



Quarters 208

Historic Structure Report



Cultural Resources, Partnerships and Science
Southeast Region

Quarters 208

San Juan National Historic Site, Puerto Rico

Historic Structure Report

Prepared by:
Panamerican Consultants, Inc.
2390 Clinton Street
Buffalo, New York 14227

Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062

Prepared for:

National Park Service
Southeast Regional Office
100 Alabama Street SW
Atlanta, Georgia 30303



**Cultural Resources, Partnerships and Science Division
Southeast Region
National Park Service
100 Alabama Street, SW
Atlanta, Georgia 30303
(404) 562-3117**

About the front cover: Quarters 208, San Juan National Historic Site, view of west elevation, July 2018. Photograph by Wiss, Janney, Elstner Associates, Inc.

This manuscript has been authored by Panamerican Consultants, Inc., and Wiss, Janney, Elstner Associates, Inc., under Contract Number P16PD1918 with the National Park Service. The United States Government retains and the publisher, by accepting the article for publication, acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes.

Quarters 208

San Juan National Historic Site, Puerto Rico

Historic Structure Report

Approved by: *Myrna J. Palfrey* 5-1-20
Superintendent, San Juan National Historic Site Date

Recommended by: *Simone Montalona* 5/11/20
Chief, Cultural Resources, Partnerships and Science Division, Southeast Region Date

LANCE HATTEN Digitally signed by LANCE HATTEN
Date: 2020.06.03
11:24:05 -0400
Recommended by: _____
Deputy Regional Director, Southeast Region Date

KAREN CUCURULLO Digitally signed by KAREN CUCURULLO
Date: 2020.06.04
19:08:48 -0400
Approved by: _____
Regional Director, Southeast Region (Acting) Date

Contents

List of Figures	vii
List of Acronyms	xiii
Project Team	xiv
Foreword	xv

Management Summary

Historical Data	2
Treatment and Use	4
Administrative Data	4
Project Scope and Methodology	5

Developmental History

Historical Background and Context	9
History of Quarters 208 (LCS 006070)	15
Changes to Quarters 208	22
Quarters 208 Timeline	28

Physical Description and Condition Assessment

Site	31
Exterior Description	33
Elevations	33
Walls	39
Windows	41
Doors	43
Roof	46
Exterior Stair	49
Exterior Catwalk	51
Exterior Condition Assessment	52
Exterior Masonry Walls	52
Concrete	55
Wood Windows and Doors	56
Roof	57
Metal Framing and Handrails	60
Interior Description	61
Floors	64
Walls	65
Ceilings	72
Doors	73
Interior Condition Assessment	74
Interior Wall Finishes	74
Interior Ceiling Finishes	76
Wood Windows and Doors	77
Mechanical and Electrical Systems	77

Significance and Integrity

National Register of Historic Places	79
Significance Criteria	79
National Register Significance Evaluation	80
World Heritage Listing	83
Period of Significance	84

Character-Defining Features	85
Assessment of Integrity	85

Treatment and Use

Requirements for Treatment and Use	87
Laws, Regulations, and Functional Requirements	87
Alternatives for Treatment and Use	89
Ultimate Treatment and Use	90
Guidelines for Treatment	90
Recommendations	92
Recommendations for Further Research	94
Resilience to Natural Hazards	94
 Bibliography	 97

Appendices

- Appendix A: Measured Drawings
- Appendix B: Historic Paint Analysis Report

List of Figures

Management Summary

1	Map of Puerto Rico showing the location of the San Juan National Historic Site	7
2	Aerial photograph of Old San Juan showing the location of Quarters 208	7
3	Quarters 208, San Cristóbal, and environs	8

