a fire were to start beneath the decks, damage would likely be significant.

Recommendations

General Considerations
- Minimize drilling, cutting or otherwise damaging historic trim, finish materials, or framing elements such as door casings, headers, baseboards, wall and ceiling boards, or joists to accommodate new building utility systems.
- Strive to use existing holes for routing pipes and wiring in order to minimize impact on historic framing members.

Ventilation
- Increase airflow throughout the house by opening windows behind louvered shutters.
- Provide ventilation to the attic by opening window sash and installing screened louvered panels in the lower sash opening. A powered exhaust fan may also be considered at the east dormer to expel hot air that rises through the stair hall.
- Depending on intended use, open first-floor doors whenever possible during park hours. If the second floor is not being used, the doorway to the stair hall could be secured to control access.

Mechanical Systems
- Depending on intended use, consider installation of a basic heating system to prevent sprinkler pipes from freezing, to ensure proper function of smoke detectors, and to help preserve interior finishes. Selection and implementation of a system should be coordinated with the findings of



Figure II-22. Existing movable plywood ramp.

the recommended moisture monitoring (see *Appendix F*).

- Remove abandoned mechanical system components in the attic.

Electrical System and Lightning Protection

- Remove vines growing on pole-mounted transformers along River Road.
- Repair broken lightning rod conductor. Have a lightning protection specialist inspect the system to determine whether the air terminal coverage and existing ground rods comply with NFPA 708 Standard for Installation of Lightning Protection Systems.
- Remove abandoned electrical equipment throughout the house.
- As part of future planning, consider moving the main electrical panels to a higher location to protect them from flood damage. Future planning should also take into consideration a properly sized weather-protected main panel box, load balancing, circuit availability, current condition and type of conductors, and proper grounding

Plumbing System

- No recommendations.

Fire Sprinkler System

- Replace sprinkler heads in gallery ceilings.
- Install sprinkler heads beneath the gallery decks.

Accessibility and Universal Design

Observations

The use of a ramp is the preferred NPS means for achieving accessibility for park structures.[185] A removable plywood ramp currently accesses the first floor at the easternmost doorway of the south elevation (*Fig. II-22*). The existing ramp, though unobtrusive, appears to exceed maximum slope requirements.

The second floor is not universally accessible. If assembly or office use of the second floor is planned, the issue of providing universal access should be addressed.

Given the small footprint of the house and lack of compartmentalized spaces, the addition of an elevator to access the second floor would be very disruptive to historic building fabric, and expensive, and therefore is not considered to be a viable solution.

A stair lift could potentially be added to the stairs between the first and second floors; however, use of the lift would require one to transfer to and from a wheelchair at each level. In addition, the installation of a lift would infringe upon the already somewhat narrow stair width.

Recommendations

- In consultation with NPS, consider replacing the existing plywood ramp with one that meets ABA/ADA slope requirements. The ramp should be placed on the south elevation to provide universal access from the house's main elevation.
- Prioritize minimizing visual and physical impact to the historic building regardless of chosen ramp location. ABA guidelines and NPS Director's Order 42 provide assistance and are described in the *Requirements for Treatment and Use* chapter.
- If NPS chooses to use the second floor for assembly or office uses, the following options should be considered:
  - Install a motorized stair lift to provide access to the second floor. These solutions typically ride on a wall-mounted rail along the outside wall of the stair.
  - If the second floor is to contain exhibits, provide interpretive information on the second floor at the first-floor level. In this scenario, the second floor would not be made universally accessible.

185. Correspondence with NPS SERO, August 2018.

Resilience to Natural Hazards

Climate

Observations

The Louisiana coast through recorded history has been subject to tropical storms and hurricanes. Fortunately, the Chalmette site has not suffered a direct hit by a hurricane since 1842 when storm recording in the area was initiated; however, increasingly frequent strong storms and heavy rainfall have been noted for several years in the Southeastern and Gulf states, with particularly severe impacts on coastal areas. A 2018 NPS study finds that within the National Park Service, the Southeast Region is projected to experience the highest storm surges based on historical data and National Oceanographic and Aeronautical Agency (NOAA) storm-surge models.[186] Worldwide, average temperatures are predicted to increase continually, contributing to an increase in the frequency and intensity of storms as well as periods of unusual drought.

The Malus-Beauregard House sits about 200 feet from the levee at the edge of the Mississippi River on a grade level at or below the level of the river for most of the year, resulting in a high water table. The ground floor of the house is close to grade.

An increase in the intensity of wind-driven rain requires heightened attention to regular maintenance for all buildings. Historic buildings are similarly subject to impacts from climate variability and associated environmental changes, and require identification of threats, planning for protection, and mitigation, including short-term preparation for immediate threats, such as an upcoming storm, and long-term planning for anticipated impacts.

Documentation of the building is an important early step, and the information in this HSR serves as part of the identification and mitigation process for the Malus-Beauregard House. The in-depth history of the house and its changes, detailed descriptions, condition assessments, recommendations, photographs both historic and modern, and drawings from different periods are important components of effective planning to prevent or lessen the effects of natural hazards and to recover from an individual event.

Prediction Studies for the Park

Two studies prepared for NPS address climate trends for planning at Jean Lafitte National Historical Park and Preserve (JELA), one completed in January 2014 by Maria Caffrey of the University of Colorado Boulder, the other in February of the same year by Patrick Gonzales. Understanding projections for continued change can better guide protection of such resources for the benefit of long-term visitor enjoyment and safety.

Findings of both assessments indicate that recent conditions are already shifting beyond the historical range of variability, and that changes to sea level, temperature, and precipitation, as well as the likelihood of strong storms, floods, and droughts, will affect the condition of park resources.

Caffrey reports on historical and projected sea level trends along the Gulf coast.[187] Her projections are based on global estimates and regional tide gauge data, and do not reflect temporary changes from storm surges. The Intergovernmental Panel on Climate Change (IPCC) reported in 2012 that storm intensity is likely to intensify in the future, with the expectation that storm surges will likewise increase, and the models predict that sections of JELA will be inundated by storm surges in the future. Those projections do not include potential rises in sea level on top of storm surge.[188]

Sea level projections for Grand Isle, Louisiana, south of JELA, show levels higher than global increases. These are supplemented by Army Corps of Engineers predictions for three scenarios (low, intermediate, high) that show increases of between 3.30 and 7.62 feet of rise by 2100. The analysis of

186. Maria A. Caffrey, Rebecca L. Beavers, and Cat Hawkins Hoffman, "Sea Level Rise and Storm Surge Projections for the National Park Service," Natural Resource Report Series NPS/NRSS/NRR—2018/1648, Fort Collins, Colorado: U.S. Department of the Interior, National Park Service, Natural Resources Stewardship and Science, May 2018.

187. Maria Caffrey, " Sea Level and Storm Trends for Planning at Jean Lafitte National Historical Park and Ecological Preserve and New Orleans Jazz National Historical Park," University of Colorado Boulder, January 2014, cites Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change," Cambridge University Press, Cambridge, United Kingdom and New York, 2013, p. 1.

188. Ibid.

tide gauge data from Grand Isle recorded in recent decades shows already increasing tide levels.[189]

Historical storm records for the JELA area show that many are relatively low intensity events (77.5% were either tropical storms or tropical depressions). However, at least nine recorded at hurricane strength have passed within ten miles of the park since 1842. Although these have typically been category 2 or less, the winds, rain, and flooding can be wide ranging. A recent example is Hurricane Katrina, which in 2005 caused considerable damage even though the eye was 27 miles from the Malus-Beauregard House.[190]

The other study conducted for JELA is Gonzales' February 2014 report for the NPS Natural Resource Stewardship and Science office, which addresses temperature and precipitation.[191] It presents data and analyses presented by the IPCC in 2013, as well as by a 2008 article in the *International Journal of Climatology*. These reports analyze temperature and precipitation trends for four levels of projected greenhouse gas emissions (lowest, medium, high, highest).

Gonzalez reports projected increases in average annual temperature at the park by the year 2100 of between 2°F to 7°F, depending on emissions scenario.[192] Conversely, precipitation predictions for the four scenarios show a decrease in annual average from four inches for lowest emission to a zero-inch change under the highest emissions scenario.[193]

Recommendations

- Consider the potential effects of climate change issues on the house and its immediate site, such as increased storm threats and inundation of low-lying areas, changes in average temperature and rainfall totals, and associated loss or degradation of resources.
- Monitor weather-related deterioration and evaluate needed responses to protect the house and its immediate site in coordination with overall assessment of climate change effects on the park overall.
- Conduct design of site features and building modifications in harmony with this HSR, the CLI, and the CLR.
- Use studies regarding adaptation to natural hazards to inform management decisions. Current studies that address the park include those cited above (Caffrey, January 2014, and Gonzales, February 2014).
- Consult regularly with the NPS Interior Region 2 Climate Change, Socioeconomics, and Adaptation Coordinator to inform management policies. Coordinate with planning and documentation projects being implemented by the NPS Region.
- Evaluate building maintenance schedules as necessary to account for the possibility of more frequent exterior painting/finishing campaigns, roof repairs, and roof and site drainage repairs in response to increased and more intense projected precipitation. The Condition Monitoring Checklist in the *Further Enhancement* subsection that follows helps guide cyclical maintenance and frequent monitoring of conditions, and creates a record.
- Update emergency and disaster planning to address resiliency to natural hazards and mitigation of the effects of hazardous events.
- Evaluate site for flood avoidance under potentially heavier rainfall, possibly including the introduction of features such as swales to divert or direct water.

Vermin and Pests

Observations

Extensive termite damage to framing members was identified beneath the first-floor stair and second-floor stair landing, as discussed in the *Structural Recommendations* section. In addition to termites, pests such as carpenter ants, carpenter bees, and powder post beetles pose a significant threat to wood elements.

Insects that present potential safety issues for visitors, such as wasps and hornets, are also common in this locale.

189. Ibid., pp.2-3.
190. Ibid., pp. 1-2.
191. Patrick Gonzalez, "Climate Trends, Jean Lafitte National Historical Park and Preserve, Louisiana," Natural Resource Stewardship and Science, U.S. National Park Service, Washington, DC, February 5, 2014.
192. Gonzalez cites C. Daly, M. Halbleib, J.I. Smith, W.P. Gibson, M.K. Doggett, G.H. Taylor, J. Curtis, and P.P. Pasteris, "Physiographically sensitive mapping of climatological temperature and precipitation across the conterminous United States," I*nternational Journal of Climatology* 28, 2008, pp. 2031–2064.
193. Gonzalez, p. 1.

Plants prevalent in the region, including moss and fungi, also attack wood construction materials.

Recommendations

- Regularly inspect the base of exterior walls for evidence of termite mud tunnels and other wood-damaging insect activity.
- Maintain termite and wood-damaging insect integrated pest management at the perimeter of the building.
- Remove any insect nests that may appear on the building exterior, as well as those that may form behind shutters.
- Consider installing inconspicuous door sweeps as necessary on exterior doors to better seal the house from vermin when not open to the public.
- Be vigilant to prevent habitation of vermin such as mice, rats, or snakes on the interior of the house and also in nearby site features.

Recommendations for Ultimate Use

The Malus-Beauregard House presently has no defined use and is closed to the public, in part due to safety concerns for visitors passing beneath the deteriorating gallery decks.

The structural capacity limitations of the stair, second floor, and gallery decks dictate which uses may be appropriate. Additionally, accessibility requirements make use of the second floor problematic.

The solemn character of the battlefield and cemetery discourage the use of the building for boisterous events, particularly those involving alcohol consumption.

In collaboration with park staff, this report outlines two options for ultimate use. Both of these options involve the stabilization of the structure to prevent further deterioration

- ***Option 1:*** Allow public use of the first floor as interpretive exhibit or assembly spaces. The second floor would remain closed to the public, and access to both the second floor and gallery decks would be used for administrative/maintenance purposes only. In this scenario, the second-floor structure and staircase structure would be repaired and retrofitted to the extent required for light storage use. The galleries, however, would be reconstructed using a strengthened design involving modification to the size and spacing of the gallery structural members as discussed in the *Structural System Recommendations* section. Strengthening the galleries will allow greater flexibility if the park seeks to fund strengthening the second floor for another use in the future.
- ***Option 2:*** Similar to Option 1, the first floor would be made available for public use; however, the second floor and galleries would also be stabilized and strengthened to accommodate use of the second floor for purposes that could include exhibits, offices, or storage. Option 2 would require the second floor to be universally accessible (see the *Accessibility and Universal Design* recommendations section for more information). It would also require the same modifications to the gallery structure as described in Option 1.

Recommendations for Further Enhancement

Monitoring System

Because the moisture investigation was performed at a single point in time during a relatively dry period for New Orleans, BCA recommends additional Infrared Thermography (IRT) and monitoring to document locations and patterns of water infiltration over the course of 12 months. The additional IRT would document temperature differentials between materials to determine whether more extensive areas of active water infiltration and/or whether additional areas not detected in December 2019 exist, as well as to ascertain the environmental conditions in which water enters the building. See BCA's report in *Appendix F* for more information.

Operations and Maintenance Program

The park currently does not have formal procedures established for conserving the historic building materials.

Recommendations

- Initiate an Operations and Maintenance (O&M) program focused on this building, specifically to:
    - Develop a protocol of best practices for maintenance, including lists of proven products, materials, and methods.
    - Also develop a list of products, materials, and methods that should NOT be used.
    - Avoid the use of new construction products and materials until the specific application has been sufficiently tested and approved by the appropriate NPS management unit.

Monitoring Checklist

Use of a Condition Monitoring Checklist outlining inspection topics and the date of inspection helps both to formalize the monitoring process and to create a record for future reference.

A checklist tailored specifically to the needs of the Malus-Beauregard House was prepared for this HSR and follows this section.

Recommendations

- Adopt the recommended inspection schedule included in the Checklist or substitute a more suitable one.
- Adjust the list of inspections as appropriate. Integrate the monitoring schedule into park activities.
- Retain the Checklists for tracking needs and scheduling remedial actions.

CONDITION MONITORING CHECKLIST
MALUS-BEAUREGARD HOUSE

Feature	Action	Frequency	Date
Rainwater Collection & Dispersal:			
• ***Roofs***	o From exterior, inspect for missing, displaced, or damaged slates	Post-Storms	
	o At Attic, inspect for roof leaks	Post-Storms	
• ***Chimney***	o From Attic, inspect for leaks.	Post-Storms	
• ***Soffit & Entablature***	o Inspect for failing paint Indicating roof leak	Twice yearly	
• ***Gutters and Drainage***	o Maintain drainage away from House	Twice yearly	
	o Inspect gutters for failed seams and deflection.	Twice yearly	
	o Ensure that downspouts and underground drainage system remain clear and functional.	Twice yearly	
Chimney	o From exterior, inspect overall condition of brick and flashing.	Twice yearly	
Window Openings & Shutters	o Inspect for cracked or broken glass, failing glazing and paint, open seams	Twice yearly	
	o Probe with awl for rot if soft wood	Twice yearly	
	o Ensure operation of window sash and shutters		
Doorways	o Inspect for cracked or broken glass, failing glazing and paint, open seams especially at threshold	Twice yearly	
	o Probe with awl for rot if soft wood	Twice yearly	
	o Lubricate hardware	Annually	
Galleries & Exterior Stair	o Maintain positive flow of rainwater off the porch deck and stair landing.	Twice yearly	
	o Inspect for failed paint, open seams	Twice yearly	
	o Probe with awl for rot if soft wood	Twice yearly	
Exterior Walls & Columns	o Inspect for new and worsening cracks or failure in stucco	Annually	
	o Inspect house perimeter for termite tubes. Remove any found.	Annually	

Perimeter Vegetation	o Maintain air flow (evaporation) and to keep larger plants from abrading house materials and their finishes	Seasonal	
HC Ramp	o Inspect condition of protective finish and replenish as needed	Twice yearly	
Roof & Attic Framing	o View from exterior for deflection of roof planes and framing o Inspect from attic for indications of damage or overstressing	Twice yearly Annually	
Interior Finishes & Material Substrate	o Inspect for evidence of water infiltration at ceilings and perimeter exterior walls, doors and windows due to failure in exterior envelope o Monitor finish deterioration, soiling and damage to substrate materials due to visitation	Post-Storms Twice yearly	
Fire Detection & Suppression System	o Monitor components of the suppression system for evidence of leaks o Schedule system tests as per NPS policy	Twice yearly NPS Policy	
Security System	o Monitor system performance as part of daily arming and disarming o Schedule system tests as per NPS policy	Daily NPS Policy	
Electrical Service	o Inspect exposed system components for evidence of deterioration	Annually	
Lightning Protection System	o Inspect condition of conductors and air terminals o Confirm that the system complies with NFPA 708 Standard for Installation of Lighting Protection Systems.	Annually NPS Policy	

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Park Archives

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Public Records

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Appendix A:
1934 HABS Documentation Drawings

Sheet 1: Cover

Sheet 2: Plot Plan

Sheet 3: First-floor Plan

Sheet 4: Second-floor Plan

Sheet 5: Front Elevation

Sheet 6: Southeast Elevation

Sheet 7: Roof Plan & Chimney Construction in Attic

Sheet 8: Cross Section of Gallery

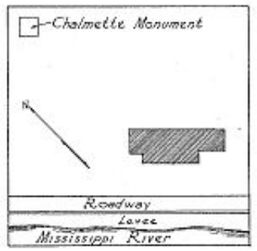
Sheet 9: Details of Rear Stairs

Sheet 10: Details of Openings

RENE BEAUREGARD HOUSE

ST. BERNARD PARISH

CHALMETTE, LOUISIANA



SKETCH MAP
SHOWING LOCATION

ERECTED - 1840

ARCHITECT - JAMES GALLIER SR.

HISTORIC AMERICAN BUILDINGS SURVEY
U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN

MEASURED: JAN. 26, 1934.
DRAWN: JUNE 11, 1934.
MEASUREMENTS CHECKED: F. P. Dufrechou

DRAWINGS APPROVED: , DISTRICT OFFICER.
DRAWINGS APPROVED: , CHIEF ARCHITECT.
ACCEPTED FOR LIBRARY OF CONGRESS:

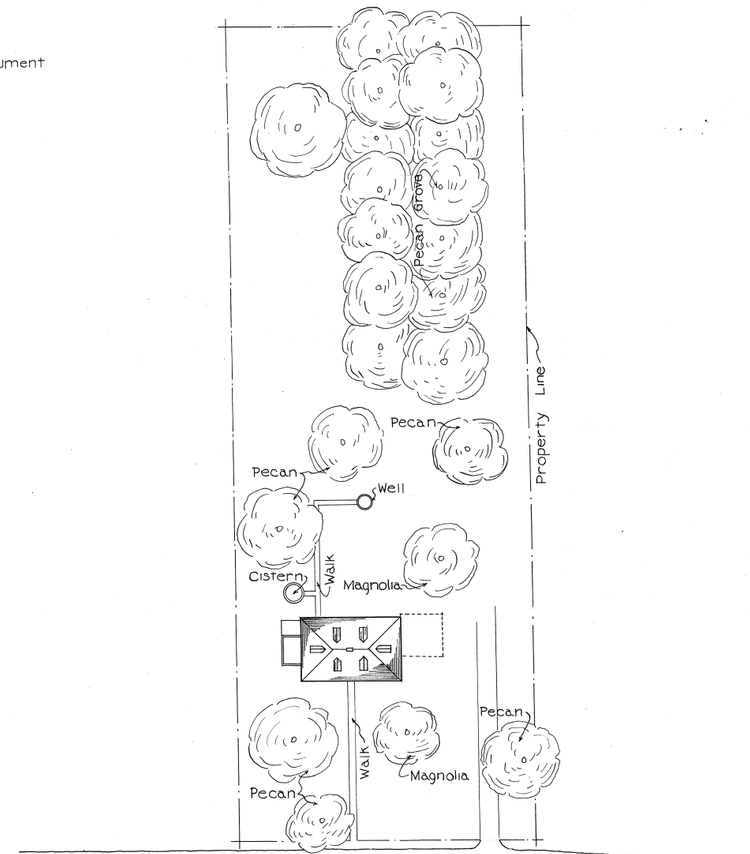
DISTRICT NO 18 - LOUISIANA AREA
RICHARD KOCH - DIST. OFFICER.
614 AUDUBON BLDG. NEW ORLEANS, LA.
FIELD PARTY
C. PHILLIPS - U. NOLAN - L. SARRAZIN, JR.

SURVEY NO. 18-7 SHEETS 1-9

INDEX NO. LA
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1 -

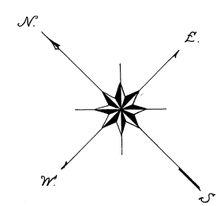


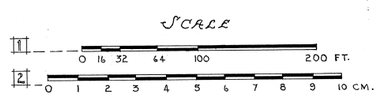
Chalmette Monument



PLOT PLAN

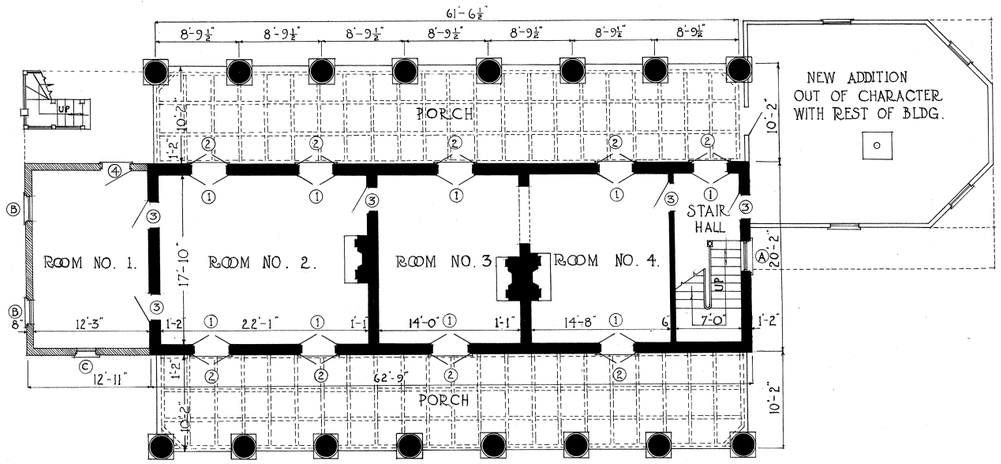
SCALE — 1" = 64'-0"





CHAS. PHILLIPS, DEL.

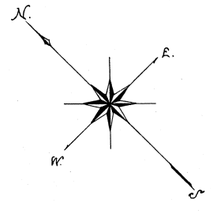
U.S. DEPARTMENT OF THE INTERIOR OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE RENE BEAUREGARD HOUSE	ST BERNARD PARISH CHALMETTE, LA.	SURVEY NO. 18-7 JUNE 12, 1934.	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 1 OF 9 SHEETS	INDEX NO.



FIRST FL. PLAN
SCALE – ⅛" = 1'-0"

SCHEDULE OF OPENINGS			
TYPE	SIZE	TYPE	SIZE
1.	3'-11½" x 8'-3⅛" x 2"	A.	D.H.-2'-6" x 5'-0" x 1⅜"
2.	3'-11½" x 8'-3⅛" x 2"	B.	D.H.-2'-10" x 5'-0" x 1⅜"
3.	3'-0¼" x 8'-4" x 1¾"	C.	D.H.-2'-2" x 5'-0" x 1⅜"
4.	3'-2" x 8'-4" x 2"		

SEE DETAIL SHEET FOR DOOR AND WINDOW DETAILS.



Notes-

Poched portion of building indicates original structure.

Hatched portion of bldg. indicates construction subsequent to original structure.

Plain portion of bldg. indicates new additions.

The walls and ceilings of all rooms are plastered.

The floors are 1⅛" x 6" cypress. There is a wood base thruout

All dimensions shown are to exterior or interior finish.

SCALE
0 1 2 3 4 5 10 15 20 FT.
0 1 2 3 4 5 6 7 8 9 10 CM.

CHAS. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS
BRANCH OF PLANS AND DESIGN

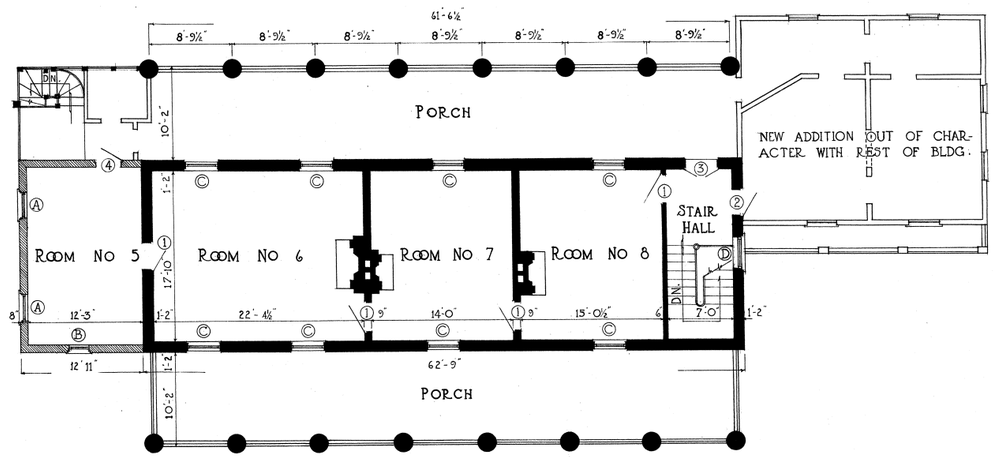
NAME OF STRUCTURE
RENÉ BEAUREGARD HOUSE

ST. BERNARD PARISH
CHALMETTE, LA.

SURVEY NO.
18-7
APRIL 16, 1934

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 2 OF 9 SHEETS

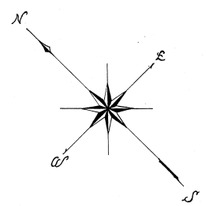
INDEX NO.



SECOND FL. PLAN
SCALE — ⅛" - 1'-0"

SCHEDULE OF OPENINGS			
TYPE	SIZE	TYPE	SIZE
1	3'-0" x 8'-4" x 1¾"	A	2'-10" x 5'-0" x 1⅜"
2	2'-9" x 8'-4" x 1¾"	B	2'-2" x 5'-0" x 1⅜"
3	3'-8" x 8'-4" x 1¾"	C	3'-8" x 9'-7½" x 1⅜"
4	3'-3" x 8'-4" x 1¾"	D	2'-6" x 5'-0" x 1⅜"

SEE DETAIL SHEET FOR DOOR AND WINDOW DETAILS.



Notes~

Poched portion of building indicates original structure.
Hatched portion of building indicates construction subsequent to original structure.
Plain portion of building indicates new additions.
The walls and ceilings of all rooms are plastered
All dimensions shown are to exterior or interior finish.

SCALE
0 5 10 15 20 FT.
0 1 2 3 4 5 6 7 8 9 10 CM.

CHAS. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS
BRANCH OF PLANS AND DESIGN

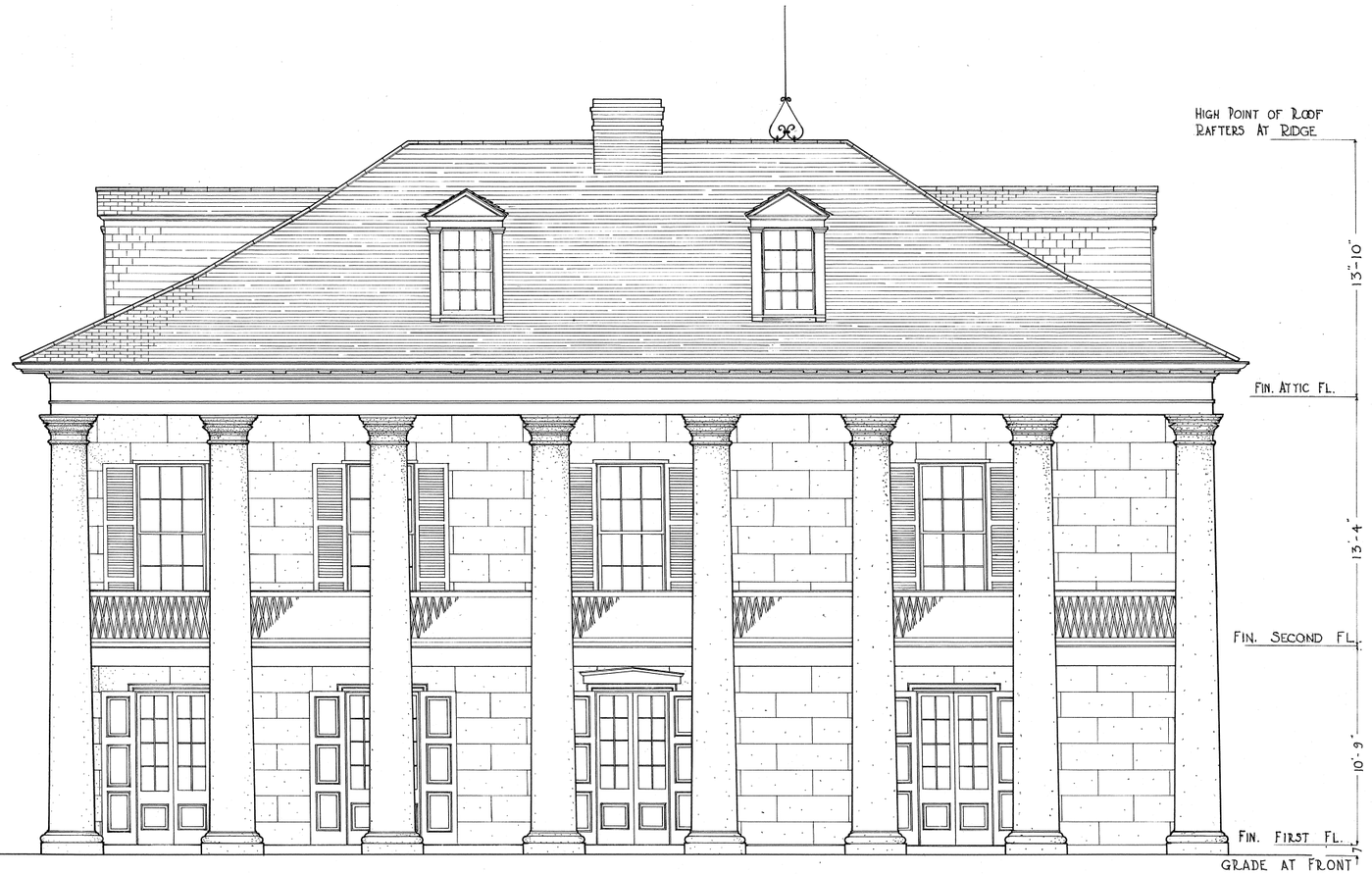
NAME OF STRUCTURE
RENE BEAUREGARD HOUSE

ST. BERNARD PARISH
CHALMETTE, LA.

SURVEY NO.
18-7
APRIL 21, 1934

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 3 OF 9 SHEETS

INDEX NO.



SOUTH WEST
FRONT ELEVATION
SCALE — ¼" - 1'-0" - 11

SCALE.
1 — 0 1 2 3 4 8 12 FT.
2 — 0 1 2 3 4 5 6 7 8 9 10 CM.

CHAS. J. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE RENÉ BEAUREGARD HOUSE	ST. BERNARD PARISH CHALMETTE, LA.	HISTORIC AMERICAN BUILDINGS SURVEY	SURVEY NO. 18-7 FEB 21, 1934	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 4 OF 9 SHEETS	INDEX NO.

RAFTERS 3½" X 7½"

SLATE SHEATHING

MUTULE 2"X 9"

THE 2"X 9" MUTULES ARE 29" O.C. AND RUN BACK TO 4"X4" UPRIGHTS. IN ATTIC, FORMING A CONSTRUCTIVE MEMBER OF THE FRAMING AS SHOWN ON SHEET 7.

5½" X 11½" BEAM

WOOD

REFLECTED PLAN
SCALE – ¼"–1'-0"

SECTION THRU CORNICE
SCALE –3 – 1'- 0"

HIGH POINT OF ROOF RAFTERS

FIN. ATTIC FL.

COL. TOP

FIN. ATTIC FL.

A A

4'-5"

5'-0"

3'-11"

FIN 2ND FL

3'-9"

5'-0"

2'-7"

GRADE

14'-9"

23'-8½"

FIN. 2ND. FL.

11'-4"

GRADE

S. E. ELEVATION
SCALE – ¼"–1'-0"

SCALE

0 1 2 3 4 8 12 FT

0 1 2 3 4 5 6 7 8 9 10 CM.

CHAS. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS
BRANCH OF PLANS AND DESIGN

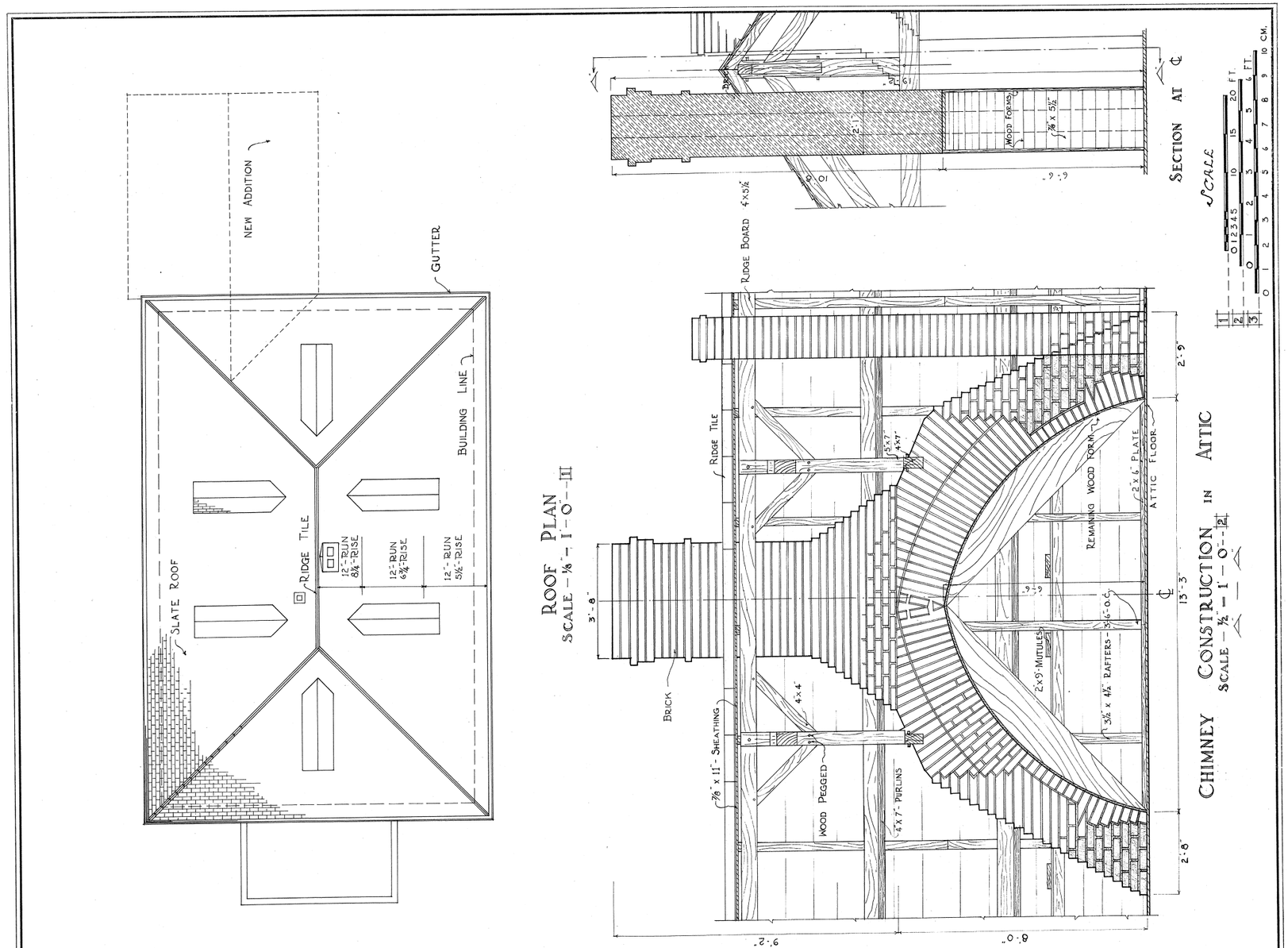
NAME OF STRUCTURE
RENE BEAUREGARD HOUSE

ST BERNARD PARISH
CHALMETTE, LA.

SURVEY NO.
18-7
JUNE 11, 1934

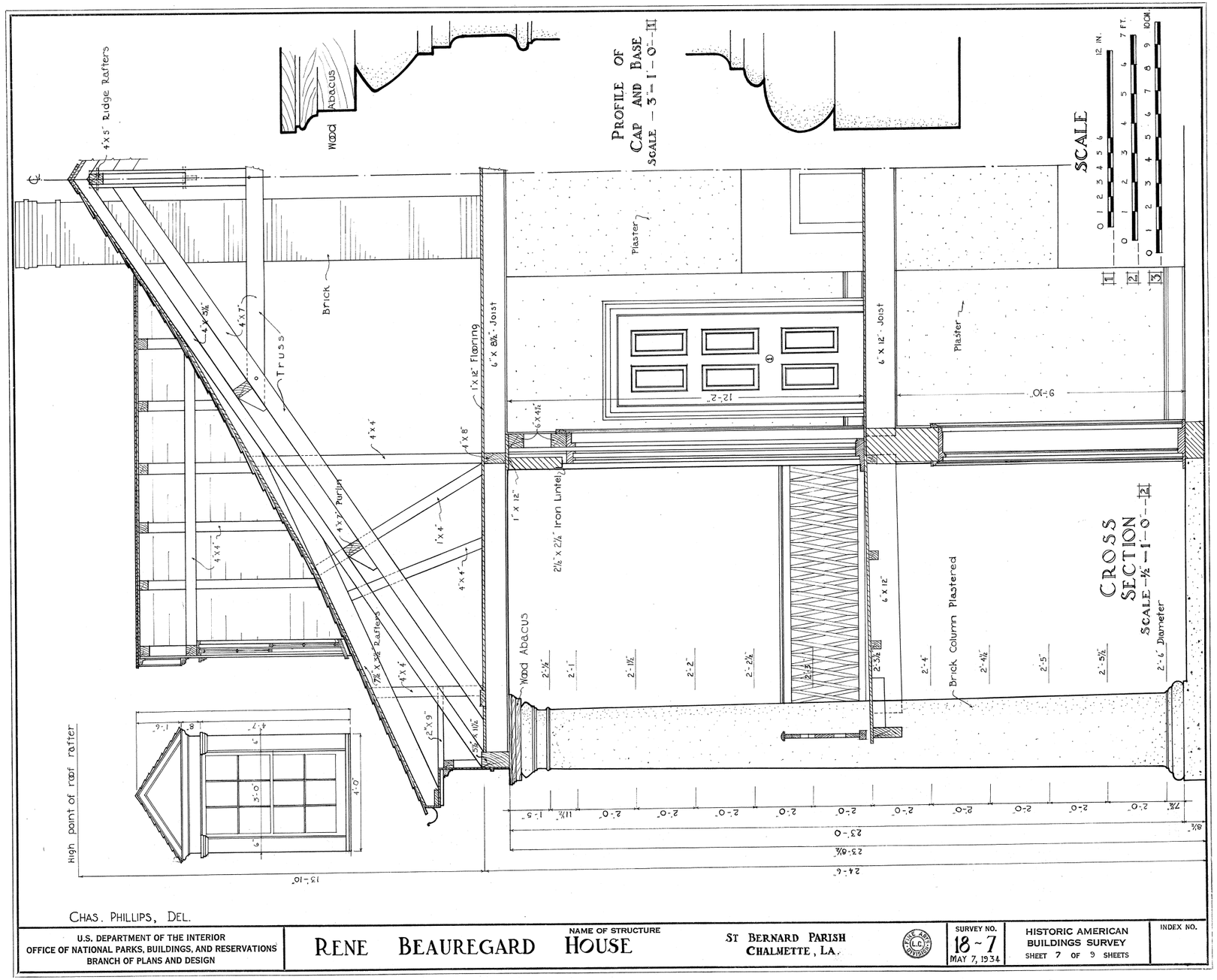
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 5 OF 9 SHEETS

INDEX NO.



CHAS. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE RENE BEAUREGARD HOUSE	ST BERNARD PARISH CHALMETTE, LA	H.A.B.S.	SURVEY NO. 18-7 MAY 15, 1934.	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 6 OF 9 SHEETS	INDEX NO.



U.S. DEPARTMENT OF THE INTERIOR OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE RENE BEAUREGARD HOUSE	ST BERNARD PARISH CHALMETTE, LA.	SURVEY NO. 18-7 MAY 7, 1934	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 7 OF 9 SHEETS	INDEX NO.

CHAS. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS
BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
RENE BEAUREGARD HOUSE

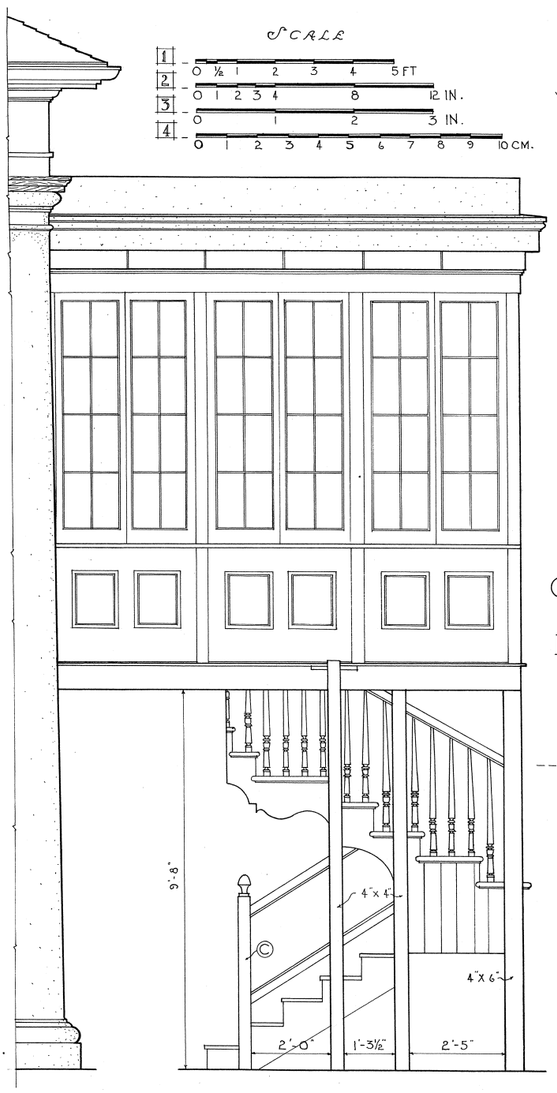
ST. BERNARD PARISH
CHALMETTE, LA.

SURVEY NO.
18-7
MAY 31, 1934

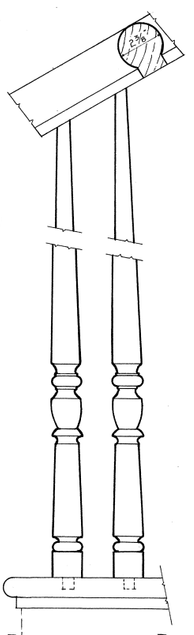
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 8 OF 9 SHEETS

INDEX NO.

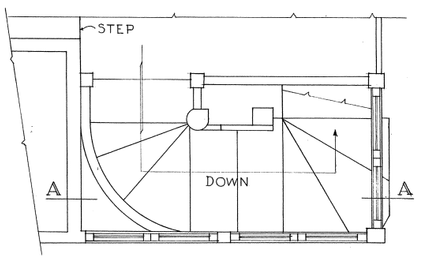
SCALE
[1] 0 ½ 1 2 3 4 5 FT
[2] 0 1 2 3 4 8 12 IN.
[3] 0 1 2 3 IN.
[4] 0 1 2 3 4 5 6 7 8 9 10 CM.



ELEVATION
SCALE – ½"-1'-0"--[1]

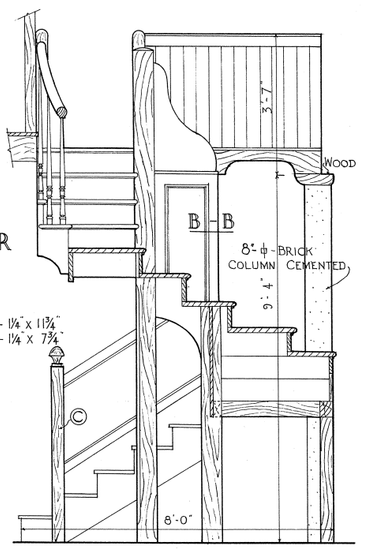


DETAIL OF BALUSTER
SCALE - 3"-1'-0"--[2]

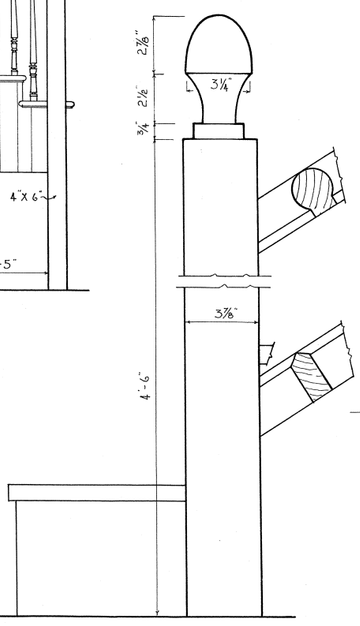


PLAN OF STAIR LANDING
SCALE - ½"-1'-0"--[1]

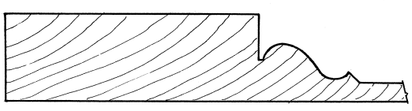
NOTE
Treads - 1¼" x 11¾"
Risers - 1¼" x 7¾"



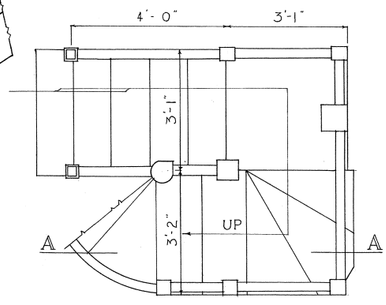
SECTION – A – A
SCALE - ½"-1'-0"--[1]



DETAIL OF NEWEL--©
SCALE - 3"-1'-0"--[2]



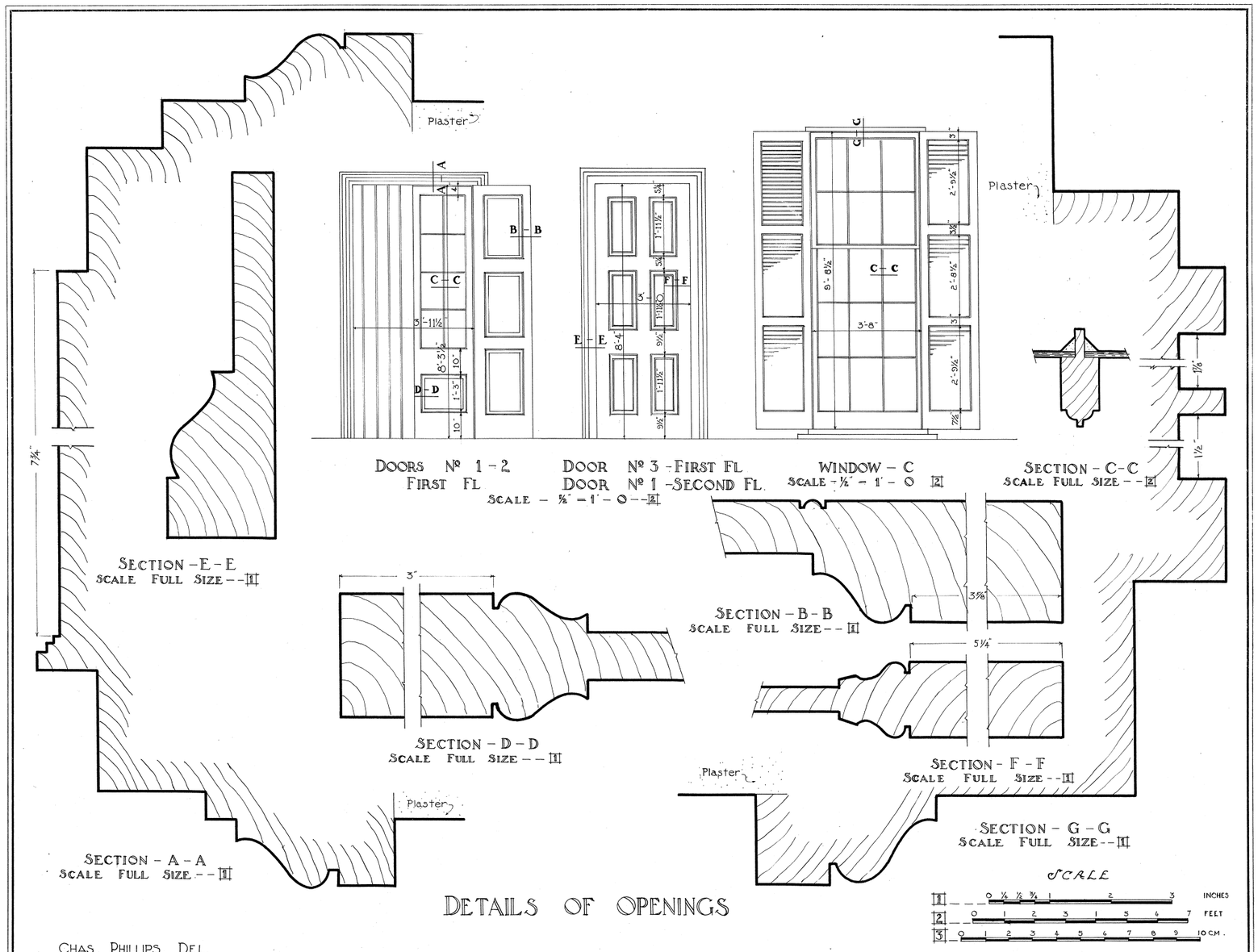
SECTION - B-B
SCALE FULL SIZE--[3]



PLAN OF STAIR START
SCALE - ½" = 1'-0"--[1]

DETAILS OF REAR STAIRS

HABS Drawings, 1934 (Sheet 9 of 10)



DETAILS OF OPENINGS

CHAS. PHILLIPS, DEL.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS
BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE: RENE BEAUREGARD HOUSE

ST BERNARD PARISH
CHALMETTE, LA

SURVEY NO. 18–7
MAY 21, 1934

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 9 OF 9 SHEETS

INDEX NO.

Appendix B:
1957 Construction & Rehabilitation Drawings

Sheet 1: Location Plan

Sheet 2: Details of Foundation, Roof

Sheet 3: First-floor Plan, Elevations, Section

Sheet 4: Second-floor Plan, Interior Elevations, Details of Opening

Sheet 5: Stair Details, Elevations of Openings

Sheet 6: Head and Sill Details

Sheet 7: Details of Exhibit Room Housing & Room Dividers, Lanterns, Openings

Sheet 8: Mechanical System

Sheet 9: Mechanical System (Continued)

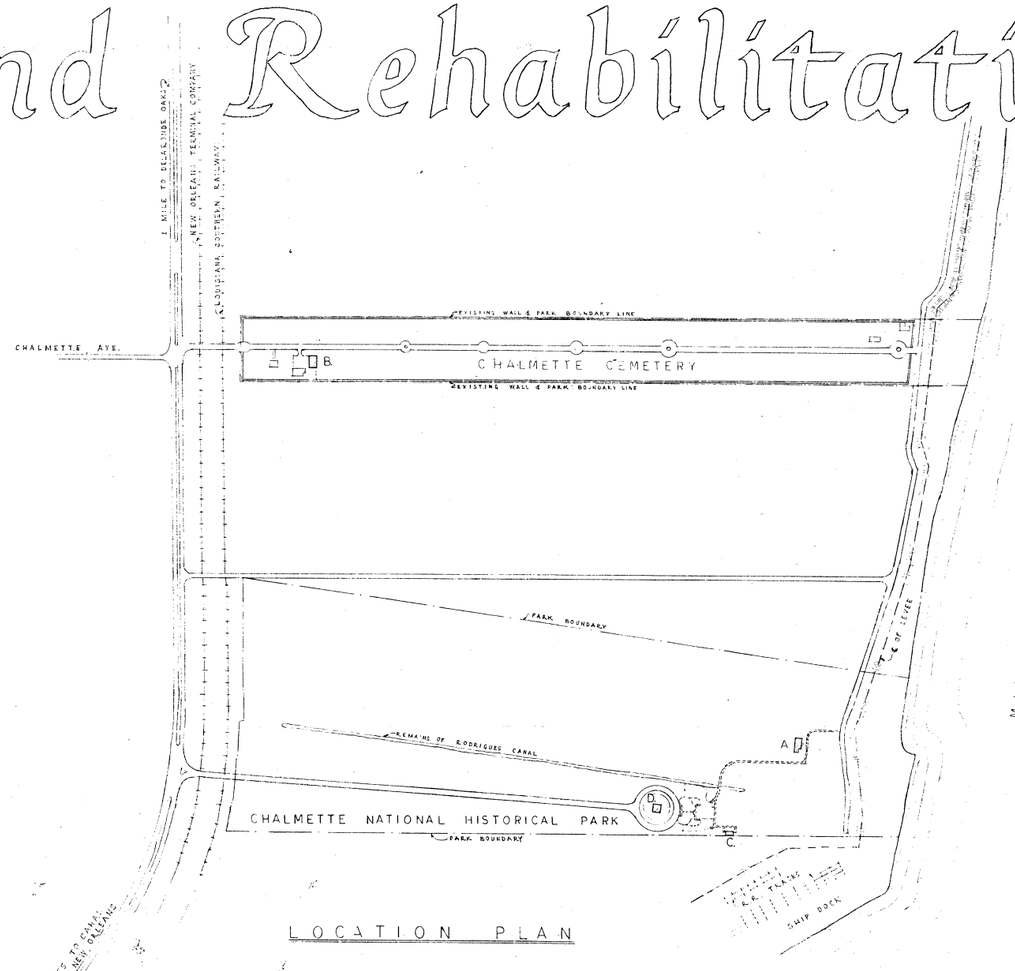
Sheet 10: Electrical System

Sheet 11: Electrical System (Continued)

Sheet 12: Reflected Ceiling Plans & Mantels, Conjectural Original Front Elevation

Sheet 13: Exterior Staircase

Chalmette Construction and Rehabilitation



LOCATION PLAN

BASIC DATA

INDEX

A.	REHABILITATION OF THE BEAUREGARD HOUSE	DRAWING NO. NHP CHAL 3003 (10 SHEETS)
B.	EQUIPMENT STORAGE BUILDING	DRAWING NO. NHP CHAL 3004A (1 SHEET)
C.	COMFORT STATION	DRAWING NO. NHP CHAL 3003A (1 SHEET)
D.	REPOINTING MONUMENT SHAFT	(NO DRAWING)
E.	WATER SUPPLY AND SEWAGE DISPOSAL SYSTEM	DRAWING NO. NHP CHAL 3006A (1 SHEET)

ORIENTATION REVIEWED

OPERATIONS REGION
WASHINGTON
INTERP. REGION
WASHINGTON
COOP. ACTV. REGION
WASHINGTON
DES. & CONST. STERN
A.
E.
L.A.
WASHINGTON
A.
E.
L.A.
OTHER

PREPARED
RITTER
DESIGNED
RITTER
DRAWN
Lamb
CHECKED

REVISED
DATE | INITIAL

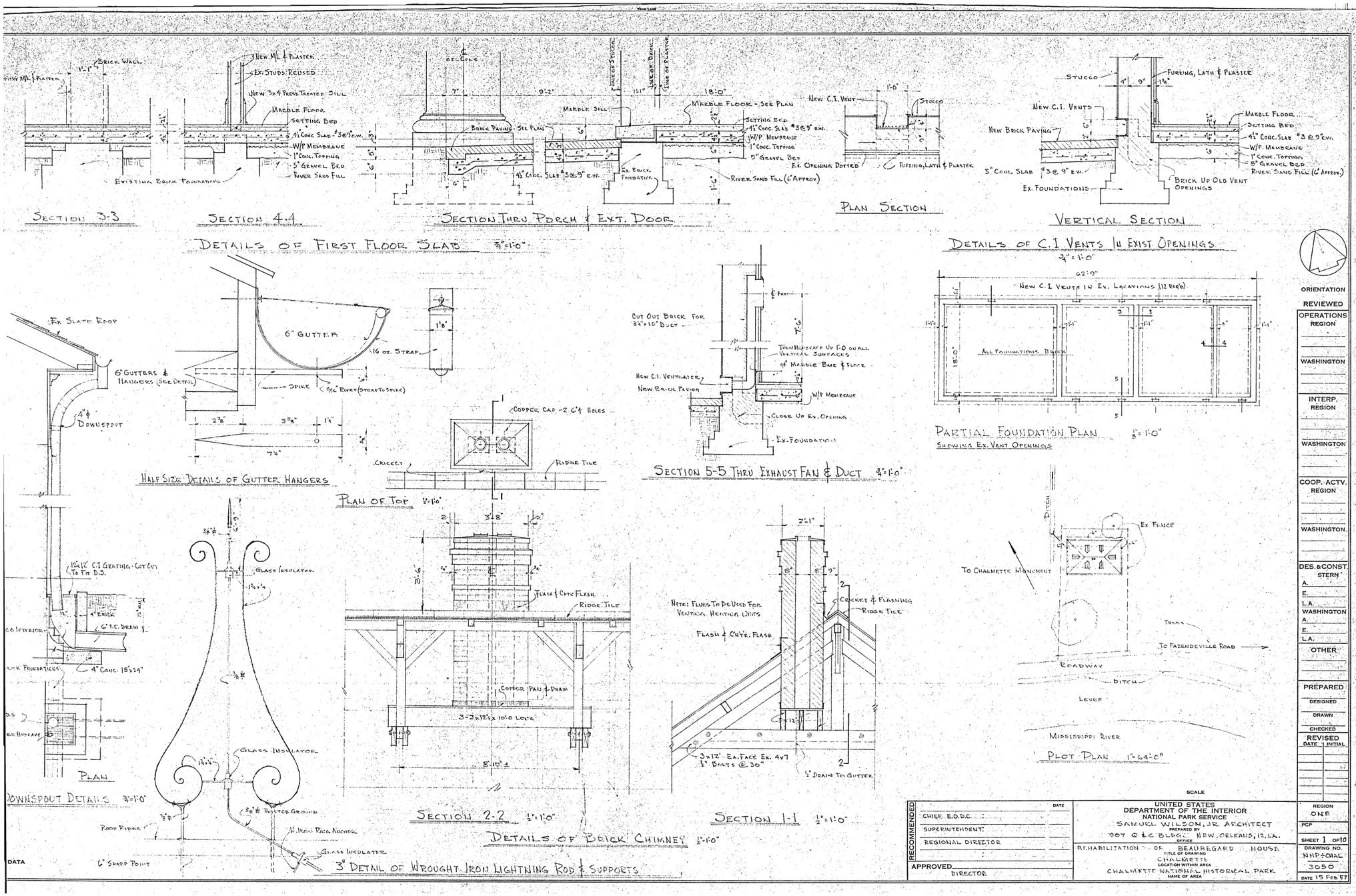
SCALE 1"=200'-0

RECOMMENDED
DATE
APPROVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF DESIGN & CONSTRUCTION
PREPARED BY EASTERN OFFICE

LOCATION PLAN
TITLE OF DRAWING
CONSTRUCTION & REHABILITATION, FOUR STRUCTURES & UTILITIES
LOCATION WITHIN AREA
CHALMETTE NATIONAL HISTORICAL PARK, ARABI, LOUISIANA
NAME OF AREA

REGION ONE
PCP
SHEET 1 OF 1
DRAWING NO. NHP-CHAL 3009
DATE FEB. 15 1957



ORIENTATION REVIEWED

OPERATIONS REGION	
WASHINGTON	
INTERP. REGION	
WASHINGTON	
COOP. ACTV. REGION	
WASHINGTON	
DES. & CONST STERN	
A.	
E.	
L.A.	
WASHINGTON	
A.	
E.	
L.A.	
OTHER	
PREPARED	
DESIGNED	
DRAWN	
CHECKED	
REVISED DATE / INITIAL	
REGION	ONE
PCP	
SHEET	1 of 10
DRAWING NO.	NHP-SOMAL 3050
DATE	15 Feb 57

RECOMMENDED

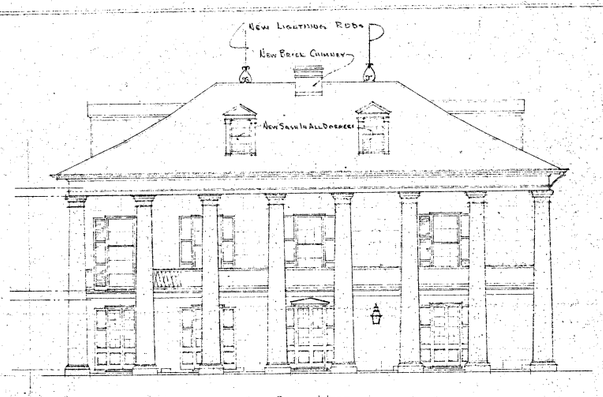
	DATE
CHIEF, E.O.D.C.	
SUPERINTENDENT	
REGIONAL DIRECTOR	
APPROVED DIRECTOR	

SCALE

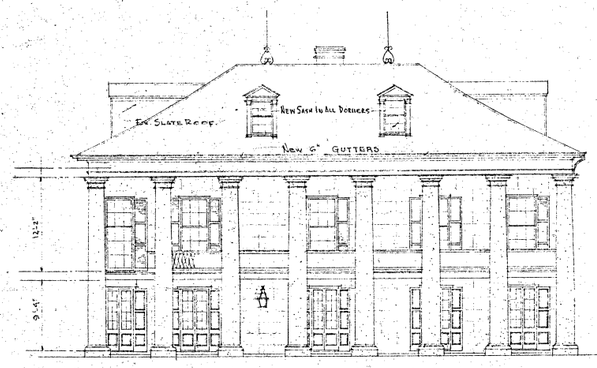
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
PREPARED BY: SAMUEL WILSON, JR. ARCHITECT
OFFICE: 907 Q & C BLDG. NEW ORLEANS, 12, LA.

REHABILITATION OF BEAUREGARD HOUSE
TITLE OF DRAWING
CHALMETTE
LOCATION WITHIN AREA
CHALMETTE NATIONAL HISTORICAL PARK
NAME OF AREA

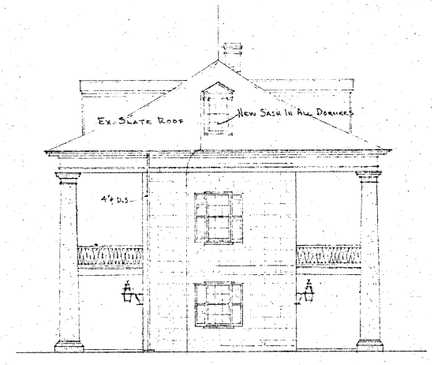
DATA



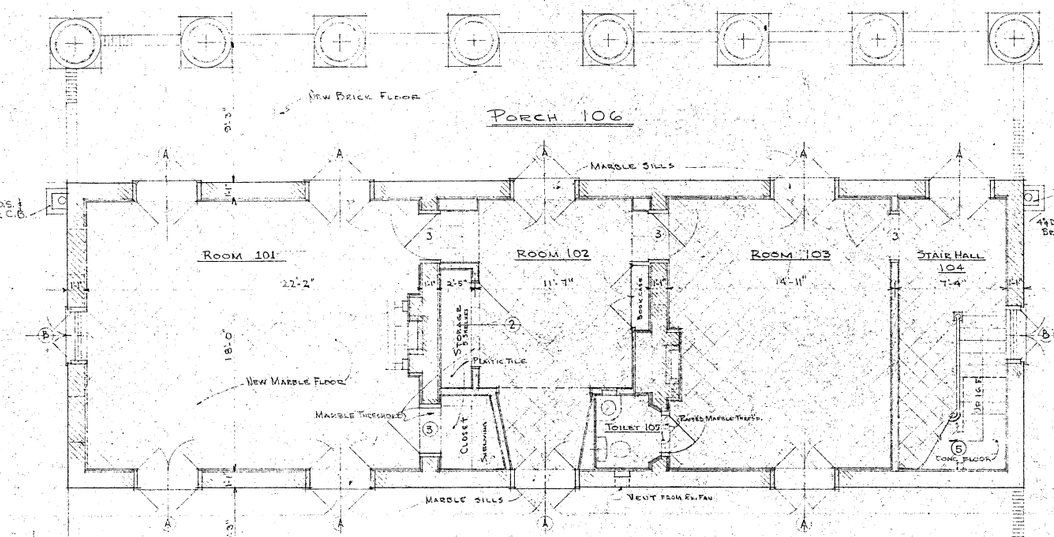
South West
FRONT ELEVATION 1/8"=1'-0"



North East
REAR ELEVATION 1/8"=1'-0"



North West Shown (S.E. Opposite)
END ELEVATION 1/8"=1'-0"

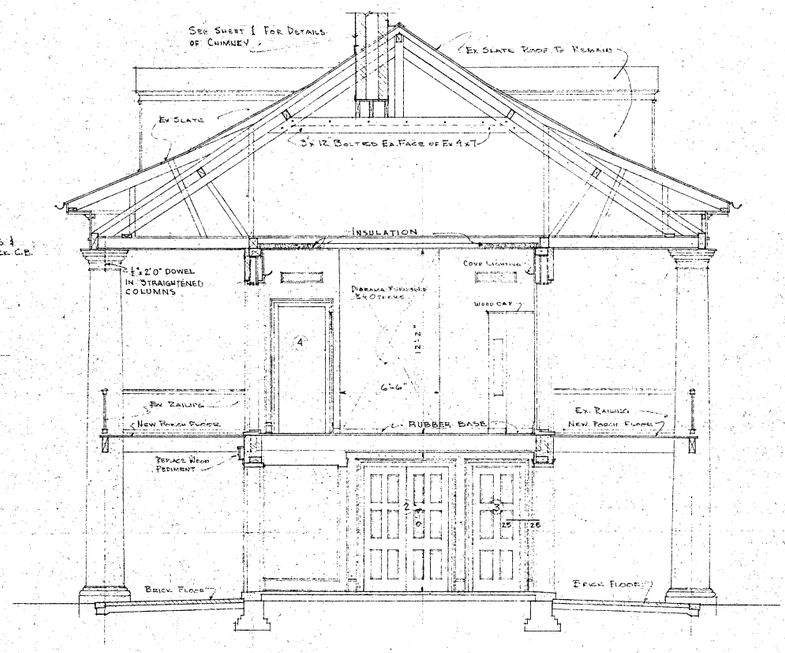


First Floor Plan 1/8"=1'-0"

Note: Brickwork To Be Replaced Shown
New S.E. Recessed Framing Or Other Woodwork Shown
New Sash To Be Furnished For All Dormers Under Millwork Contract
New Door To Attic From Stair To Be Furnished - See Sheet 4.



3" Detail of Raised Threshold Opng 1)



Cross-Section Looking N.W. 1/4"=1'-0"

Schedule of Openings

Mark	Width	Height	Thick	Remarks
A	4'-0"	5'-2½"	1¾	Pr. Doors, 8 Lts., 1 Pan. Ea. w. M. Screen
B	3'-2"	5'-7½"	1¾	D.H. Window 6/6 Lts.
1	2'-6"	8'-3½"	1¾	6 Pan Door
2	5'-6"	8'-3½"	1¾	Pr. 6 Pan Doors
3	3'-0"	8'-3½"	1¾	6 Pan Door
5	2'-0"	4'-0"	¾"	Sum. Plywood Access. Door

Schedule of Finishes

Room	Floor	Base	Walls	Ceiling	Trim
101, 102	Marble	Wood	Plaster	Acoustic Plaster	Wood
103-104	Marble	Wood	Plaster	Acoustic Plaster	Wood
105	Marble	Wood	Plaster	Plaster	Wood
Closets	Vinyl		Plaster	Plaster	Wood
201, 202	Vinyl	Wood	Plaster	Acoustic Plaster	Wood
203		Wood	Plaster	Wood	Wood

CN 549	Rehabilitation of Beauregard House, Chalmette, Louisiana
NHP-CHAL 3050	Chalmette National Historical Park
Issued 15 Feb 1957	
Sheet No. 2 of 13 Sheets	Samuel Wilson, Jr. Architect 907 Queen & Crescent Bldg. New Orleans, Louisiana

ROOM #101

ROOM #102

ROOM #102

ROOM 201

ROOM 201

ROOM 202

ROOM 202

INTERIOR ELEVATIONS 1/4"=1'0"

ELEVATION

PLAN

ROOM #101

ROOM #103

DETAILS OF WOOD MANTELS

PORCH 205

WOOD CLG. GRILLES - 2'0" x 1'0"

ROOM 201

ROOM 202

STAIR HALL 203

REMOVE BRICK & REPLACE FLOORING

VENT FROM TOILET RM.

NEW WOOD PLATFORM

PORCH 204

SECOND FLOOR PLAN 1/4"=1'0"

NOTE: BRICKWORK TO BE REPLACED SHOWN -

CLG. GRILLE DETAIL

SCALE 1½"=1'0"

CHANNELS, M.L. & PLASTER

C-6

7-7

8-8

MARBLE FLOOR

3" DETAIL OF OPENING "A" (ROOM 102 TO PORCH 103)

ROOM 202

ROOM 103

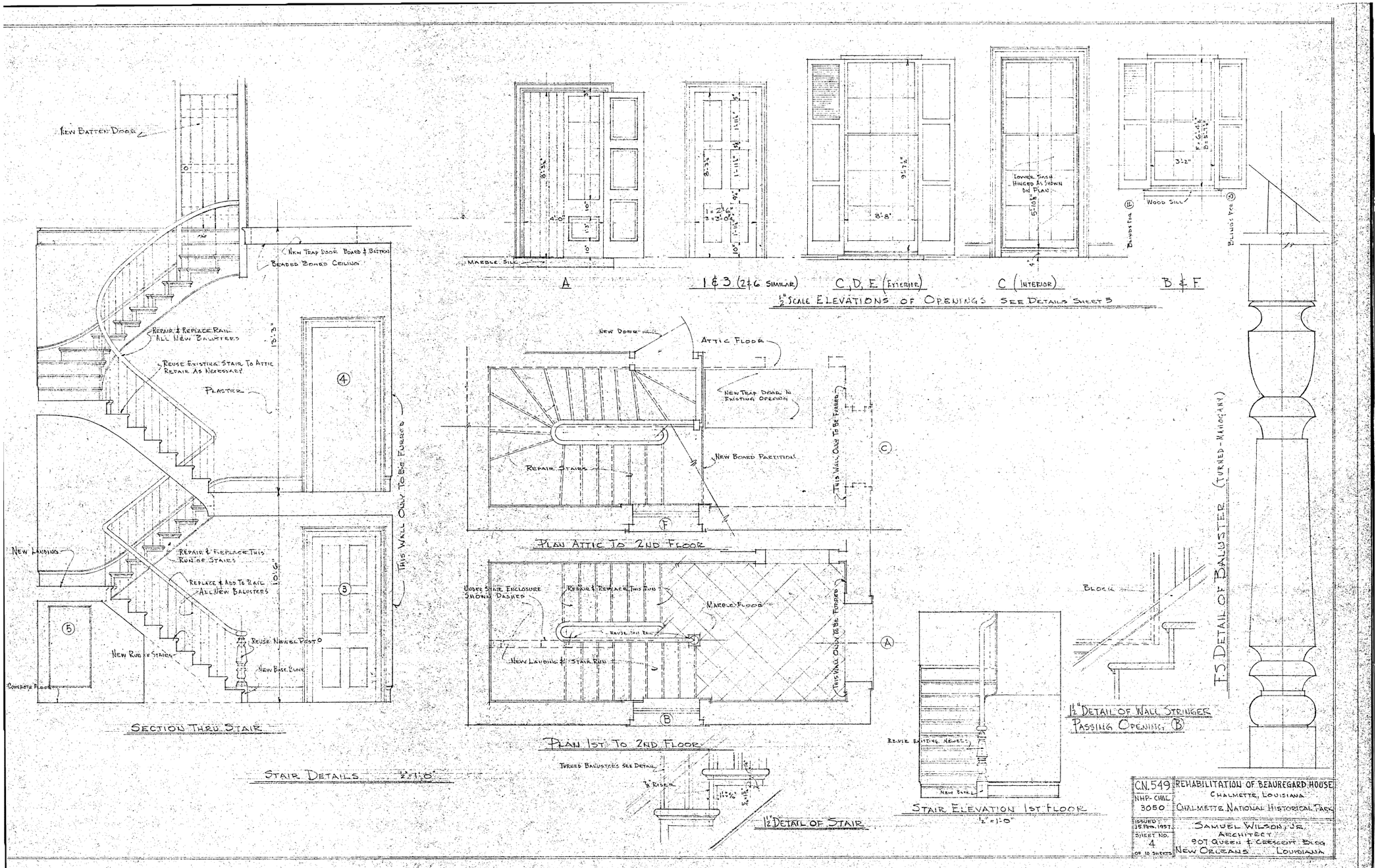
TOILET 105

INTERIOR ELEVATIONS 1/4"=1'0"

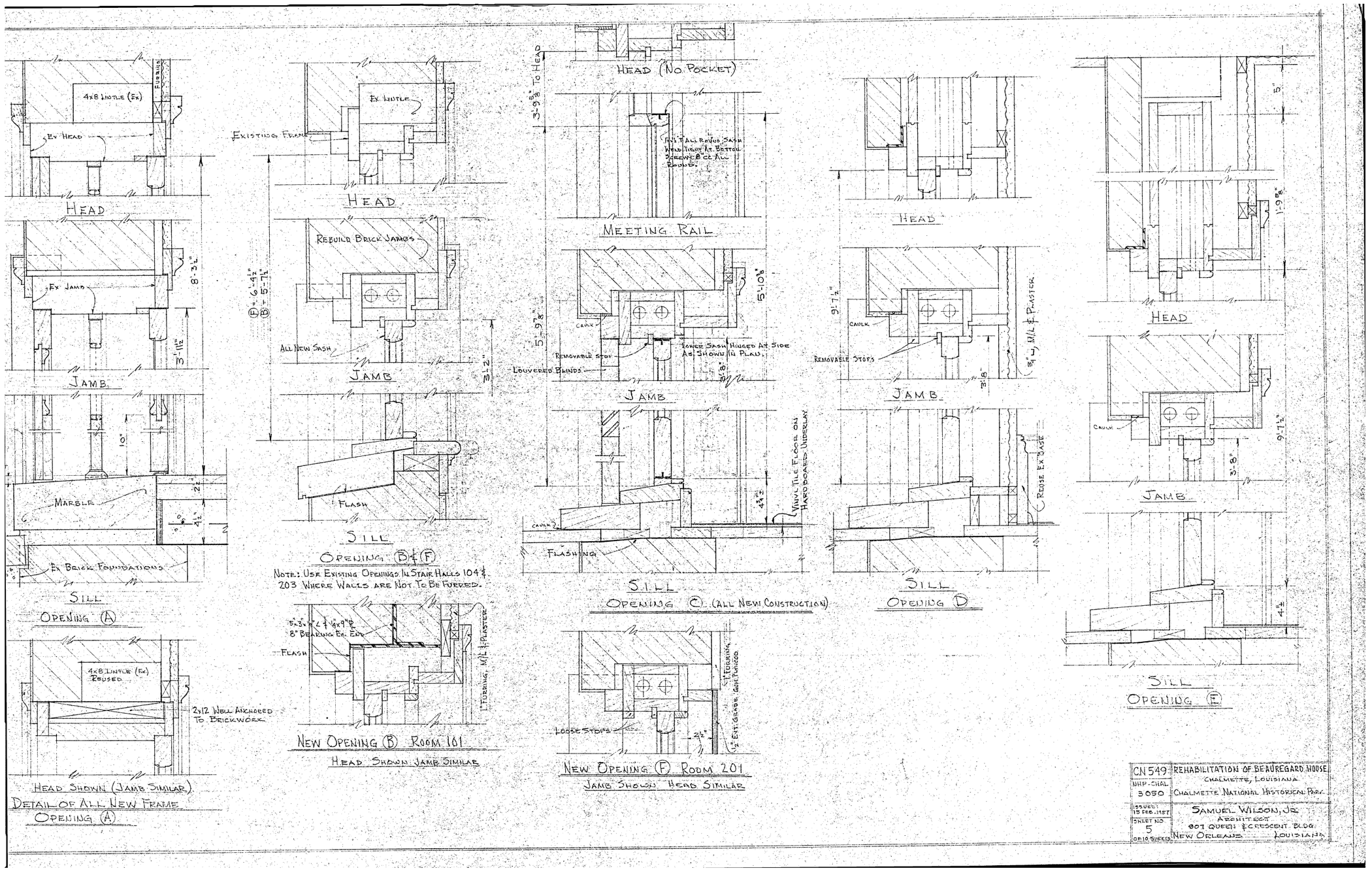
SCHEDULE OF OPENINGS

MARK	WIDTH	HEIGHT	THICK.	REMARKS
C	3'-5"	9'-7½"	1¾	SLIP HEAD WINDOW 2" TEMP. GL. BOTT. 2 PANELS
D	3'-8"	9'-7½"	1¾	SLIP HEAD WINDOW O.S. ONLY
E	3'-8"	9'-7½"	1¾	SLIP HEAD WINDOW
F	3'-2"	6'-4½"	1¾	D.H. WINDOW
G	3'-2"	6'-4½"	1¾	D.H. WINDOW O.S. ONLY
3	3'-0¾"	8'-3½"	1¾	6 PAN DOOR
4	3'-0¾"	8'-3½"		CASED OPENING
6	6'-0"	8'-2½"	1¾	PR. 6 PAN SLIDING DOORS

C.U. 549	REHABILITATION OF BEAUREGARD HOUSE, CHALMETTE, LOUISIANA
NHP-CHAL 3050	CHALMETTE NATIONAL HISTORICAL PARK
ISSUED 15 FEB 1957	SAMUEL WILSON JR. ARCHITECT 907 QUEEN & CRESCENT BLDG. NEW ORLEANS LOUISIANA
SHEET NO. 3 OF 10 SHEETS	



C.N. 549	REHABILITATION OF BEAUREGARD HOUSE
NHP-CHAL 3050	CHALMETTE, LOUISIANA
	CHALMETTE NATIONAL HISTORICAL PARK
ISSUED: 18 NOV. 1957	SAMUEL WILSON, JR. ARCHITECT
SHEET NO. 4 OF 10 SHEETS	907 QUEEN & CRESCENT BLDG NEW ORLEANS LOUISIANA



CN 549	REHABILITATION OF BEAUREGARD HOUSE
HHP-CHAL 3050	CHALMETTE, LOUISIANA CHALMETTE NATIONAL HISTORICAL PARK
ISSUED 15 FEB. 1957	SAMUEL WILSON, JR.
SHEET NO 5 OF 10 SHEETS	ARCHITECT 907 QUEEN & CRESCENT BLDG. NEW ORLEANS LOUISIANA

Copper

Wrought Iron

Copper

Wrought Iron

1½" Detail of Lanterns (Wired for Electricity)

F.S. Details To Be Furnished By The Government

Brick

Stucco

Wrought Iron

Plan.

Brick

3" Jamb 25-25 Opening ③ Room 101 to 102

Case To Be Furnished Under Separate Contract

Table

Tiered Oak Legs.

Elevation 1"-1'-0"

6x8" Beams

Ceiling - M/L & Plaster

Anchor To Ceiling & Floor

Line of Brick Wall

19-19

20-20

21-21

22-22

Note: Waterproof Membrane To Extend From Slab To Ceiling On Ex. Brick Behind Bookcase.

Asphalt Tile

Wearing Floor

Setting Bed

3" Details of Bookcase Room 102

All Cypress

Varies See Plan

23-23

24-24

Floor Level

Typical Details-Room Dividers A, B & C

1½"-1'-0"

Case To Be Furnished Under Separate Contract

Table Formica Top

Plan Scale 1"-1'-0"

Details of Exhibit Housing & Room Dividers

Scale: Varies

9-9

10-10

11-11

12-12

13-13

14-14

15-15

16-16

17-17

18-18

Plywood Top

Varies See Plan

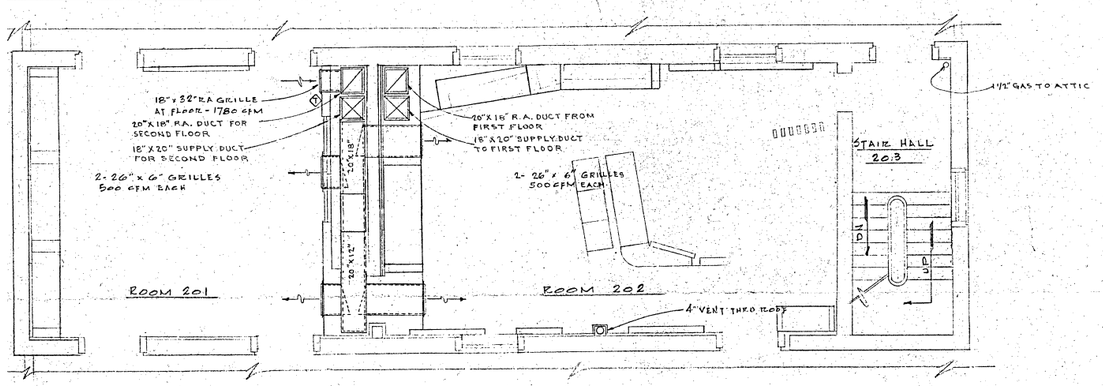
Floor

Sections

1½" Details-Housing 13

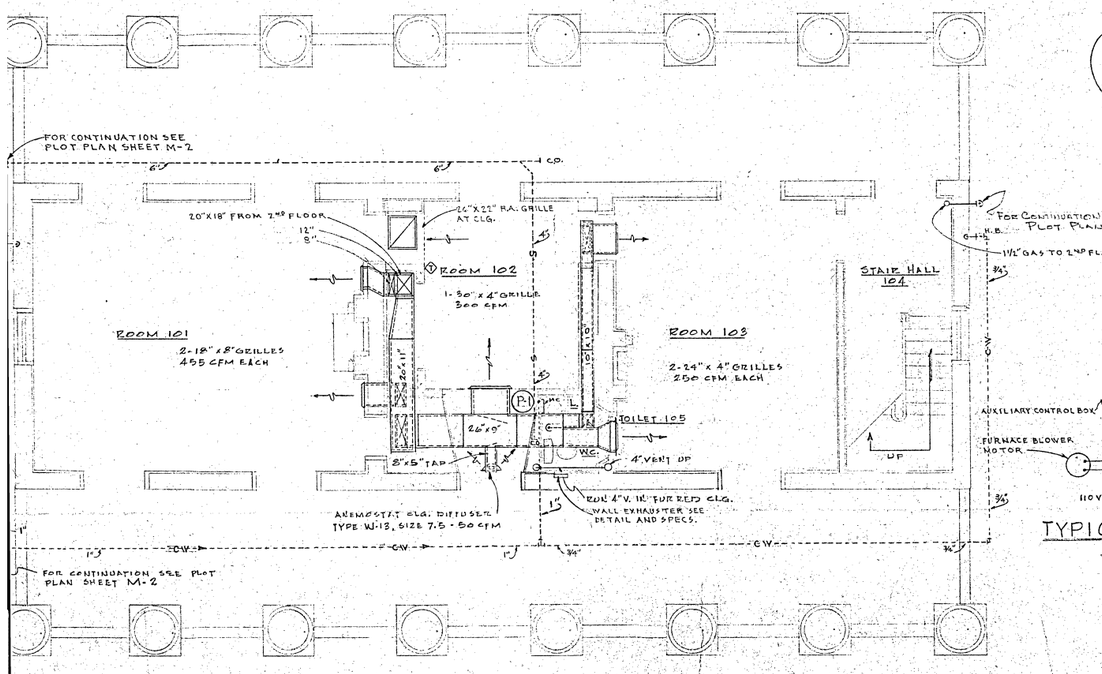
(Note - Plan, Petail Reversed)

CW 549	Rehabilitation of Beauregard House
NHP-Civil 3050	Chalmette National Historical Park
Issued: 19 Project Sheet No. 6 of 10 Sheets	Samuel Wilson, Jr. Architect 907 Queen & Crescent Bldg. New Orleans Louisiana



SECOND FLOOR PLAN

SCALE 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE 1/4" = 1'-0"

J. E. LEININGER
REG. No. 2143
REGISTERED
PROFESSIONAL ENGINEER
STATE OF LOUISIANA

DATA FOR EQUIPMENT SERVING FIRST FLOOR

1. GAS FIRED FORCED AIR HEATER: HEATER SHALL BE:- VERTICAL, GAS FIRED, WITH A.G.A. APPROVED BURNER. FURNACE SHALL HAVE AN INPUT OF 75000 BTU/HR. AND AN OUTPUT OF 60,000 BTU/HR. BLOWER SHALL HANDLE APPROXIMATELY 600 C.F.M. @0.2" EXTERNAL STATIC PRESSURE. UNIT SHALL BE FURNISHED W/ 1/6 HP, 1750 RPM. BLOWER MOTOR AND ADJUSTABLE MOTOR PULLEY. ELECTRICAL CHARACTERISTICS SHALL BE 120 VOLTS, 1 PHASE, 60 CYCLES.

2. AIR CONDITIONER: UNIT SHALL BE OF THE VERTICAL TYPE FOR INSTALLATION WITH HEATER ABOVE TO FORM A COMPLETE YEAR ROUND SYSTEM. UNIT SHALL HOUSE AN EVAPORATOR COIL WITH A NOMINAL 5-TON CAPACITY USING FREON-12 REFRIGERANT AND SHALL HAVE A FACE AREA 4.48 SQ.FT. WITH FOUR (4) ROWS OF COIL DEPTH. BLOWER SHALL HAVE A CAPACITY TO HANDLE 2,000 C.F.M. @0.4" EXTERNAL S.P. WITH A 1½ H.P. MOTOR. MOTOR SHALL HAVE ADJUSTABLE PULLEY. ELECTRICAL CHARACTERISTICS SHALL BE 240 VOLTS, 3 PHASE 60 CYCLES.

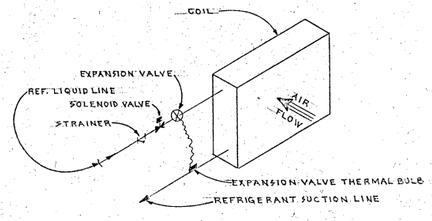
3. AIR COOLED CONDENSER: UNIT TO HOUSE HERMETICALLY SEALED COMPRESSOR WITH A CAPACITY OF 5 TONS, WITH A MOTOR HORSEPOWER OF 5 HP. @ 1725 R.P.M. CONDENSER BLOWER HORSEPOWER TO BE ¾ AND TO HANDLE 4800 CFM OF 95°F.D.B. & 80°F.W.B. AIR. CONDENSER SHALL HAVE FOUR ROWS OF TUBES WITH A NET COIL FACE AREA OF 10 SQ. FT. REFRIGERANT SHALL BE F-12 WITH RECEIVER SUITABLY CHARGED AT FACTORY.

DATA FOR EQUIPTMENT SERVING SECOND FLOOR

1. GAS FIRED FORCED AIR HEATER: HEATER SHALL BE:- VERTICAL, GAS FIRED, WITH AGA APPROVED BURNER. FURNACE SHALL HAVE AN INPUT OF 135,000 BTU/HR. AND AN OUTPUT OF 108,000 BTU/HR. BLOWER SHALL HANDLE APPROXIMATELY 650 C.F.M. @0.2" EXTERNAL STATIC PRESSURE. UNIT SHALL BE FURNISHED W/ ½ HP., 1750 RPM. BLOWER MOTOR AND ADJUSTABLE MOTOR PULLEY. ELECTRICAL CHARACTERISTICS SHALL BE 120 VOLTS, 1 PHASE, 60 CYCLES.

2. AIR CONDITIONER: UNIT SHALL BE OF THE VERTICAL TYPE FOR INSTALLATION WITH HEATER ABOVE TO FORM A COMPLETE YEAR ROUND SYSTEM. UNIT SHALL HOUSE AN EVAPORATOR COIL WITH A NOMINAL 5 TONS CAPACITY USING FREON-12 REFRIGERANT AND SHALL HAVE A FACE AREA 4.48 SQ.FT. WITH FOUR (4) ROWS OF COIL DEPTH. BLOWER SHALL HAVE A CAPACITY TO HANDLE 2000 CFM. @0.4" EXTERNAL S.P. WITH A 1½ H.P. MOTOR. MOTOR SHALL HAVE ADJUSTABLE PULLEY. ELECTRICAL CHARACTERISTICS SHALL BE 240 VOLTS, 3 PHASE, 60 CYCLE.

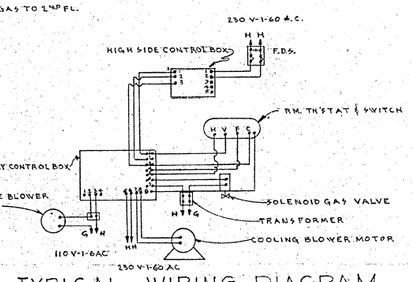
3. AIR COOLED CONDENSER: UNIT TO HOUSE HERMETICALLY SEALED COMPRESSOR WITH A CAPACITY OF 5 TONS WITH A MOTOR HORSEPOWER OF 5 HP. @ 1725 RPM. CONDENSER BLOWER HORSEPOWER TO BE ¾ AND TO HANDLE 4800 CFM OF 95°F.D.B. & 80°F.W.B. AIR. CONDENSER SHALL HAVE FOUR ROWS OF TUBES WITH A NET COIL FACE AREA OF 10 SQ.FT. REFRIGERANT SHALL BE F-12 WITH RECEIVER SUITABLY CHARGED AT FACTORY.



DIRECT EXPANSION COIL HOOK-UP

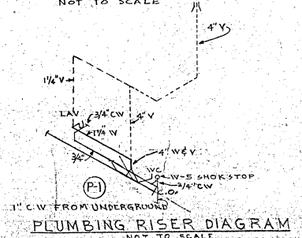
NOT TO SCALE

LEGEND OF SYMBOLS	
C.W.	COLD WATER LINE
S.	SOIL LINE
G	GAS LINE
C.O	CLEAN OUT
LAV.	LAVATORY
W.C.	WATER CLOSET
V.	VENT
W.	WASTE
R.S.	REFRIGERANT SUCTION
L	REFRIGERANT LIQUID



TYPICAL WIRING DIAGRAM

NOT TO SCALE



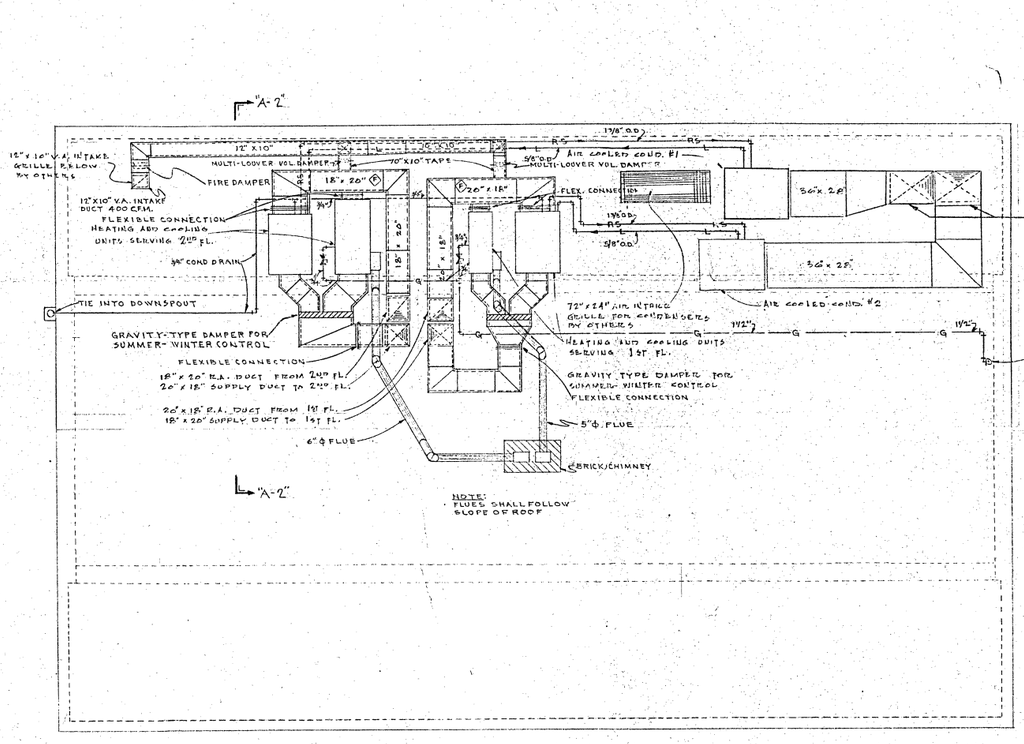
PLUMBING RISER DIAGRAM

NOT TO SCALE

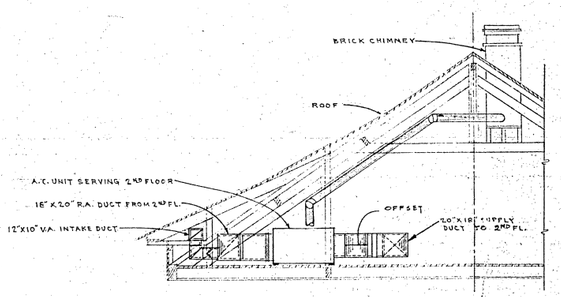
GENERAL NOTES:

1. ⓣ DENOTES ROOM THERMOSTAT. (FAN - HEAT - COOL SW).
2. Ⓕ DENOTES FIRESTAT INSTALLED IN RETURN AIR PLENUM BELOW UNIT.
3. UNIT SHALL HAVE FIRE DAMPERS OF A TYPE APPROVED BY THE N.B.F.U. INSTALLED IN ALL SUPPLY, RETURN AND VENTILATION AIR DUCTS THAT PIERCES THE ROOF OR SECOND FLOOR SLAB.
4. ALL SUPPLY AND RETURN DUCTWORK AND PLENUMS SHALL BE LINED WITH 1" THICK DUCT LINING. SIZES ON DRAWINGS INDICATE SHEET METAL SIZES, ALLOWANCE HAVING BEEN FOR THE DUCT LINING.
5. ALL DUCTWORK AND PIPING TO BE RUN IN FURRED SPACES PROVIDED FOR SAME.
6. ALL ITEMS OF EQUIPTMENT SHALL BE SUITABLY ISOLATED FROM ATTIC FLOORING BY KORFUND - 1" THICK ISOLATORS.
7. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AT JOB SITE.
8. REFER TO ARCHITECTURAL PLANS FOR ELEVATIONS.

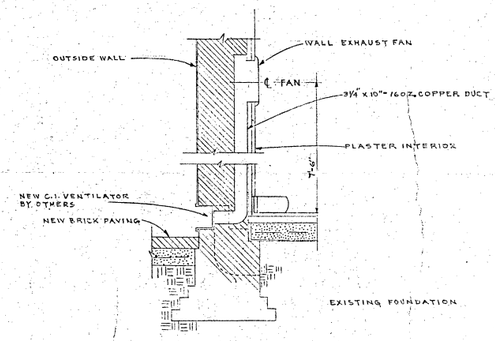
CN.549	REHABILITATION OF BEAUREGARD HOUSE:
NHP-CHAL. 3050	CHALMETTE, LOUISIANA. CHALMETTE NATIONAL HISTORICAL PARK.
ISSUED: 15 FEB. 1957	SAMUEL WILSON, JR. ARCHITECT
SHEET No. 7 OF 10 SHEETS	907 QUEEN & CRESCENT BLDG. NEW ORLEANS LOUISIANA



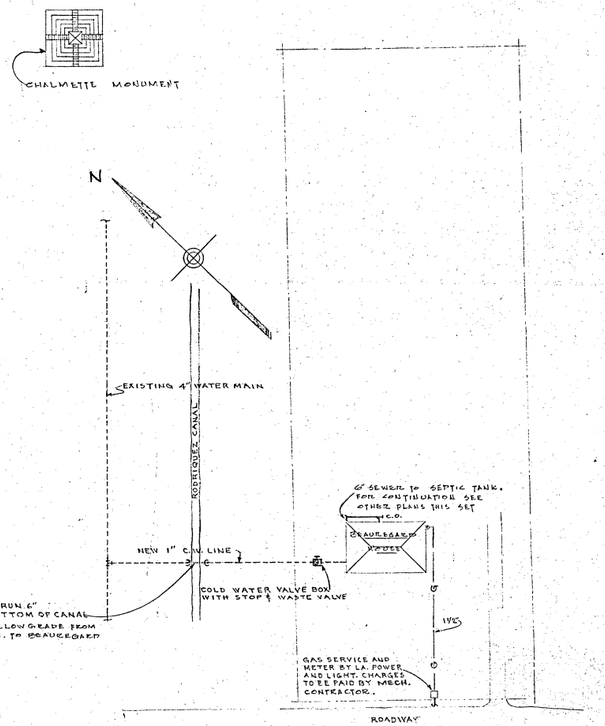
ATTIC PLAN
SCALE 1/4" = 1'-0"



SECTION "A-2"
SCALE 1/4" = 1'-0"



WALL EXHAUSTER INSTALLATION DETAIL
NOT TO SCALE



PLOT PLAN
SCALE 1" = 64'-0"

NOTES:
1. SEE SHEET M-1 FOR GENERAL NOTES.
2. ENCASE GAS LINE IN A 1:3 CEMENT-SAND MIXTURE TO A THICKNESS OF 1½" ON UNDERGROUND GAS LINE.