Developmental History

4	Quarters 208 (LCS 006070), 507 Calle Norzagaray, San Juan National Historic Site, Puerto Rico	9
5	Detail from <i>Plano de la Plaza de San Juan de Puerto Rico</i> , 1861, showing the Artillery Pavilions and the building that will become Quarters 208 (in the red circle)	11
6	Detail from <i>Plano de la Plaza de San Juan de Puerto Rico</i> , 1887, showing the Artillery Pavilions and the building that will become Quarters 208 (in the black circle)	12
7	<i>Bombardment of San Juan, Puerto Rico</i> , Stereoscope Card. Note: the card reads “San Juan, Cuba,” but the Library of Congress entry for the card notes that the scene is “San Juan, Puerto Rico”	13
8	“Morro” Castle Wall struck by a 13-inch shell from Sampson’s guns, San Juan, Puerto Rico, Stereoscope Card ...	13
9	Detail showing Artillery Pavilions, Building No. 5, and San Sebastián Bastion, US Army Corps of Engineers ...	16
10	Detail showing Artillery Pavilions, Building at 5 Calle Norzagaray, and San Sebastián Bastion	16
11	A portion of the famed <i>Alhambra</i> , Granada, Spain, shows one of the many architectural features that the Spanish adopted from the Moors, interior walled gardens as integral features of rooms and sections of buildings	17
12	Detail of Front Elevation of Quarters 209, Quarters 208 next door neighbor, showing its very different Spanish Colonial Revival style	19
13	Detail of Casa Jornaleros from <i>Proyecto de Reparación y Reforma de los Pabellones de Artillería</i> (Draft Repair and Reform of the Artillery Pavilions)	19
14	Casa de la Beneficencia, now home of the Institute of Puerto Rican Culture	20
15	Braulio Dueño Colón (1854-1934)	21
16	Detail of the Artillery Pavilion area showing the building that will become Quarters 208 in a rectangular shape for the first time	23
17	Aerial view of San Cristóbal showing the Artillery Pavilion area along Calle Norzagaray including Quarters 208 beside the original entrance ramp, at center left	23
18	Most common house plan in Puerto Rico before the twentieth century– rooms bisect the long dimension of the house. Sala = living room; D (dormitorio) = bed room; C (cocina) = kitchen	24
19	Little Masons program, a part of the Discovery Center, in Quarters 208	27

Physical Description and Condition Assessment

20	The site south of Quarters 208, with views of Castillo de San Cristóbal (right) and Quarters 209 and 210 (left), 2018	32
21	Norzagaray Road as seen from the entrance of Quarters 208, looking north in 2018	32
22	The mown-turf lot to the north of Quarters 208 in 2018	32
23	The alley to the south of Quarters 208 and adjacent to Quarters 209 (left) in 2018	32
24	The entrance door to the alley south of Quarters 208 in 2018	32

25	The retaining wall at the east end of the site in 2018	33
26	The retaining wall and embankment where they meet the east elevation of Quarters 208 in 2018	33
27	General overview depicting the construction chronology of Quarters 208, including the original building (by 1861), the first addition (by 1930), and the second addition (by 1973). Note that the building originally had a courtyard to the east, which was enclosed by the first-floor addition	34
28	Overview of west elevation	34
29	Detail of balustrade at north and south door openings	34
30	Profiled architrave at horseshoe window openings	34
31	Center door opening with plaque over transom	34
32	Corner quoins at west elevation	35
33	Detail of cornice profile at west elevation	35
34	Acroterion at center of roof parapet and ziggurat-shaped crenellations	35
35	Overview of south elevation	36
36	West half of south elevation	36
37	Piers located at west half of south elevation	36
38	Easternmost pier at south elevation. Note that pier is concealed by concrete stair and only the cap is visible	36
39	Window opening at east half of south elevation	36
40	Vertical crack separating the east and west halves of the south elevation (arrow and dashed line)	36
41	Non-original flood light over door opening	37
42	Overview of east elevation	37
43	View of catwalk at east elevation as seen from below	37
44	Overview of north elevation	38
45	Cornice return at west end of north elevation	38
46	Overview of second-floor addition, east elevation	38
47	Overview of second-floor addition, north elevation	38
48	Overview of second-floor addition, west elevation	38
49	Window opening at south elevation of second-floor addition	39
50	Wall construction at the west half of the building. Note underlying mortar and stucco visible at one area of distress	39
51	Wall construction at west half of building. Note brick and mortar at perimeter of door opening	39
52	Wall construction at the projecting decorative elements on the west half of the building. Note underlying brick	40
53	Area of missing stucco at the east half of building, where underlying masonry was observed	40
54	Casement window opening at first floor of south elevation	41
55	Physical evidence of previous repair or alteration at window head	41
56	Wood window louvers set in metal frame	42
57	Interior turn mechanism for louvers	42
58	View of casement windows at first floor of east elevation. Note center astragal (arrow)	42
59	Top of first-floor east elevation window with slide lock (arrow) as viewed from the interior	42