STATE OF LOUISIANA
E. LEMMINGER
REG. No. 2743
REGISTERED
CHARTERED ENGINEER
IN
LOUISIANA

C.N. 549	REHABILITATION OF BEAUREGARD HOUSE
NHP - CHAL	CHALMETTE, LOUISIANA
3050	CHALMETTE NATIONAL HISTORICAL PARK
ISSUED 15 FEB. 1957	SAMUEL WILSON, JR.
SHEET NO. 8 OF 10 SHEETS	ARCHITECT
	907 QUEEN & CRESCENT BLDG.
	NEW ORLEANS LOUISIANA

LIGHTING PANEL SCHEDULE L-1

E : 120/240 VOLT, 1ϕ, 3W 60 CY A.C.
: 225 AMPERE, WITH S/N. LUGS ONLY.
HFS : AB DE-ION CIRCUIT BKR. TYPE.
:T : SURFACE.
: WESTINGHOUSE CAT# NLAB 22-3L225

	NO. POLES.	TRIPAMPS	WIRE SIZE	REMARKS
	1	20	10	LIGHTING. 2ND FL
7	1	20	10	RECEPTACLES. 2ND FL
	1	20	10	LIGHTING. 1ST FL
5	1	20	10	RECEPTACLES. 1ST FL
	1	20	10	LTG& RECEPT. ATTIC
8	1	20	10	COVE LIGHTING.
12	1	20	—	SPARE.

DIST R. ~~LIGHTING~~ PANEL SCHEDULE MDP

SERVICE : 120/240 VOLT, 3ϕ, 4W 60 CY A.C.-DELTA CONN.
MAINS : 225 AMP, 3POLE, J FRAME MAIN BREAKER & S/N.
BRANCHES : AB DE-ION CIRCUIT BKR TYPE.
CABINET : SURFACE.
TYPE : WESTINGHOUSE TYPE "CDP."

CIRC. No.	NO. POLES.	TRIPAMPS	WIRE SIZE	REMARKS
1	3	100A "G"	3#4, 1#8	PANEL # P1 (AIR CONDITIONING
2	3	100A "G"	—	SPARE.
3	2	100A "E"	3# 2	LTG. PANEL L-1
4	2	100A "E"	—	SPACE ONLY

POWER ~~SYSTEM~~ PANEL SCHEDULE P

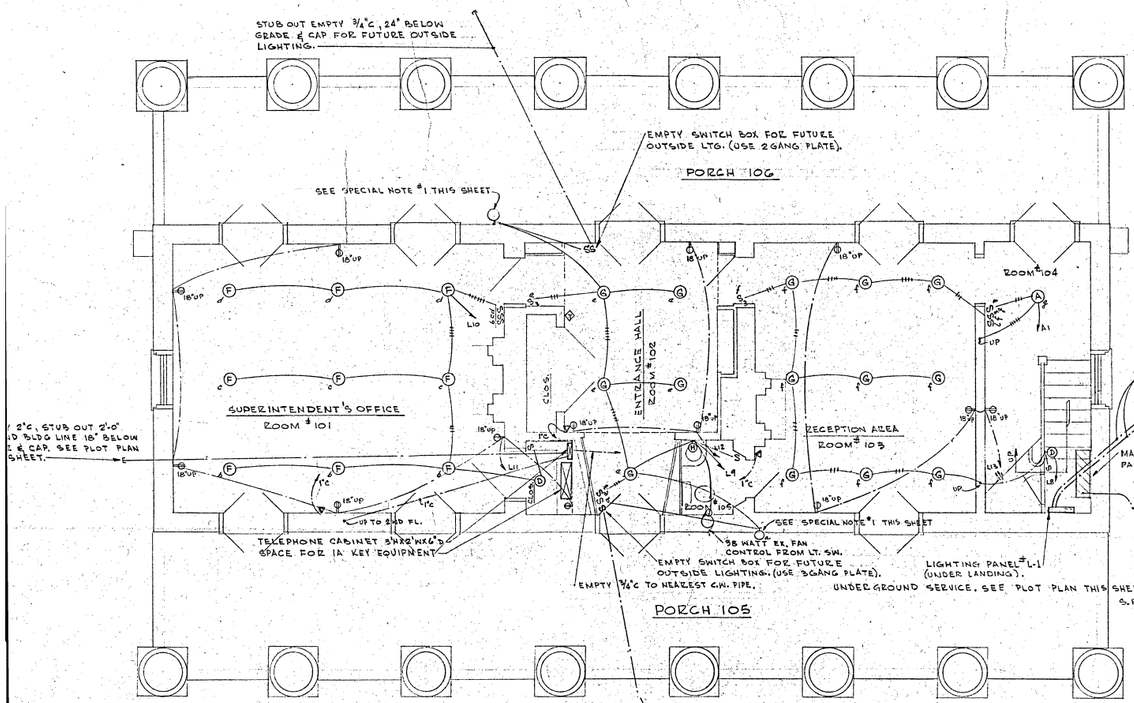
SERVICE : 120/240 VOLT, 3ϕ, 4 W, 60 CY. A.C.
MAINS : 100 AMP, WITH S/N. LUGS ONLY.
BRANCHES : AB DE-ION CIRCUIT BKR. TYPE
CABINET : SURFACE
TYPE : WESTINGHOUSE TYPE "NLAB-AB"

CIRC. No.	NO. POLES.	TRIPAMPS	WIRE SIZE	REMARKS
1	3	50A	3#10	AIR COOLED COND. #1
2	3	50A	3#10	AIR COOLED COND. #2
3	3	15A	3#12	COOLING FAN 1ST FL.
4	3	15A	3#12	COOLING FAN 2ND FL
5	1	15A	3#12	HTG. FAN 1ST FL
6	1	15A	3#12	HTG. FAN 2ND FL.
7,10	3	50A	—	SPACE.
8	3	15A	3#12	CONTROLS, 1ST FL A.C. SYSTEM
9	3	15A	3#12	CONTROLS. 2ND FL A.C. SYSTEM

PANEL BOARD NOTES:
1. CONTRACTOR IS CAUTIONED NOT TO BRING STINGER LEG INTO PANEL #L-1 & NOT TO CONNECT SINGLE POLE BREAKERS IN PANEL P TO STINGER LEG.
2. NO DOORS REQUIRED ON PANELS #L-1 & #MDP.

SYMBOL SCHEDULE

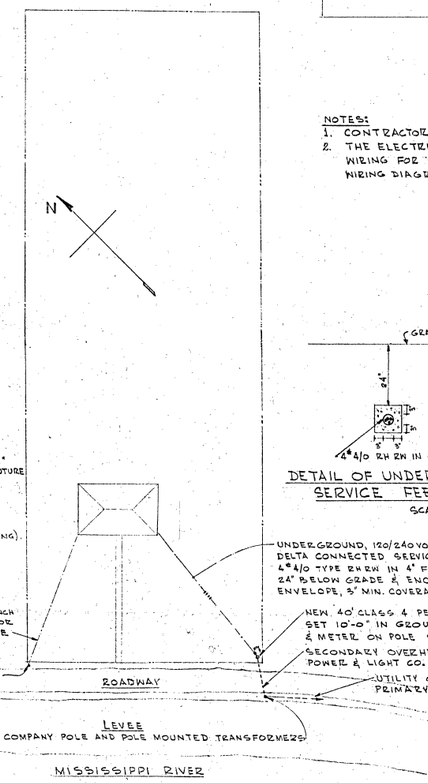
- DUPLEX CONVENIENCE OUTLET, SUITABLE FOR TWO PRONG REGULAR OR THREE PRONG GROUNDING TYPE PLUG. MOUNTING HEIGHT AS INDICATED ON FLOOR PLAN.
- ELECTRICAL FLOOR OUTLET.
- (A) CEILING MTD. INCANDESCENT LTG. FIXTURE.
- (W)1 WALL MTD. INCANDESCENT LTG. FIXTURE.
- CEILING MTD. FLUORESCENT LTG. FIXTURE.
} LETTERS DENOTES TYPE.
- LIGHTING PANELBOARD.
- DISTRIBUTION PANEL BOARD.
- DISCONNECT SWITCH.
- S SINGLE POLE WALL SWITCH.
- S_3 THREE WAY WALL SWITCH.
- S_4 FOUR WAY WALL SWITCH.
} MOUNT 4'-6" ABOVE FIN. FL.
- TELEPHONE FLOOR OUTLET.
- CONDUIT RUN CONCEALED IN CEILING OR WALL.
- CONDUIT RUN CONCEALED IN FLOOR.
} HATCH LINES INDICATE NUMBER OF WIRES.
- HOME RUN TO PANEL BOARD.
- MOTOR CONTROLLER, FURNISHED BY MECHANICAL CONTR. & INSTALLED BY ELECTRICAL CONTRACTOR.
- THERMOSTAT, FURNISHED BY MECHANICAL CONTRACTOR & INSTALLED BY ELECTRICAL CONTRACTOR.
- FIRESTAT FURNISHED & INSTALLED BY ELECTRICAL CONTRACTOR AS DIRECTED BY THE MECHANICAL CONTRACTOR.
- TELEPHONE WALL OUTLET MOUNT 18" ABOVE FIN. FL.



FIRST FLOOR PLAN

SCALE: 1/4"=1'-0"

SPECIAL NOTES:
1. LIGHTING FIXTURES ON PORCHES 105 & 106, TO BE FURNISHED BY OTHERS & INSTALLED BY CONTR. AS DIRECTED BY THE ARCHITECT.



PLOT PLAN

SCALE: 1"=64'-0"

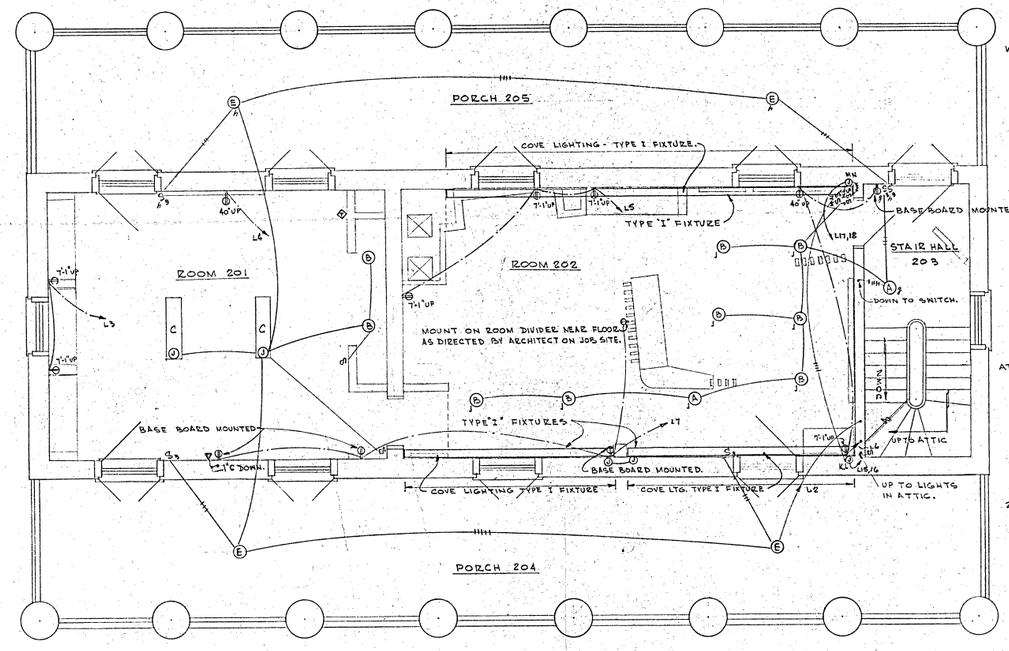
DETAIL OF UNDERGROUND SERVICE FEEDER

SCALE: 1/2"=1'-0"

NOTES:
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE JOB SITE.
2. THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL CONTROL WIRING FOR AIR CONDITIONING & HEATING SYSTEMS. CONTROL WIRING DIAGRAM TO BE FURNISHED BY MECHANICAL CONTRACTOR.

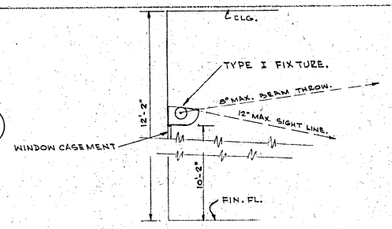
STATE OF LOUISIANA
LEININGER
No. 2143
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

C.N 549	REHABILITATION OF BEAUREGARD HOUSE
NHP-CHAL 3050	CHALMETTE - LOUISIANA
	CHALMETTE NATIONAL HISTORICAL PARK
ISSUED 15 FEB. 1957	SAMUEL WILSON, JR.
SHEET No 9 OF 10 SHEETS	ARCHITECT
	907 ORLEANS & CERESEAT BLDG.
	NEW ORLEANS LOUISIANA



SECOND FLOOR PLAN

SCALE: 1/4"=1'-0"

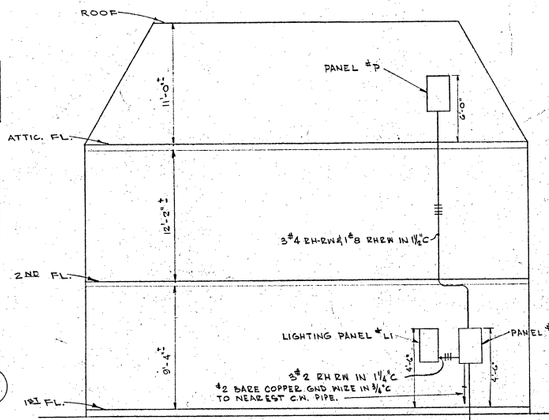


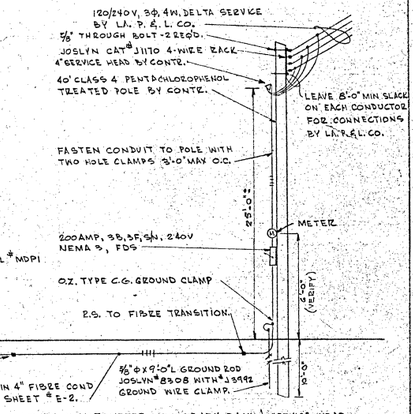
COVE LIGHTING DETAIL

SCALE: 1"=1'-0"

LIGHTING FIXTURE SCHEDULE				LAMP SCHEDULE		
NOTES	SYMBOL	QUANTITY	NAME OF MFG. & CAT. No.	WATTS	BASE	TYPE
4	Ⓐ	8	LITECRAFT # H-607	2-150	MED	R40 FL
4	Ⓑ	7	LITECRAFT # H-604	1-150	MED	R40 FL
2,4	Ⓒ	2	SMITHCRAFT # SN2-40 R6	2-40	MED bi PIN	F40 T12
4	Ⓓ	6	ALABAX # AL-2107	1-100	MED	I.F.
4	Ⓔ	4	KIRLIN # 1511	1-150	MED.	I.F.
4	Ⓕ	9	LITECRAFT # 1003	1-150	MED.	R40 FL.
4	Ⓖ	14	LITECRAFT # 1032	1-75	MED	R30 FL
3,4	Ⓗ	1	MOE # M118	2-60	MED	I.F.
1,4	Ⓘ	SEE NOTES	HUB ELECT. # 7966	SEE NOTES	MED.	I.F.

1 MOUNT AS INDICATED ON DETAIL THIS SHEET. 8°MAX. BEAM THROW-12° MAX. LINE OF SIGHT, FURNISH IN LENGTHS AS INDICATED ON THE PLAN AND WITH 50 WATT I.F. LAMPS 6½" O.C.
2 SURFACE MOUNT. FURNISH COMPLETE WITH TOP REFLECTOR.
3 WALL MOUNT OVER MIRROR.
4. FINISH TO BE SELECTED BY THE ARCHITECT.

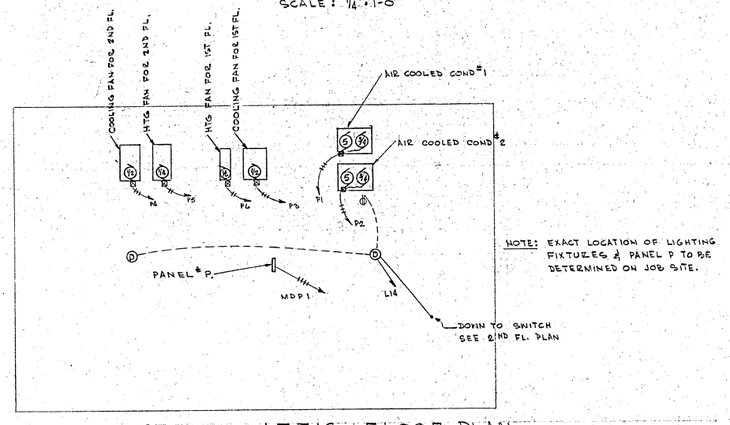




NOTE: MOUNT METER, SECONDARY RACK & SERVICE HEAD AS DIRECTED BY LA. P. & L. CO. ON JOB SITE.

ELECTRICAL FEEDER DIAGRAM

NOT TO SCALE



NOTE: EXACT LOCATION OF LIGHTING FIXTURES & PANEL P TO BE DETERMINED ON JOB SITE.

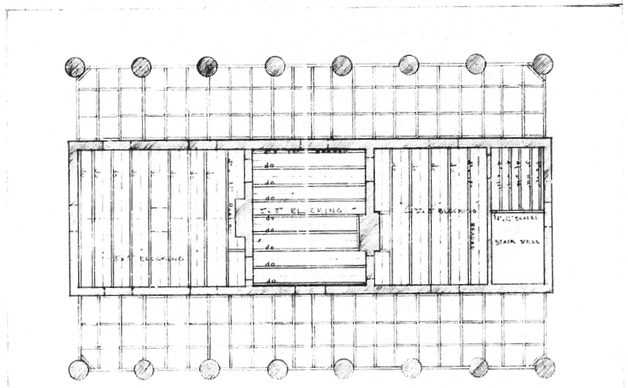
ATTIC FLOOR PLAN

SCALE: 1/8"=1'-0"

GENERAL NOTES:
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE JOB SITE.

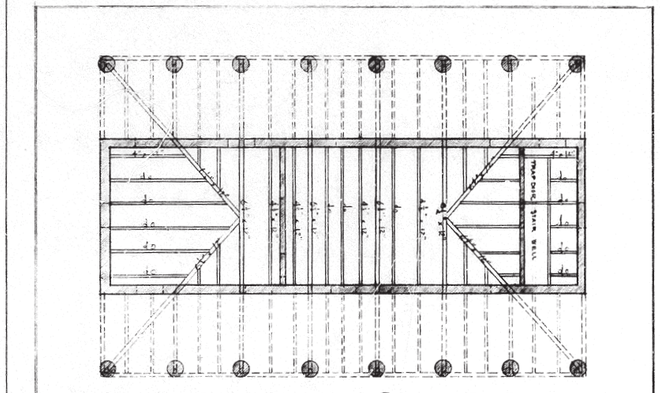
STATE OF LOUISIANA
LEININGER
No. 2143
REGISTERED
CIVIL ENGINEER
IN
CIVIL ENGINEERING

CN 549	REHABILITATION OF PEMBERGARD HOUSE CHALMETTE - LOUISIANA
NHP - CHAL 3050	CHALMETTE NATIONAL HISTORICAL PARK
ISSUED 15 FEB 1957	SAMUEL WILSON, JR. ARCHITECT 907 QUEEN & CRESCENT BLDG.
SHEET NO. 10 OF 10 SHEETS	NEW ORLEANS LOUISIANA



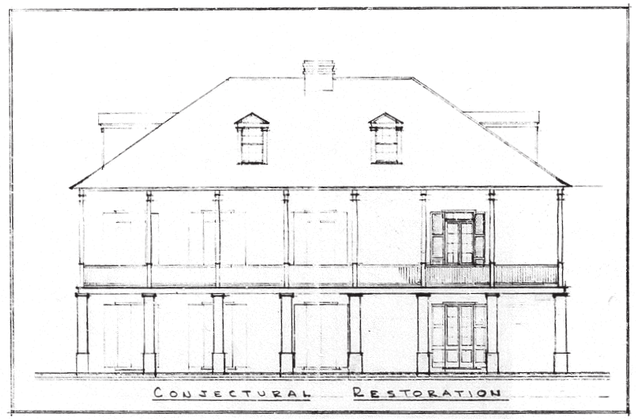
MARCH 1957 REFLECTED CEILING PLAN FIRST FLOOR RENE BEAUREGARD HOUSE
SCALE 1/2"=1'0"

CN549

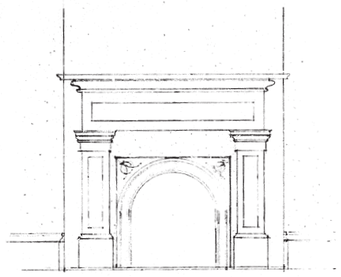


MARCH 1957 REFLECTED CEILING PLAN SECOND FLOOR RENE BEAUREGARD HOUSE
SCALE 1/2"=1'0"

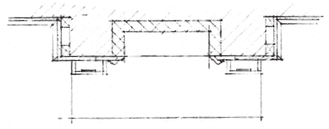
CN549



CN549

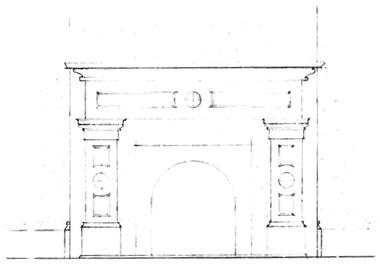


ELEVATION

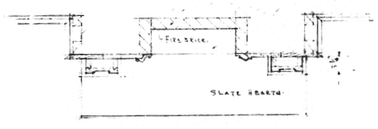


PLAN

MANTEL FOR ROOM 4



ELEVATION



PLAN

MANTEL FOR ROOM 2

SCALE 3/4"=1'0"

CN 549.
RENE BEAUREGARD HOUSE
CHALMETTE LA.

SAMUEL WILSON JR.
ARCHITECT
NEW ORLEANS, LA.

DEC 12, 1956.

PREPARED	DRAWING NO.
S. WILSON DESIGNED	NHP-CHAL 3050
S. WILSON DRAWN	PKG NO. 107 / SHEET 10A
LESTER CHECKED	OF 10
MAR 57 DATE	

FULL SIZE NEWEL HEAD (ALL PARTS SQUARE)

NEWEL POST & STAIR
SCALE 1½"=1'-0"

F.S. HANDRAIL

EXISTING BEAM
7/8"x1⅛" PICKETS
PLATFORM FLOOR
2"x6"
4"x10"
1⅜ LOUVER DOORS
9½"
7/8"
1⅛"
7¾"
3¾"
2'-9½"
3 CARRIAGE STRINGERS
PORCH FLOOR

SECTION "C"

SEAT 4"x10"-4" IN MASONRY WALL
2"x6"
2"x6" JAMB
4"x10"
EDGE OF PLATFORM
1⅜ LOUVER DOORS
2"x10"
4"x4" POST AS JAMB
7/8"x1⅛" PICKETS EDGE OF PLATFORM
SEAT 4"x10"-4" IN MASONRY COLUMN

SECTION "B"
SCALE 1½"=1'-0"

4"x10"
STAIR RISER
5/16"x8" CARRIAGE BOLT
¢ HANDRAIL ABOVE PICKET ABOVE
1⅛"
2"x10"
7/8"x10" FACIA
4" POST
PLATFORM NOSING

SECTION "A"
SCALE 1"=1'-0"

MOVE BEAM & RESEAT AT CENTER OF COLUMN
"B"
"A"

SIDE ELEVATION
SCALE ½"=1'-0"

SEAT 4"x10"-4" IN MASONRY WALL
17⅛" DOWN
"C"
3-7¼"
3-9"
2"x6"
2"x10"
EXISTING 2ND. FL. PORCH FRAMING
MOVE & RESEAT BEAM TO CENTER OF COLUMN
CUT MINIMUM FROM BASE TO ALLOW STAIRS TO BE SEATED ON FL.
4"x4" TMS POST TO FLOOR

STAIR PLAN
SCALE 1½"=1'-0"

ELEVATION FACING STAIR
SCALE ½"=1'-0"

4½" LOCK RAIL
3" INT. RAIL

FULL SIZE SECTION "E"

3"

FULL SIZE SECTION "D"

NOTES:
1. GENERAL DIMENSIONS ARE TO BE VERIFIED OR DETERMINED AT THE JOB.
2. LUMBER TO BE HEART CYPRESS
3. ALL WORKMANSHIP & MILLWORK TO BE FIRST CLASS WITH ALL MITERS & JOINTING MADE TO FIT PERFECTLY.
4. PAINT 3 COATS OF LEAD & OIL COLOR TO MATCH EXISTING PORCH
5. REPAIR ALL SCARS IN MASONRY CAUSED BY THIS WORK

ORIENTATION

WORKING DRAWING

CN549

SCALE AS NOTED

MARK	DESCRIPTION OF REVISION	DATE	INITIAL
	REVISED DRAWING NHP 2023-B, NOV. 2, 1959. PLAN CHANGED TO MAKE STAIRS LAND NEXT TO BUILDING ON THE 2ND. FLOOR PORCH.		

BASIC DATA { SUGGESTION IN MEMO. TO REG. DIRECTOR DATED 6-5-59 FROM SAM WILSON-ARCHICECT
NEWEL POST & HANDRAIL DETAIL IS TAKEN FROM PREVIOUS BEAUREGARD HOUSE PORCH STAIR AS SHOWN ON HABS DRAWING NO. 18-1 SHEET 8

THIS DRAWING HAS BEEN PREPARED IN COMPLIANCE WITH PRELIMINARY DRAWING NO. NPS-CHAL 2023, APPROVED BY
Elbert Cox 5-21-59
REGIONAL DIRECTOR DATE

RECOMMENDED
DATE
APPROVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
OPERATIONS
PREPARED BY
REGION ONE
OFFICE

PORCH STAIR DETAILS
TITLE OF DRAWING
BEAUREGARD HOUSE
LOCATION WITHIN PARK
CHALMETTE NATIONAL HISTORICAL PARK
NAME OF PARK

PREPARED	MERRILL
DESIGNED	MERRILL
DRAWN	ASCHMANN
CHECKED	
REVISED	
REGION	ONE
PCP NO.	
SHEET	1 of 1
DRAWING NO.	NHP-CHAL 2023-B
DATE	NOV. 2 1959

Appendix C: Conjectured Development Phase Drawings

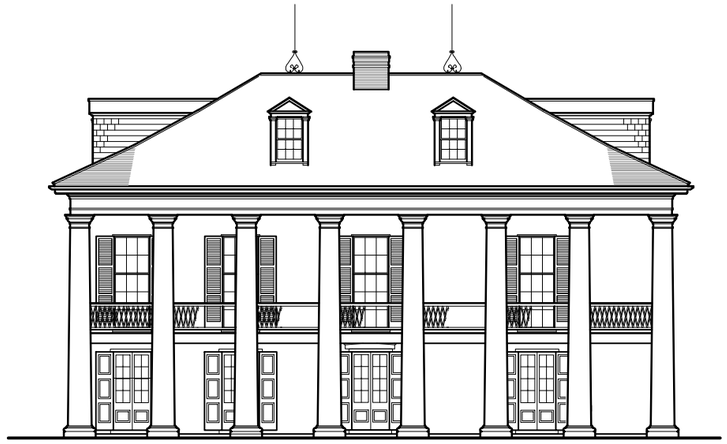
Sheet 1: Plans & Elevations - Late 1850s

Sheet 2: Plans & Elevations - Ca. 1866

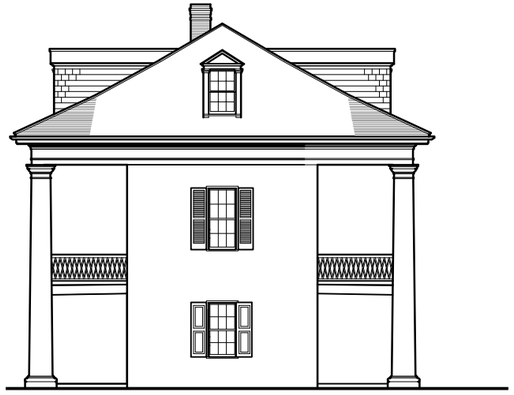
Sheet 3: Plans & Elevations - Ca. 1900

Sheet 4: Plans & Elevations - 1957

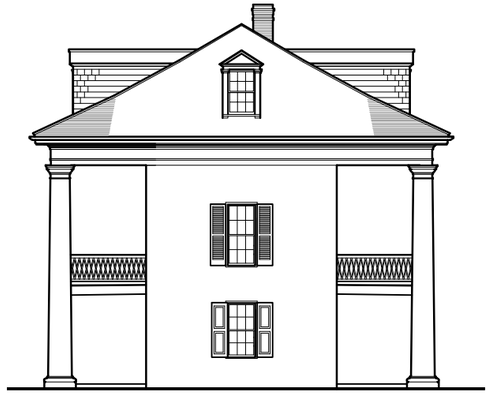
Sheet 5: Plans & Elevations - 1993 / Present



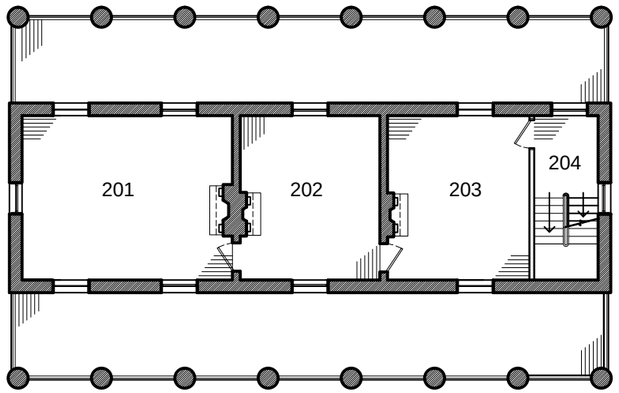
SOUTH ELEVATION



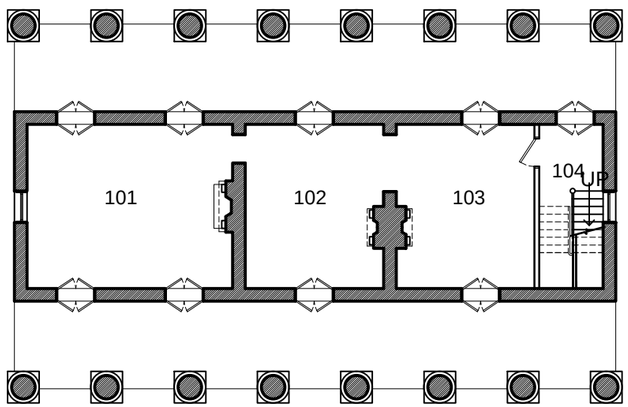
EAST ELEVATION



WEST ELEVATION



SECOND-FLOOR PLAN



FIRST-FLOOR PLAN



NORTH ELEVATION

PLANS & ELEVATIONS - LATE 1850s

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

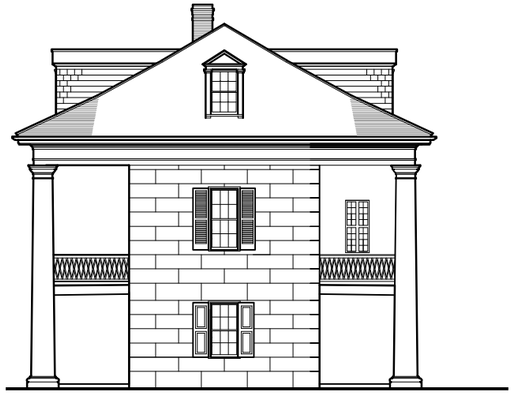
DRAWN BY:
JPA

SCALE:
NTS

HSR APPENDIX C:
SHEET
1



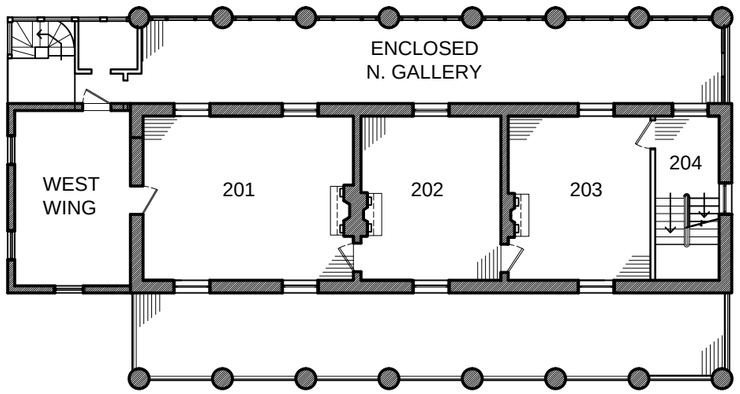
SOUTH ELEVATION



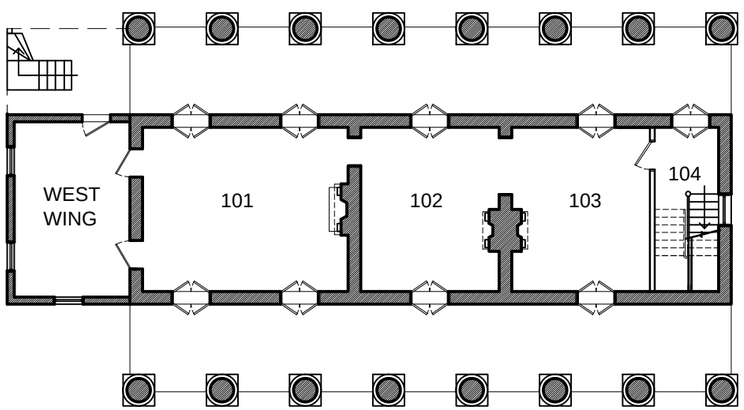
EAST ELEVATION



WEST ELEVATION



SECOND-FLOOR PLAN



FIRST-FLOOR PLAN



NORTH ELEVATION

PLANS & ELEVATIONS - CA. 1866

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

DRAWN BY:
JPA

SCALE:
NTS

HSR APPENDIX C: SHEET
2



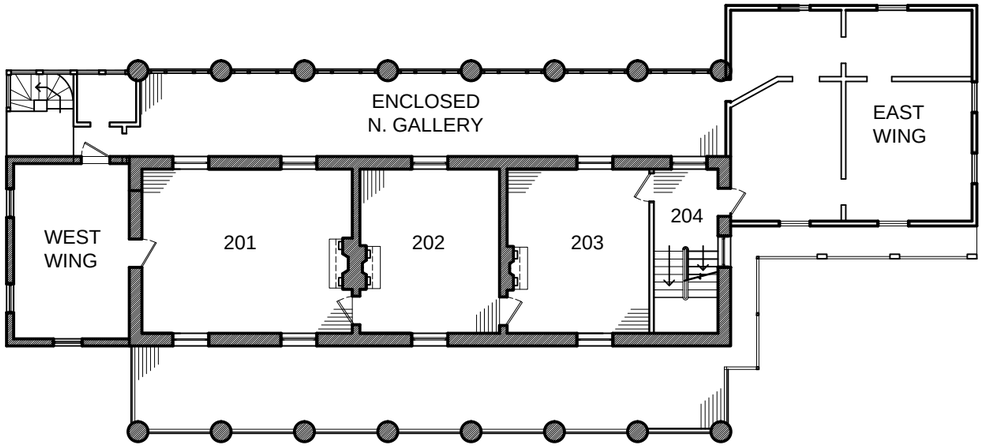
SOUTH ELEVATION



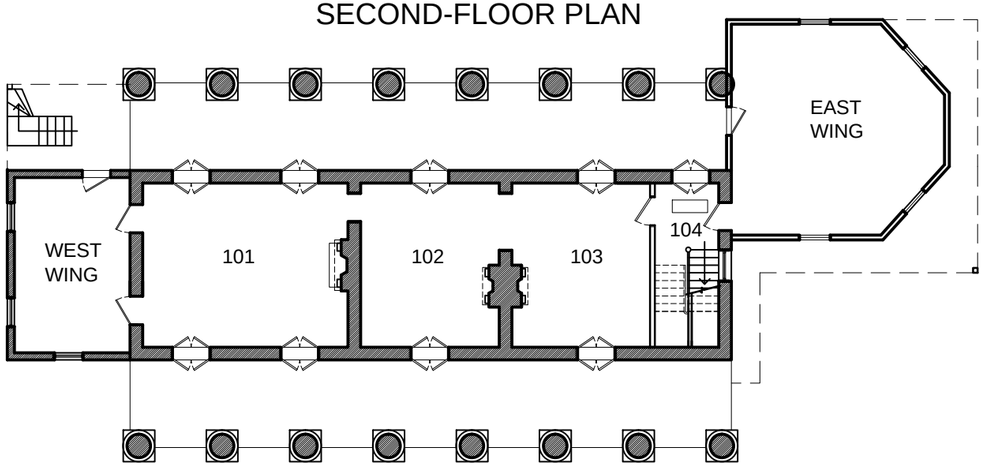
EAST ELEVATION



WEST ELEVATION



SECOND-FLOOR PLAN



FIRST-FLOOR PLAN



NORTH ELEVATION

PLANS & ELEVATIONS - CA. 1900

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

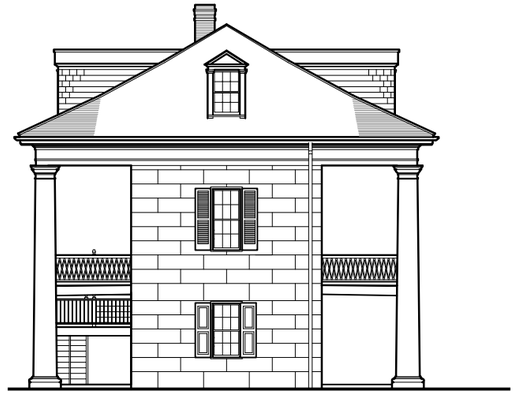
DRAWN BY:
JPA

SCALE:
NTS

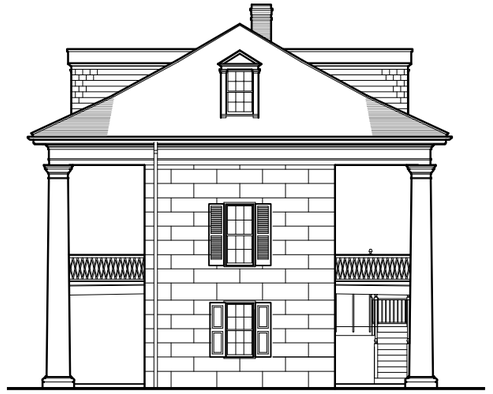
HSR APPENDIX C: SHEET
3



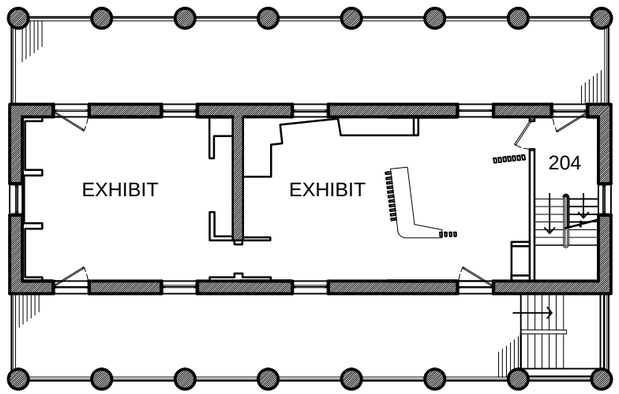
SOUTH ELEVATION



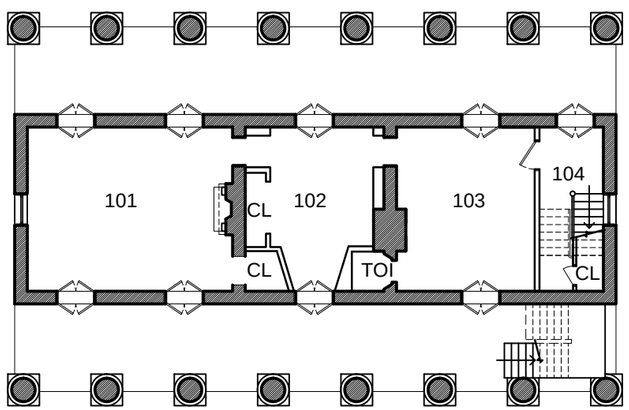
EAST ELEVATION



WEST ELEVATION



SECOND-FLOOR PLAN



FIRST-FLOOR PLAN



NORTH ELEVATION

PLANS & ELEVATIONS - 1957

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

DRAWN BY:
JPA

SCALE:
NTS

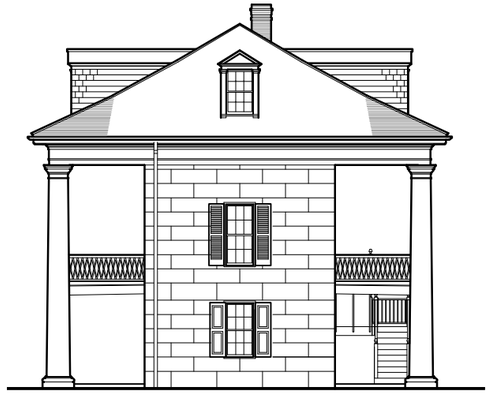
HSR APPENDIX C:
SHEET
4



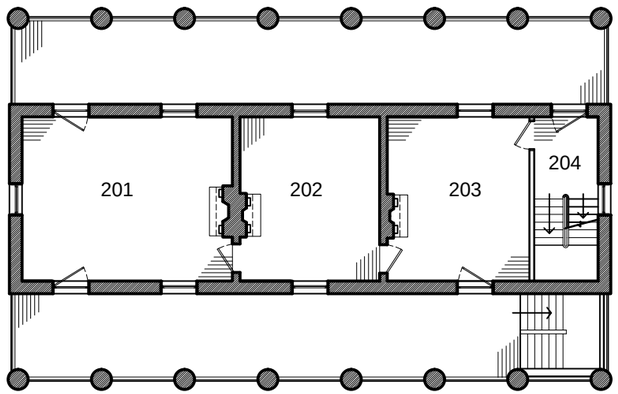
SOUTH ELEVATION



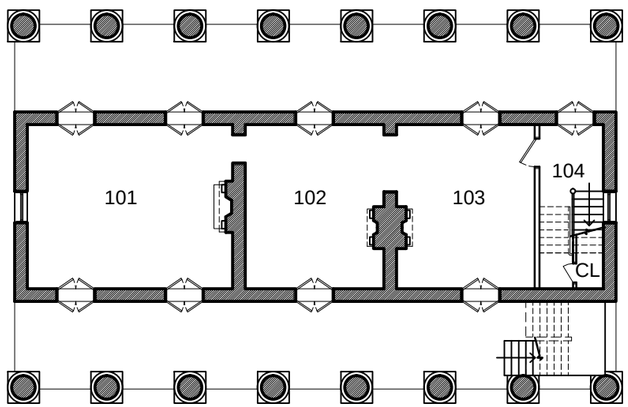
EAST ELEVATION



WEST ELEVATION



SECOND-FLOOR PLAN



FIRST-FLOOR PLAN



NORTH ELEVATION

PLANS & ELEVATIONS - 1993 / PRESENT

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

DRAWN BY:
JPA

SCALE:
NTS

HSR APPENDIX C:
SHEET
5

Appendix D: Documentation Drawings

Sheet 1: First-floor/Foundation Plan

Sheet 2: Second-floor Plan

Sheet 3: Attic Plan

Sheet 4: Roof Plan

Sheet 5: South Elevation

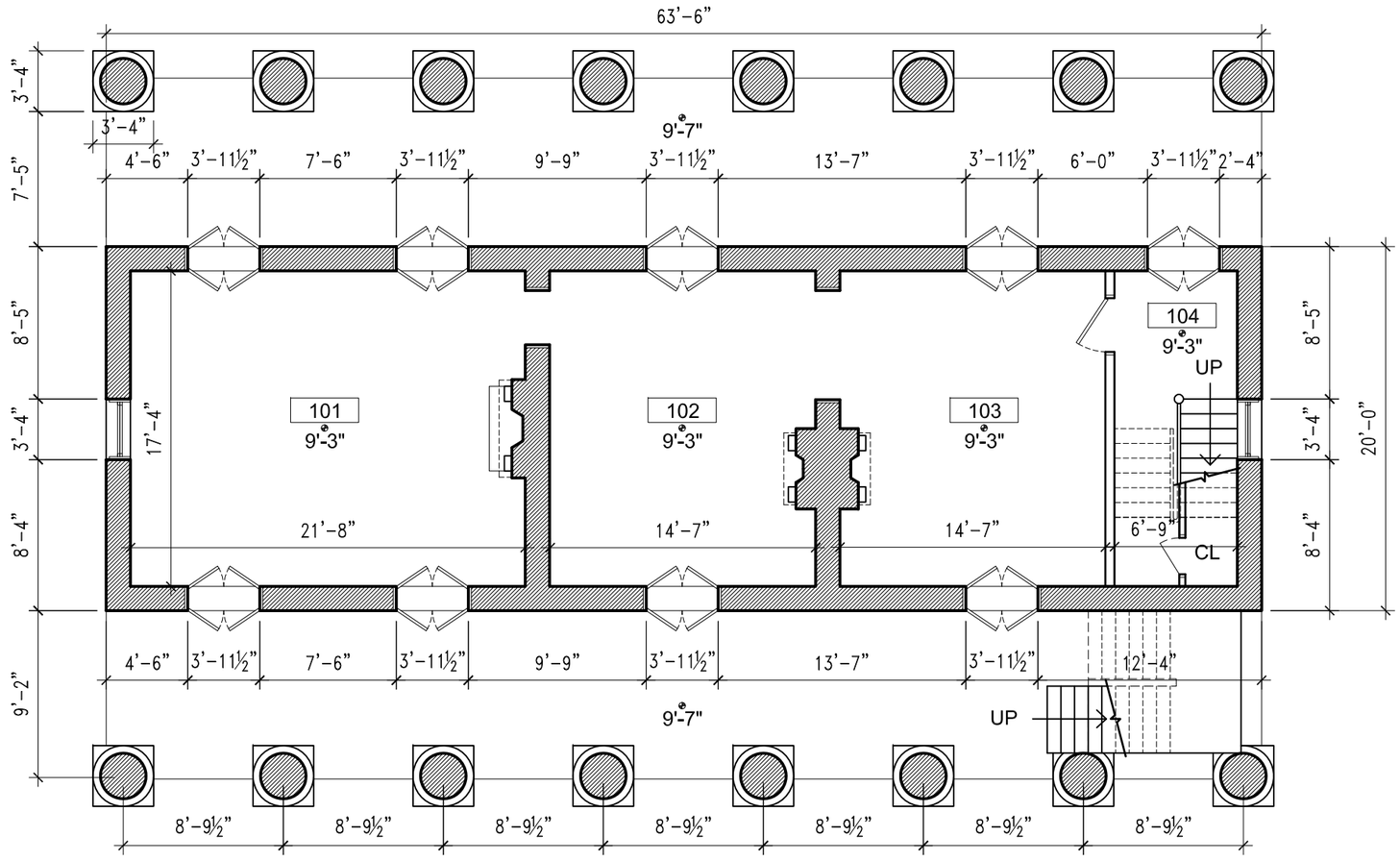
Sheet 6: North Elevation

Sheet 7: East Elevation

Sheet 8: West Elevation

Sheet 9: Details

Sheet 10: Details (Continued)



1 FIRST-FLOOR / FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NORTH
PLAN NORTH

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

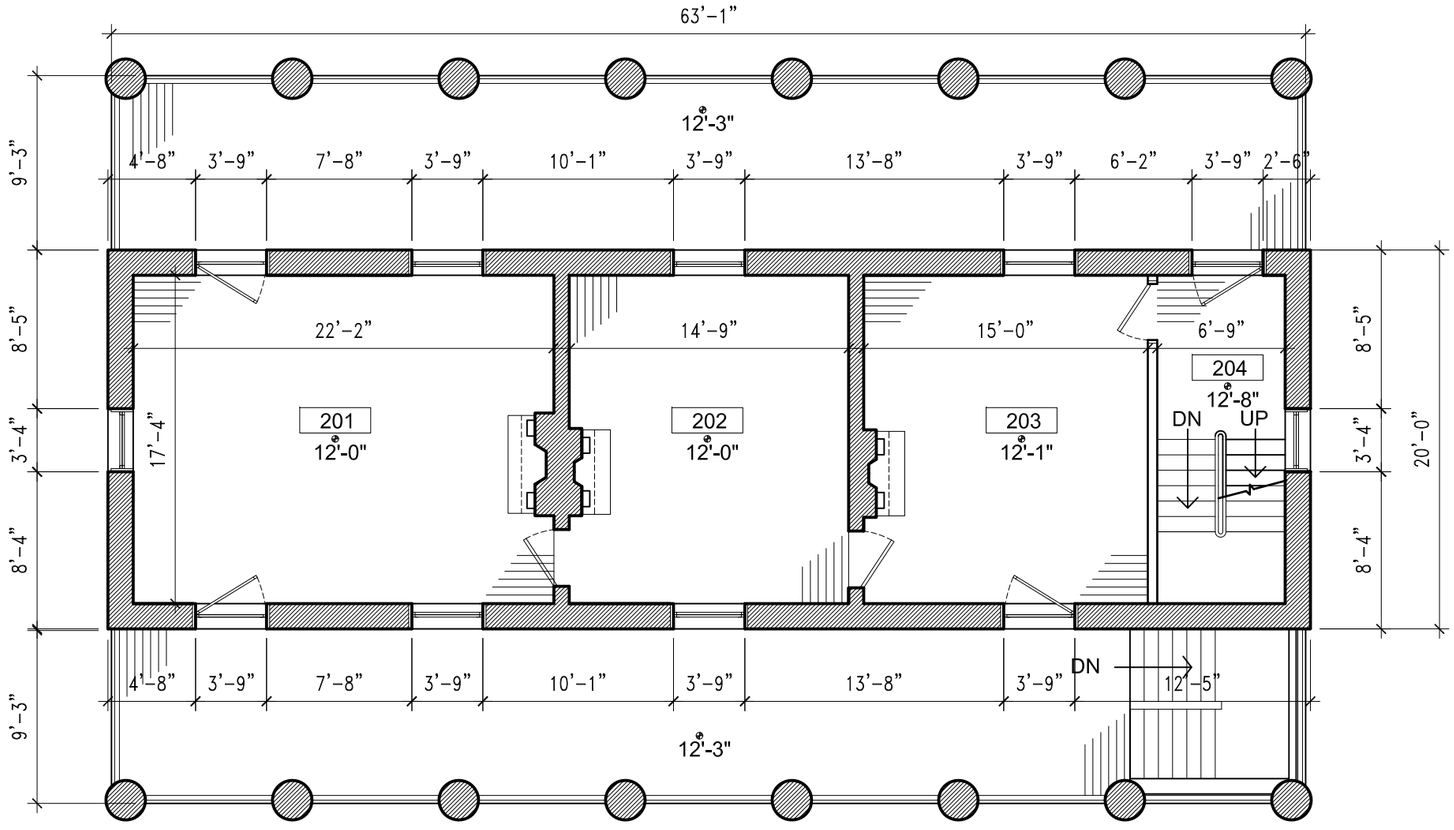
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR
APPENDIX D:
SHEET
1



1 SECOND-FLOOR PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NORTH

PLAN NORTH

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

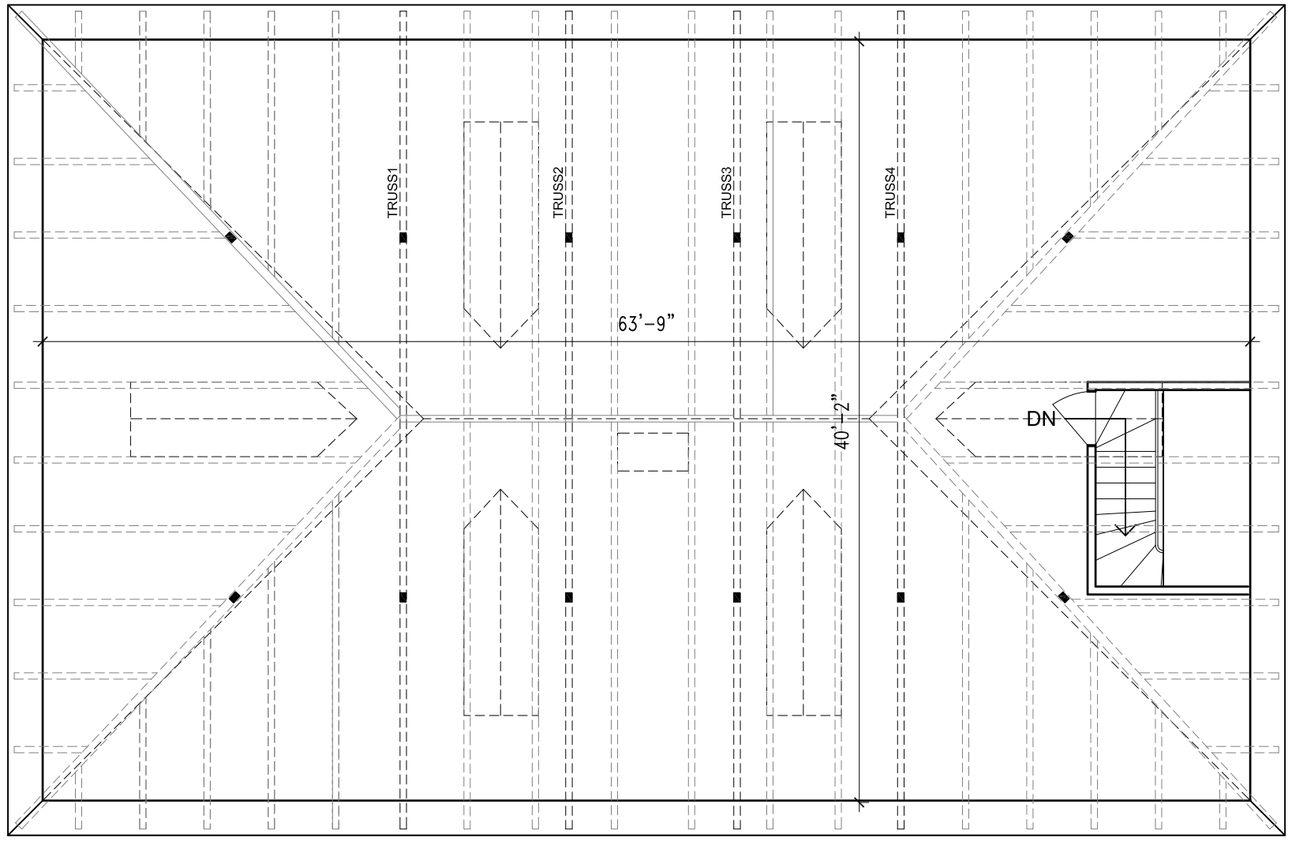
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR
APPENDIX D:
SHEET
2



1 ATTIC PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NORTH
PLAN NORTH

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

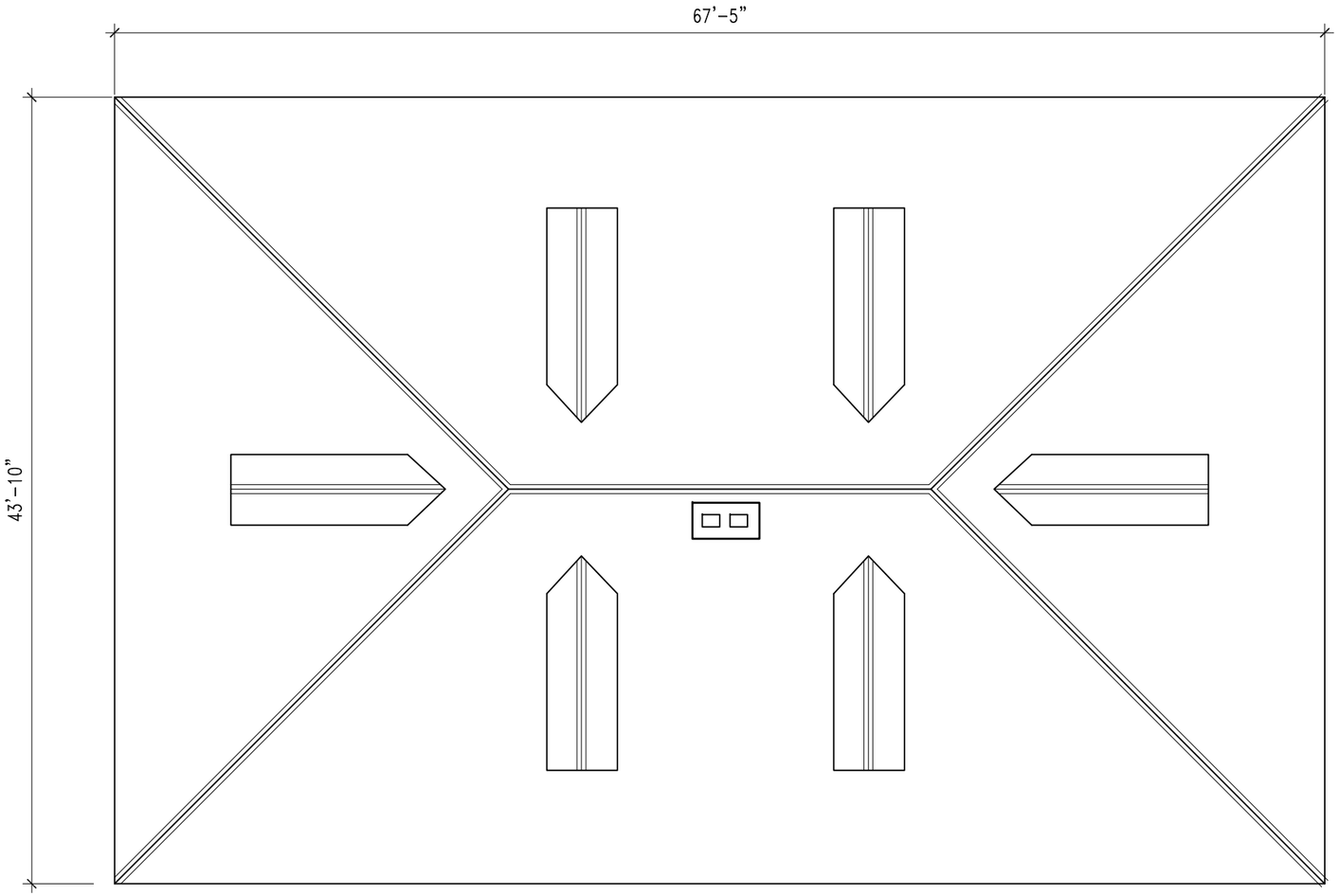
RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR
APPENDIX D:
SHEET

3



1 ROOF PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NORTH
PLAN NORTH

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX D: SHEET

4



1 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX D: SHEET

5



1 NORTH ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

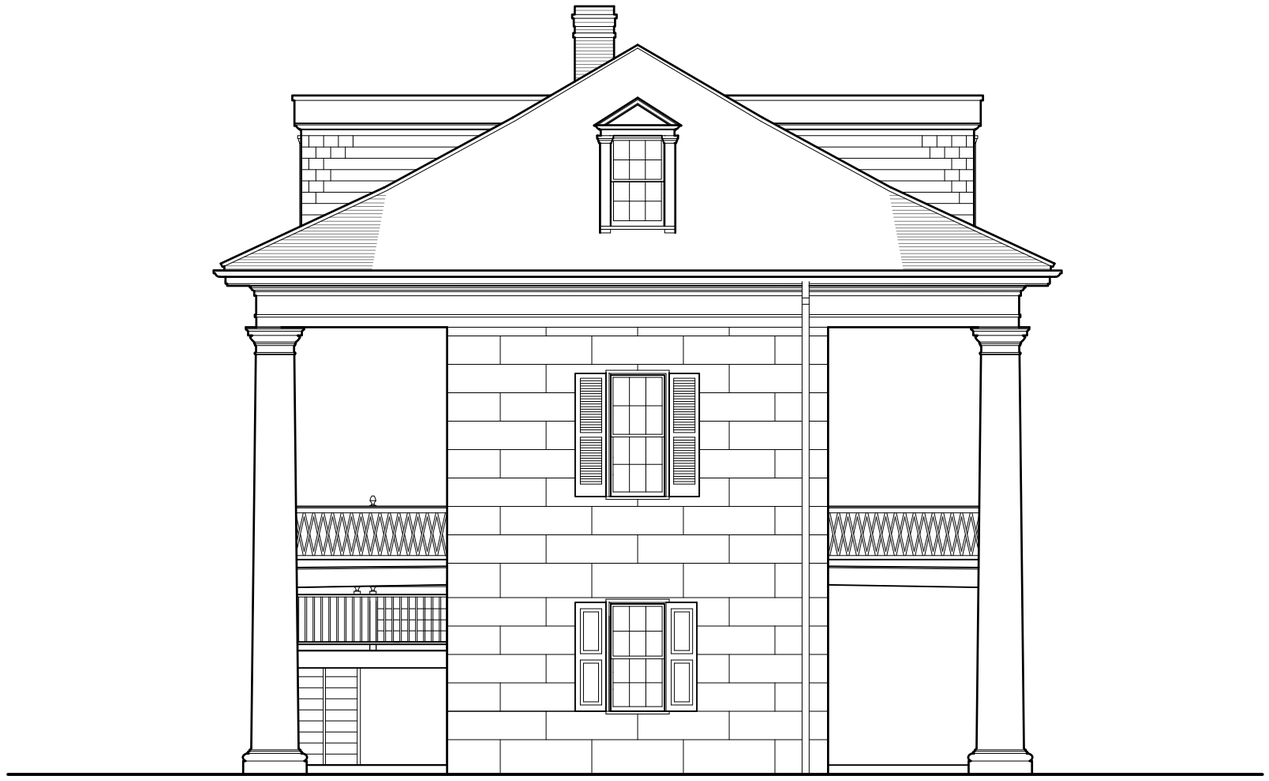
RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX D: SHEET

6



1 EAST ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

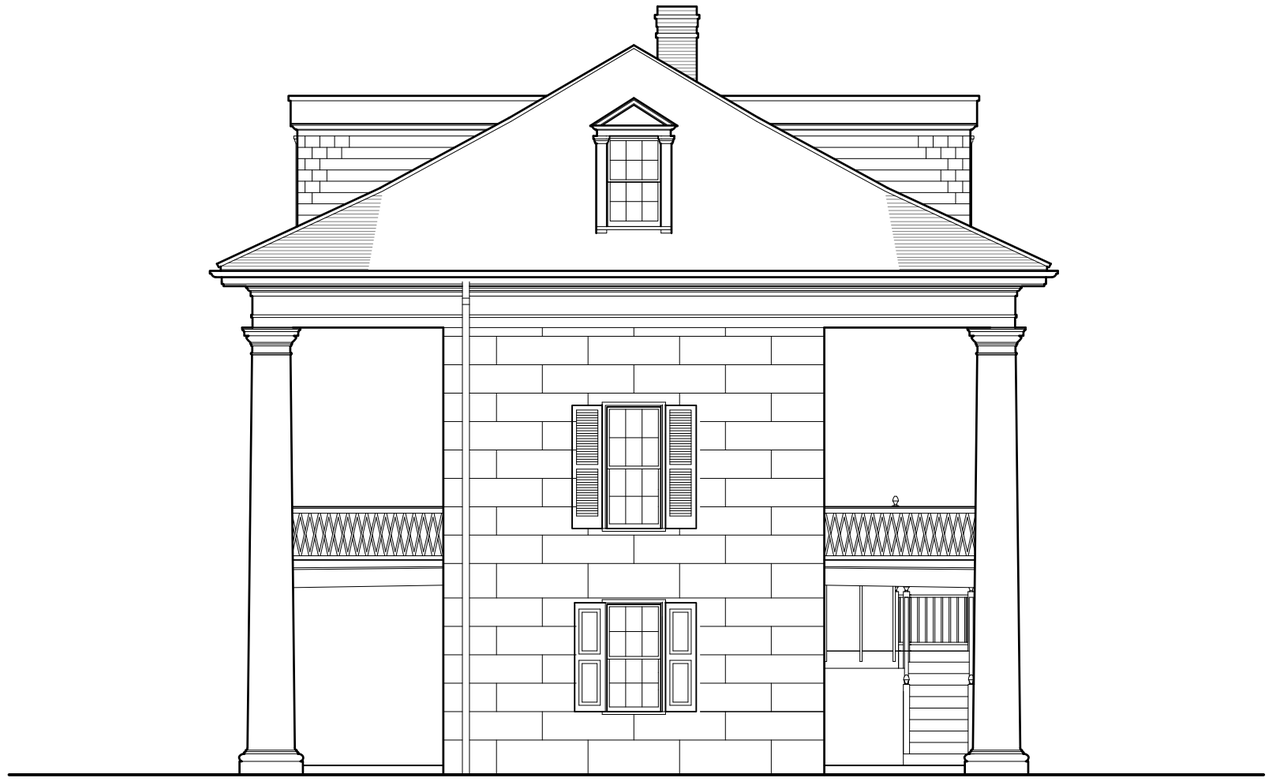
JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX D:
SHEET
7



1 WEST ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

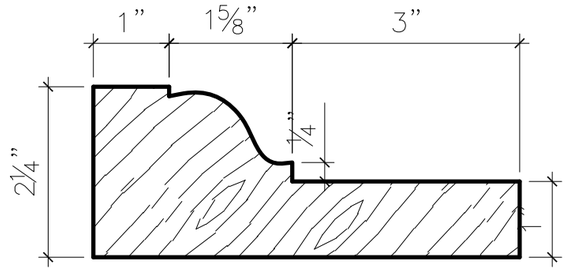
RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

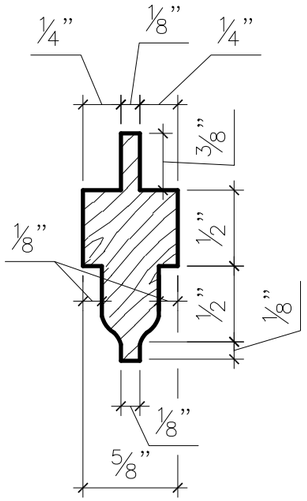
SCALE:
1/8" = 1'-0"

HSR
APPENDIX D:
SHEET

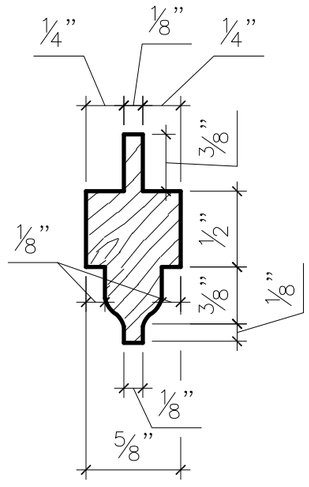
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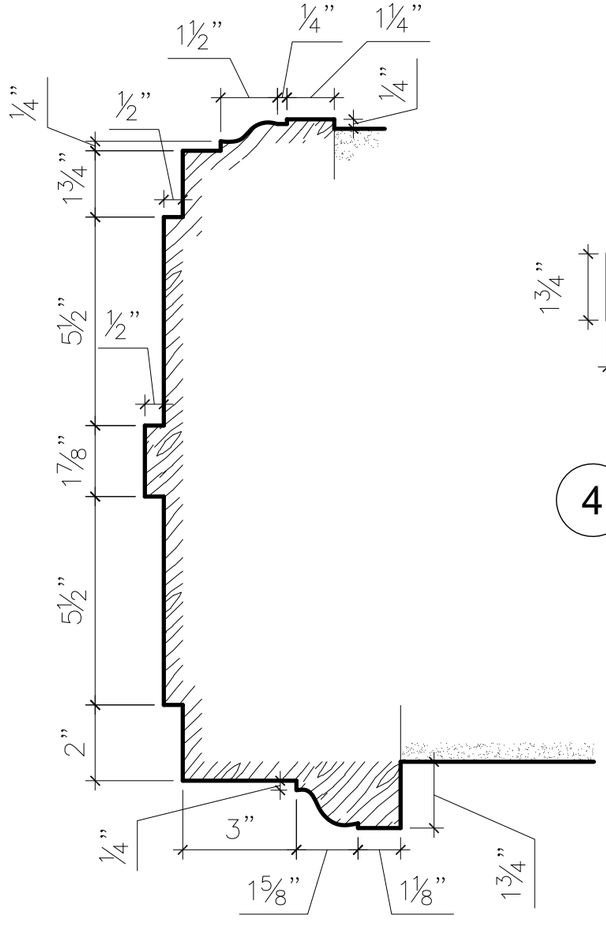
1 TYP. WINDOW & DOOR CASING
SCALE: 6" = 1'-0"
0 .5" 1" 1.5" 3"



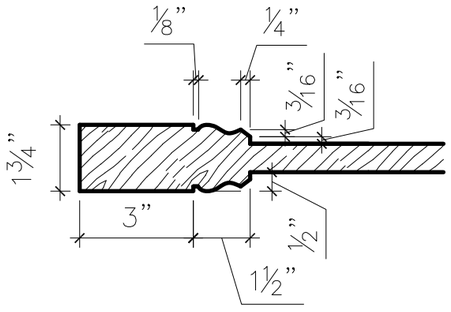
2 TYP. WINDOW MUNTIN
SCALE: 1:1



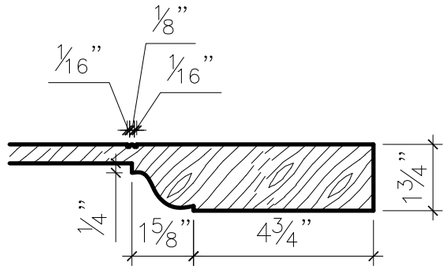
3 TYP. EXT. DOOR MUNTIN
SCALE: 1:1



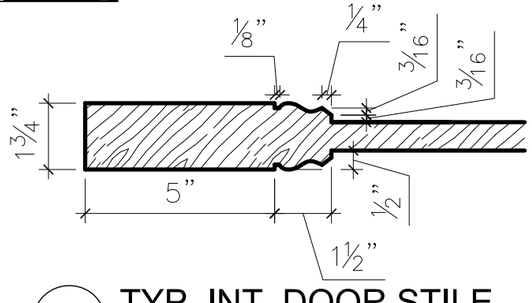
6 TYP. EXT. DOOR JAMB
SCALE: 3" = 1'-0"
0 1" 2" 3" 6"



4 TYP. EXT DOOR STILE
SCALE: 3" = 1'-0"
0 1" 2" 3" 6"



5 TYP. 1ST FL. SHUTTER STILE
SCALE: 3" = 1'-0"
0 1" 2" 3" 6"



7 TYP. INT. DOOR STILE
SCALE: 3" = 1'-0"
0 1" 2" 3" 6"

8 TYP. WINDOW FRAME
SCALE: 3" = 1'-0"
0 1" 2" 3" 6"

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

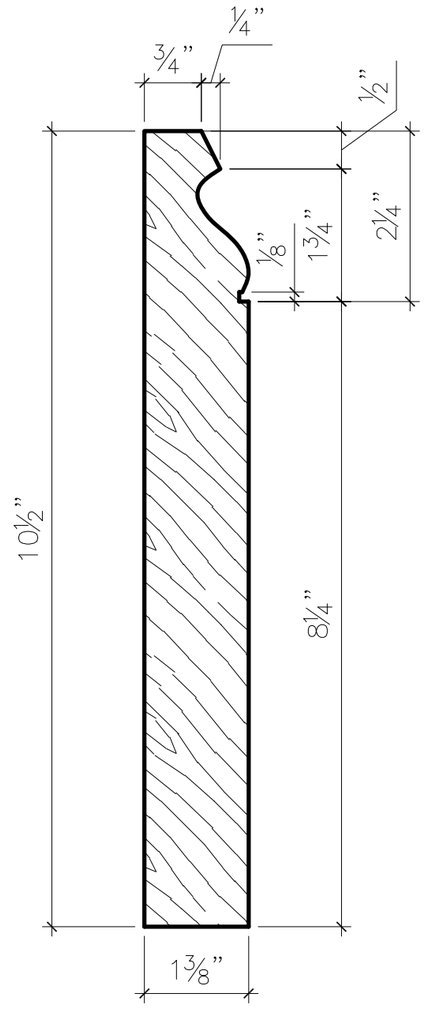
MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
VARIES

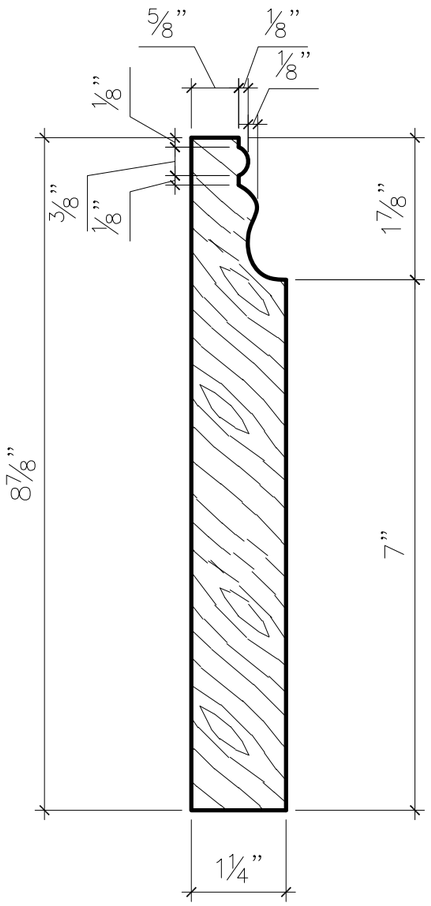
HSR
APPENDIX D:
SHEET
9



1 TYP. FIRST-FLOOR BASEBOARD

SCALE: 6" = 1'-0"

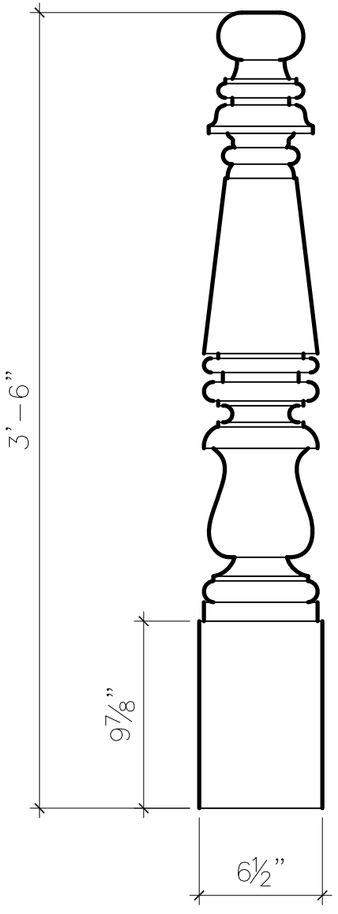
0 .5" 1" 1.5" 3"



2 TYP. SECOND-FLOOR BASEBOARD

SCALE: 6" = 1'-0"

0 .5" 1" 1.5" 3"



3 NEWEL POST (FIRST-FLOOR STAIR HALL)

SCALE: 1-1/2" = 1'-0"

0 3" 6" 1'

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE: 12.2-6.2019

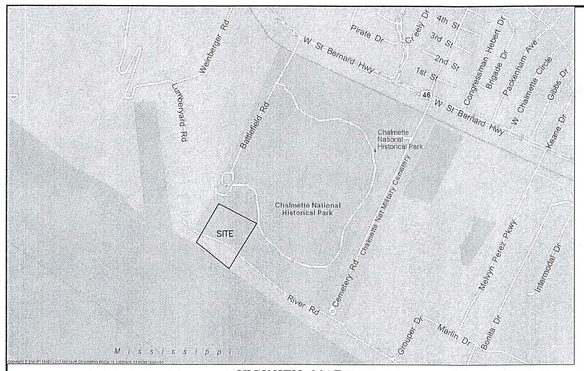
RECORDED BY: JKO, JPA

SCALE: VARIES

HSR APPENDIX D: SHEET

10

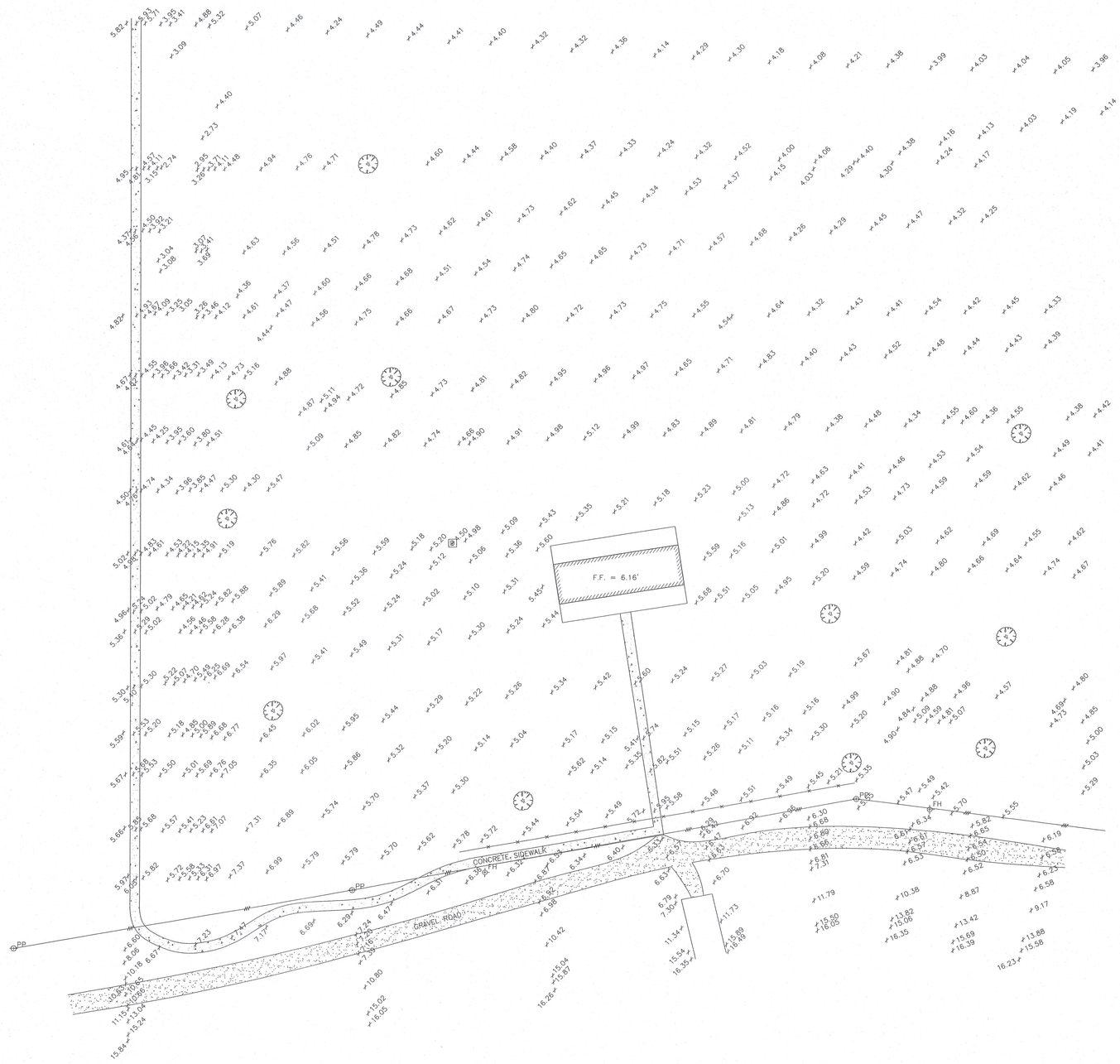
Appendix E:
Site Survey



VICINITY MAP
NOT TO SCALE

WEST ST. BERNARD HIGHWAY (SIDE)

CHALMETTE NATIONAL CEMETERY ROAD (SIDE)



MISSISSIPPI RIVER

NOTE:
SOME ITEMS MAY NOT BE TO SCALE FOR CLARITY.
DIMENSIONS ON SURVEY PREVAIL OVER THE SCALE.
FENCES ARE SHOWN FOR GENERAL INFORMATION PURPOSES ONLY AND DO NOT REFLECT EXACT LOCATION OR CONDITION.

LEGEND

- S — SEWER MANHOLE , SEWER LINE
- W — WATER MANHOLE , WATER LINE
- D — DRAIN MANHOLE , DRAIN LINE
- D — DRAIN INLET , DRAIN LINE
- G — GAS MANHOLE , GAS LINE
- UGTEL — SCB MANHOLE , SCB LINE
- PP — POWER POLE / OVERHEAD LINES
- ELECTRIC,TELEPHONE,CABLE TV
- ELEC TOWER / OVERHEAD LINES
- D — CULVERT , DRAIN LINE
- CB — CATCH BASIN
- GM — GAS METER
- GV — GAS VALVE
- WM — WATER METER
- WV — WATER VALVE
- CO — DRAIN CLEANOUT
- CO — SEWER CLEANOUT
- FH — FIRE HYDRANT
- STLT — STREET LIGHT
- TRLT — TRAFFIC LIGHT
- ANCHOR
- SIGN
- GUARD POST
- ELECTRIC BOX
- TREE
- BUSH
- FENCE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

ELEVATION NOTES

THIS IS CERTIFY THAT SUBJECT PROPERTY IS LOCATED IN THE FOLLOWING FLOOD ZONE, PER FLOOD INSURANCE RATE MAP (FIRM) DATED: 12/21/2017 FLOOD ZONE: X
BASE FLOOD ELEVATION: N/A
COMMUNITY PANEL #: 22087C 0478 D

REFERENCE BENCH MARK: NGS MARKER ALCO
ELEVATION: 5.8'

GENERAL NOTES

THE SERVITUDES SHOWN ON THIS SURVEY ARE LIMITED TO THOSE FURNISHED US AND THERE IS NO REPRESENTATION THAT ALL APPLICABLE SERVITUDES ARE REFLECTED OR SHOWN HEREON. THE SURVEYOR HAS MADE NO TITLE SEARCH OR PUBLIC RECORD SEARCH IN COMPILING THE DATA FOR THIS SURVEY.

THIS PERIMETER SURVEY SHALL NOT CONSTITUTE A LEGAL OPINION OF TITLE, AND SHALL NOT BE RELIED UPON FOR THAT PURPOSE. THERE IS NO WARRANTY THAT IT CONFORMS TO THE LEGAL TITLE, AND WAS MADE SOLELY ACCORDING TO THE INFORMATION PROVIDED THE SURVEYOR.

THE LOCATIONS OF UNDERGROUND AND OTHER NONVISIBLE UTILITIES SHOWN HEREON HAVE BEEN DETERMINED FROM DATA EITHER FURNISHED BY THE AGENCIES CONTROLLING SUCH DATA AND/OR EXTRACTED FROM RECORDS MADE AVAILABLE TO US BY THE AGENCIES CONTROLLING SUCH RECORDS. WHERE FOUND THE SURFACE FEATURES OF LOCATIONS ARE SHOWN. THE ACTUAL NONVISIBLE LOCATIONS MAY VARY FROM THOSE SHOWN HEREON. EACH AGENCY SHOULD BE CONTACTED RELATIVE TO THE PRECISE LOCATION OF ITS UNDERGROUND INSTALLATION PRIOR TO ANY RELIANCE UPON THE ACCURACY OF SUCH LOCATIONS SHOWN HEREON, INCLUDING PRIOR TO EXCAVATION AND DIGGING

REFERENCE NOTES

ANGLES AND/OR BEARINGS ARE BASED ON REFERENCE PLAN #1
REFERENCE PLAN #1:

DATE: DECEMBER 3, 2019	DRAWN BY: NDK
SCALE: 1" = 20'	CHECKED BY: RWK
JOB #: 200443	

MADE AT THE REQUEST OF JOSEPH K OPPERMANN – ARCHITECT, P.A.

BY: _____
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TOPOGRAPHIC SURVEY OF A PORTION OF CHALMETTE BATTLEFIELD ST. BERNARD PARISH, LA

Appendix F:
Materials Conservation Report By BCA

Malus-Beauregard House

Chalmette Battlefield
Jean Lafitte National Historical Park and Preserve



Materials Conservation Report

September 2020

BUILDING CONSERVATION ASSOCIATES INC.

Malus-Beauregard House

Chalmette Battlefield
Jean Lafitte National Historical Park and Preserve

Materials Conservation Report

Prepared For
Joseph K. Oppermann – Architect, P.A.

Prepared By
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Philadelphia, PA 19106

BCA Team
Dorothy Krotzer
Christopher Gembinski

September 2020

BUILDING CONSERVATION ASSOCIATES INC.

CONTENTS

1.0 INTRODUCTION 1
2.0 METHODOLOGY 4
2.1 In Situ Paint Investigation 4
2.2 Investigative Probes and Analysis of Masonry Materials 6
2.3 Moisture Investigation and Infrared Thermography 12
3.0 SUMMARY OF FINDINGS 15
3.1 In Situ Paint Investigation 15
3.2 Investigative Probes and Analysis of Masonry Materials 16
3.3 Moisture Investigation and Infrared Thermography 18
4.0 CONCLUSIONS & RECOMMENDATIONS 38

APPENDICES

Appendix A: Location of In Situ Paint Investigation (performed by BCA, December 2019)

Appendix B: Mortar Analysis Report (performed by Highbridge Materials Consulting, Inc. March 2020)

Appendix C: Stucco Analysis Report (performed by Highbridge Materials Consulting, Inc. March 2020)

September 2020

BCA

BUILDING CONSERVATION ASSOCIATES INC.

1.0 INTRODUCTION

At the request of Joseph K. Oppermann – Architect, P.A. (JKOA), Building Conservation Associates, Inc. (BCA) prepared a materials conservation report of the Malus-Beauregard House located in the Chalmette Battlefield, which is part of the Jean Lafitte National Historical Park and Preserve in New Orleans, Louisiana. (*Figures 1-4)* BCA's work is being performed as part of a larger Historic Structure Report (HSR) of the house being prepared by JKOA.

The materials conservation report summarizes three distinct tasks performed by BCA as part of the HSR project:

- investigation of existing paint finishes to determine if any historic finishes, and therefore historic fabric, remain in the building;
- investigative probes and analysis of masonry materials to document composition; and
- moisture investigation of the building using non-destructive methods.

All work required for the execution of this project was performed by Dorothy S. Krotzer, BCA Regional Director and Christopher Gembinski, BCA Director of Technical Services, with assistance from Highbridge Materials Testing, Inc. (Highbridge) for the laboratory analysis work. Field work was performed in December 2019.



Figure 1. The north elevation of the Malus-Beauregard House.



Figure 2. One of two interior rooms, the west room, on the ground floor of the Malus-Beauregard House.



Figure 3. The west room on the second floor of the Malus-Beauregard House.



Figure 4. The interior stair at the east end of the building at the ground floor level.

2.0 METHODOLOGY

2.1 In Situ Paint Investigation

The existing paint finishes were investigated in order to identify if any historic paint, and therefore historic fabric, remains at the Malus-Beauregard House. Because extensive replacement of architectural fabric has occurred throughout the building's history through a series of alteration and restoration campaigns, the extent of potentially surviving fabric was unclear. The house was constructed in 1832-33 and modified multiple times throughout its life (most significantly in 1856, 1866, 1880 and 1904). It was also heavily restored in the 1950s after years of neglect and abandonment. The goal of the in situ investigation was to identify any architectural elements that retain a significant number of paint layers and, therefore, could potentially represent historic fabric.

The existing finishes were investigated in situ using a combination of cratering techniques and field microscopy. (*Figure 5*) The field microscopy was performed using a Dermlite DL100 capable of 10x magnification. During the field investigation, historic photographs and written descriptions of the house were referenced in order to evaluate which architectural elements might be historic and therefore might retain paint evidence. Documentary evidence indicated that all of the existing interior plaster is non-historic, therefore the investigation focused on the interior woodwork. Each primary architectural element (baseboard, window/door casings, doors, sash, mantlepieces) in all six of the interior rooms was examined for paint evidence. Similarly, on the exterior, wood elements were also examined through field microscopy. It should be noted that only the first floor woodwork on the exterior was examined, as the second floor porches were unsafe and access onto them was prohibited.

In total, approximately 75 locations on the interior woodwork and 20 locations on the exterior woodwork were examined. The locations of these paint investigations are documented in *Appendix A*.



Figure 5. An example of the craters that were made on the woodwork using an Exacto knife to allow for in situ examination with a field microscope.

2.2 Investigative Probes and Analysis of Masonry Materials

During the site visit, BCA removed eight samples of masonry materials (mortar, plaster and stucco) from the building. Several of these samples were removed from areas of investigative probes requested by BCA and performed by NPS. The intention of the probes was two-fold: 1) to reveal earlier building materials, such as original brick mortar covered by later building alterations, for inspection and also for sampling; and 2) to look for evidence of moisture infiltration or damage in the walls of the building.

BCA had probes performed in the following six locations:

- Probe 1: Interior, Room 102, North Wall. This probe involved cutting through the existing drywall surface approximately 5' from the floor to reveal the interior face of the original brick wall of the building. (*Figure 6*)
- Probe 2: Interior, Room 102, North Wall. This probe involved cutting through the existing drywall surface approximately 1' from the floor to reveal the interior face of the original brick wall of the building and any possible evidence of moisture from rising damp. (*Figure 6*)
- Probe 3: Interior, Room 104, East Wall. This probe involved cutting through the existing plaster to reveal the brick masonry of the wall and any possible evidence of moisture from rising damp. (*Figure 7*)
- Probe 4: Interior, Room 104, South Wall, Under Stairs. This probe involved exposing earlier plaster on the interior face of the south wall of the building, which had been covered by a later-installed wall. (*Figure 8)*
- Probe 5: Exterior, North Elevation, First Floor Level. This probe involved cutting through the existing stucco to reveal earlier stucco campaigns and the brick masonry. (*Figure 11)*
- Probe 6: Exterior, North Elevation, First Floor Level. This probe involved removal of detaching stucco over a steel lintel above the westernmost door to reveal earlier stucco campaigns and the brick masonry. (*Figure 12)*

BCA removed the following samples of masonry materials from the building. Note that only two of the eight samples are being analyzed as part of the current project, MB.Mortar.1_and MB.Stucco.1. The other six samples are were only used for visual reference and cursory examination by BCA during the project.

- MB.Plaster.1: Painted plaster under a skim coat repair, removed from the location of Probe 3 in Room 104. Gray-colored plaster scratch coat appears to be modern portland cement based.
- MB.Plaster.2: Painted plaster of the ceiling in Room 101. Gray-colored plaster scratch coat and application on wire lath indicates a modern portland cement based plaster.
- MB.Plaster.3: Painted plaster of the wall in Room 102. Application on wire lath indicates a modern plaster.
- MB.Plaster.4: Scratch coat of an earlier historic plaster removed from the location of Probe 4.
- MB.Mortar.1: Brick mortar removed from the interior face of an exterior brick wall in the location of Probe 1. The mortar is believed to date to the original period of construction, 1832-33. *This sample will be analyzed for compositional information and the findings included in the final report.*

- MB.Mortar.2: Brick mortar removed from the location of Probe 5. Mortar is white in color and different from MB.Mortar.1. It likely dates to the 1950s restoration.
- MB.Stucco.1: Stucco removed from an exterior wall in the location of Probe 5. This material is believed to date from 1866 when the house was first stuccoed, but could also possibly date to the 1950s when the building was restored. *This sample will be analyzed for compositional information and the findings included in the final report.*
- MB.Stucco.2: Stucco removed from an exterior wall on the south elevation, on the east end where an earlier stucco is visible. Note that the dense gray scratch coat of this stucco appears to be portland cement based.

Analysis of samples MB.Mortar.1 and MB.Stucco.1 is currently underway at Highbridge Materials Consulting. The goal of the analysis will be to identify the binder and aggregate components of both masonry materials, as well as the original component ratio. It will also provide information on the overall condition of each material. Analysis will be performed in accordance with procedures specified in *ASTM C1324 – Standard Test Method for Examination and Analysis of Hardened Masonry Mortar* and will utilize the following techniques:

- Examination of petrographic thin sections and ground materials under reflected light and polarized light microscopes to identify mineral content.
- Petrographic analysis to identify binder type and quantity.
- Examination of samples to determine air-void system percentages.
- Examination of samples to identify any secondary deposits, e.g. sulfur and gypsum.
- Separation of aggregate from mortar/stucco through acid dissolution.
- Optical microscopy of aggregate portion.
- Sieving of aggregate to provide separate gradations, for matching purposes.
- Chemical analysis using atomic absorption spectroscopy to determine oxide weight percentages.
- Gravimetric analysis to determine water, carbon dioxide and aggregate weight percentages.



Figure 6. Locations of BCA's Probes 1 (top) and 2 (bottom) to reveal the original brick wall of the north elevation in Room 102. Furring strips, wire lath and modern plaster were applied over the original brick wall, as seen in Probe 1. BCA's C. Gembinski tests the original brick wall exposed in the lower probe using a moisture meter in order to identify any moisture from rising damp.



Figure 7. Probe 3, located on the interior of the east wall on the ground floor in Room 104.



Figure 8. The south wall of the building at the ground floor level, as preserved under the stair in Room 104.



Figure 9. The ceiling probe in Room 101 (performed for Bennett Preservation Engineering) shows the underside of the second floor floorboards with evidence of a white finish that may be limewash.



Figure 10. The same probe as in Figure 9. This image shows the beaded floor joists for the second floor.



Figure 11. The location of Probe 5 on the north elevation of the exterior.



Figure 12. The location of Probe 5 on the north elevation of the exterior. The embedded steel lintel, which most likely dates to the 1950s restoration, is visible.



Figure 13. An area of earlier stucco abutting and extending under the white-colored stucco that covers the rest of the building is visible at the east end of the south elevation. Although earlier than the white stucco, it still appears dense and gray in color, suggesting a 20th century portland cement-based material.

2.3 Moisture Investigation and Infrared Thermography

BCA performed Infrared Thermography (IRT) imaging on the building and documented corresponding moisture and surface temperature readings of the interior and exterior walls. The purpose of the IRT assessment was to identify potential locations where water infiltration could exist based on correlations between IRT images and direct surface moisture and temperature readings, as well as physical evidence of damage to the building materials. Evidence of water penetration in the building is visible in the form of localized areas of deteriorating exterior stucco, as well as interior plaster and paint finishes. The NPS noted these conditions in various documents over many years. Reportedly, liquid water infiltration occurs periodically at the ground level. BCA utilized a FLUKE TiR32 Infrared Camera with Fluke SmartView desktop software, an FLIR MR60 pin application moisture meter, and an Extech Instruments Pocket IR infrared thermometer. (*Figures 14 and 15*)

Infrared Thermography is a non-destructive process of interpreting two-dimensional thermal mapping of a structure by comparing visual thermal image (thermograph) mapping, surface moisture, surface temperature, and the existing materials conditions in a structure, and developing correlations between the visible materials conditions and any temperature differentials in the substrates. The infrared camera can detect the qualitative effects of cooling and evaporation on a surface using temperature measurements. A hypothesis proposes moist areas are cooler than dry areas, as moisture evaporates from the surface assuming the same atmospheric conditions exists across the entire surface of a wall and IRT can capture this effect. Water moves though dissimilar materials at different rates based on the materials properties, further enhancing the temperature distributions in disparate materials. Therefore, IRT measurements depend on environmental conditions such as the air and surface temperatures, the relative humidity (RH), air movement, and direct sunlight radiation or other sources of heat as well as materials characteristics and conditions. IRT provides only qualitative surface temperatures measurements and is an interpretive method for identifying moisture water in a wall and not a quantitative measurement of liquid water.