60	Louvered window at first floor of east elevation	43
61	Louvered window at south elevation of second-floor addition	43
62	View of interior casement windows at west elevation of second-floor addition	43
63	Exterior view of main entrance door at west elevation	44
64	Interior view of main entrance door	44
65	Louvered panel with interior acrylic at main entrance door	45
66	Recessed panels at lower portion of main entrance door	45
67	Horseshoe-shaped transom with applied mullions at main entrance door	45
68	View of door opening at the north end of the west elevation	45
69	Interior view of the south elevation exterior entrance door	45
70	Interior step adjacent to the second-floor addition exterior entrance	46
71	The second-floor addition exterior entrance door	46
72	Door sweep at the second-floor addition exterior entrance door	46
73	Overview of the main roof, located over the west half of the building	47
74	Roof membrane with joints spaced 34 inches on center and waffle-pattern surfacing	47
75	Sheet-metal roof termination flashing along west parapet wall	47
76	Roof membrane wraps the top of the parapet at the north and south parapet walls (parapet in image is right of the dashed line)	47
77	Fiberglass skylight at the northside of the roof	47
78	Missing skylight at the southside of the roof	47
79	View of the first-floor addition roof. Note air conditioning units	48
80	Roof membrane wraps the top of the parapet wall	48
81	Scupper drain for first-floor addition roof	48
82	One of seven air conditioning units at roof	48
83	View of second-floor addition roof	49
84	Overhang with drip edge at second-floor addition roof	49
85	Vent stack penetration at second-floor addition roof	49
86	Plumbing stack penetration at second-floor addition roof	49
87	Aluminum skylight framing attached to wall with brackets (arrow)	49
88	Stair at south elevation	50
89	Accessibility lift to east of stair	50
90	South entrance stair with handrail (arrow)	50
91	Concrete at stair with cold joint between original concrete (arrow side) and concrete addition	50
92	Concrete at landing with cold joint between original concrete (arrow side) and concrete addition	50
93	View of the underside of the catwalk structure including perimeter beams (line), girts (arrow), and underside of vertical bracing (circle)	51
94	Steel support angle mounted to retaining wall at north end of catwalk	51
95	Intermediate beam (arrow) supporting midspan of catwalk	51