Two approaches to the IRT methods exist, passive and active. Both approaches are qualitative and affected by changes in environmental conditions which alter the imaging. The passive approach utilizes solar radiation as the primary heat source, and imaging fluctuates depending on atmospheric conditions, exposure and time of day. No artificial sources of heat are applied to create changes in the temperatures of the materials in the passive approach. Passive IRT is performed during various times throughout the day and on all elevations to capture the changes in the surface temperatures as the sun moves around the building and surface moisture evaporates. Passive IRT is usually sufficient for investigating and providing a preliminary assessment correlating temperature differential with the observable conditions of a building. During initial investigations when limited resources are available for a project, IRT can detect preliminary locations for further investigation when other time-consuming methods are not feasible. The active IRT approach utilizes enhanced differences in temperatures in locations previously indicated during a passive assessment with the application of artificial heat sources such as MEP systems or other equipment over an extended period. Active IRT is particularly effective in locating temperature anomalies at the exterior walls. The active approach can also utilize complicated mathematical modeling of the building construction in conjunction with other sources of environmental temperature and humidity data to determine quantitative data.

Some limitations of the IRT process include variable exterior and interior atmospheric conditions, as well as interference of actual temperature reading where surface coatings such as paint on plaster or stucco on masonry alter the porosity or other characteristics of the materials. Non-porous coatings can trap moisture in between layers of the wall composition below the surface finishes and dissipate in adjoining areas where the IRT camera cannot detect the minimal temperature differentials. Consequently, at areas indicated as wet, moisture actually can exist beyond the thermograph boundaries. Because IRT provides interpretative information, all measurements need to be checked against other more mathematical methods for measuring moisture in the wall that provide quantitative results such as remote instruments recording temperature and RH over the course of several months.

Due to limited time on site, BCA utilized the passive approach at the Malus-Beauregard House at the exterior elevations, interior walls at the first and second floors, and in the attic space. Paint finishes of unknown composition cover all exterior stucco at the walls and columns and interior plaster and wood elements, which could have presented a limitation during the IRT process.



Figure 14. C. Gembenski performing IR thermography imaging using a FLUKE TiR32 Infrared Camera.



Figure 15. The FLIR MR60 pin application moisture meter being used to document moisture levels in the original brick wall exposed in Probe 2.

3.0 SUMMARY OF FINDINGS

3.1 In Situ Paint Investigation

Of the approximately 95 locations on the building interior and exterior that were examined as part of the in situ paint investigation, only five locations contained a quantity of paint layers that could be considered potentially historic. These locations, as identified in the graphic in *Appendix A,* include: a door casing on the exterior south elevation; two stringer sections of the interior stair; one interior door casing in Room 104; and a baseboard in Room 201. Each of these locations contained between 8-12 layers of paint. In all of the other locations examined, the number of paint layers ranged between 2-5 layers of paint, with four layers being the most common.

Although the number of paint layers one might expect to find in a historic building dating to the 1830s can vary and depends on many factors, most typically, one would expect to find between 20-30 paint layers. No architectural element at the Malus-Beauregard House contains this number of paint layers. While it is possible that some of these elements were stripped of earlier paint and therefore contain only more recent finishes, none of the woodwork appears to have been stripped, nor does it look weathered or aged. Knowing the history of the building, it is more likely that the lack of paint layers is due to extensive replacement of historic fabric as part of 20th century restoration efforts.

For the few elements that do exhibit more paint layers than others, it is difficult to know when they might date to since they too contain fewer than expected paint layers. It is possible that they date to the original period of construction or a subsequent early renovation campaign. Performing paint analysis of these five elements may indicate whether the paint on them (and the element itself) is historic or modern.

It should be noted that, although the stair handrail assembly (handrail, balusters, newel post) between the first and second floor has only two to three finish layers, it is possible that it is historic. The drawings from the 1950s restoration indicate that the run of stairs between the first and second floor were to be salvaged and re-used. The fact that the stair stringers in this area are one of the interior elements with the greatest number of paint layers also supports this theory. Elements of the handrail assembly have a layer of varnish applied directly to the wood, followed by a layer of brown paint, sometimes with a layer of white between the two. These paint layers were observed on all parts of the stair, including the section between the second floor and attic. The handrail also appears to be a dark colored wood, such as mahogany, which would have most likely been originally varnished and not painted. If the handrail assembly is historic, then it is possible that they were varnished historically and were not painted until much later in their life. Paint analysis of these elements could provide additional insight into the history of these finishes.

It should also be noted that the historic ceiling in Room 101 that was revealed by a probe requested by Bennett Structural Engineering, is most likely original. In this location, the floor joists for the second floor were exposed. The joists were beaded, indicating they were intended to be exposed and not covered by plaster. In addition, the underside of the second floor floorboards were also visible. They have traces of a flaking white-colored finish, possibly a lime wash. The currently covered first floor ceiling deserves further investigation, as it may be one of the few surviving original elements of the building and one of the only remaining areas of original or very early paint finishes. (*Figures 9 and 10*)

3.2 Investigative Probes and Analysis of Masonry Materials

The investigative probes revealed a range of masonry materials, including what is believed to be the original brick masonry of the exterior walls. In the location of Probes 1 and 2, the interior face of the north exterior wall was exposed behind the existing plaster, wire lath and wood furring strips. The surface of the bricks is brown in color, similar to the bricks visible under the stairs in Room 104, with traces of historic plaster. The mortar of this brick masonry is brown in color and is believed to date to the original period of construction, 1832-33. It resembles soil-based mortars common to New Orleans 18th and 19th century brick construction. The original brick and mortar in both Probes 1 and 2 appear to be in good condition with no evidence of significant deterioration or damage from moisture infiltration or soluble salts.

The laboratory analysis performed as part of the current study confirmed that the original brick mortar of the exterior walls is an earthen-modified lime mixture with no added cementitious or pozzolanic components. The lime is a high-calcium variety that appears to have been burned from a sedimentary rock. The earthen addition consists of a clayey silt rich in fine quartz and brownish clay. There are roughly 3.3 parts earthen material estimated for each part lime by weight. However, much of the clay functions more as a part of the binder than as aggregate. Overall, the appearance of the sample pieces is relatively uniform with a light brown color (Munsell code approximately 1Y 7/2), due mainly to the sediment addition. The mortar is relatively soft and highly permeable, as expected for its composition. See *Appendix B* for the full report on the laboratory analysis of the mortar.

The other probes revealed modern and not historic building materials. The brick exposed in interior Probe 3, as well as exterior Probes 5 and 6, is more orange in color and is clearly different from the bricks in Probes 1 and 2. It is also set with a white color mortar that may be portland cement based. Because the steel lintel and adjacent brickwork surrounding the lintel were set with this white-colored mortar and because the lintel is believed to date to the 1950s restoration, this white brick mortar most likely dates to the 1950s. (*Figure 12*)

The probes also revealed a wide variety of stucco materials, the most prevalent of which is the white stucco that covers the majority of the building exterior. (*Figure 11*) It was suspected that this stucco dates to the 1950s restoration, so it was subjected to laboratory analysis, as discussed below. Other stucco materials, such as that of MB.Stucco.2, appear to be gray portland cement based material and therefore more modern. The earlier stucco visible at the east end of the south elevation, which abuts and extends under the white-colored stucco, also appears to be a portland cement-based material. (*Figure 13*)

The laboratory analysis of the exterior white stucco material revealed that it is composed of two layers of a similar cement-lime mix. The cement-based stucco appears to be a repair that dates to the twentieth century and it is applied over traces of an earlier, and presumably historic, lime-based stucco material. The twentieth century stucco mix consists of white portland cement, dry hydrated lime, and a somewhat narrowly graded quartz sand. The cement to lime ratio is estimated at 1 : 2.4 by volume and the binder to sand ratio at 1 : 2.6 by volume. The estimated proportions are more lime-rich than any of the permissible limits specified in modern portland cement stucco standards. The outermost lift is roughly 1/4" thick while the inner lift is not fully represented. The outer surface of the stucco was like exposed at some point given the minor sand exposure and the use of a white portland cement. However, the surface is now covered with reddish paint.

The cement stucco sample appears to be in sound condition. All of the pieces are fully carbonated, which is a normal and desirable consequence of long-term curing. There is no evidence of any significant cracking, paste degradation, or deleterious secondary mineralizations. That said, the underlying lime stucco contains some secondary mineralizations. However, these do not appear to correspond to any significant cracking distress. See *Appendix C* for the full report on the laboratory analysis of the stucco.

3.3 Moisture Investigation and Infrared Thermography

Exterior

The Malus-Beauregard House experiences warm wet summers and relatively cooler and drier winters, resulting in variable relative humidity and temperature differentials between seasons. During the assessment of the Malus-Beauregard House in December 2019, the weather was sunny with a visibility of 10 miles and a wind speed of approximately 9 MPH. The temperature ranged between 52°F to 70°F and the RH 39% to 80%. The exterior air temperature averaged ~60°F and the RH ~60%. The average dewpoint calculations measured approximately 47. No precipitation was recorded in the 24 hours preceding the BCA assessment. The infrared thermometer measurements documented by BCA indicated the exterior surface temperatures of the painted stucco elevations and columns ranged between 54°F and 68°F, with an average reading of ~ 60°F. Surface moisture meter readings at the exterior painted stucco walls and columns were negative and no visible condensation was observed. Therefore, the IR camera was set to a small temperature range to capture any potential temperature differentials. At larger range settings, the IR thermographs registered one uniform color, i.e. the same temperature for the entire building at both the exterior and interior. Thermography shows no significant thermal differentials on the exterior stucco nor columns of the north and south elevations due to the consistent temperatures of all materials. (*Figures 16-28*) Note that interference due to the multiple layers of paint on the stucco could limit the IR readings. The south elevations recorded the highest temperature at the setback balcony wall, which was exposed to the sun for the entire day, and this was confirmed with direct surface temperature readings.

On the east and west elevations greater temperature differentials exist, however, the range of temperatures is quite small. Therefore, the IRT camera was set to a smaller range of temperature detection. Nonetheless, thermography detected two notable areas of lower temperature on the east elevation stucco and a low band of potentially wet material at the base of the building (see image n). The lower temperatures are visible at the north and south sides of the window masonry opening (see image n) and at the base of the building (see image n). The thermographs on the east elevation indicate the lowest temperature on the elevations at a low band suggesting potential rising damp infiltrates the stucco finish where in contact with the ground soil and water. One large area of lower temperature differential is seen midway up the east elevation between the windows on the south side of the east elevation (see image n, n, and n). This higher and isolated area suggests either water infiltration from another source other than ground water exists, or the stucco finish is detached from the brick masonry behind. Note this location is opposite the location of the stair in room 104 above Probe 1.

On the west elevation, thermography identified one large area of the most significant thermal differential recorded during this assessment on the southwest corner of the building. (Figure 23) This location corresponds with the existing plaster conditions at the interior of Room 101 and suggests water infiltration into the building in this area. The source of the water is unknown, although rising damp and water infiltration from a possibly blocked drain for the exterior downspout is evident in the materials and indicated by the adjacent stucco damage. However, the height of the lower temperature extends up the second floor window level. Since IRT indicates no differential temperatures above this level, the water most likely does not originate at the roof. Therefore, the identification of any water infiltration sources discovered in future investigations will likely include multiple sources, possibly cracks in the stucco in this location or the adjacent south balcony deck.

At the exterior north and south elevations, although the columns appear wet, thermography recorded the temperatures at the columns ranged between approximately 45°F to 70°F. The pattern of the temperature differential does not directly correspond with visible stucco damage at the columns. Thermography did not detect significant temperature ranges on the column bases and did not include dampness at their bases. (*Figures 26-27*) The ground temperature was lower than the column surfaces. Visible water damage at the column bases suggests water does infiltrate these elements.

Interior

At the interior of the building, as with the exterior painted stucco, the interior paint finishes can interfere with the IRT readings. In addition, BCA observed several campaigns of previous repairs to the plaster throughout the interior, which can also skew IRT readings. Typical IR thermographs obtained in this investigation corroborated the direct surface temperature readings indicating the surfaces temperature of the interior walls ranged between 55°F and 62°F (average ~59°F). Moisture meter readings at the interior plaster wall indicated little moisture on the surface of the interior plaster throughout the building. Moisture readings ranged between 5% and 13% on the first floor (average ~12%) and were consistent at 5% on the second floor. Wood elements on both floors in all rooms averaged 16%.

At the first floor, while there is evidence of plaster damage at the interior finishes, thermographic images showed relatively minimal thermal anomalies, suggesting no active water infiltration during the assessment. In Room 101, the interior northwest corner is directly opposite the exterior rainwater leader. Minimal plaster damage exists in this area. At the exterior northwest corner opposite this interior corner, thermography indicates lower temperatures on the northwest leader and in the areas of a potentially blocked drain. (*Figures 41-43*) Interior thermography in Room 101 shows lower temperatures in locations corresponding with the exterior thermographs. At the interior northwest corner of Room 101, the lower plaster surface temperature extends up the wall opposite the exterior leader. To emphasize, the temperature reading is taken of the painted plaster surface, suggesting lower temperatures could exist at the brick masonry wall behind the plaster, as seen in Probes 1 and 2. This area is directly behind the exterior rainwater leader and water likely could run down the interior side of the brick wall if leaks through the exterior stucco exist. Subsurface temperatures can also extend beyond the boundaries of the recordable temperatures.

Further evidence of water infiltration into the building exists at the first floor in several areas of minor plaster damage associated with the fireplace locations. In Room 102, typical plaster damage exists on the east wall opposite the location of the previously altered fireplace in Room 103. (Figure 44) The locations of the first floor fireplaces and their reported removals, alterations and relocations typically correspond with plaster damage on the opposite wall in the adjoining rooms. The plaster and wood baseboard deterioration in Room 102 near the floor and nearby to the visible plaster wall damage above, suggest rising damp in the locations of the fireplace could exist causing the visible water damage to the interior finishes at the interior first floor walls. (Figures 45-46) This damage is not seen at the second floor fireplace locations. Although thermography revealed no evidence of temperature differentials at first floor marble floor pavers in Room 102, nor in other rooms during this assessment, further monitoring and active IRT methods using applied heat could reveal different results in other environmental and

atmospheric conditions and map the evidence of water infiltration over time and further relate it to the observable material damage at the Malus Beauregard House. (*Figure 47)*

At the second floor, the consistently equal surface temperatures indicate no differential between rooms or materials, and no visible plaster damage of significance exists. Thermographs in the second floor rooms also recorded consistent temperature, with almost no differential, indicating overall dry conditions. On the first floor, the thermographs showed a slightly larger range of temperatures, but no areas measured significantly higher than the surrounding areas. No evidence of water infiltration exists in the attic space or at the roof.

Probes

BCA conducted three probes to determine the wall composition and measure the surface temperatures and moisture contents of the building materials, as well as remove samples for examination and analysis. Both probes found a thermal differential between the interior painted plaster finish surfaces and the interior brick masonry where the brick measured lower in temperature and higher in moisture content, indicating the interior of the wall behind the plaster could retain more moisture than finish surfaces.

Probe 1 located in Room 102 at south wall revealed the existing wall composition consists of nonporous painted 3-coat plaster finish on metal lath secured to absorbent wood furring attached to original brick masonry extending to the exterior where it is covered with a stucco finish and paint. (*Figure 30*) Wood furring absorbs water and diffuses moisture behind the plaster finish. At the location of Probe 1, the direct readings indicted the temperature of the brick masonry is colder, and the moisture content higher, than the interior plaster surface. Thermography confirmed the brick masonry temperature differential. Moisture content of the wood furring was higher than the surrounding brick, mortar and plaster materials.

Probe 3, located in Room 104 at the east wall, revealed temperature and moisture differentials between the interior surfaces and the underlaying building materials. In Room 104, visible plaster damage exists below the window sill and in the southwest corner. (*Figures 32-33*) Thermography at the wall below the window sill showed an average 5°F temperature differential. Probe 3 revealed the interior plaster finish is applied directly on the brick masonry wall, different from the wall construction in Probes 1 and 2. (*Figure 34*) The direct surface temperature and moisture content readings indicate the brick masonry temperature is lower and the moisture higher than the interior plaster surface in the location of the Probe 1. Thermography confirmed the direct reading of temperature ranging between 59°F and 64°F. (*Figures 35-36*) At the exterior northeast corner, opposite the location of Probe 3, the stucco finish exhibits deposits of dirt and soil at the base of the building indicating liquid water from splash up and potentially rising damp infiltrate this area. (*Figures 37-38)* Thermography did not identify lower temperature differentials on the exterior side of Probe 3; rather it confirmed the exterior surface temperature range is similar to the interior temperature range. However, the lower temperature at the base of the stucco captured in the exterior thermograph suggests rising damp could existing in this area. The area of exterior stucco below the east window located above Probe 3 shows a 5°F temperature differential compared to the adjacent stucco surface temperature. Based on the locations of temperature differentials between adjacent surfaces and materials, the existing stucco damage, and corresponding interior plaster and wood damage opposite this location, further investigation could locate water infiltration in this area.

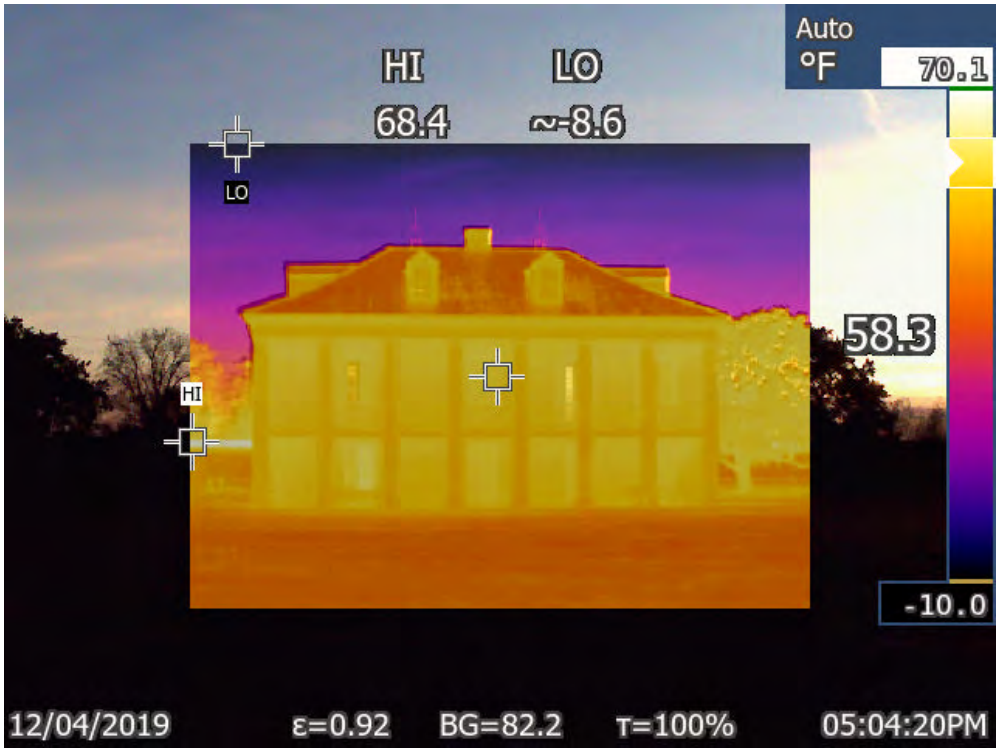


Figure 16. North elevation. Thermography shows no significant thermal differentials on the exterior stucco or columns.

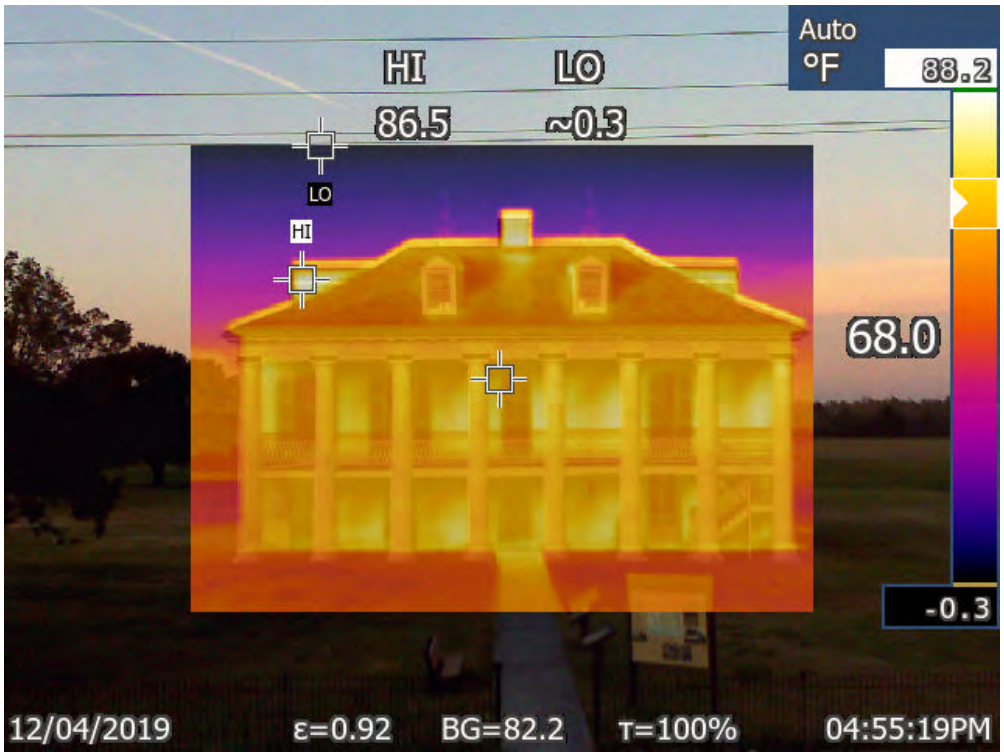


Figure 17. South elevation. Thermography shows comparable results to the north elevation at the south elevation.



Figure 18. East elevation.

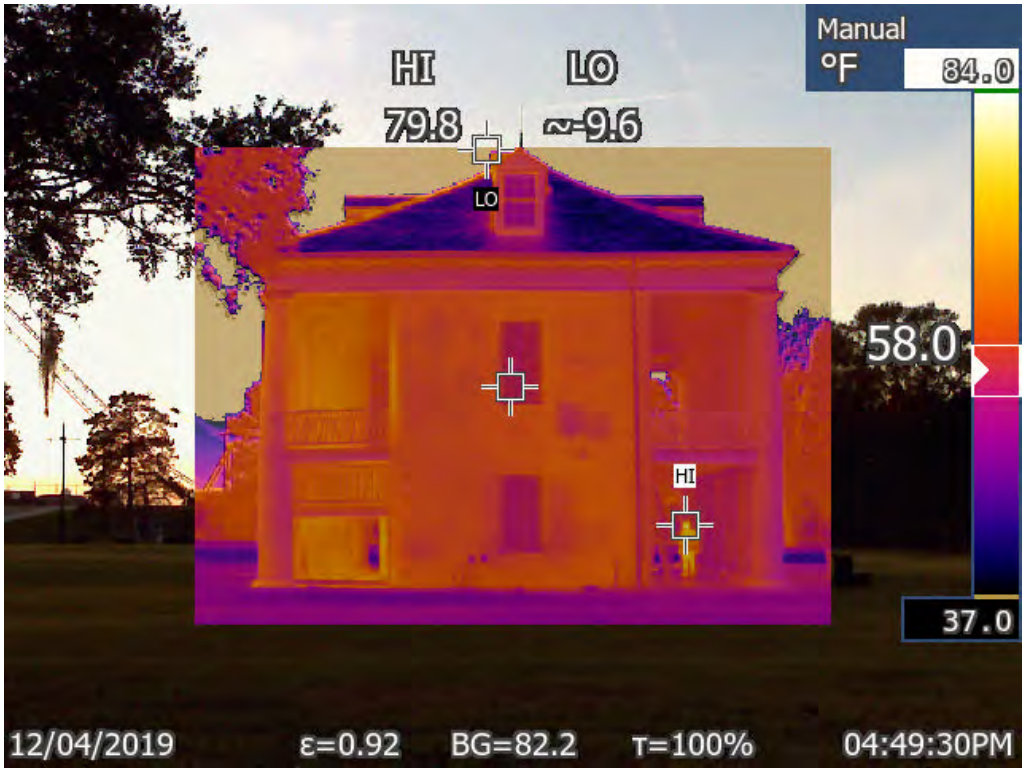


Figure 19. East elevation. Thermography detected two notable area of lower temperature on the east elevation.

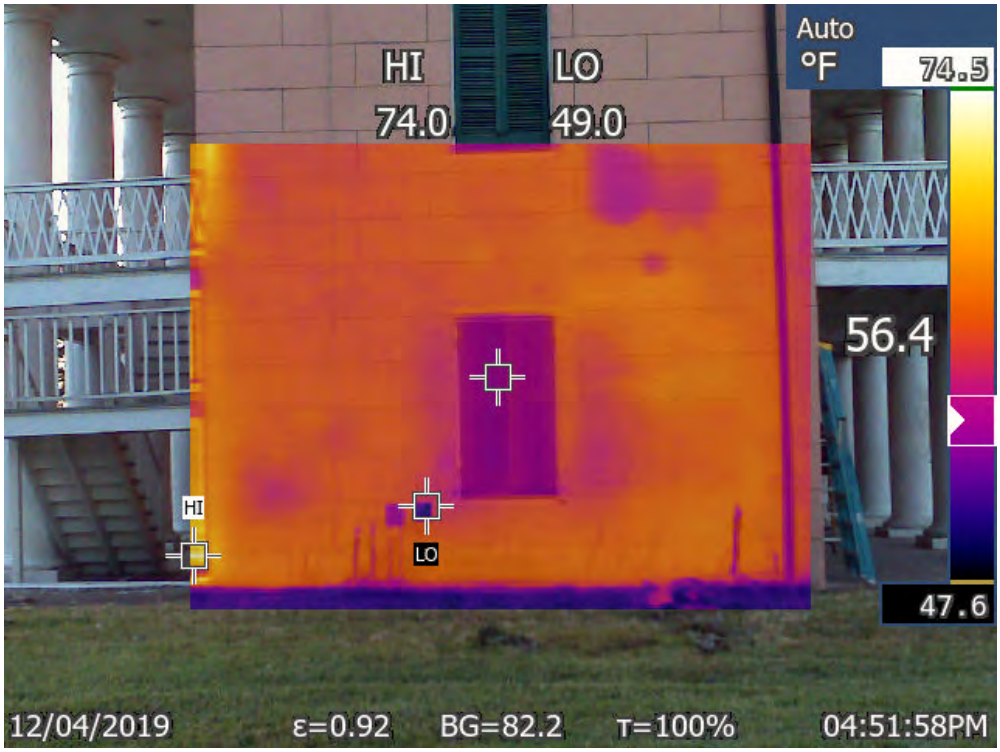


Figure 20. East elevation. Lower temperatures are visible at the north and south sides of the window masonry opening. The low band of cooler temperatures at the base of the building suggests potential rising damp at ground soil and water.

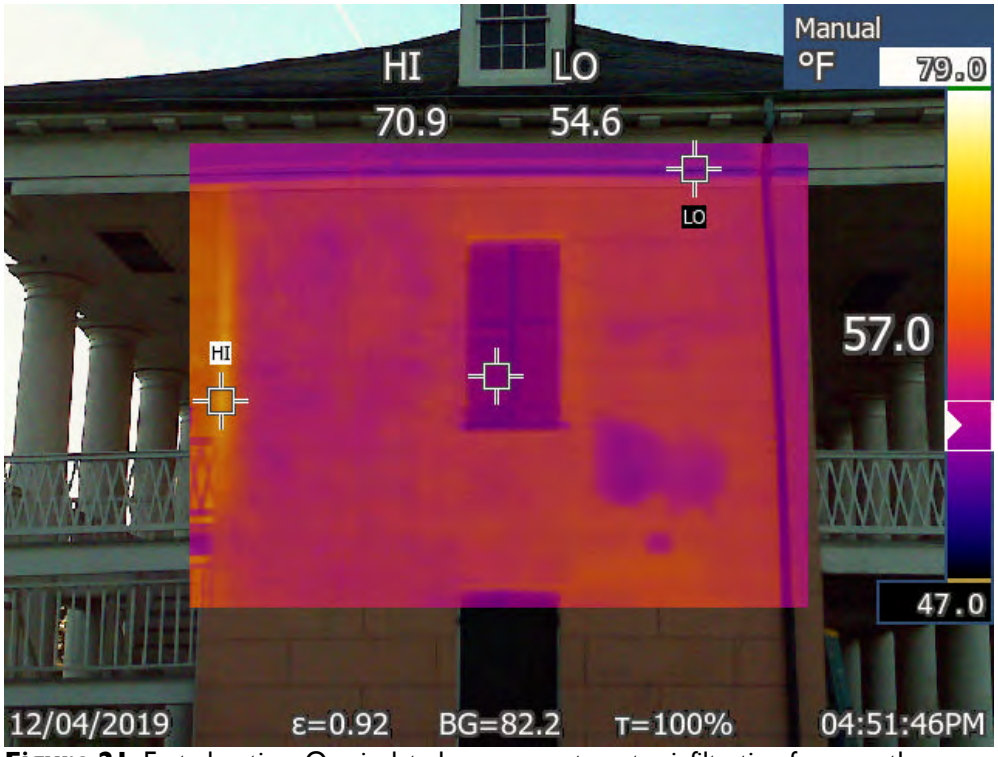


Figure 21. East elevation. One isolated area suggests water infiltration from another source, possibly stucco damage.



Figure 22. West elevation.

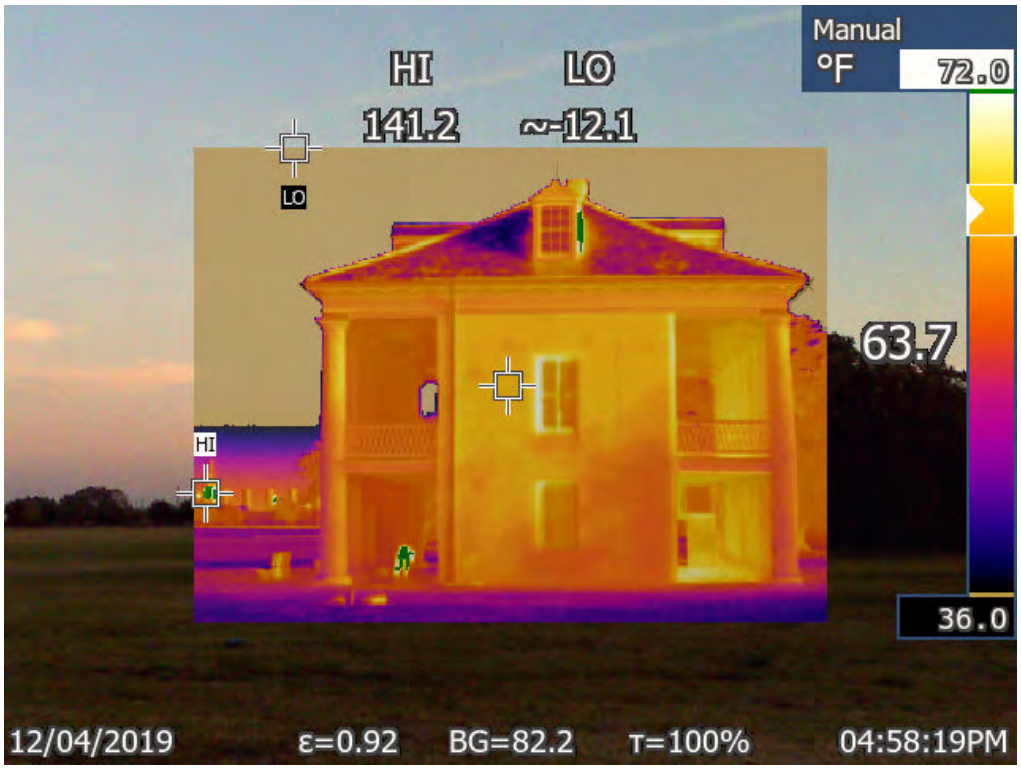


Figure 23. West elevation. Thermography identifies slight thermal differential at southwest corner of the building.

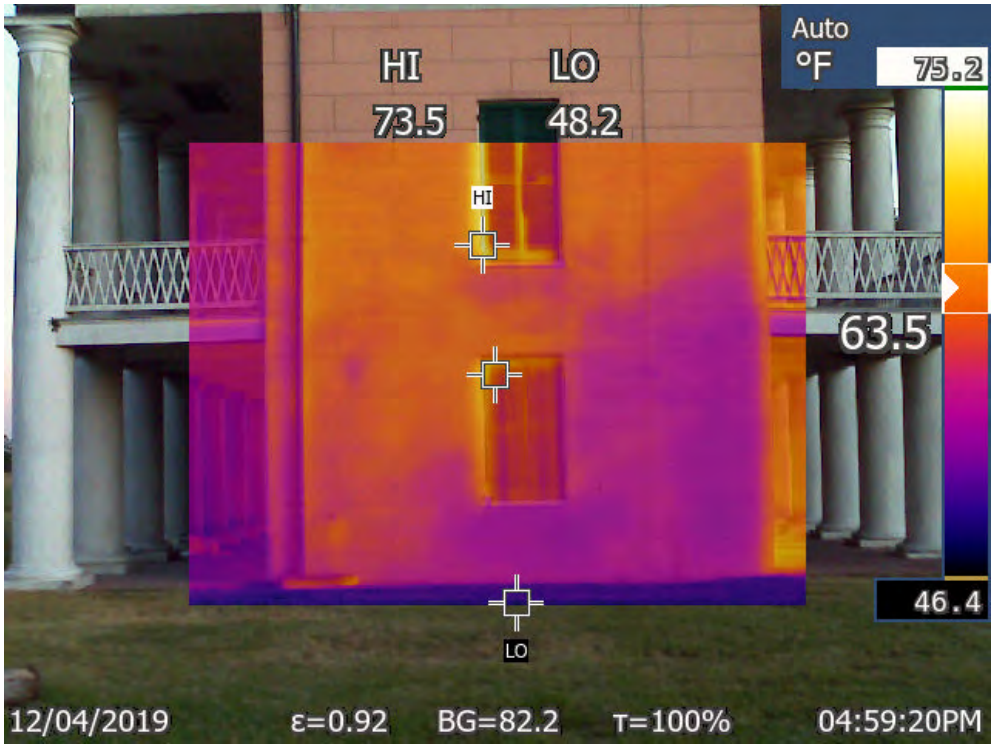


Figure 24. West elevation. The temperature differential exhibited by the purple area indicates potential moisture. Corresponding plaster conditions at the interior of room 101 suggest water infiltration into the building exists in this area.

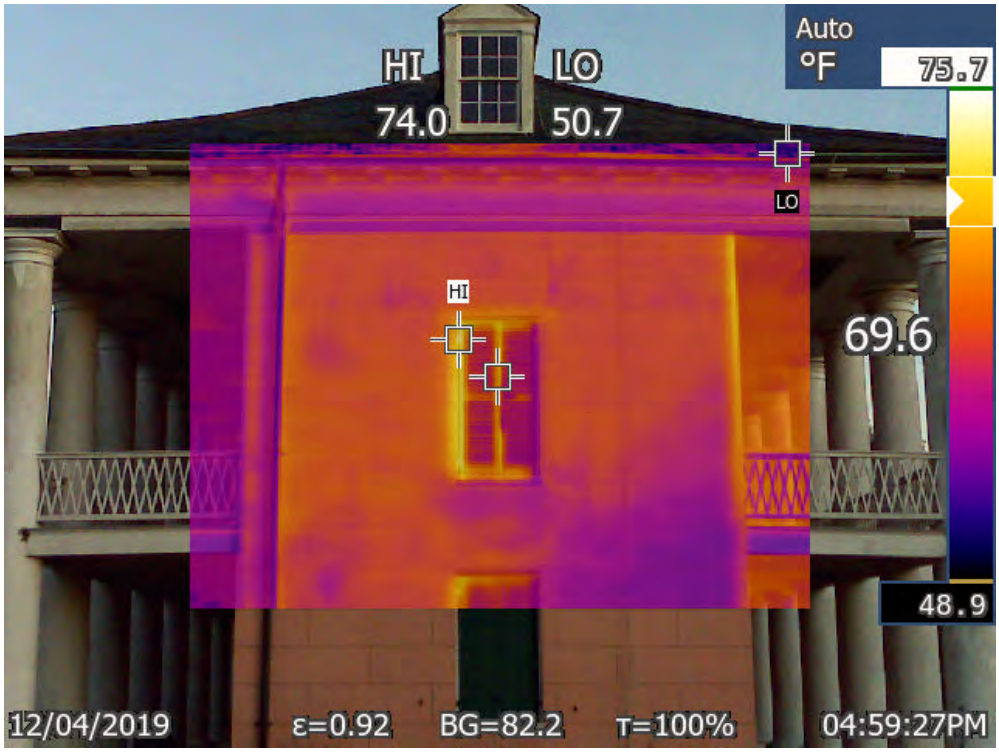


Figure 25. West elevation. Water detected and indicated by the purple areas in the above image could include multiple sources, such as the adjacent south balcony deck.

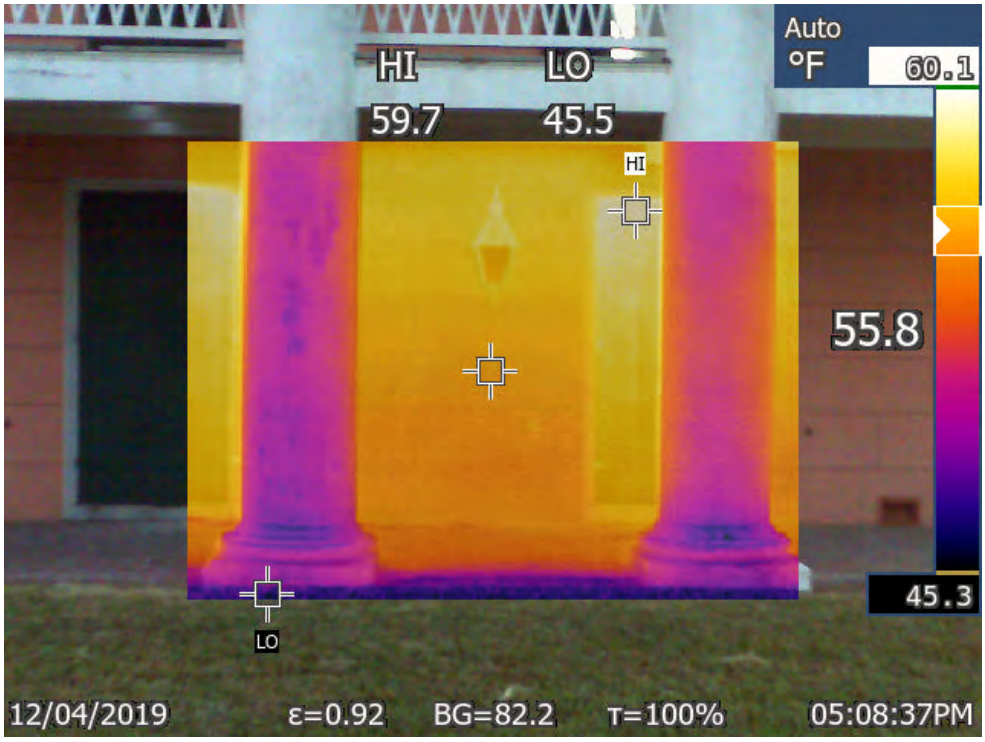


Figure 26. Exterior north columns. Thermography recorded the temperatures at the columns do not directly correspond with visible damage.

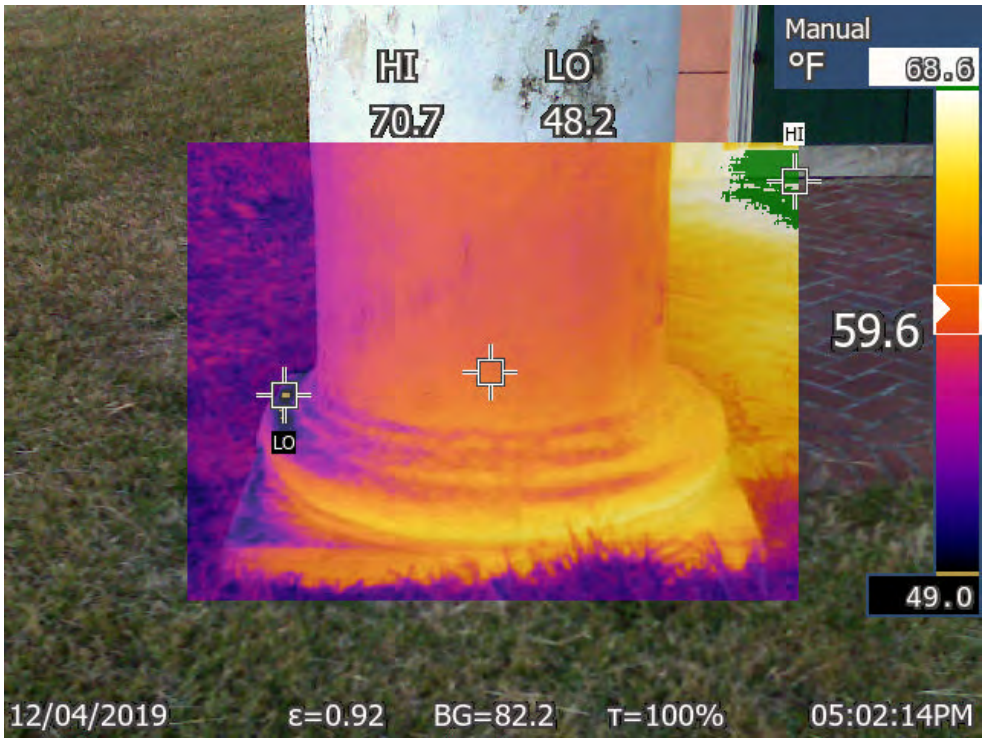


Figure 27. Exterior north column base. Thermography did not detect significant temperature ranges. However, the ground temperature was lower than the column surfaces, as indicated by the purple color.

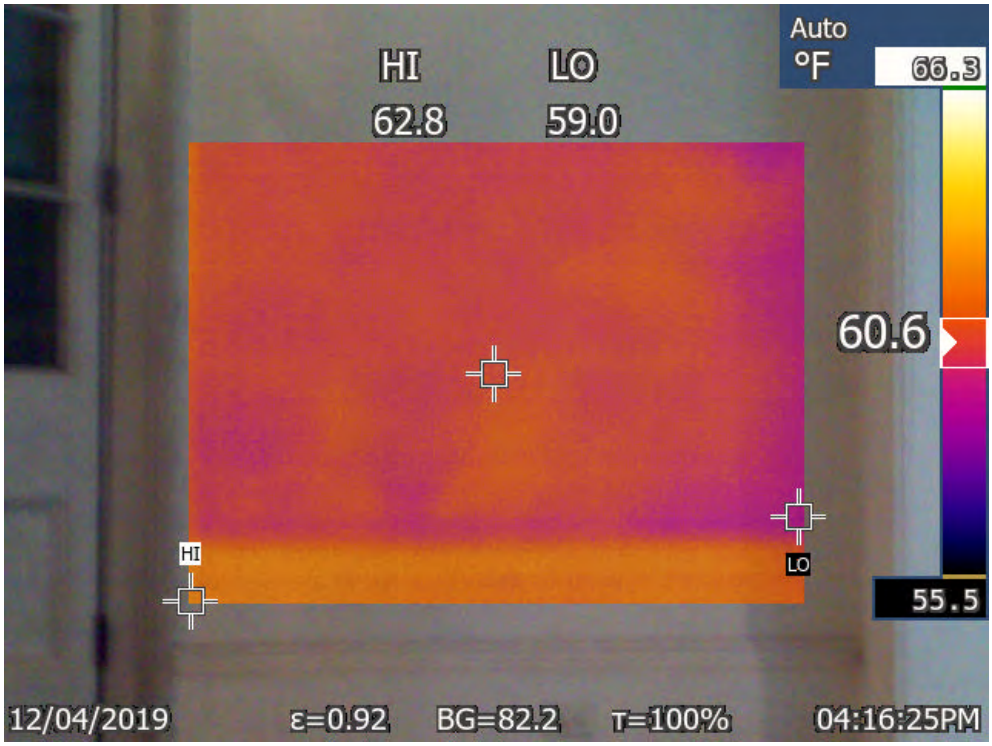


Figure 28. Typical IR thermograph of interior plaster surface. Thermography confirmed the direct surface temperature readings are equilibrated.

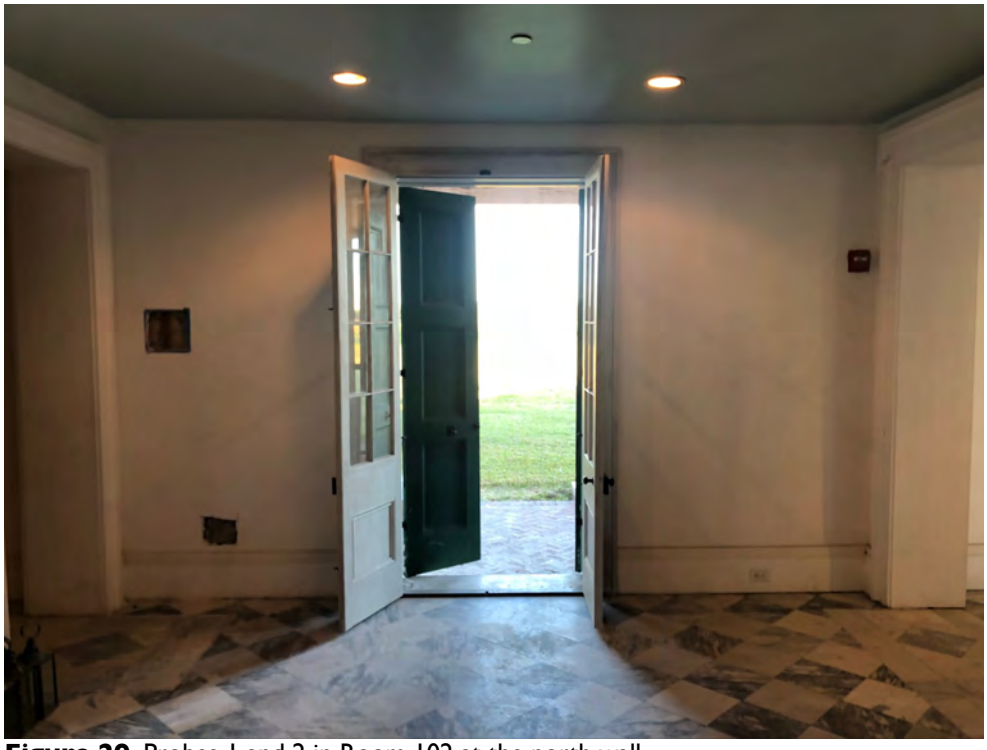


Figure 29. Probes 1 and 2 in Room 102 at the north wall.



Figure 30. Probe 1. Detail of probe two showing cut through nonporous painted plaster finish on metal lath secured to wood furring attached to original brick masonry.

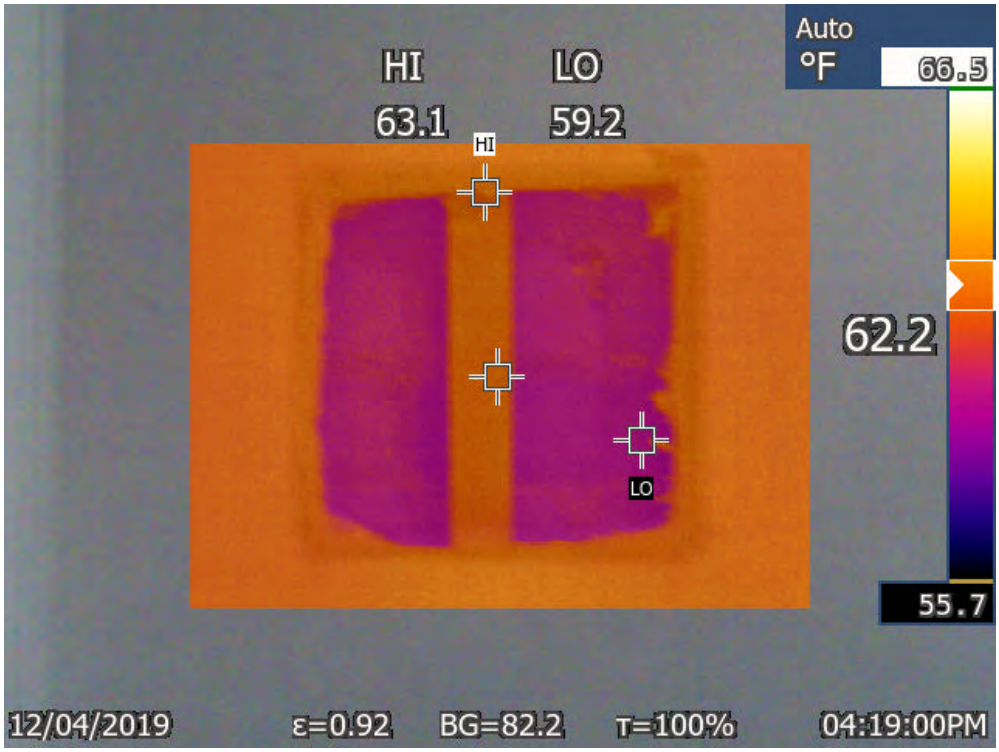


Figure 31. Probe 1. Thermography confirming brick masonry temperature differential corresponds with direct temperature reading.



Figure 32. The east wall of Room 104 exhibited visible plaster damage below the window sill.

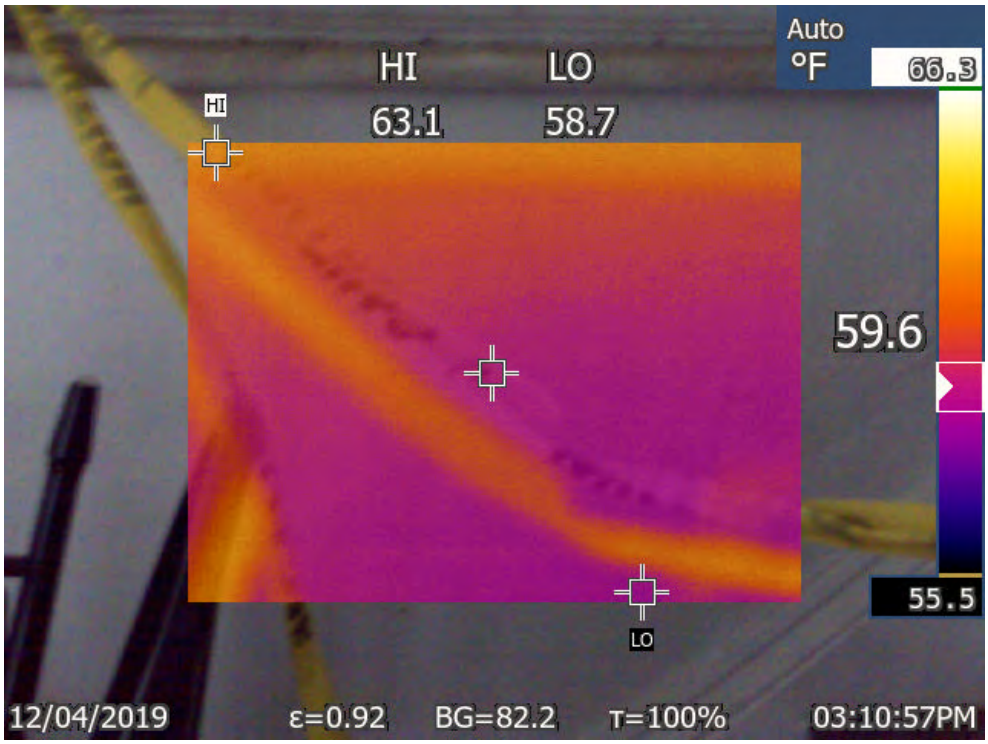


Figure 33. Thermography showed a temperature differential below the first floor window in the east wall that corresponds roughly with the area of plaster damage visible in Figure 32 above.



Figure 34. Probe 3 revealed interior plaster applied directly on the brick masonry wall that is associated with one of the early alterations to the building.



Figure 35. Probe 3. Surface temperature and moisture content readings indicate the brick masonry temperature is lower and the moisture higher that the interior plaster surface.

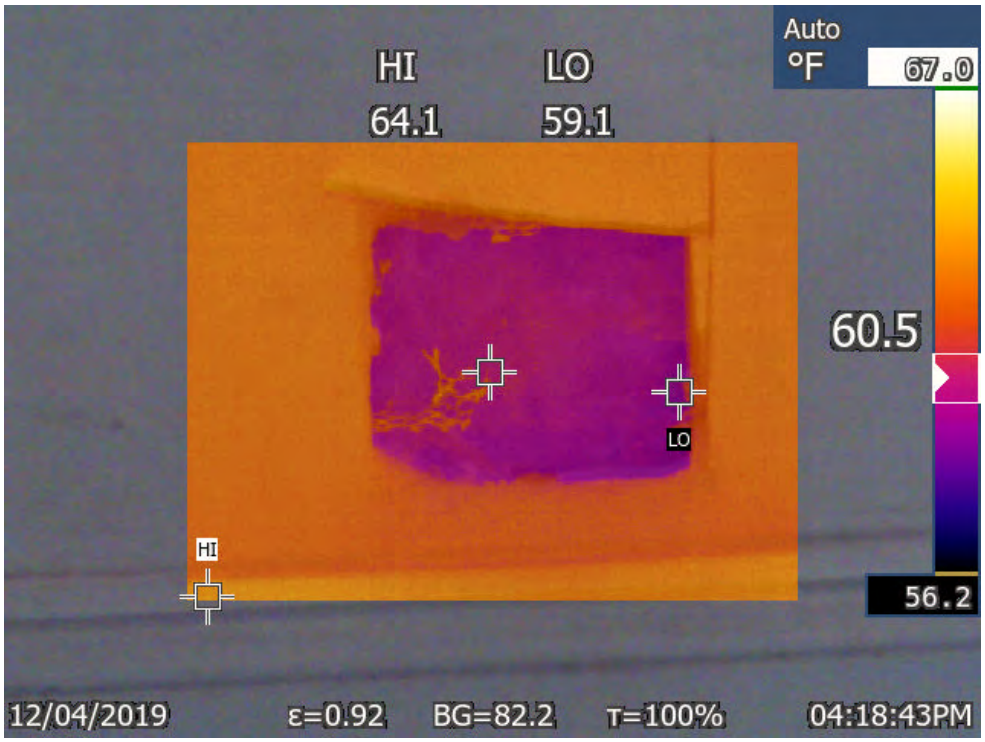


Figure 36. Probe 3. Thermography confirmed the direct temperature reading range.



Figure 37. Exterior north east corner opposite the location of interior Probe 3.

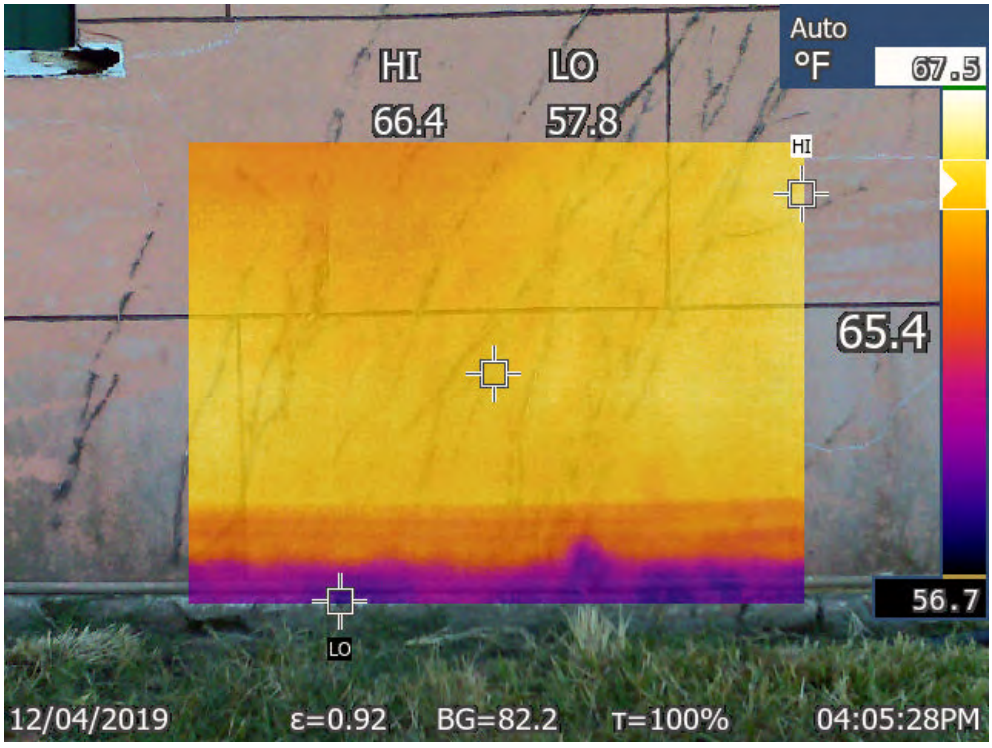


Figure 38. IRT suggests the lower temperatures at the base of the stucco captured in the thermograph suggest rising damp could existing in this area.

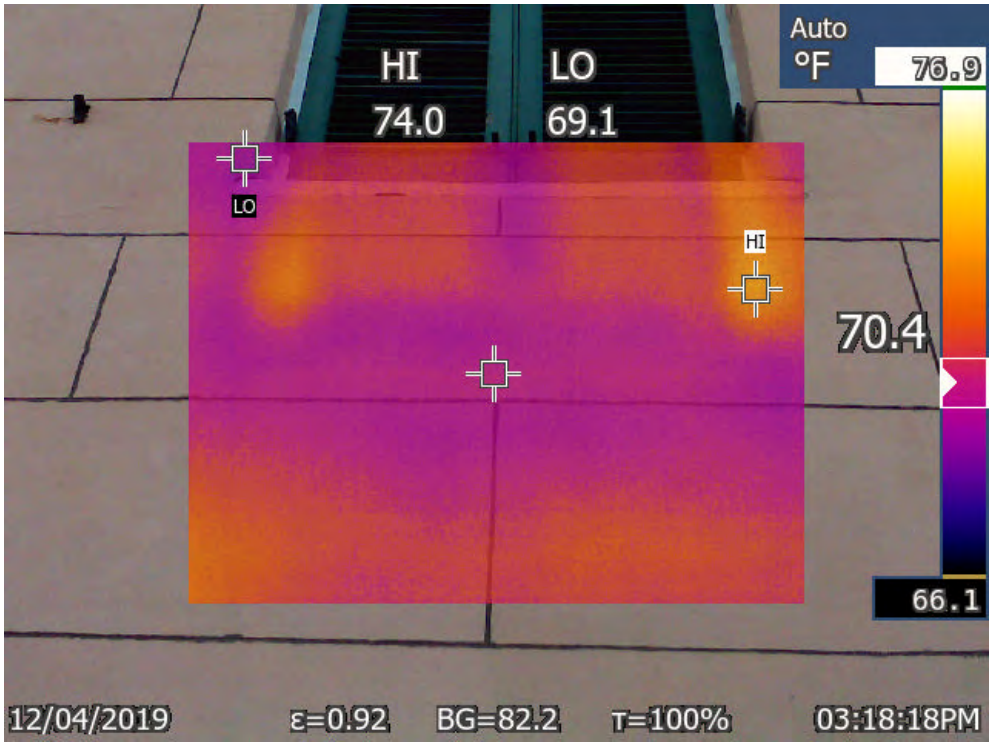


Figure 39. Exterior east elevation below second floor window.



Figure 40. Room 101 (interior northwest corner). Northwest corner of Room 101 is directly opposite the exterior rainwater leader.

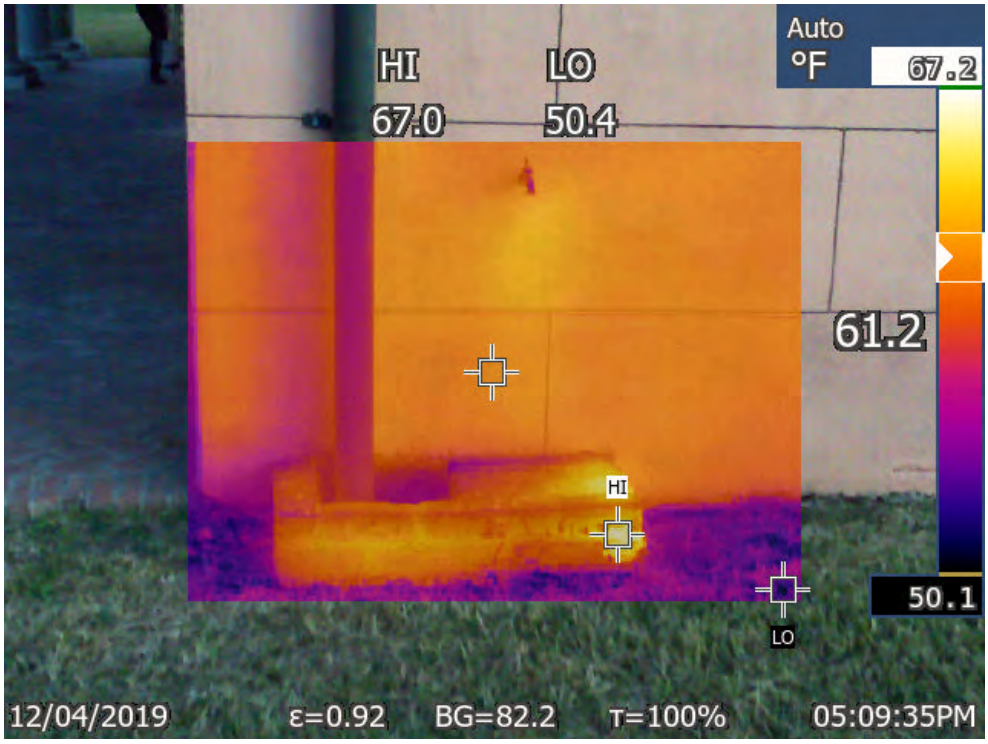


Figure 41. The exterior side of the west wall in Room 101 (exterior northwest corner). Thermography indicates lower temperatures on the northwest leader and in the areas of a blocked drain.

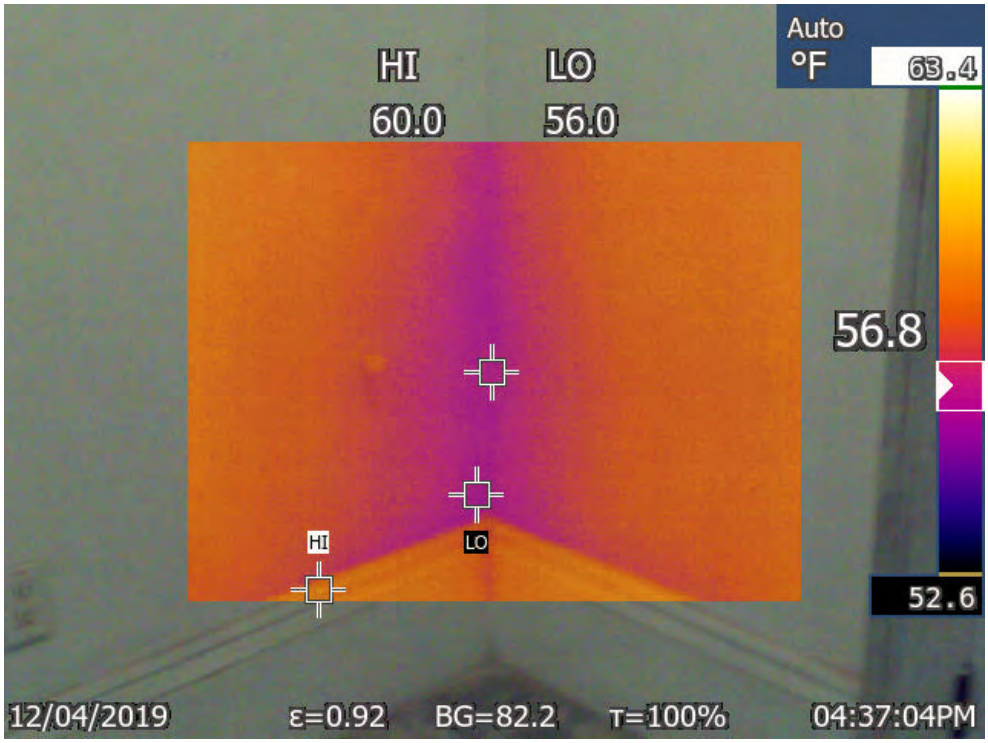


Figure 42. Room 101 (interior northwest corner). Interior thermography shows lower temperatures and possible moisture corresponding with the exterior thermographs.

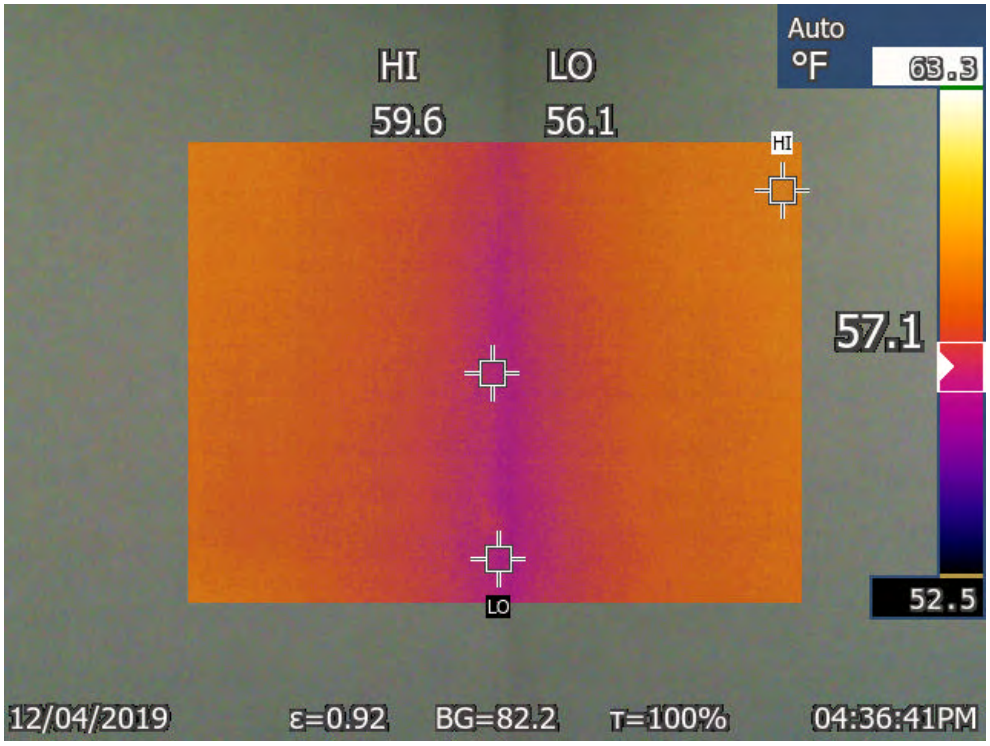


Figure 43. At the northwest corner of Room 101, the lower plaster surface temperature extends up the wall opposite the exterior leader.



Figure 44. In Room 102, typical plaster damage exists on the west wall opposite the location of the previously altered fireplace in Room 103.



Figure 45. Room 102 (west wall). The locations of the first floor fireplaces and their reported removals, alterations and relocations typically correspond with plaster damage on the opposite wall in the adjoining rooms.



Figure 46. The plaster and wood baseboard deterioration suggest rising damp in the locations of the fireplaces on the first floor.

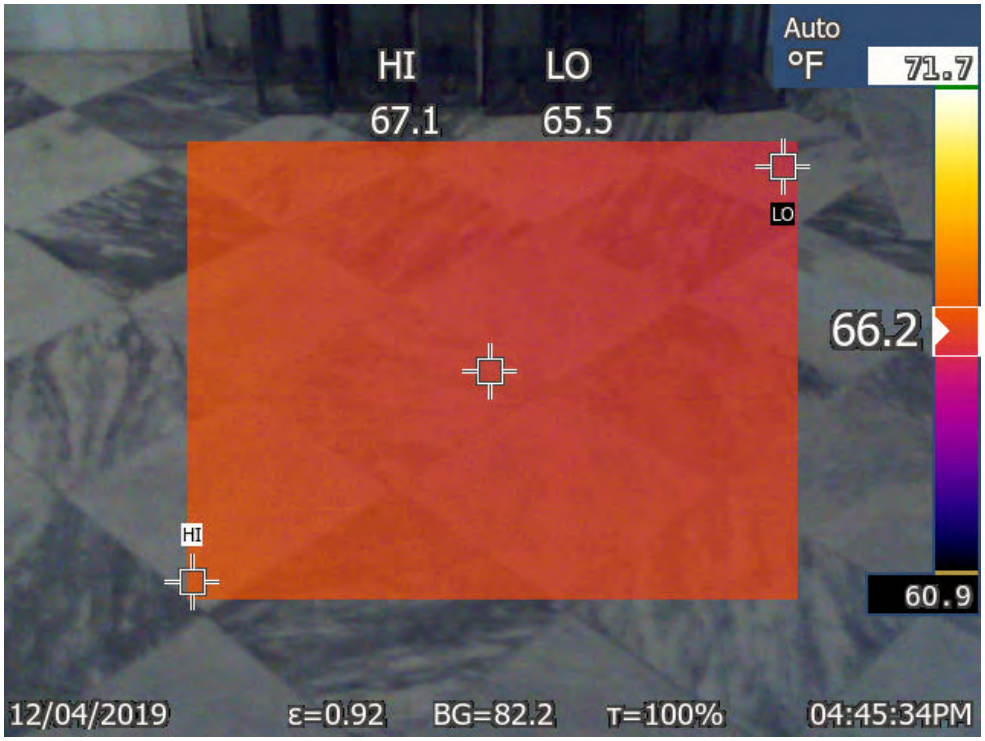


Figure 47. Room 102 (floor). Thermography revealed no evidence of temperature differentials at first floor marble floor pavers.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Overall the water infiltration assessment was successful in mapping cooler areas of the exterior and interior walls, confirming that areas of comparatively higher moisture content exist at the building but in only limited and relatively minor locations. The assessment identified isolated locations of temperature differentials correlating with the existing visible surface deterioration. In the case of the Malus-Beauregard House, the equilibrated surface temperature and moisture readings at the interior and exterior surfaces limited the detection of large thermal differentials under the finish surfaces. No active water infiltration was observed on the surface of the exterior stucco or interior plaster finish. However, IRT detected temperature differentials indicating the potential for diffusion of water behind the finishes at the brick masonry walls. Areas of cooler surface temperatures correlate to visible damage and, in some areas extend beyond, indicating potential water existing behind the finishes at the historic brick masonry walls. Lower surface temperatures and higher moisture readings, as well as damp to the touch materials at the interior probe locations, suggest water infiltration does exists in the brick masonry core at the base of the building behind the finish surfaces.

As noted previously, water moves though dissimilar materials at different rates. There are multiple layers of construction materials in the typical Malus-Beauregard wall section consisting of 1) exterior painted stucco (originally a porous material now nonporous due to multiple layers of paint); 2) historic porous brick and mortar walls; 3) interior moderately porous painted plaster applied on 4) absorptive wood furring. Thus, existing multiple layers of construction materials potentially reduced the infrared differential measurements and higher levels of moisture may exist in the wall than could be detected in the assessment performed by BCA in Winter 2019.

BCA took into consideration the possibility of rising damp when investigating the Malus-Beauregard House. Rising damp can occur when differing temperatures of porous materials allow for varying capillary water uptake—warmer walls tend to absorb less moisture than cold walls. The porous brick masonry at Malus-Beauregard allows for capillary action to transport soil and ground water, when present, into the walls. The hypothesis that rising damp infiltrates the building was supported by the BCA investigation which documented temperature differentials at both the interior and exterior side of the walls, as well at the interior walls at the locations of the previously removed fireplaces on the first floor. However, damage to the masonry materials (plaster and stucco) on both the interior and exterior is minimal. Previous documentation reports rising damp in the walls of the building. Thermography detected temperature differentials on the exterior east and west elevations presumed to be associated rising damp at the base of the exterior stucco, especially next to the drains for the downspouts, as well as the bases of the columns where in direct contact with the surrounding soil. On the first floor, there are five locations of visible but relatively minor plaster deterioration, suggesting active water infiltration due to rising damp. These areas include: the south southwest wall adjacent to the southwest door in Room 101; the center west wall in the location opposite the fireplace in Room 103; the west southwest corner and the north northeast wall adjacent to the north door in Room 103; and the east wall between the northeast corner and the east window in Room 104.

Previous interventions to eliminate or reduce the rising damp reportedly included the injection of an unidentified material at the base of the building and columns to stop water infiltration through the porous brick masonry. The efficacy of this intervention requires further investigation and assessment, although based on BCA's assessment, it is possible that this treatment is having a positive effect as no significant damage from rising damp was observed or documented.

Rising damp is also a potential source of salt in the masonry materials. Efflorescence, the migration of a salt to the surface of a porous material which involves the dissolving of an internally held salt in liquid water, becomes more visible when substrate materials dry. This investigation observed no evidence of efflorescence on the finishes nor wall core, although the brick masonry core of the wall with higher moisture readings could exhibit efflorescence when dry.

Recommendations

BCA's observations suggest some moisture does existing at the brick masonry of the Malus-Beauregard House, although not in significant quantities for the surfaces that were documented. However, because the investigation was performed at a single point in time during a relatively dry period for New Orleans, BCA recommends additional IRT and monitoring to document locations and patterns of water infiltration over the course of 12 months. The additional IRT would document temperature differentials between materials to determine if more extensive areas of active water infiltration and/or if additional areas not detected in December 2019 exist, as well as to ascertain the environmental conditions in which water enters the building.

IRT is a qualitative investigative tool. Explanation of the thermal imaging BCA conducted at Malus-Beauregard requires interpretation in correlation with other moisture and temperature readings, as well as the atmospheric conditions. Utilizing two-dimensional images cannot always determine the actual distribution of water for correct evaluation of conditions. Therefore, BCA also recommends monitoring environmental conditions (temperature and RH) over the course of 12 months and in tandem with the IRT to help understand when and where moisture potentially infiltrates the building construction. Integrating active IRT imaging with moisture probes throughout the year and during different weather conditions can show the activity of water in the wall as well as indicate the season in which this water infiltration most prevalently occurs. It would also document the presence and locations of possible rising damp and estimate the sources of water associated with visible material damage.

Probe RH monitors can be installed in the exterior brick walls at select locations focusing on both the areas of probable water infiltration from rainwater systems and rising damp, as well as in areas where no visible water infiltration is suspected. Environmental monitors such as HOBO dataloggers, can be installed adjacent to the probes on the exterior, interior and adjacent interstitial space/cavity between the exterior and interior walls. The monitoring will record RH levels in specific locations and indicate the season in which moisture tendency is most prevalent. This information will help us understand the possible source(s) of any moisture infiltration—rising damp, rainwater conduction, condensation. A more detailed monitoring plan would need to be developed, indicating the type(s) of monitors and location(s) of installation, as well as how data would be collected. In addition, probes on the interior in locations of apparent moisture damage can be implemented to better understand the condition of the brick masonry in these areas.

For repairs to the historic brick masonry and current exterior white stucco, the following recommendations are made based on the results of the laboratory analysis:

- For repointing the brickwork in locations where the original lime modified earthen mortar exists, a feebly hydraulic Natural Hydraulic Lime (NHL 2.0) mortar is recommended. A mix such as 1 part NHL 2.0 to 2-3 parts masonry sand, with the sand matching the original as closely as possible while also meeting *ASTM C144 Standard Specification for Aggregate for Masonry Mortar,* would be appropriate. The use of an NHL is recommended over a high-calcium (non-hydraulic) lime because of the potential damp condition of the walls. Because the walls are likely damp, carbonation of a non-hydraulic lime would be greatly delayed and perhaps stopped altogether. NHL mortars closely duplicate the characteristics of a non-hydraulic lime mortar but with the added benefit of having a hydraulic component allowing them to cure in the presence of moisture.

- For the exterior stucco, a "Type O" white Portland cement-hydrated lime mix is recommended. A Type O mortar is composed of 1 part Portland cement, 2 parts hydrated lime and 9 parts sand. The sand should match the original as closely as possible while also meeting the appropriate ASTM standard for Portland cement-based stucco aggregate. Although this mix is different from the original in that it contains less hydrated lime, it is more consistent with current industry and preservation standards, and will be compatible with both the twentieth century stucco material, the bricks and original lime-modified earthen mortars.

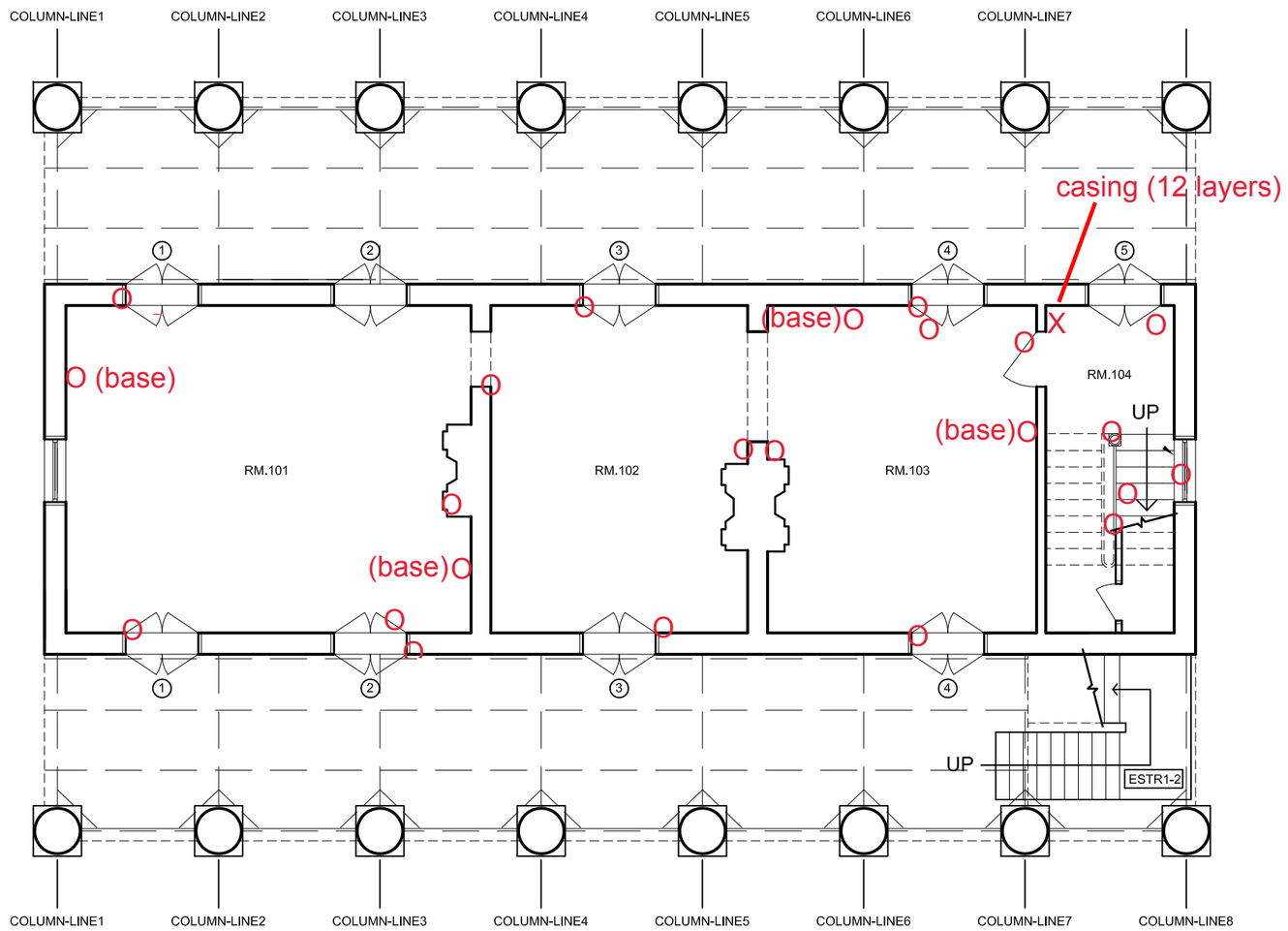
Appendix A.

Location of In Situ Paint Investigation (performed by BCA, December 2019)

LOCATION OF IN SITU PAINT INVESTIGATION PERFORMED BY BUILDING CONSERVATION ASSOCIATES, INC. DECEMBER 2019

O = Location of Paint Investigation, 2-5 Paint Layers Observed

X = Location of Paint Investigation, 8-12 Paint Layers Observed



1 FIRST-FLOOR PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NORTH
PLAN NORTH

DRAWINGS ARE REPRESENTATIONAL AND NOT INTENDED AS PRECISE DOCUMENTATION

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
4.25-27.2018

RECORDED BY:
JKO, CMB, TEN, JPA

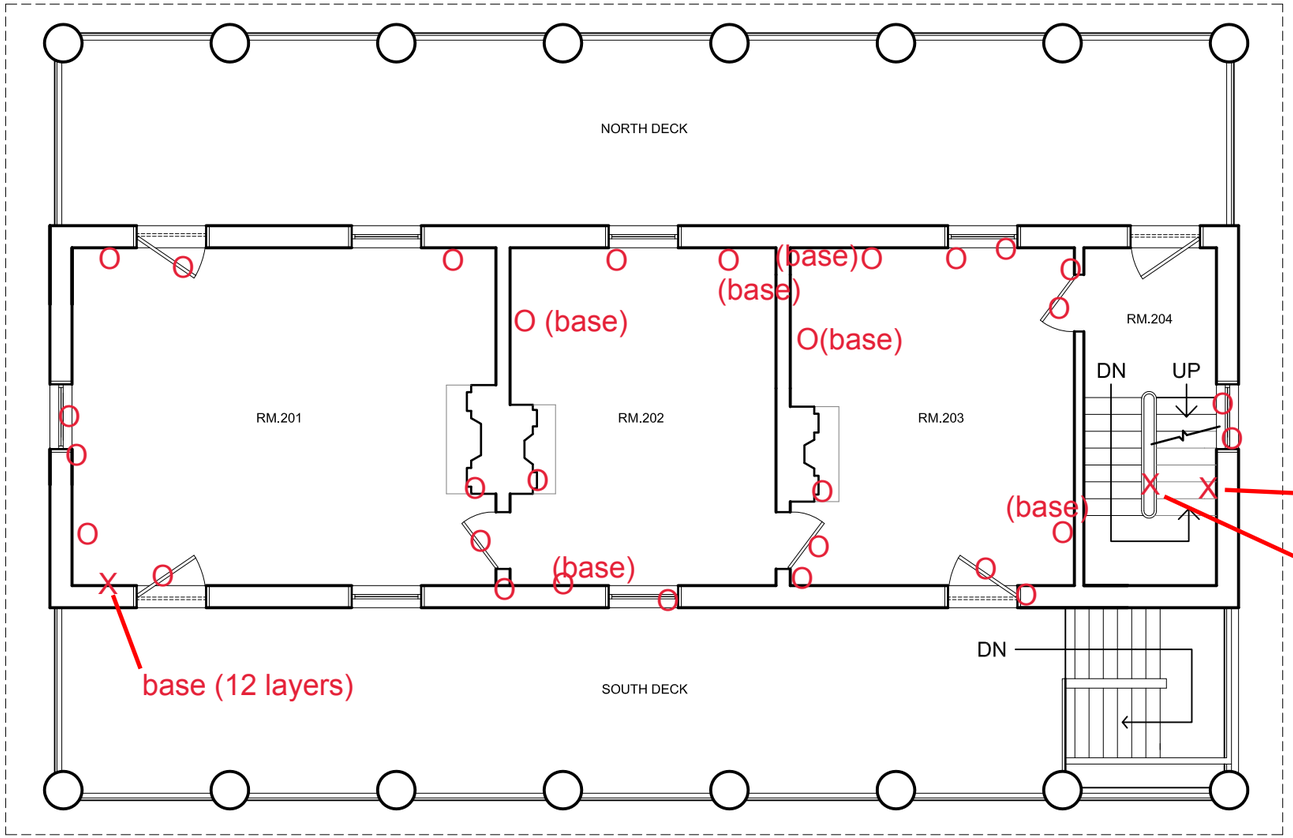
SCALE:
1/8" = 1'-0"

CAR APPENDIX B: SHEET
1

LOCATION OF IN SITU PAINT INVESTIGATION PERFORMED BY BUILDING CONSERVATION ASSOCIATES, INC. DECEMBER 2019

O = Location of Paint Investigation, 2-5 Paint Layers Observed

X = Location of Paint Investigation, 8-12 Paint Layers Observed



1 SECOND-FLOOR PLAN
SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NORTH
PLAN NORTH

DRAWINGS ARE REPRESENTATIONAL AND NOT INTENDED AS PRECISE DOCUMENTATION

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
4.25-27.2018

RECORDED BY:
JKO, CMB, TEN, JPA

SCALE:
1/8" = 1'-0"

CAR APPENDIX B: SHEET
2

LOCATION OF IN SITU PAINT INVESTIGATION PERFORMED BY BUILDING CONSERVATION ASSOCIATES, INC. DECEMBER 2019

O = Location of Paint Investigation, 2-5 Paint Layers Observed

X = Location of Paint Investigation, 8-12 Paint Layers Observed



1 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

DRAWINGS ARE REPRESENTATIONAL AND NOT INTENDED AS PRECISE DOCUMENTATION

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
4.25-27.2018

RECORDED BY:
JKO, CMB, TEN, JPA

SCALE:
1/8" = 1'-0"

CAR APPENDIX B: SHEET

5

LOCATION OF IN SITU PAINT INVESTIGATION PERFORMED BY BUILDING CONSERVATION ASSOCIATES, INC. DECEMBER 2019

O = Location of Paint Investigation, 2-5 Paint Layers Observed

X = Location of Paint Investigation, 8-12 Paint Layers Observed



1 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

DRAWINGS ARE REPRESENTATIONAL AND NOT INTENDED AS PRECISE DOCUMENTATION

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE
JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
4.25-27.2018

RECORDED BY:
JKO, CMB, TEN, JPA

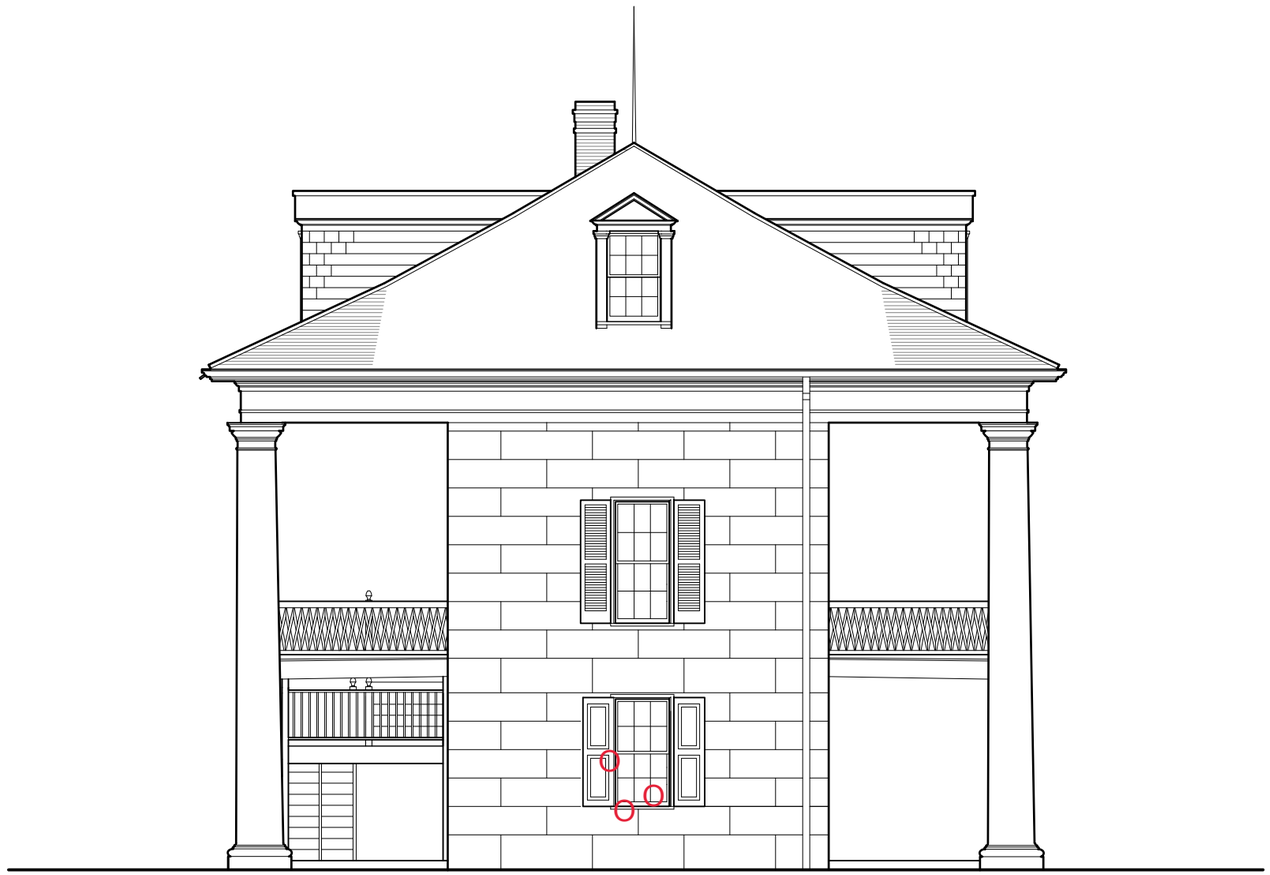
SCALE:
1/8" = 1'-0"

CAR APPENDIX B: SHEET
6

LOCATION OF IN SITU PAINT INVESTIGATION PERFORMED BY BUILDING CONSERVATION ASSOCIATES, INC. DECEMBER 2019

O = Location of Paint Investigation, 2-5 Paint Layers Observed

X = Location of Paint Investigation, 8-12 Paint Layers Observed



1 EAST ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

DRAWINGS ARE REPRESENTATIONAL AND NOT INTENDED AS PRECISE DOCUMENTATION

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
4.25-27.2018

RECORDED BY:
JKO, CMB, TEN, JPA

SCALE:
1/8" = 1'-0"

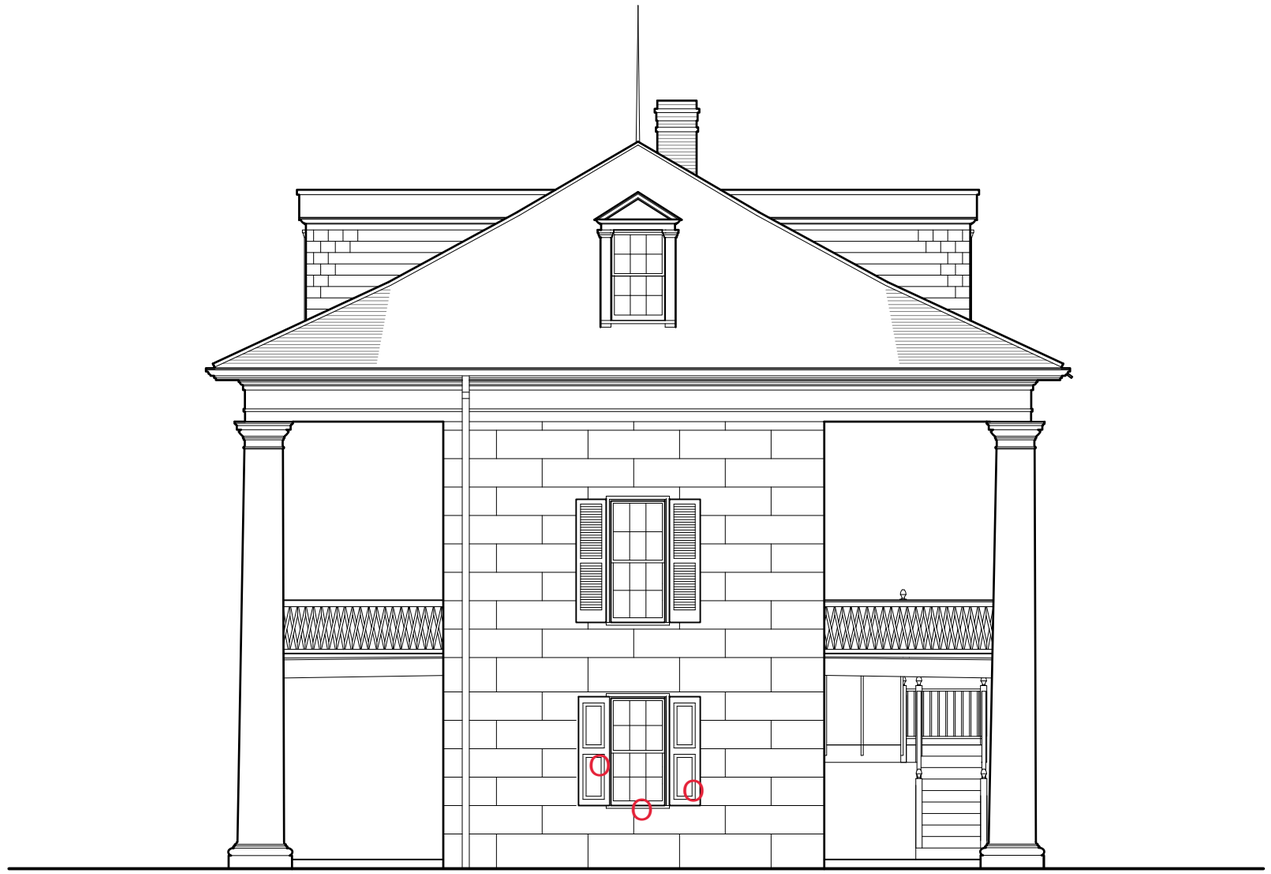
CAR APPENDIX B: SHEET

7

LOCATION OF IN SITU PAINT INVESTIGATION PERFORMED BY BUILDING CONSERVATION ASSOCIATES, INC. DECEMBER 2019

O = Location of Paint Investigation, 2-5 Paint Layers Observed

X = Location of Paint Investigation, 8-12 Paint Layers Observed



1 WEST ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

DRAWINGS ARE REPRESENTATIONAL AND NOT INTENDED AS PRECISE DOCUMENTATION

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
4.25-27.2018

RECORDED BY:
JKO, CMB, TEN, JPA

SCALE:
1/8" = 1'-0"

CAR APPENDIX B: SHEET

8

Appendix B.

Mortar Analysis Report (performed by Highbridge Materials Consulting, Inc. March 2020)

Mortar Analysis Report

Malus-Beauregard House
New Orleans, LA



Prepared for
Building Conservation Associates, Inc.

Client ID
BUIL005

Report No.
SL1490-01

Report Date
03/12/20

HIGHBRIDGE MATERIALS CONSULTING, INC.

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Cover Image

The north elevation of the Malus-Beauregard House in New Orleans, LA. Photo courtesy of Ms. Dorothy Krotzer.

Respectfully submitted,



Heather Hartshorn
Supervising Chemist/ Staff Scientist
Highbridge Materials Consulting, Inc.

1. Executive Summary

This report presents the results of a compositional and condition analysis on a mortar sample taken from the Malus Beauregard House, an 1832-1833 building in New Orleans, LA. The mortar is identified as an earthen-modified lime mixture with no added cementitious or pozzolanic components. This kind of mortar is a vernacular mixture that might be expected in residential building of this age. The lime is a high-calcium variety that appearance to have been burned from a sedimentary rock. The earthen addition consists of a clayey silt rich in fine quartz and brownish clay. This likely represents a natural deltaic sediment. There are roughly 3.3 parts earthen material estimated for each part lime by weight. However, much of the clay functions more as a part of the binder than as aggregate. The mortar is reasonably well mixed with some millimeter-scale lime grains and sediment lumps. Overall, the appearance of the sample pieces is relatively uniform with a light brown color (Munsell code approximately 1Y 7/2) contributed mostly by the sediment addition. The hardened mortar is relatively soft and highly permeable, as expected for its composition. The sample pieces are fully carbonated. There are some secondary deposits of gypsum detected as crusts on the surface of some pieces. However, no gypsum or other secondary salts are detected within the interior of the mortar, and it cannot be determined how widespread these surface crusts might be throughout the mortar joints.