96	Vertical bracing mounted to the wall (arrow)	52
97	Catwalk as seen from entrance at Quarters 209	52
98	2x12 wood deck boards for catwalk	52
99	Bulging of the exterior stucco (dashed line)	53
100	Spalled exterior stucco. Underlying brick is exposed to view	53
101	Spalled exterior stucco. Underlying mortar was exposed to view	53
102	Cracking at exterior stucco was typically located along the parapet	53
103	Spalled and previously repaired stucco was observed at some wall openings. At some locations, the underlying brick substrate was exposed to view	53
104	Step cracking observed at the masonry unit construction on the north elevation of the second-floor addition	53
105	Cracking observed at the underside of the second-floor addition roof overhang	54
106	Open grouted wall penetration at south elevation	54
107	Corrosion staining at embedded anchor on north elevation	54
108	Missing perimeter sealant at light fixture	55
109	Patch at previously existing wall-mounted light fixture	55
110	Peeling paint at the west elevation	55
111	Corrosion staining at ferrous anchors supporting conduit clips and from conduit	55
112	Corrosion and staining at the catwalk framing members and wall surfaces below	55
113	Soiling on the face of the west elevation	55
114	Extensive cracking and previous repairs at concrete handrail pier	56
115	Displaced and missing wood louvers. Note corrosion staining attends of louvers	56
116	Peeling and deteriorated surface coating at exterior face of second-floor addition window opening on south elevation	56
117	Bubbling paint at door frame at west elevation	56
118	Peeling paint along joints of door framing	57
119	Cracked transom glass	57
120	Skylight with blue tarpaulin covering lower portion, where leakage was reported	58
121	Evidence of water infiltration at courtyard wall below skylight	58
122	Missing skylight frame and light at south side of roof, above south entrance room	58
123	Concrete spalling along second-floor addition roof	58
124	Open penetration at the north parapet of the main roof	58
125	Open and debonded sealant joint along top edge of sheet-metal flashing	58
126	Existing roof scupper. Note that the drain does not have a strainer or typical flashing details	59
127	The roof scupper at the main roof is obstructed by bundles of conduit and insulated piping	59
128	Numerous areas of ponding water at the center of the roof	59
129	Puckering and bubbling of the roof membrane	59
130	Missing seam tape at joints between sections of membrane	59

131	Open joint in surfacing between membrane sections	59
132	Corrosion staining and deteriorated flashing at vent pipe	60
133	Corrosion staining at the roof membrane below the individual air conditioning units	60
134	Biological growth adjacent to conduits and insulated pipes on the roof	60
135	Corrosion of steel framing for catwalk	61
136	Corrosion at the steel vertical bracing members	61
137	Mild scratches and surface corrosion at handrail	61
138	Surface corrosion at the framing for the accessibility lift. Corrosion is concentrated near the corners	61
139	View of the main entrance room at the north end of the first pile	62
140	View of the officer's office at the south end of the first pile	62
141	View of the ranger's office at the north end of the second pile	62
142	View of the south entrance room at the south end of the second pile	63
143	View of the covered courtyard at the north end of the third pile	63
144	View of the ranger's support room at the southwest corner of the third pile	63
145	View of the classroom at the southeast corner of the third pile	63
146	View of the men's restroom	64
147	View of the women's restroom	64
148	View of the storage room at the second-floor addition	64
149	Typical VCT flooring throughout the building	65
150	Concrete pavers at the covered courtyard	65
151	Wood laminate flooring at classroom	65
152	14-inch-square ceramic tile flooring at restrooms	65
153	Floor at storage room includes rubber tile flooring over previously existing ceramic tile and concrete patch repair	65
154	Plan showing location of historic north-south interior walls	66
155	Plan showing location of first-floor addition interior walls	66
156	Plan showing location of later interior wall additions	67
157	Typical wall opening at historic north-south interior wall	68
158	North wall opening, between the main entrance room and the ranger's office, at the west interior wall	68
159	Center wall opening, between the main entrance room and the ranger's office, at the west interior wall ...	68
160	South wall opening, between the officer's office and south entrance room, at the west interior wall	68
161	North opening, between the ranger's office and the covered courtyard, at the east interior wall	69
162	Center opening, between the ranger's office and the covered courtyard, at the east interior wall	69
163	South opening, between the south entrance room and the ranger's support room, at the east interior wall	69
164	Typical interior wall at the first-floor addition	69
165	West opening, between the ranger's support room and the covered courtyard, at the south wall	70
166	East opening, between the classroom and the covered courtyard, at the south wall	70