2. Introduction

On December 21, 2020, Highbridge received one mortar sample and one stucco sample from Ms. Dorothy Krotzer of Building Conservation Associates, Inc. Ms. Krotzer reports that the samples were taken from the Malus-Beauregard House, an 1832-1833 building in New Orleans, LA. The client has also noted that there have been multiple significant modifications to the structure at multiple points between the mid-nineteenth and mid-twentieth centuries. The samples are labeled "MB.Mortar.1" and "MB.Stucco.1". However, these will simply be referred to by their material in each of the reports.

Ms. Krotzer has requested that a compositional analysis be performed on both the mortar sample and the stucco sample. The testing includes a petrographic examination and chemical analysis to identify constituents, estimate proportions, and assess overall condition. An acid digestion to extract a sand sample for description and gradation is also included in the testing scope. For the stucco, the chemical analysis and acid digestion are only performed on one layer though the entire provided thickness of the sample is examined petrographically. This report presents the results of the mortar analysis. The stucco analysis is presented under separate cover in Highbridge Report SL1490-02.

3. Methods of Examination

The petrographic examination is conducted in accordance with the standard practices contained within ASTM C1324-15. Data collection is performed or supervised by a degreed geologist who by nature of their education is qualified to operate the analytical equipment employed. Analysis and interpretation is performed or directed by a supervising petrographer who satisfies the qualifications as specified in Section 4 of ASTM C856-18a.

Chemical analysis is performed in general accordance with the procedures outlined in ASTM C1324-15. Water, carbon dioxide, and aggregate weight percentages are determined gravimetrically. Oxide weight percentages are determined by inductively coupled plasma - optical emission spectroscopy (ICP-OES). While ASTM classifies C1324 as a test method, it is intended to serve as a guideline for qualified practitioners with ample experience in the various materials under consideration. Section 10.2 indicates the need for discretion on the part of the laboratory to ensure that methods are tailored to specific mortar compositions. As such, Highbridge chooses specific digestion methods, supplementary tests, instrumentation protocols, and mathematical models to best characterize each individual mortar under consideration. Many of these are proprietary methods that have been researched internally.

The following personnel contributed to the examination:

Technician:	M. Pattie
Analyst:	M. Ricotta
Chemist/ Petrographer:	H. Hartshorn
Supervisor:	J. Walsh

4. Petrographic Findings and Discussion

4.1 - Materials

The mortar consists of a mixture of high-calcium lime and an earthen material. The latter is a silty, iron-rich clay that is consistent with a natural deltaic sediment. The silt particles function as aggregate and consist mostly of quartz. Other minor constituents include mica, feldspar, carbonate, opaque minerals, and heavy accessory minerals. The silt is sharp-textured with mostly equidimensional particles having angular shapes. It is also very fine-grained with most grains passing the No. 200 sieve and only rare particles up to the No. 100 mesh. The earthen material also contains traces of plant matter that were likely naturally occurring within the sediment.

A sample of the earthen material was extracted from the mortar using an acid digestion to dissolve the lime binder. The extracted material has a uniform, opaque appearance with a light brown color (Munsell code approximately 1.5Y 6/2). There are also some unbroken clay lumps with sizes around the No. 16 mesh in the extracted sediment sample. Based on the petrographic examination, there is a moderate abundance of these undispersed silty clay lumps in the mortar. Many of these are less than 0.5 millimeters in diameter and rarely lumps up to 5 millimeters are detected. Still, the clay is mostly well dispersed and functions more as a binder that is blended with the lime.

The lime is interpreted to be a high-calcium, nonhydraulic variety. No cements, pozzolans, or pigment additions are detected. The binder matrix is homogeneously developed with a high capillary porosity typical of lime-based mortars. The clay does little to densify the matrix although it may have provided some volume stability. The microscopic shrinkage cracks commonly observed in pure lime mortars are absent from the matrix. Undispersed lime grains are detected in moderate abundance as carbonated particles of various shapes and sizes up to one millimeter in diameter. Some of the coarser lime grains contain internal partings that likely correspond to crystalline grain boundaries in the source rock. There are also some fired quartz inclusions detected within the coarser lime grains. These internal microtextures suggest that the lime may have been burned from a sedimentary rock source. Based on the chemical analysis, the lime appears to have been a high calcium-variety.

Often, when lime is the sole binder, its original composition can be estimated from the chemical analysis. In this case, it is possible that some of the measured refractory components (SiO_2, Al_2O_3, Fe_2O_3) could have been digested from the clay in the earthen component. Therefore, the estimated lime composition presented in Table 5.2 may overestimate the impurities in the lime and its consequent hydraulicity index. Despite any overestimates due to the clay components, the calculated hydraulicity index of 0.08 is still well within the range of a nonhydraulic material since evenly feebly hydraulic limes are characterized as those with a hydraulicity greater than 0.10. Still, the lime appears to have been a lean variety. Even based on the non-refractory components alone, the CaO content is still less than 95%. Compared to more calcium-rich fat limes, lean limes would be expected to be slower to slake and to bulk less upon hydration.

4.2 - Component Proportions

Chemical analysis was used to estimate the component proportions and these results are presented in Section 5. Some care should be exercised in evaluating the proportions since the materials do not represent masonry mortars in the strict sense. It is simplest to provide the original weight percentages of the lime and clayey silt as separate components. Interpretation of the corresponding volume ratios may be less meaningful as there is no real aggregate present. Complicating this is the fact that the earthen component behaves to some extent as both binder and inert filler. If there is an intent to replicate the materials during any repair effort, it is assumed that the replication would be strictly aesthetic. It should be possible to match the appearance of the mortar without having to risk the potential durability issues associated with using the same materials employed originally. For the purposes of "compatibility", the original mortar should be treated in the same manner that one would treat a nonhydraulic lime mortar.

On a weight ratio basis, there are approximately 3.3 parts of clayey silt for every part hydrated lime. For the sake of this estimate, the lime is calculated as the equivalent of a dry hydrate even though it is certain the lime was slaked on site. If the clayey silt is assumed to have the same unit weight as an ordinary masonry sand, one could calculate a binder to "sand" ratio of 1 : 1.7 by volume with the lime equated to a modern dry hydrate. Assuming the same mass of lime loses approximately 20% of its volume when mixed with water to a stiff paste, the same binder to sand ratio calculates to 1 : 2.1 with the lime in putty form. Again, these values should only be used as a rough approximation. The clayey silt is unlikely to have the same density as a masonry sand, and this would affect the calculation. Furthermore, the clay should really be calculated as a binder component, which would reduce the effective sand content.

4.3 - Condition and Service Performance

Based on the examined sample, the constituents were reasonably well blended. The earthen material is mostly well dispersed. There is a moderate abundance of undispersed silty clay lumps in the millimeter size range, but these are not considered excessive. Additionally, there is a moderately high abundance of millimeter-scale lime inclusions. However, these do not appear to negatively impact the quality of the mix. In both samples, the mix water appears to have been well-incorporated and there are no variations in porosity that would be indicative of irregular blending. The mortar is very well consolidated with a total air-void content estimated at less than 2% by volume. The hardened mixture is relatively soft and highly permeable as expected of the composition.

The mortar is fully carbonated, which is a normal and desirable consequence of long-term curing. The provided mortar pieces appear to be in relatively sound condition with no evidence of microcracking. However, there are some crusts of secondary gypsum up to 0.5 millimeters thick that have deposited on some of the mortar surfaces. Despite the presence of these gypsum crusts, there is no evidence for any gypsum deposits within the interior of the mortar pieces.

5. Chemical Analysis

Table 5.1: Chemical Analysis Results

Sample ID	**Mortar**
Component (wgt. %)	
SiO_2	0.56
CaO	13.30
MgO	0.84
Al_2O_3	0.57
Fe_2O_3	0.52
Insoluble residue	69.75
LOI to 110°C	1.42
LOI 110°C-550°C	3.00
LOI 550°C-950°C	10.97
Measured Total	**100.94**

Table 5.2: Estimated Original Lime Chemistry

The binder consists of non-hydraulic lime with no other additives. As such, the lime chemistry is estimated from the acid-soluble oxide chemistry presented in Table 6.1. The five major oxides in the binder are normalized to a 99% weight yield. This normalizes the lime to a dry weight basis and is equivalent to the pre-slaked condition. The residual 1% is assumed to represent trace unmeasured constituents. Important ratios are calculated directly from the data. The reported indices are calculated as follows:

Hydraulicity index = $(SiO_2 + Al_2O_3) / CaO$
Cementation index = $(2.8 \cdot SiO_2 + 1.1 \cdot Al_2O_3 + 0.7 \cdot Fe_2O_3) / (CaO + 1.4 \cdot MgO)$.

However, it should be noted that some of the refractory oxides (SiO_2, Al_2O_3, and Fe_2O_3) could have been digested from clays in the earthen component. As such, the following table represents the maximum amount of impurities and hydraulic signal the lime. It is possible that the original lime addition had fewer impurities than presented below. Regardless, the product was clearly not hydraulic based on a measured hydraulicity index less than 0.10.

Sample ID	**Mortar**
Component (wgt. %)	
SiO_2	3.5
CaO	83.4
MgO	5.3
Al_2O_3	3.6
Fe_2O_3	3.3
Other	1.0
CaO/MgO ratio	**15.8**
Hydraulicity Index	**0.08**
Cementation Index	**0.18**

Table 5.3: Calculated Components

The following table presents a proportional estimate assuming all of the measured impurities are derived from the lime. If it is assumed that the refractory oxides (SiO_2, Al_2O_3, and Fe_2O_3) were digested from the clay in the earthen material, then the lime to sand ratio would be closer to 1 : 2 by volume calculating the lime as a dry hydrate. Likewise, the lime to sand ratio would be estimated at 1 : 2.5 by volume when calculating the lime as a putty.

Sample ID	**Mortar**
Component	
Lime (wgt. %)	23
Earthen silt and clay (wgt. %)	77
Lime : sand ratio (by volume with lime as dry hydrate)	1 : 1.7
Lime : sand (by volume with lime as putty)	1 : 2.1

Notes:

1. The lime weight is calculated by mathematically converting the measured CaO and MgO to their respective hydroxides by molecular weight conversion. The three other measured oxides are assumed to represent minor impurities in the lime and are added directly to the calculated hydroxides. This represents the lime as a hydrate. The weight of silt and clay from the earthen material is taken directly from the insoluble residue. The two component weights are then normalized to 100% to return the materials to a dry weight basis. The volumetric ratios are calculated assuming bulk densities for nonhydraulic lime and damp, loose sand of 40 lbs./ft.^{3} and 80 lbs./ft.^{3}, respectively. Another calculation is provided assuming the lime in putty form. This assumes a unit of dry lime hydrate will lose approximately 20% of its volume when mixed to the consistency of a stiff paste.

Appendix I: Visual Description of Sample as Received

Sample ID	**MB.Mortar.1**
Description	The sample consists of multiple small mortar fragments and a high abundance of loose powder and granules weighing a total of 37 grams.
Surfaces	No tooled or bed surfaces are obvious in the provided sample.
Hardness / Friability	The paste is moderately soft, and the mortar can be easily disaggregated with moderate finger pressure.
Appearance	Fresh surfaces have a dull luster, and the mortar has a buff color (Munsell code approximately 1Y 7/2).
Other details	Cracking cannot be fully assessed given the small size of the mortar fragments. No efflorescence or mineral deposits are visible in hand sample. There is a moderately high abundance of fine-grained white binder inclusions with diameters less than one millimeter. The mortar matrix is rapidly water absorptive.

Appendix II: Photographs and Photomicrographs

Microscopic examination is performed on an Olympus BX-51 polarized/reflected light microscope and a Bausch and Lomb Stereozoom 7 stereoscopic microscope. Both microscopes are fitted with an Olympus DP-11 digital camera. The stereoscopic microscope is used for simple magnification. Sample types examined under this microscope include fractured surfaces, fine constituents extracted through chemical or physical means, or honed or polished cross sections. The polarized light microscope (PLM) magnifies but also employs principals of optical crystallography. The most common sample preparation for the PLM is the petrographic thin section. For this preparation, cross-sectioned samples are mounted to glass slides and are milled to a thickness sufficient to allow light to be transmitted through the material. These are usually prepared without water and with minimal heat to avoid altering minerals that are water or temperature-sensitive. In many cases, the samples are impregnated with a low-viscosity, blue-dyed epoxy. When so treated, blue areas represent some type of void space (e.g., air-voids, capillary pores, cracks, etc.). The polarized light photomicrographs are taken using a variety of optical settings chosen to best demonstrate the feature(s) of interest. These are distinguished as follows:

Plane polarized light (abbreviated as PPL)

This method uses the refractive power of different constituents to produce an artificial sense of surface relief. Otherwise, the method is the closest to a simple magnification of the material. The setting is often used to demonstrate granular relationships or microstructure. Pore spaces and cracks are observable with this setting if the blue-dyed epoxy is used.

Conoscopic polarized light (abbreviated as CPL)

In this setting, the transmitted light is condensed just before passing through the thin section. The method tends to bring colors or finer particulates into higher contrast at the expense of image sharpness. The setting is often used to image grain boundary failures in dimension stone, pigment particulates in binders, or gel phases in the micropores of cement pastes.

Cross polarized light (abbreviated as XPL)

The setting places the thin section between two pieces of polarizing film oriented at 90° to one another. In isotropic materials (e.g., glasses, simple salts), all light is absorbed and the materials appear black. In anisotropic crystals, two light rays traveling at different speeds are produced within the thin section and these offset waves interfere at the upper polarizing film. The interference produces a color that can be used to calculate properties of the crystal structure and aid in identification of mineral species. In essence, the colors are artificial. It should be noted that color is a function of orientation and color differences do not necessarily indicate material differences.

Compensator plates

When in XPL mode, full-wave or quarter-wave compensator plates may be inserted into the light path to add or subtract interference. Technically, these methods are used to calculate properties of the crystal structure. However, they can also be used to alter the image appearance to help improve contrast between different constituents. They can also reveal preferred orientations in some materials (e.g., oriented residual crystallinity in fired ceramics).

Scale bars are included with all photomicrographs. In higher magnification images, the µm symbol represents microns. One micron is equal to 0.001 millimeter.



Figure 1: Photographs of the mortar sample received by Highbridge for examination. The mortar consists of a high abundance of fragments and powder with a light brown color. The hardened material is relatively soft and highly water absorptive.



Figure 2: Photograph of the sediment extracted from the mortar through acid digestion. This consists predominantly of clay and quartz-rich silt. There are some millimeter-scale unbroken lumps, but these are not excessive.

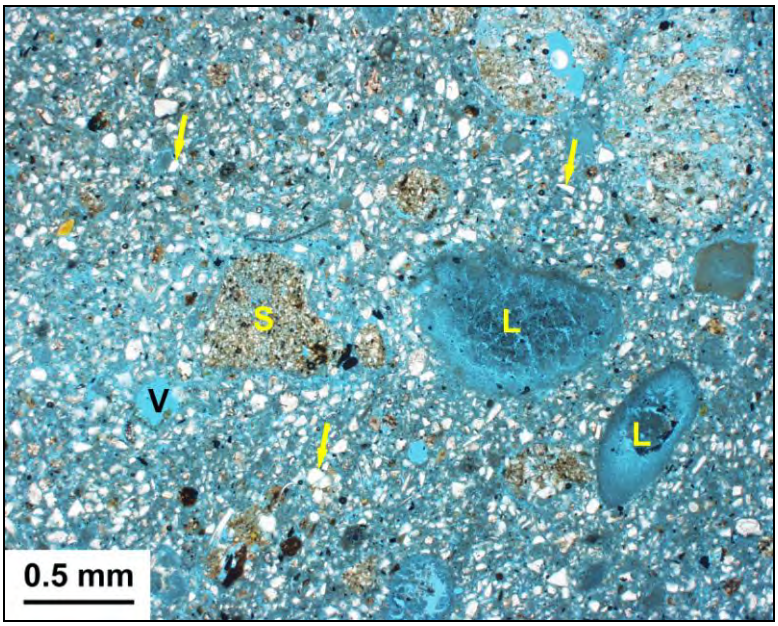


Figure 3: PPL photomicrograph illustrating the overall microtexture of the mortar. The matrix has a high capillary porosity, which is typical for lime-based mixtures. There are millimeter-scale lime (L) and fewer sediment (S) inclusions. Mostly, the clay and silt (arrows) from the sediment are well dispersed throughout the matrix.

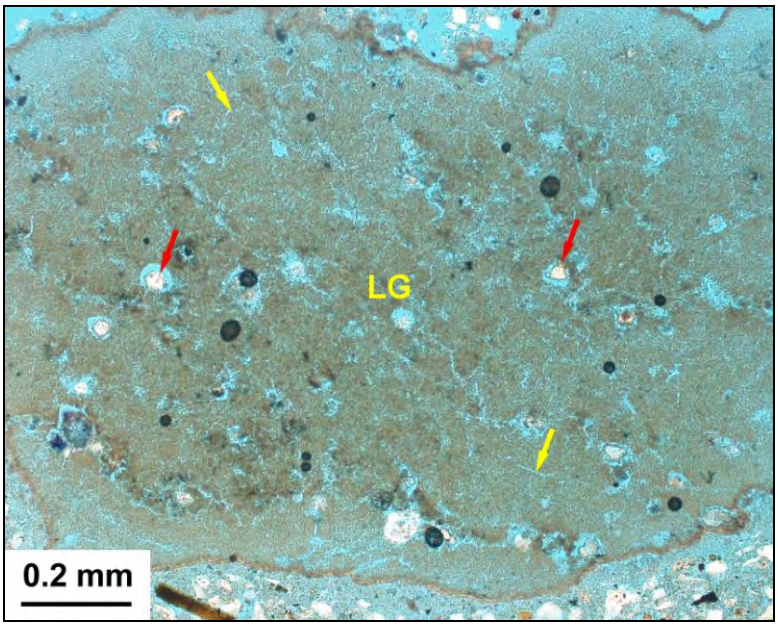


Figure 4: PPL photomicrograph illustrating an example of one of the undispersed lime grains (LG). Some of the coarser particles contain some internal partings (yellow arrows) and fired quartz inclusions (red arrows) that correspond to original characteristics of the sedimentary source rock.

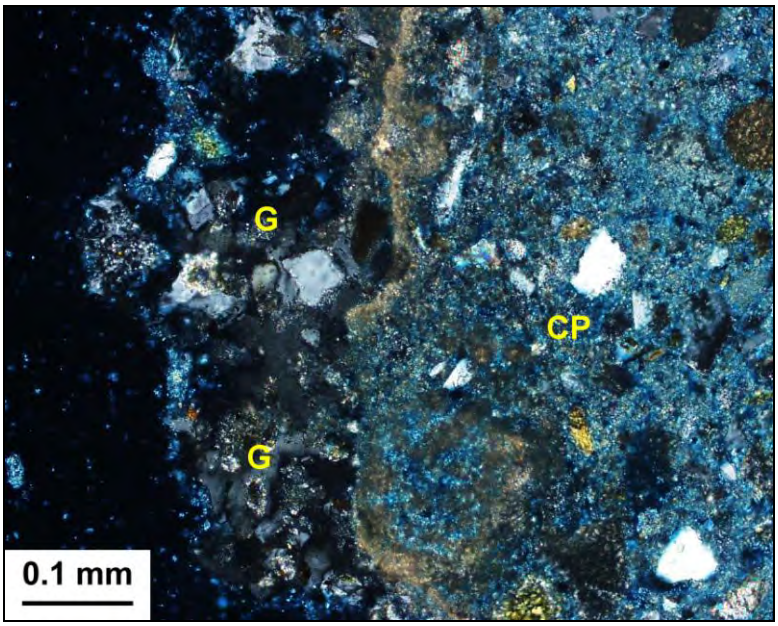


Figure 5: XPL photomicrograph illustrating secondary effects in the examined mortar sample. There are some crusts of secondary gypsum (arrows) deposited on the surface of some of the mortar fragments. These are shown here in contrast to the carbonated paste (CP) of the mortar.

Appendix C.

Stucco Analysis Report (performed by Highbridge Materials Consulting, Inc. March 2020)

Stucco Analysis Report

Malus-Beauregard House
New Orleans, LA



Prepared for
Building Conservation Associates, Inc.

Client ID
BUIL005

Report No.
SL1490-02

Report Date
03/12/20

HIGHBRIDGE MATERIALS CONSULTING, INC.

404 Irvington Street, Pleasantville, NY 10570 | 914-502-0100 | www.highbridgematerials.com

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Cover Image

The north elevation of the Malus-Beauregard House in New Orleans, LA. Photo courtesy of Ms. Dorothy Krotzer.

Respectfully submitted,



Heather Hartshorn
Supervising Chemist/ Staff Scientist
Highbridge Materials Consulting, Inc.

1. Executive Summary

One stucco sample from the Malus-Beauregard House, an 1832-1833 house in New Orleans, LA is examined for this report. The examined sample consists of two layers of a similar cement-lime mix that is placed over an earlier lime-based mortar. The cement-based mortar appears to be a repair that dates to the twentieth century. The mix consists of white portland cement, dry hydrated lime, and a somewhat narrowly graded quartz sand. The cement to lime ratio is estimated at 1 : 2.4 by volume and the binder to sand ratio at 1 : 2.6 by volume. The estimated proportions are more lime-rich than any of the permissible limits specified in the modern standard. However, it is not unusual to find historical stuccoes that are not compliant with the modern standard. That said, this is probably less restrictive in terms of elasticity and permeability than a more cement-rich mix. This may be advantageous given its placement over a pure lime stucco.

The full thickness of the stucco is not represented in the provided sample pieces. However, the cement-based mix appears to have been applied in two lifts over the lime stucco. The outermost life is roughly 1/4" thick while the inner lift is not fully represented. The outer surface of the stucco was like exposed at some point given the minor sand exposure and the use of a white portland cement. However, the surface is now covered with reddish paint.

The cement stucco sample appears to be in sound condition. All of the pieces are fully carbonated, which is a normal and desirable consequence of long-term curing. There is no evidence of any significant cracking, paste degradation, or deleterious secondary mineralizations. That said, the underlying lime stucco contains some secondary mineralizations. However, these do not appear to correspond to any significant cracking distress.

2. Introduction

On December 21, 2020, Highbridge received one mortar sample and one stucco sample from Ms. Dorothy Krotzer of Building Conservation Associates, Inc. Ms. Krotzer reports that the samples were taken from the Malus-Beauregard House, an 1832-1833 building in New Orleans, LA. The client has also noted that there have been multiple significant modifications to the structure at multiple points between the mid-nineteenth and mid-twentieth centuries. The samples are labeled "MB.Mortar.1" and "MB.Stucco.1". However, these will simply be referred to by their material in each of the reports.

Ms. Krotzer has requested that a compositional analysis be performed on both the mortar sample and the stucco sample. The testing includes a petrographic examination and chemical analysis to identify constituents, estimate proportions, and assess overall condition. An acid digestion to extract a sand sample for description and gradation is also included in the testing scope. For the stucco, the chemical analysis and acid digestion are only performed on one layer though the entire provided thickness of the sample is examined petrographically. This report presents the results of the stucco analysis. The mortar analysis is presented under separate cover in Highbridge Report SL1490-01.

3. Methods of Examination

The petrographic examination is conducted in accordance with the standard practices contained within ASTM C1324-15. Data collection is performed or supervised by a degreed geologist who by nature of their education is qualified to operate the analytical equipment employed. Analysis and interpretation is performed or directed by a supervising petrographer who satisfies the qualifications as specified in Section 4 of ASTM C856-18a.

Chemical analysis is performed in general accordance with the procedures outlined in ASTM C1324-15. Water, carbon dioxide, and aggregate weight percentages are determined gravimetrically. Oxide weight percentages are determined by inductively coupled plasma - optical emission spectroscopy (ICP-OES). While ASTM classifies C1324 as a test method, it is intended to serve as a guideline for qualified practitioners with ample experience in the various materials under consideration. Section 10.2 indicates the need for discretion on the part of the laboratory to ensure that methods are tailored to specific mortar compositions. As such, Highbridge chooses specific digestion methods, supplementary tests, instrumentation protocols, and mathematical models to best characterize each individual mortar under consideration. Many of these are proprietary methods that have been researched internally.

The following personnel contributed to the examination:

Technician:	M. Pattie
Analysts:	M. Ricotta
Chemist/ Petrographer:	H. Hartshorn
Supervisor:	J. Walsh

4. Petrographic Findings and Discussion

4.1 - Materials

The bulk of the stucco pieces appear to consist of the same mix applied in two lifts. The aggregate in each is a somewhat narrowly graded siliceous natural sand consisting of virtually all quartz. There is minor chert as well as trace feldspar and heavy accessory minerals. No clay coatings or friable materials are detected, and the sand is considered hard, non-porous, and durable for use in cementitious mixtures. A sample of the aggregate was extracted from the outer layer of the stucco. The extracted material is a uniform, translucent, nearly white sand (Munsell code approximately 2.5Y 7.5/1.5). The aggregate in the inner layer appears visually similar to that extracted from the outer layer. The nearly white sand paired with the white binder paste in each layer contributes to the uniform white color throughout the cross section of the stucco in hand sample.

The sand is soft-textured, with equidimensional particles that have subrounded shapes on average. The individual grain shapes vary from rounded to subangular. The particle size distribution of the sand was estimated by grading the sand sample extracted from the outer layer through a standard sieve stack. Again, the extracted sample is interpreted to be representative of the sand addition in both layers. The results of the gradation analysis are presented in Section 5. The sand is medium-grained and somewhat narrowly graded with greater than 50% of the material retained between the No. 30 and No. 50 sieves. The nominal top size is estimated at the No. 16 mesh, and the fines content is low. The sand is finer than one that would be compliant with the permissible limits for those employed in modern portland cement-based plasters (ASTM C897-15). Of course, it is possible that this stucco could pre-date the adoption of this standard, and it is not unusual to find historical mixtures that are not compliant with modern standards.

The binder consists of a mixture of white portland cement and dry hydrated lime. No supplementary cementitious materials or pigment additions are present. The binder matrix in each of the layers is rather homogeneously developed with a moderate to moderately high capillary porosity. The outer layer also contains a moderately high abundance of microscopic shrinkage cracks while the inner layer contains only a low abundance of these microcracks. Shrinkage cracking is a typical feature of lime-rich mixes.

The cement hydration is advanced. Still, there is a moderately high abundance of portland cement residuals detected in the each of the layers. These are mostly present as pores at the location of hydrated cement grains. Some of the pores are filled with amorphous hydration product. No iron-bearing ferrite is detected. The lack of ferrite indicates that the cement is a white rather than gray variety, and this is confirmed by the chemically measured SiO_2/Fe_2O_3 ratio of 23. The cement residuals are all fine-grained and appear to pass the No. 200 sieve. This find grind has been rather typical for white portland cements since they first became commercial available ca. 1905. As such, the exact vintage of these stucco layers cannot be determined. However, it is clear that this material does not date to original nineteenth century construction date.

Undispersed lime grains are present in high abundance. These are present mostly as fine-grained, internally nondescript, carbonated particles with diameters less than 200 μm. The chemical analysis indicates that the lime is a dolomitic rather than high-calcium variety. The particulate texture of the lime is more consistent with a dry hydrate than a lime slaked to a putty. This would suggest a construction vintage no earlier than ca. 1910 since prepackaged dry hydrates were not commercially available until that time.

4.2 - Component Proportions

Chemical analysis was performed on a subsample of the outer layer in order to estimate the mix proportions of the stucco. Petrographic observations suggest that the same mixture may have been used for both examined layers of the cement-based stucco. Though there is a greater abundance of shrinkage cracking in the outer layer, the two layers appear to contain the same mixed based on petrographic observations. The higher abundance of shrinkage cracking may simply be attributable to greater drying shrinkage close to the outer surface of the stucco. The laboratory chose to analyze the outer layer since it was easier to consistently sample. The results of the chemical analysis are presented in Section 6.

The mix is estimated to have a cement to lime ratio of 1 : 2.4 by volume and a binder to sand ratio of 1 : 2.6 by volume. The calculated proportions are more lime-rich than any of the mixtures specified by ASTM C926-20, the standard for portland cement-based plaster. Of course, this modern standard may be less applicable to historical stucco mixtures.

4.3 - Additional Mixtures

In addition to the portland cement-based stucco that was the focus of the investigation, some of the pieces contain a lime-based stucco that likely represents an earlier mix beneath the cement-based stucco. This underlying mix appears to contain a higher content of a quartz sand that is finer-grained than that employed in the cement-based stucco. The lime binder has a homogeneously developed paste with a high capillary porosity. Though no chemical analysis was performed, certain secondary features suggest it may have had a dolomitic composition. These include spherulitic microtextures and associated secondary salts sometimes observed in historical dolomitic lime mortars. Of course, a more definitive evaluation of the lime composition and mix proportions would require a chemical analysis and further petrographic examination. It is certainly possible that this lime-based stucco represents an original 1830s mix.

4.4 - Original Preparation and Placement

Within each of the examined stucco layers, the constituents are well mixed and blended. There are no sand streaks or coarse binder inclusions. The mix water appears to have been well incorporated, and there are no signs of inappropriate late retempering in either layer. The cementitious matrix is well developed in both layers, with no significant hydration variations observed within or between the layers in the examined cross-sections. Each of the examined layers is compact and well consolidated with total air contents estimated at 4-6% by volume.

None of the provided pieces appear to represent the full depth of the stucco. Based on the transmittal provided by Ms. Krotzer, the stucco appears to be placed directly over brick masonry. In some of the pieces, there is evidence of a lime stucco that is presumed to underlie the portland cement-based stucco that was the focus of the examination. The cement-based stucco appears to have been applied in at least two layers as lifts of the same mix. Neither the lime-based stucco nor the inner layer of the cement-based stucco are complete, and their thickness cannot be evaluated. However, the outer layer of the cement-based stucco is approximately 1/4" thick.

Where the cement-based mixture is placed over the earlier lime-based mixture, the underlying lime stucco is assumed to represent an earlier material than the cement stucco. There is no obvious weathering or damage along the outer surface of the lime stucco, and the contact between the cement stucco and lime stucco is intimate. As such, it cannot be proven that the lime stucco was in service for any extended period of time before the placement of the cement stucco. However, the outer surface of the lime mortar contains some amorphous looking material that could represent some kind of applied material. This might suggest that this represents an original exposure surface of the lime stucco. Additionally, the difference in materials and the fact that a lime stucco would have likely been used in the original 1830s stucco suggests that the lime mix could represent an earlier vintage.

The cement-based stucco appears to have been placed in two lifts over the earlier lime-based stucco. The cement stucco is well compacted to the underlying mixture. Likewise, the outer layer of the cement stucco is fully compacted against and well bonded to the inner layer. There are no significant void concentrations at any of the boundaries between the layers.

The outer surface of the cement stucco is finished to a planar surface and is currently covered with paint. The sand grains have a slight relief from the binder paste, and there is no paste covering the proud aggregate. This suggests that the surface was exposed for at least a short period of time. However, there is no significant evidence of weathering at this outer surface. No paste degradation or soot is observed at the surface. There is only some minor gypsum deposition along the surface in one of the two pieces examined in thin section. Given the use of a white cement and the minor sand exposure, it could be speculated that the stucco surface was originally visible and the paint applied at a later date.

4.5 - Condition and Service Performance

When examined in hand sample, the two stucco layers have physical properties that are qualitatively similar. The stucco is relatively soft and permeable. Comparatively, the inner layer is slightly softer and more water absorptive than the outer layer. These features are within the range expected for the lime-rich composition.

Overall, the stucco sample appears to be in sound condition. The represented depth of the stucco is fully carbonated, which is a normal and desirable consequence of long-term curing. There is no cracking identified in the stucco sample aside from now-dormant shrinkage cracks. There are also no signs of excessive water infiltration. There are only rare instances of undifferentiated salt observed lining trace microscopic shrinkage cracks. The salts are mostly isotropic, which could be consistent with chloride salts. Of course, there is no significant secondary distress observed in relation to this minor salt deposition.

5. Aggregate Sieve Analysis

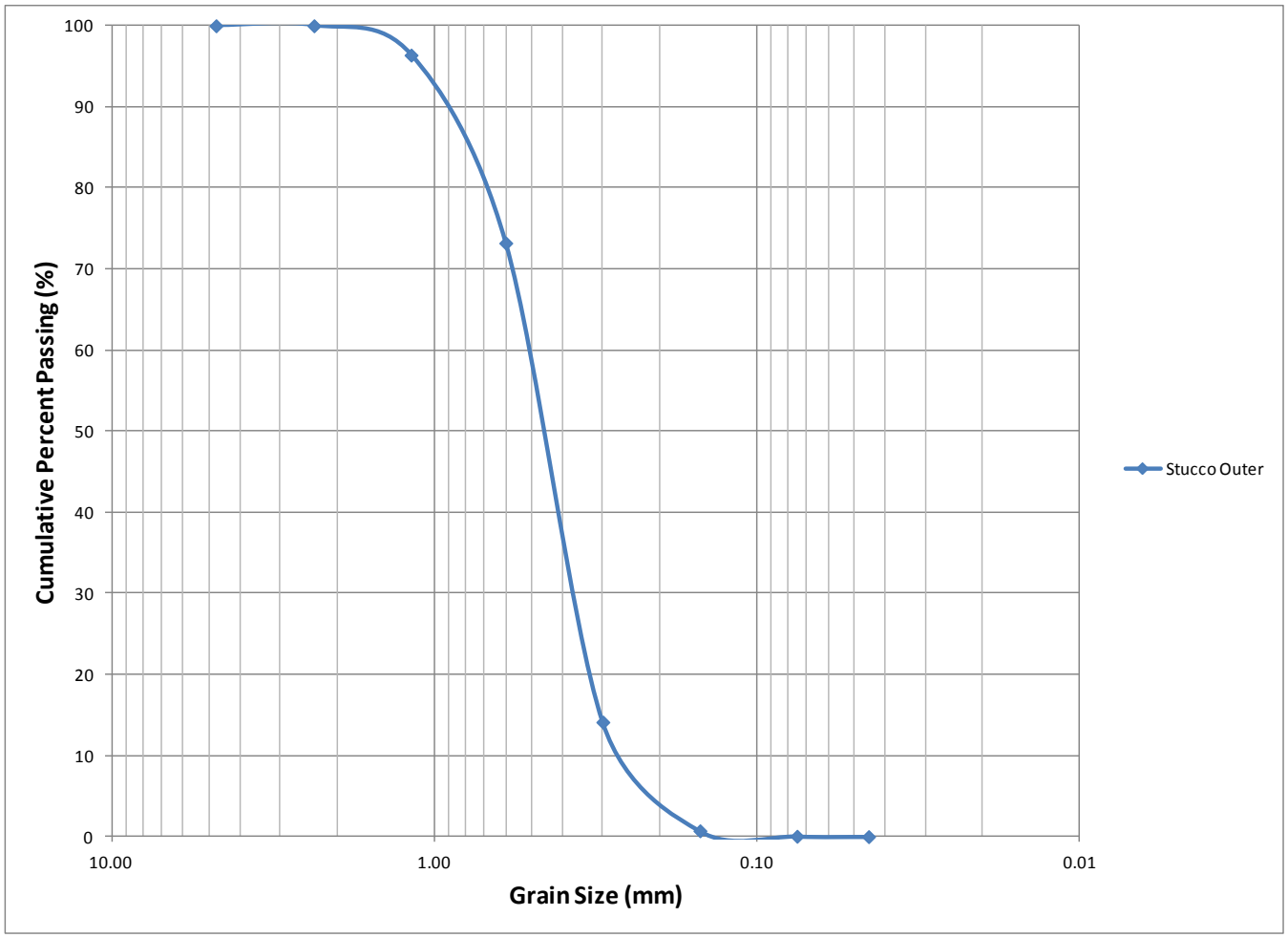
Aggregate analysis was performed by digesting a subsample of the outer stucco layer in an acid sufficient to dissolve the binder. Qualitative petrographic observations suggest that same sand was employed in the inner layer. The fines are examined petrographically to ensure that all recovered material represents sand rather than undigested binder components. In this case, the material passing a No. 200 sieve is virtually all silt form the sand. This material is included in the calculations below. A qualitative description of the sand is given in the discussion above, and the recovered sample is returned to the client. The sample size is significantly smaller than would be required to perform a sieve analysis on fresh aggregate materials as per ASTM C136, and some small errors should be expected.

Table 5.1: Acid Digestion Data

	Retention (g)	Cumulative passing (%)	Cumulative retained (%)
No. 4	0.00	100.0	0.0
No. 8	0.00	100.0	0.0
No. 16	0.40	96.4	3.6
No. 30	2.58	73.2	26.8
No. 50	6.57	14.1	85.9
No. 100	1.49	0.7	99.3
No. 200	0.08	0.0	100.0
Pan	0.01	0.0	100.0
Fineness Modulus			**2.16**

Chart 5.1: Aggregate Sieve Analysis

The following chart presents particle size distribution curves for the extracted sand samples. The chart plots the data from Table 5.1.



6. Chemical Analysis

Table 6.1: Chemical Analysis Results

Sample ID	Stucco
Component (wgt. %)	
SiO_2	2.18
CaO	11.38
MgO	1.99
Al_2O_3	0.49
Fe_2O_3	0.10
Insoluble residue	70.93
LOI to 110°C	1.03
LOI 110°C-550°C	2.35
LOI 550°C-950°C	9.00
Measured Totals	**99.44**

Notes:
1. The insoluble residue is taken from the same method used for the oxide measurements.

Table 6.2: Calculated Components

Sample ID	Stucco
Portland cement (wgt. %)	11
Lime expressed as dry hydrate (wgt. %)	11
Sand (wgt. %)	79
Cement : lime ratio (by volume)	1 : 2.4
Binder : sand ratio (by volume)	1 : 2.6

Notes:
1. The cement weight is calculated assuming the measured SiO_2 represents 23% of a typical white portland cement by weight. The remaining CaO and MgO are reported as their respective hydroxides through molecular weight conversion in order to represent the lime as a hydrate. The sand is taken directly from the insoluble residue. The cement, lime, and sand weights are then normalized to 100% to return the materials to a dry weight basis. Volumetric ratios are calculated assuming bulk weights for portland cement, hydrated lime, and damp, loose sand of 94 lbs./ft.^{3}, 40 lbs./ft.^{3}, and 80 lbs./ft.^{3} respectively.

Appendix I: Visual Description of Samples as Received

Sample ID	Stucco
Dimensions and details	The provided sample consists of eight medium-sized stucco pieces and a few smaller fragments as well as a moderately low abundance of loose powder. The entire sample weighs a total of 99 grams. Roughly 60% of the stucco surface is covered with a reddish paint so that there is a clear stratigraphy of the layers represented. The outer layer is approximately 1/4" thick, but possibly closer to 3/16" in some of the pieces. The thickest piece is approximately 5/8" thick and includes the painted surface, the outer layer, and part of the inner layer that does not appear to be represented to the full depth. None of the pieces appear to contain the full stratigraphy of the stucco.
Inner surface	No inner surfaces are included in the provided sample.
Outer surface	The outer surface appears planar and sandy-textured underneath the thick layer of reddish paint.
Appearance	The outer layer has a moderately dull luster while the inner layer appears more sand-rich with a dull luster to the paste. Both layers have a nearly white color (Munsell code approximately 10YR 8/1).
Hardness/ friability	The paste in the outer layer is moderately soft while that in the inner layer in soft. Both layers appear cohesive.
Absorptivity	The matrix in the outer layer is somewhat rapidly absorptive while that in the inner layer is very rapidly absorptive.
Other details	No cracks, efflorescence, mineral deposits, or binder inclusions are visible in hand sample.

Appendix II: Photographs and Photomicrographs

Microscopic examination is performed on an Olympus BX-51 polarized/reflected light microscope and a Bausch and Lomb Stereozoom 7 stereoscopic microscope. Both microscopes are fitted with an Olympus DP-11 digital camera. The stereoscopic microscope is used for simple magnification. Sample types examined under this microscope include fractured surfaces, fine constituents extracted through chemical or physical means, or honed or polished cross sections. The polarized light microscope (PLM) magnifies but also employs principals of optical crystallography. The most common sample preparation for the PLM is the petrographic thin section. For this preparation, cross-sectioned samples are mounted to glass slides and are milled to a thickness sufficient to allow light to be transmitted through the material. These are usually prepared without water and with minimal heat to avoid altering minerals that are water or temperature-sensitive. In many cases, the samples are impregnated with a low-viscosity, blue-dyed epoxy. When so treated, blue areas represent some type of void space (e.g., air-voids, capillary pores, cracks, etc.). The polarized light photomicrographs are taken using a variety of optical settings chosen to best demonstrate the feature(s) of interest. These are distinguished as follows:

Plane polarized light (abbreviated as PPL)

This method uses the refractive power of different constituents to produce an artificial sense of surface relief. Otherwise, the method is the closest to a simple magnification of the material. The setting is often used to demonstrate granular relationships or microstructure. Pore spaces and cracks are observable with this setting if the blue-dyed epoxy is used.

Conoscopic polarized light (abbreviated as CPL)

In this setting, the transmitted light is condensed just before passing through the thin section. The method tends to bring colors or finer particulates into higher contrast at the expense of image sharpness. The setting is often used to image grain boundary failures in dimension stone, pigment particulates in binders, or gel phases in the micropores of cement pastes.

Cross polarized light (abbreviated as XPL)

The setting places the thin section between two pieces of polarizing film oriented at 90° to one another. In isotropic materials (e.g., glasses, simple salts), all light is absorbed and the materials appear black. In anisotropic crystals, two light rays traveling at different speeds are produced within the thin section and these offset waves interfere at the upper polarizing film. The interference produces a color that can be used to calculate properties of the crystal structure and aid in identification of mineral species. In essence, the colors are artificial. It should be noted that color is a function of orientation and color differences do not necessarily indicate material differences.

Compensator plates

When in XPL mode, full-wave or quarter-wave compensator plates may be inserted into the light path to add or subtract interference. Technically, these methods are used to calculate properties of the crystal structure. However, they can also be used to alter the image appearance to help improve contrast between different constituents. They can also reveal preferred orientations in some materials (e.g., oriented residual crystallinity in fired ceramics).

Scale bars are included with all photomicrographs. In higher magnification images, the µm symbol represents microns. One micron is equal to 0.001 millimeter.



Figure 1: Photographs of the stucco sample provided to Highbridge for examination. The left image shows the entirety of the provided sample. The right image shows a cross section of one of the stucco pieces. The outer surface of the stucco is now covered with reddish paint. The arrows in the right image show the boundary between the two lifts of cement-based stucco.

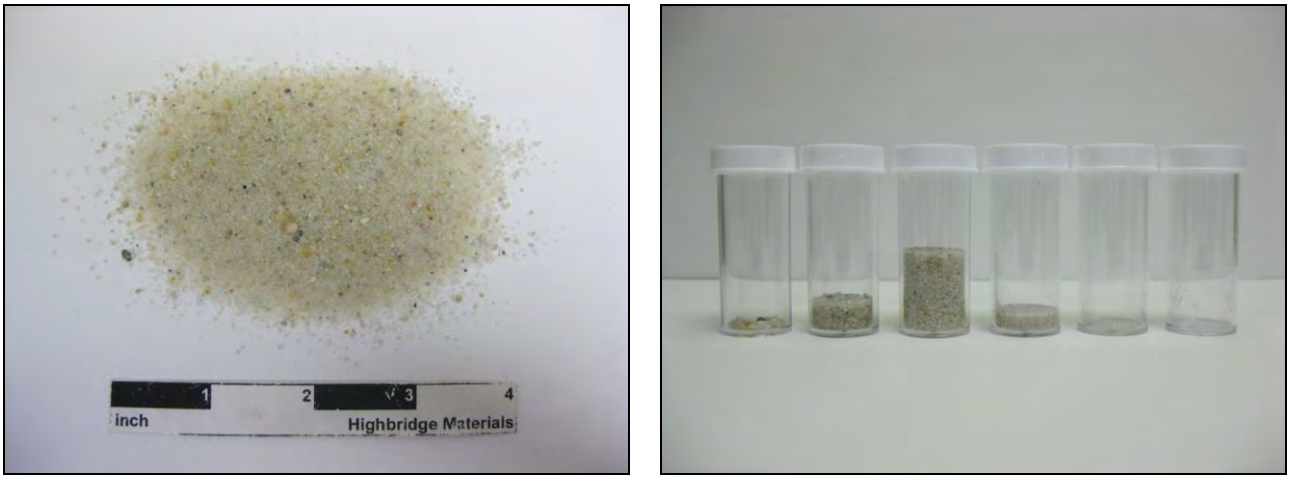


Figure 2: Photographs illustrating the sand extracted from the outer layer. (Left image) The total extraction is shown. The sand is uniform and semi-translucent with a nearly white color. (Right image) The total aggregate is shown after gradation through a standard sieve stack. The aggregate is a medium-grained, somewhat narrowly graded sand with greater than 50% retained between the No. 30 and No. 50 sieves.

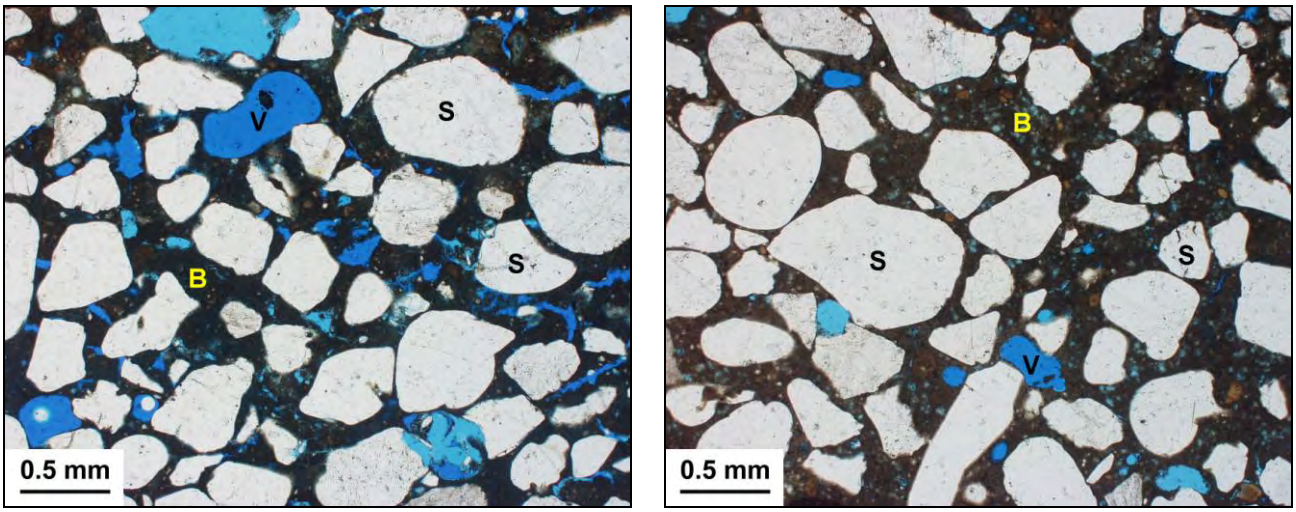


Figure 3: PPL photomicrographs illustrating the overall microtexture of the outer layer (left image) and inner layer (right image) of the cement-based stucco. In both, the binder matrix (B) is rather homogeneously developed with moderate to moderately high capillary porosity. The sand (S) is soft-textured, somewhat narrowly graded, and evenly distributed. The layers are well consolidated, and air-void (V) contents are not considered to be excessive.

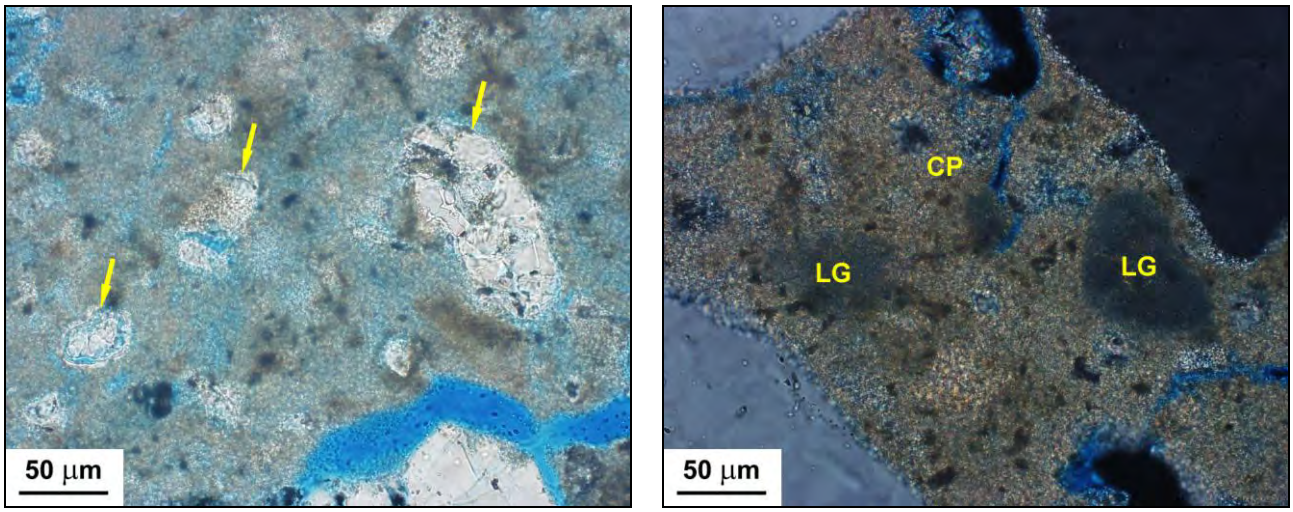


Figure 4: Photomicrographs illustrating the binder constituents in both stucco layers. (Left PPL image) There is a moderately high abundance of white portland cement residuals (arrows). These are mostly present as pores at the location of former, fine-grained calcium silicate agglomerates. The lack of interstitial, iron-bearing ferrite indicates that the cement is a white rather than gray variety. (Right XPL image) There is a high abundance of undispersed lime grains (LG) that are detected throughout the carbonated paste (CP). The lime is a dolomitic variety and its particulate microtexture suggests the use of a prepackaged dry hydrate.

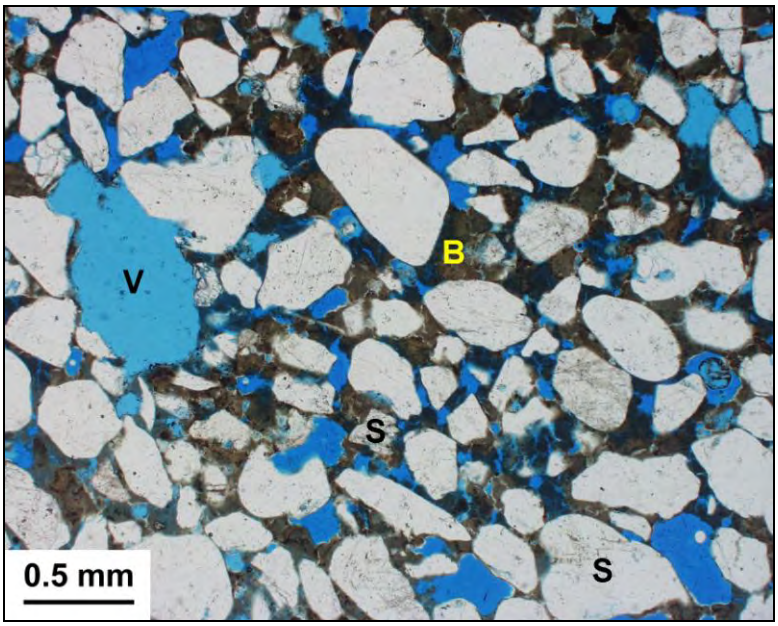


Figure 5: PPL photomicrograph illustrating the overall microtexture of the underlying lime stucco. The lime-based mix appears to contain a higher content of a finer-grained quartz sand (S). The lime binder (B) has a high capillary porosity. Air-voids (V) are more abundant than in the cement stucco, but do not appear to be excessive.

Appendix G: Report on Targeted Structural Issues by BPE

Bennett PRESERVATION ENGINEERING PC

STRUCTURAL ENGINEERING FOR EXISTING STRUCTURES

Seismic Retrofit • Historic Preservation • National Historic Landmarks

A Report on Structural Issues in the Galleries, Stair Framing and Second Floor Framing at the Malus Beauregard House

Jean Lafitte National Historical Park and Preserve
Chalmette, Louisiana

National Park Service PMIS #253332



Submitted to:

Joseph K. Oppermann – Architect, P.A.
February 2021

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TITLE PAGE

TABLE OF CONTENTS

INTRODUCTION

FINDINGS BY OBSERVATION AND COMPUTATION

SUMMARY OF CONCLUSIONS

RECOMMENDATIONS

SUBMITTAL

In September of 2018, Joe Oppermann of Joseph K. Oppermann – Architect, P.A. asked Craig Bennett of Bennett Preservation Engineering PC to assist their team by providing a structural evaluation of portions of the Malus Beauregard House in the Jean Lafitte National Historical Park and Preserve in Chalmette, Louisiana. This project is in response to the National Park Service's PMIS #253332.

For the structural engineering portion of this Historic Structure Report, Bennett Preservation Engineering was tasked with a very limited scope of work, focused exclusively on life safety. The structural Scope of Work, as described in the National Park Service Task Order, included:

- Evaluation of the galleries from a structural standpoint.
- Evaluation of the structural framing of the second floor and the stairs of the structure, in an effort to determine a safe loading capacity.
- In addition, Bennett Preservation Engineering was asked to make recommendations on the corroding lintels in the north and south walls and on the bulges in the east and west end walls, both conditions which were noted in the Condition Assessment Report.

In December of 2019, Bennett visited the site with Joe Oppermann and Jeff Anderson of Joseph K. Oppermann – Architect, P.A. to review the conditions outlined above. For the site visit, the National Park Service removed and opened up five areas of plaster and lath to expose the framing for Bennett Preservation Engineering's evaluation.

This report contains Bennett Preservation Engineering's structural findings, conclusions, and recommendations for the scope of work noted above.

General

There are five areas of structural concern at the Malus Beauregard House. The second floor framing, the interior stairs, and the galleries are all of concern for gravity load carrying capacity. The lintels over the doorways are corroding and damaging the north and south walls, and the east and west end walls are not tied back to the floor diaphragms, leaving those end walls unbraced up to the roof.

Second Floor Framing

The geometry of the framing of the second floor is not fully known, but the areas that were examined and confirmed are shown in **Figure 1**.

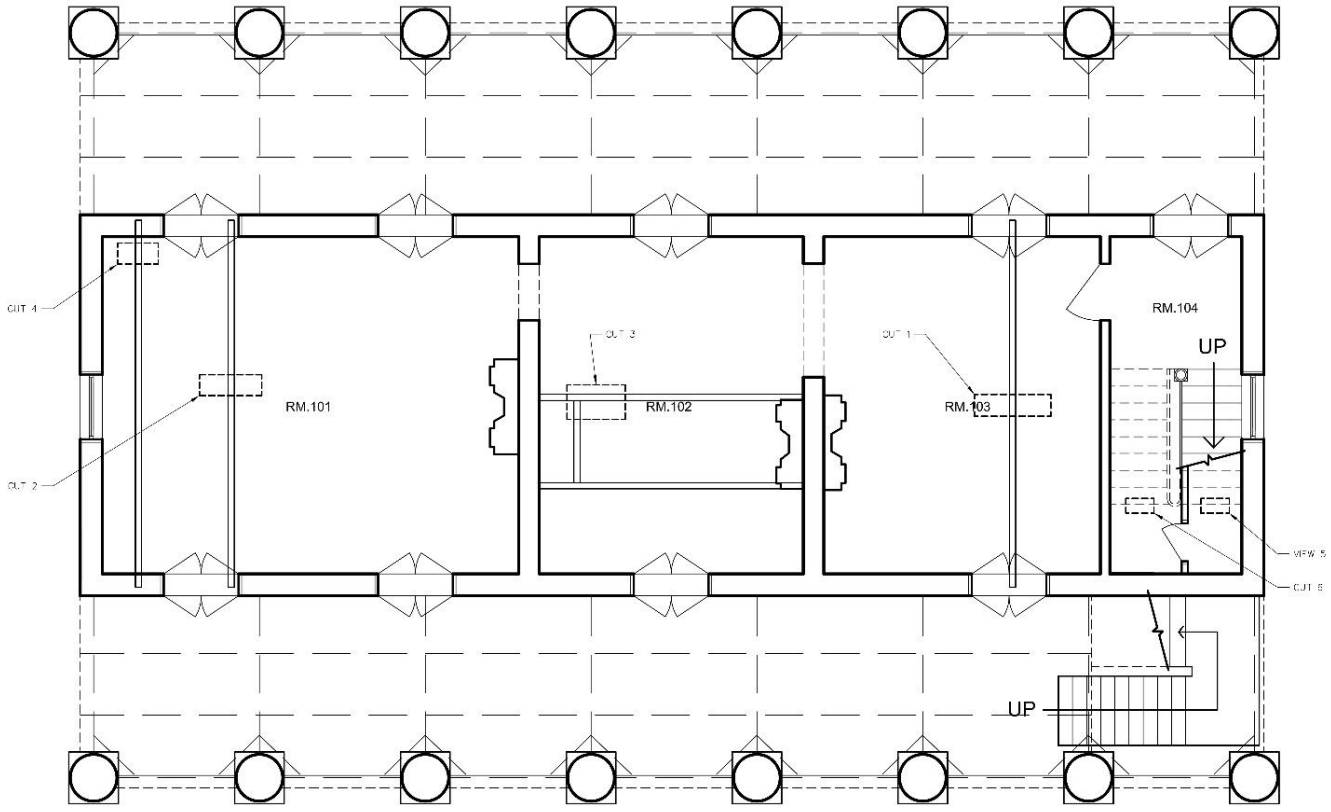


Figure 1 - Locations of plaster cuts for structural observation.

Room 201

The second floor framing supporting this west room was examined from beneath in two locations where the National Park Service staff had made two cuts in the plaster for Bennett Preservation Engineering ahead of the site visit. **See Figures 2 through 4.**



Figure 2 - Port/cut beneath Room 201.



Figure 3 - Port/cut beneath Room 201 - northwest corner.



Figure 4 - Port/cut beneath Room 201 - second joist off of west wall.

The framing under the middle portion of the room runs north-south, spanning 214 inches from masonry wall to masonry wall, across the width of the building. The joists are 3-7/8 inches wide and 10-3/4 inches deep, spaced at 29 inches on center. The wood is of very high quality, with a tight, flat grain structure, likely Cypress or Southern Pine. It appears, with the flat slope of grain and minimal knot structure, that the wood is at least comparable to a Number 1 grade. There are, however, indications of water damage to the joists. **See Figures 5 through 7.**

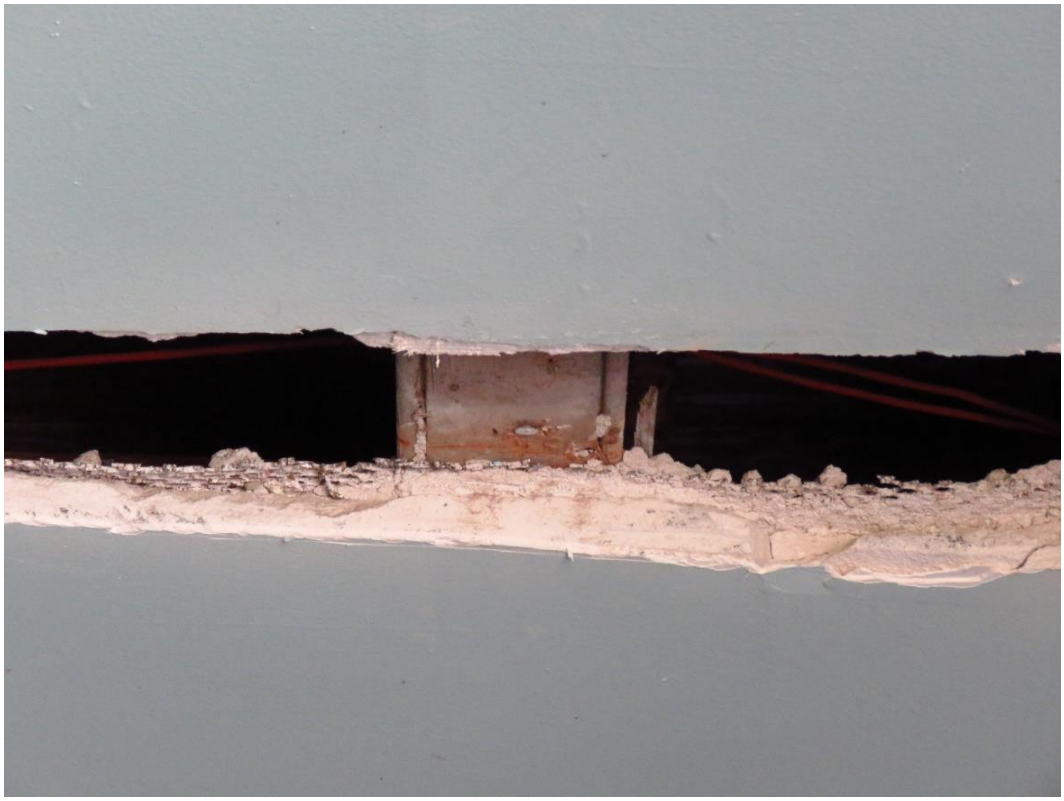


Figure 5 - Joist at middle of the room.



Figure 6 - Note tight grain of the wood.



Figure 7 - Signs of past water intrusion.

Calculations show that the observed two joists in this area, are able to carry a live load of 57 pounds per square foot (PSF), but only if they are in good condition over their whole length. The water streaking seen does indicate that additional observations will be necessary to confirm that capacity, if a change of use triggers a requirement for an increased structural capacity.

A second observation port cut into the plaster in this same room, near the northwest corner, shows a joist spacing of 23 inches on center, and a joist width of 4 inches and depth of 11-3/8 inches. The second joist off of the west wall appears to be in relatively good condition, but the joist against the west wall is termite damaged. Calculated capacity of these two west joists, if they were in good condition, would be 91 PSF, but with the termite damage to at least the westernmost joist, 91 PSF is not a realistic capacity. **See Figures 8 through 13.**



Figure 8 - Joist at northwest corner.



Figure 9 - Note particularly flat slope of grain.



Figure 10 - Flooring from several periods.



Figure 11 – Termite damage and frass on westernmost joist.



Figure 12 - Frass and termite shelter tubes.



Figure 13 - Frass and termite shelter tubes.

Room 203

The framing in the east room, Room 203, is very similar to that in the middle area of the west room. The joists are 3-7/8 inches wide, 10-3/4 inches deep and spaced at 29 inches on center. The clear span of the joists is 215-1/2 inches from masonry wall to masonry wall. The calculated capacity of this observed joist is 56 PSF. **See Figures 14 and 15.**

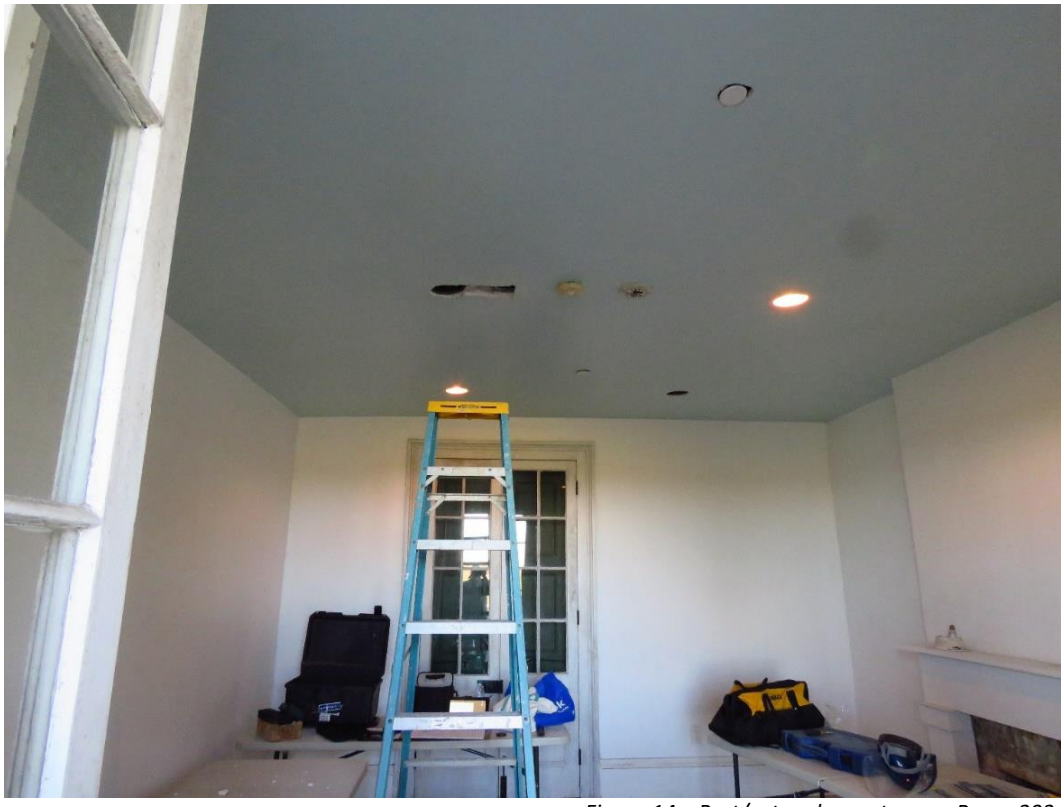


Figure 14 – Port/cut under east room, Room 203.



Figure 15 - Note similarity of joist to those in west room.

Room 202

The middle room framing, in contrast to that of the east and west rooms, runs east-west. At the hearth, there are extraordinarily deep (4 inches) and wide (8 inches) mortices cut in the trimmer joists. The connection has been strengthened with lag screws and steel angles, but the strengthening is not effective. Because mortices in trimmer joists, even with small, tight-fitting mortices and tenons, are common failure points in this type of construction, we consider these connections to be an extraordinary risk and cannot assign a safe working load capacity to these trimmer joists. The trimmer joists absolutely must be strengthened if the room above is to be used. **See Figures 16 through 18.**

The tenon on the end of the header, seen on the right side of Figure 18, goes into the very large mortise in the trimmer beam. The mortise is large enough that it has significantly reduced the structural capacity of the trimmer joist.



Figure 16 - Middle room – port/cut at trimmer joist.



Figure 17 - Note size of mortice.



Figure 18 - Note size of mortice, little structure remains.

Interior Stairs

The first flight of the stair system going from the first floor to the second floor is supported by the east exterior end wall of the building and by a stud wall forming a utility closet under the stair flight. The second flight spans from an intermediate landing up to the second floor and is supported on a beam, which is itself supported by the utility closet wall. The landing is also partially supported on that same beam. **See Figures 19 and 20.**



Figure 19 - First flight.



Figure 20 – Port/cut under second flight.

The first (lower) flight of the stair is so severely termite damaged that, in its present condition, it cannot safely carry traffic to the second floor. The beam supporting the landing at the top of this flight shows termite tubes, but not the severe deterioration of the stringers below. The lower end of the second flight shows evidence of some termite damage, but, again, it is not as severe as that found below. If this stair system were in good condition, the existing connections of the members, with some reinforcement, would support loading for public use. **See Figures 21 through 28.**



Figure 21 - Termite damage under first flight.



Figure 22 - Termite damage under first flight.



Figure 23 - More damage further down the stringer.



Figure 24 - Note damage in supporting post.



Figure 25 - Additional damage in middle stringer.



Figure 26 - Shelter tubes on the member supporting the second flight.



Figure 27 - Shelter tubes on the member supporting the second flight.

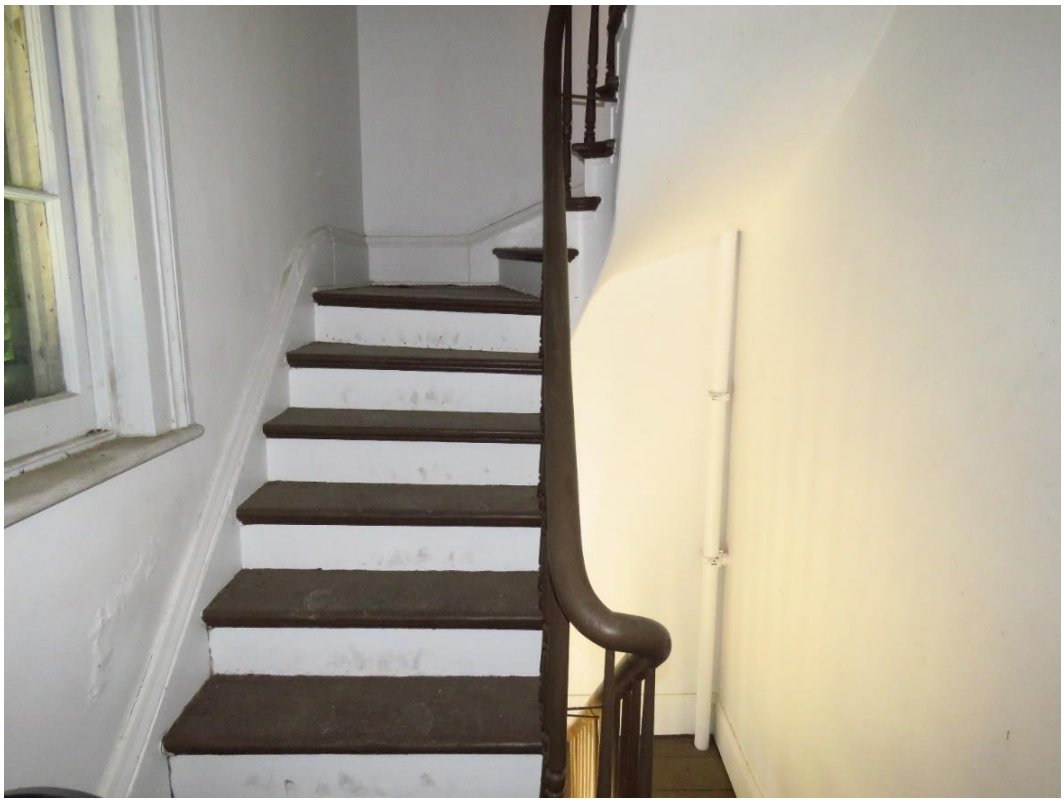


Figure 28 - Third flight, winders and fourth flight.

The third flight of the stair system spans from the second floor to winders above the intermediate landing in the flights below. The existing connections at the inner end of these winders is of a geometry that can support only very light loads. The fourth flight continues from the winders up to the third floor or attic. **See Figures 29 through 30.**



Figure 29 - Winders. Note lack of room for structural connections.



Figure 30 - Exposing of termite damage.

The winders at the top of the third flight are, like the stringers of the first flight, severely termite damaged and unsafe. The treads have been partially removed and left open with the intent of limiting access. **See Figures 31 through 35.**



Figure 31 - Exposing of termite damage.



Figure 32 - Note damage to tread.



Figure 33 - Extraordinary damage to supporting structure.



Figure 34 - Extraordinary damage to supporting structure. Note masonry wall.



Figure 35 - Note severely damaged tread and joist.

Galleries

The decking and framing of the galleries have been in place for roughly ten years, but are so deteriorated and in such poor structural condition that the galleries cannot be safely occupied. For the sake of evaluating the current design, we have done calculations on all of the floor structural elements of the galleries, based on the use of Number 1 Cypress, as if the galleries were all in good condition. The calculations were based on an allowable flexural stress for this material of 1000 pounds per square inch (PSI). In this case, flexural stress controlled the capacity of the members. **See Figures 36 through 42.**



Figure 36 – Deterioration of the galleries.



Figure 37 – Deterioration of the galleries. Note loss of decking.



Figure 38 – Severe deterioration of the Cypress edge beam.



Figure 39 – Severe deterioration of the Cypress edge beam.



Figure 40 - Note depth of damage at edge beam.



Figure 41 - Decking damage.



Figure 42 - Diagonal beam damage.

Our calculations on the walking surface of the galleries, the decking, indicate that the decking is capable of carrying a live load of over 100 PSF.

Calculations on the gallery purlins indicate a much lower capacity. The existing purlins are approximately 3 inches wide and 5-3/8 inches deep, with a tributary width of approximately 38 inches (purlins at 32 and 44 inches on center). With a maximum clear span of 8 feet 8 inches, the calculated live load capacity for the galleries, based on the capacity of the purlins, is 36 PSF.

The capacity calculations for the girders is more complicated, because the purlins are cut deeply into the top half of the girders, reducing the effective depth of the girders from 11-7/8 inches to 6-1/2 inches. With a tributary width of 8 feet 9 inches and a span of 8 feet 3 inches, the galleries have a calculated live load capacity, based on the girder capacity, of 41 PSF.

Doorway Lintels

The lintels over the doorways, particularly those nears the east and west end walls of the building, are not visible, but, on questioning, it has been reported by staff on site that they believe the lintels were replaced in steel at some time in the past. Our observations, especially of the lintels closest to the east and west end walls (i.e. the lintels most exposed to the weather), indicate that there are embedded corroding steel lintels over the doorways, and that the lintels, as they corrode, are jacking and fracturing the brick masonry walls above. **See Figures 43 through 46.**



Figure 43 - Damage due to corroding lintels.



Figure 44 - Damage due to corroding lintels.



Figure 45 - Damage due to corroding lintels.



Figure 46 - Damage due to corroding lintels.

East and West End Walls

The east and west end walls of the building are both bulging at the second floor level. Because the joists run parallel to the end walls, there is no end bearing of joists into the walls. We were not able to observe any tie of the floor diaphragm to the west end wall and the stairwell at the east end prohibits a tie at the second floor for much of the north-south span of the east end wall. **See Figures 47 through 51.**



Figure 47 - Bulging and damage at end walls.



Figure 48 - Bulging and damage at end walls.



Figure 49 - Bulging and damage at end walls.



Figure 50 - Bulging and damage at end walls.



Figure 51 - Bulging and damage at end walls.

General

We conclude that the load carrying capacity of the second floor framing, the stairs and the galleries effectively determines the use to which they can be put. Conversely, the required use can dictate the level of strengthening required.

We further conclude that the corroding embedded steel lintels are damaging the north and south walls and that the east and west end walls are only minimally stable without any tie back to the diaphragms.

Second Floor Framing

For this report, the floor framing scope of work has focused exclusively on the second floor framing, the gallery framing, and the stair framing. The first floor framing was not observed as it was not part of the scope of work, was virtually inaccessible, and, if it were to fail, would fall at most only a few inches, posing no serious threat to life safety.

The required live loading capacity for the areas under consideration is primarily a function of the way that the space is used. For a structure that is in use and continues to be used with no change of loading or capacity, it is frequently considered reasonable, especially in historic structures, to replace existing members in kind, no matter what the capacity. Most of us, as structural engineers, are uneasy with that approach if we know that the approach gives a structure that is well under capacity for its intended use.

If the intended use for the Malus Beauregard House leaves it open to the public, we consider that live load capacities somewhere in the 60 to 80 pounds per square foot (PSF) range are reasonable for simple museum house use. This loading is comparable to that for the corridors in the upper floors of office buildings, libraries, hospitals, schools and other buildings open to the public. This 60 to 80 PSF capacity is, however, under the 100 PSF capacity one would expect to find in a lobby or on the first floor of the same public buildings or in assembly spaces.

We recognize that not all historic structures can achieve an allowable load anywhere near 80 PSF. We have worked on other historic building open to the public where we were fortunate to be able to get an allowable load of 60 PSF on the first floor and dramatically less on the upper floors. In those buildings, we have had to impose significant limitations on visitorship in all of those spaces.

If the intended use is for light office use, without partitions and without storage, a 50 PSF capacity is appropriate. If, on the other hand, a records and/or archives storage use is anticipated, a 100 PSF capacity is only minimally adequate.

Below are calculated structural capacities, and potential uses, for the second floor, the galleries and the stairs from the first floor to the second floor.

Room 201

The second floor framing supporting the west room (Room 201) is able to carry a live load of 57 PSF. Live loads of this magnitude are sufficient for residential use (30 to 40 PSF), for light office use without permanent partitions (50 PSF) and without storage (100+ PSF), but are only marginally reasonable for a use open to the public (60 to 80 PSF). If the second floor were open for public use, we recommend, in the absence of specific guidance from national standards, a minimum capacity of 60 PSF, with 80 PSF more appropriate, especially if the space is used for entertaining. However, lower capacities can be acceptable where the visitorship is carefully controlled.

Room 203

The second floor framing supporting the east room (Room 203) is very similar to that in the west room and has a similar capacity, and consequently similar limitations on use.

Room 202

The second floor framing supporting the middle room (Room 202) is severely limited by the connections of the header joist into the two trimmer joists. Without structural strengthening, the capacity of the framing supporting this room is so severely limited that we are hesitant to rate it in terms of pounds per square foot. The capacity is low enough that we would not consider it safe for even residential use.

Stair System

The first flight of the stair system going from the first floor to the second floor is so severely termite damaged that, in its present condition, it cannot safely carry traffic to the second floor. The winders between the second and third floors are likewise severely damaged by termites and the treads have been partially removed and left open with the intent of limiting access. Even if this stair system were in good condition, the existing connections of the members would not safely support public use, but strengthening these connections would not be particularly difficult.

Second Floor Galleries

The decking of the galleries is able, even with the relatively long spacing between purlins, to carry occupancy loads of 100 PSF, acceptable for assembly use. The purlins, on the other hand, if they were in good condition, would have a capacity of only 36 PSF, a capacity not acceptable for even the public spaces in residential use (40 PSF). Unfortunately, the purlins are not in good condition and cannot achieve even the 36 PSF capacity.

The gallery girders, like the purlins, if they were in good condition, would have a capacity of only 41 PSF, nowhere near the capacity needed for public use. However, these girders are severely deteriorated and have no calculated safe capacity in their current severely deteriorated condition.

Door Lintels

Based on the findings above, we conclude that the embedded ferrous metal lintels are corroding, damaging the north and south walls of the house and will ultimately do significantly more damage if left in place.

East and West End Walls

The minimal depth of the deformations in the east and west end walls leads us to conclude that those end walls are not yet unstable. However, because they are not plumb and not tied to the diaphragms, over time the deformations will increase until the walls do become unstable. Furthermore, and again because the walls are not tied to the diaphragms, under severe wind conditions, they could become unstable.

Second Floor Framing

Our previously stated conclusions about the second floor framing have been based on inspection of a small sampling of the total framing for the second floor. While we believe that what we have sampled provides a relatively good representation of the overall framing conditions, if the use for the second floor will change significantly, we recommend that the 20th century plaster now in place be removed in more places than has been done and that additional areas be evaluated.

For the framing of the rooms of the second floor (Room 201, Room 202 and Room 203), there are two possibilities. The first would be to repair damaged trimmer joists, then limit access and use so that loads did not exceed 50 PSF. A light office use without permanent partitions would qualify. This option is relatively inexpensive and very reasonable if the budget is limited.

The second possibility would be to achieve a capacity of 100 PSF by removing the 20th century plaster ceiling below, sistering the existing historic joists, adding connections in the few places where needed, and replacing the plaster ceiling. This option allows future assembly use without concern about overloading. This option is significantly more expensive than the first option.

Stair System

The structure of the first flight of the interior stairs, from the first floor to the second floor, is so severely termite damaged that the structural framing, including both the stringers and the supporting vertical members, of this flight must be completely replaced. If, in replacing the framing of this flight, it is discovered that the beams supporting the tops of the stringers or any other members at the landing are termite damaged, we recommend replacing those as well. We recommend that, in replacing this framing, all new structural elements, and especially their connections, be designed for a structural loading of at least 80 PSF, and preferably 100 PSF. During this phase of work and while the lower ends of the three stringers supporting the flight from the lower intermediate landing up to the second floor are exposed, we recommend strengthening the connections of the second flight stringers to their supporting beam at the first intermediate landing.

Several members of the structural framing at the intermediate landing and winders between the second floor and the third floor (attic) are in such deteriorated condition that they cannot reasonably be sistered nor strengthened, but must be completely replaced. In addition, a number of treads supported by these framing members, particularly those at the small landing leading into the winders, are severely termite damaged. We recommend removing the 20th century plaster from the underside of the third and fourth flights in the immediate vicinity of the landing and winders, taking that opening as far as termite damage is observed, and completely replacing all termite damaged framing, treads, and risers.

Because of the proximity of this stair to the east exterior end wall, we recommend that all replacement framing members be pressure-treated wood with all fasteners of stainless steel.

The decorative handrail system and newel post are original interior architectural elements to the building and should be protected, preserved, and if disassembled, salvaged and reinstalled after the framing structure of the stair has been replaced and strengthened.

Second Floor Galleries

Unlike the second floor framing, the framing for the galleries is so severely deteriorated that the galleries must be completely reconstructed. Again, there are two options. As a first option, if the galleries are reconstructed exactly as they are, in their current geometry, in new timber, they will have such a low structural capacity that they cannot be safely used for any use other than simple maintenance.

If, on the other hand, the galleries are rebuilt with a slightly modified structure, they can achieve a structural capacity appropriate for assembly use (100 PSF). In this second option, a 100 PSF capacity can be achieved without making major changes to the historic structure by:

- Changing the connections of the purlins to the girders;
- Slightly increasing the depths of the purlins; and
- Reducing the spacing of the purlins.

Since the galleries must be completely reconstructed, there is relatively little difference in cost between the two options described above. Even if the interior of the house on the second floor were not open to visitors, we recommend accepting the second option and reconstructing both the galleries and the exterior stairs, to a capacity of 100 PSF, so that they could safely carry assembly loads.

While this reconstruction could bring a significantly increased loading capacity, a change in the detailing to prevent water intrusion through the gallery decking into the structural framing below is just as important as is the reconstruction itself. This is covered in the architectural section of this report.

Door Lintels

We recommend that all embedded steel lintels be removed and replaced in stainless steel. Because stainless steel has a lower yield stress than mild steel, this will likely require a small increase in the thickness of the lintels to achieve a structural capacity comparable to that of the old mild steel lintels being removed.

East and West End Walls

We recommend that both the east and west end walls be tied back to the second floor and attic diaphragms using tie rods and pattress plates. The structural design of the pattress plates and rods will dictate the plate diameter, rod diameter, rod length and anchorage design. The plates, if made of stainless steel, may be buried in the east and west end walls. If the plates are made of cast iron, they may be appropriately coated with a zinc/epoxy/polyurethane coating system, and left exposed as an expression of their purpose.

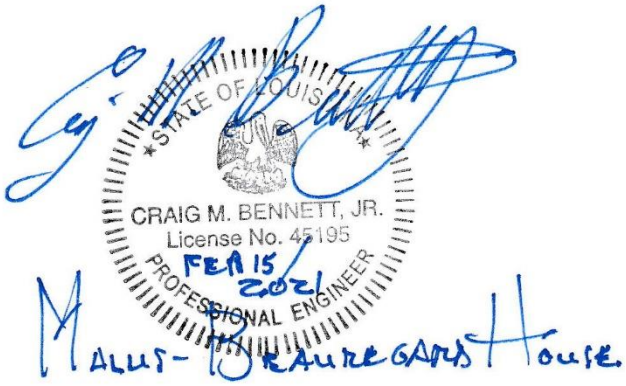
The findings, conclusions, and recommendations in this report have been written and reviewed by Amanda Brown and Craig M. Bennett, Jr. PE of Bennett Preservation Engineering PC, with additional help from other members of this firm. We have based this report on information available to us at this time. If conditions change or more information becomes available, we would like to have the opportunity to reevaluate our conclusions and recommendations.

We understand that the information submitted in this report could require additional explanation. We welcome the opportunity to review this information and to answer any questions. We appreciate the opportunity to present this report and hope that we may be of additional service in the future.

Sincerely,

Amanda Brown

Amanda Brown
Architectural Preservationist
Bennett Preservation Engineering PC



Craig M. Bennett, Jr., PE
Bennett Preservation Engineering PC

Appendix H:
Distribution of Stucco Cracking and Potential Delamination

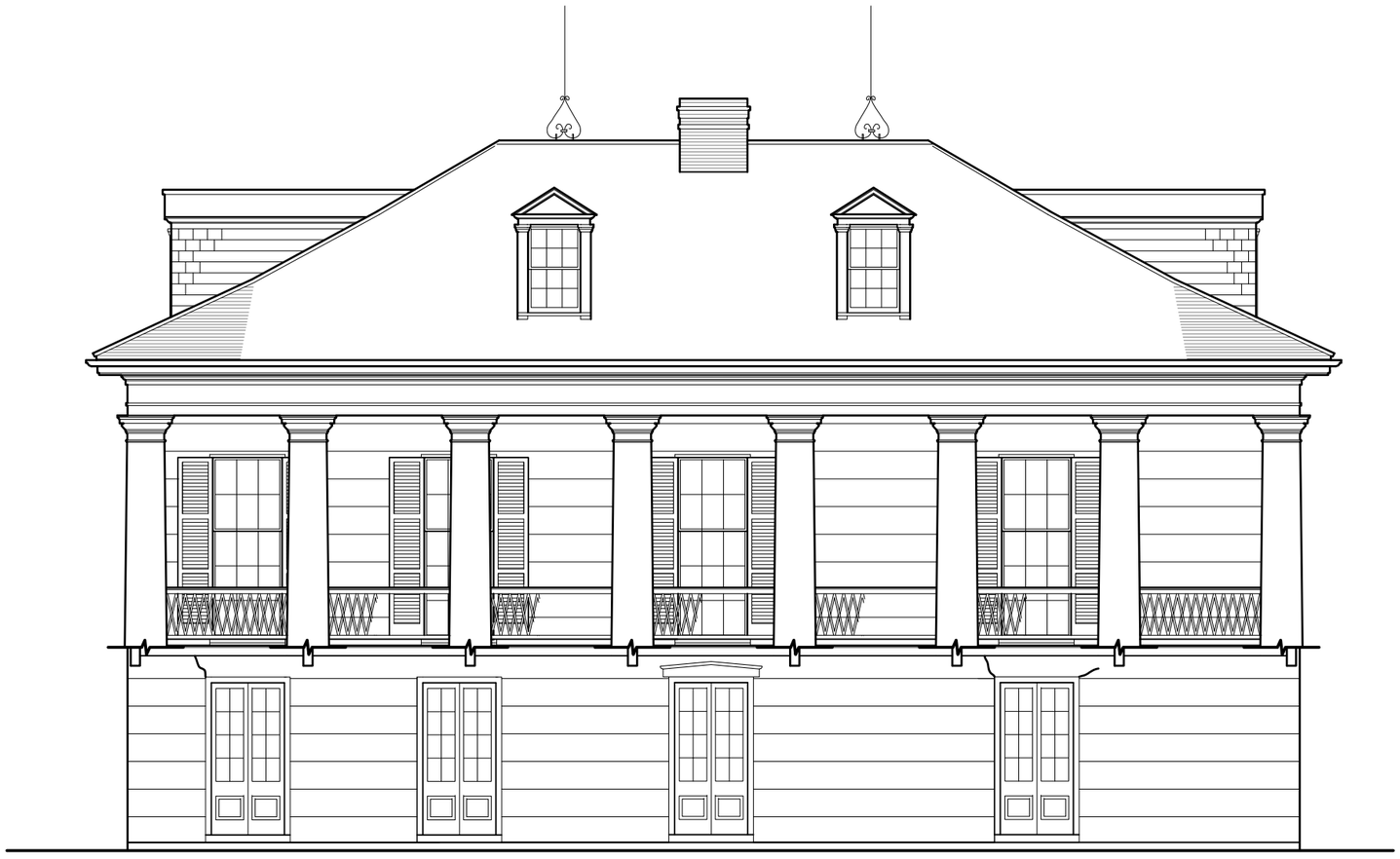
Note: *Due to the gallery levels being unsafe to access, investigation was limited to the first-floor level only.*

Sheet 1: South Elevation

Sheet 2: North Elevation

Sheet 3: East Elevation

Sheet 4: West Elevation



1 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NOTES:
STUCCO SOUNDING ON THE SOUTH ELEVATION YIELDED A UNIFORMLY HOLLOW SOUND; HOWEVER, THE STUCCO APPEARS STABLE AND DAMAGE IS LARGELY LOCALIZED TO DOORWAY LINTEL AREAS.

BOLD LINEWORK INDICATES OBSERVED CRACKING.

DUE TO SAFETY CONCERNS PREVENTING GALLERY ACCESS, INVESTIGATIONS WERE LIMITED TO THE FIRST FLOOR LEVEL ONLY.

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

MALUS-BEAUREGARD HOUSE

JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE
CHALMETTE, LOUISIANA

RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX H: SHEET
1



1 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NOTES:
STUCCO SOUNDING ON THE NORTH ELEVATION YIELDED A UNIFORMLY HOLLOW SOUND; HOWEVER, THE STUCCO APPEARS STABLE AND DAMAGE IS LARGELY LOCALIZED TO DOORWAY LINTEL AREAS.

BOLD LINEWORK INDICATES OBSERVED CRACKING.

DUE TO SAFETY CONCERNS PREVENTING GALLERY ACCESS, INVESTIGATIONS WERE LIMITED TO THE FIRST FLOOR LEVEL ONLY.

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MALUS-BEAUREGARD HOUSE

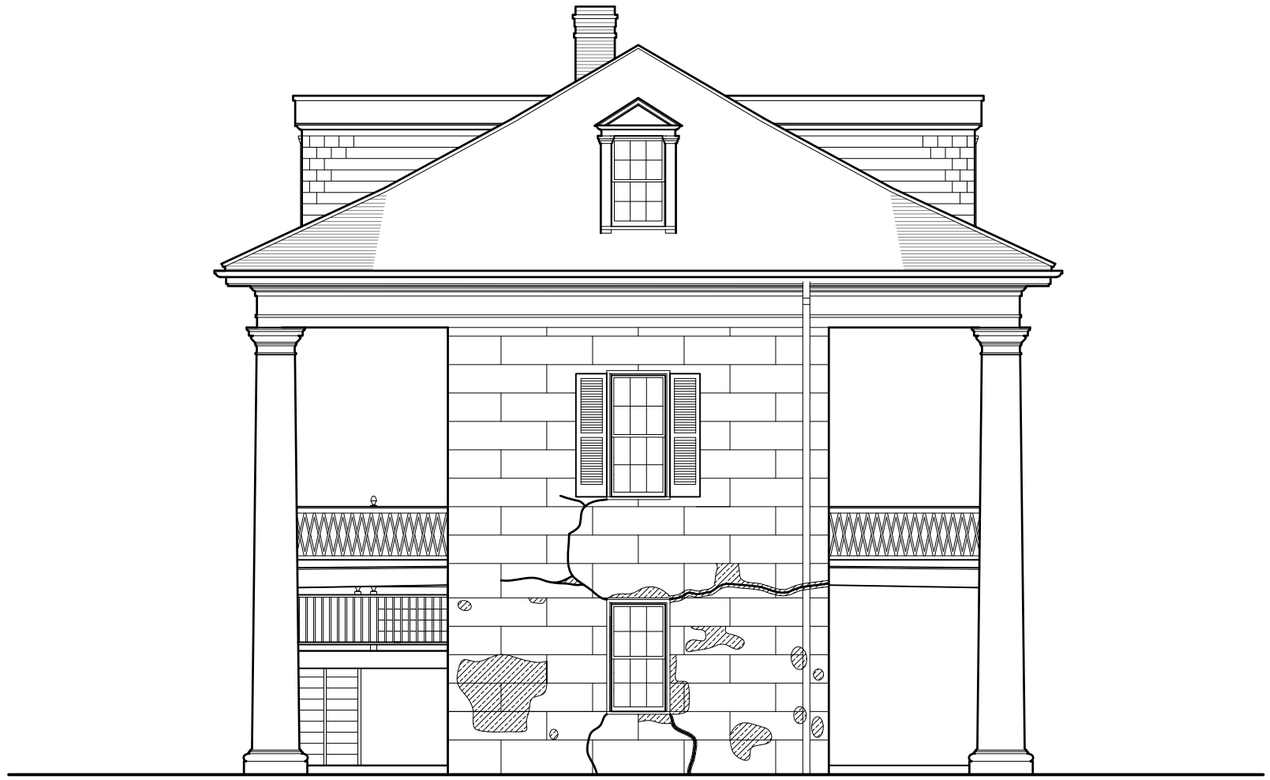
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12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX H: SHEET
2



1 EAST ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NOTES:
HATCHED AREAS IDENTIFY LOCATIONS OF POTENTIAL DELAMINATION.

BOLD LINEWORK INDICATES OBSERVED CRACKING.

DUE TO SAFETY CONCERNS PREVENTING GALLERY ACCESS, INVESTIGATIONS WERE LIMITED TO THE FIRST FLOOR LEVEL ONLY.

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CHALMETTE, LOUISIANA

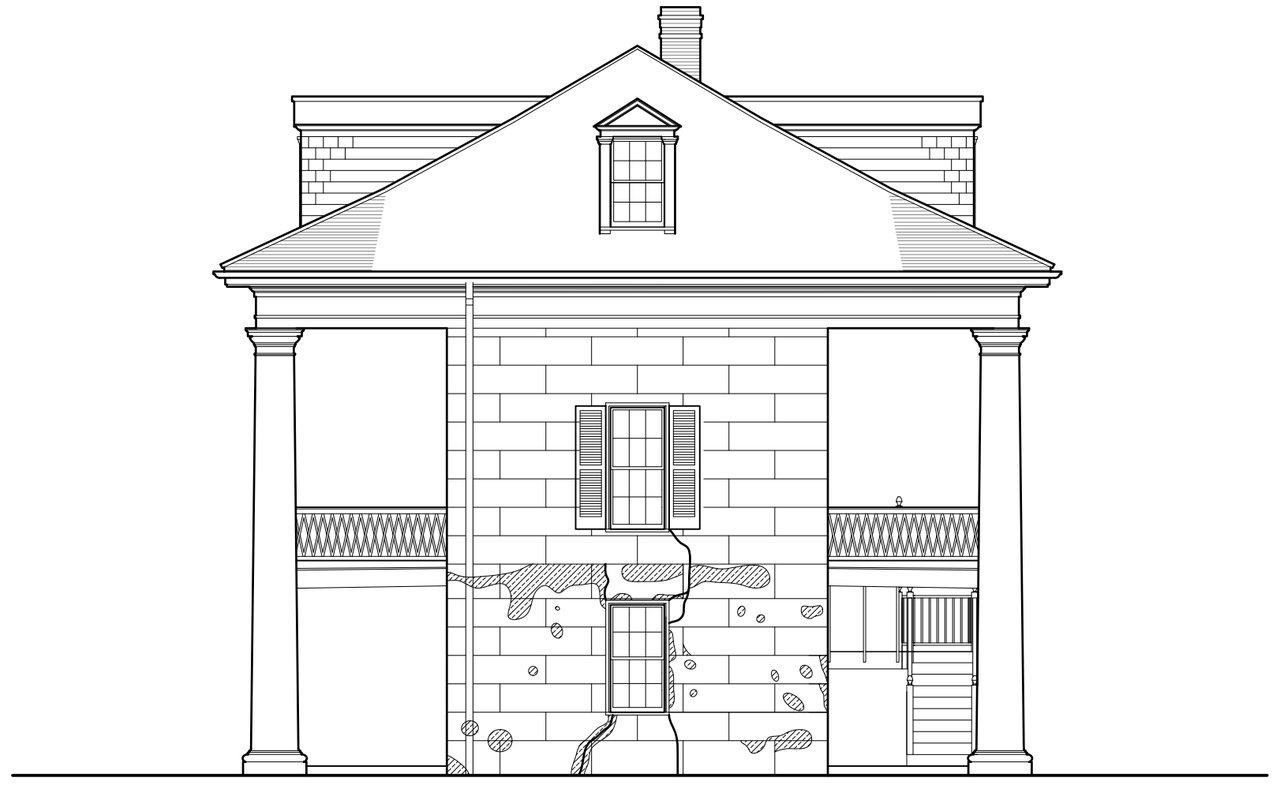
RECORDATION DATE:
12.2-6.2019

RECORDED BY:
JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX H: SHEET

3



1 WEST ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

NOTES:
HATCHED AREAS IDENTIFY LOCATIONS OF POTENTIAL DELAMINATION.

BOLD LINEWORK INDICATES OBSERVED CRACKING.

DUE TO SAFETY CONCERNS PREVENTING GALLERY ACCESS, INVESTIGATIONS WERE LIMITED TO THE FIRST FLOOR LEVEL ONLY.

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12.2-6.2019

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JKO, JPA

SCALE:
1/8" = 1'-0"

HSR APPENDIX H: SHEET

4

National Park Service
U.S. Department of the Interior

Malus-Beauregard House
Jean Lafitte National Historical Park and Preserve
419 Decatur Street
New Orleans, LA 70130

www.nps.gov/jela

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