167	Men’s restroom entrance at the south end of the east courtyard wall	70
168	Women’s restroom entrance at the north end of the east courtyard wall	70
169	Door opening at later addition wall separating the officer’s office and the main entrance room	70
170	Door opening at later addition wall separating the south entrance room from the ranger’s office	71
171	Interior tile finishes are similar at the men’s and women’s restrooms	71
172	Interior wall finishes at the storage room consist of plaster over previously existing ceramic tile	71
173	Typical wall-mounted evaporator unit at interior spaces	71
174	Typical wall-mounted sconces	71
175	Soffit at west wall of covered courtyard (arrow)	71
176	A wall-mounted bar at the classroom supports a muslin curtain	72
177	Laminate baseboard at perimeter of classroom	72
178	Typical interior restroom finishes including a wall-mounted sink, cabinet, air dryer, and toilet paper dispenser	72
179	Wall-mounted outlet at second-floor addition storage room	72
180	Steel channels were mounted to the east wall of the second-floor addition (arrow)	72
181	Skylight opening as observed from the ranger’s office	73
182	Typical ceiling-mounted fan	73
183	Typical track lighting	73
184	Soffit at storage room ceiling	73
185	Wood-framed door between the covered courtyard and the classroom. The door includes a hollow-core door leaf, wood side panel, and semicircular transom. The door shown is one of three similar doors	74
186	The men’s restroom door is a hollow-core door with a louvered vent opening, similar to the door at the women’s restroom	74
187	Bubbling paint at the base of an interior wall of the ranger’s office	75
188	Bubbling paint at the top of the wall at the main entrance room, opposite a conduit penetration at the exterior face of the wall (within dashed area)	75
189	Bubbling paint at the south entrance room. Portions of the paint has peeled away and the underlying plaster is exposed to view	75
190	Cracking at the interior plaster. The plaster at some cracks appears to be displaced	75
191	Cracked plaster at subframe of door between the officer’s office and the south entrance room	75
192	Evidence of previous electrical repairs at the covered courtyard	76
193	Evidence of previously infilled door opening at the south end of the east interior elevation of the covered courtyard	76
194	Evidence of previous repair at the door head of the men’s restroom	76
195	Spalled and peeling paint at the ceiling of the officer’s office	76
196	Cracked plaster adjacent to missing skylight at the south entrance room	77
197	Electrical load center at first floor Quarters 208, San Cristóbal	77

List of Acronyms

ABAAS	Architectural Barriers Act Accessibility Standards
CFR	Code of Federal Regulations
CLR	Cultural Landscape Report
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HSR	Historic Structure Report
IBC	International Building Code
IEBC	International Existing Building Code
IECC	International Energy Conservation Code
IPC	International Plumbing Code
IPCC	Intergovernmental Panel on Climate Change
LCS	List of Classified Structures
NHL	National Historic Landmark
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRIS	Natural Resource Information System
SAJU	San Juan National Historic Site
SHPO	State Historic Preservation Office
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NEC	National Electrical Code
UNESCO	United States National Scientific and Cultural Organization

Project Team

National Park Service

Noelli Medina, NPS SERO, Contracting Specialist
Dr. Ali Miri, NPS SERO, Historical Architect, Southeast Regional Office
Felix López, NPS SAJU, Cultural Resources Manager
Eric López, NPS SAJU, Park Historian

Panamerican Consultants, Inc.

Kelly Nolte, Project Manager / Historian
Mark Steinback, Editor

Wiss, Janney, Elstner Associates, Inc.

Deborah Slaton, Historian / Conservator
Mike Ford, Historical Architect
Tim Penich, Historical Architect
Abby Valek, Preservation Intern

Foreword

“The interior of the house personifies the private world;
the exterior of it is part of the outside world”

Stephen Gardiner

There are many buildings and structures within the San Juan National Historic Site that are emblematic and iconic to the point that we take them for granted. The San Juan Gate, the Devil’s Sentry Box, the Lighthouse at El Morro, among others, are included in many artistic expressions throughout Puerto-Rican culture. Our sentry boxes are such a symbol for Puerto Rico that they are in the license plates! Yet, so much is left to discover and learn about the park and about the uses, construction history, and development of other auxiliary structures that are part of the historic site.

One of the buildings about which we know very little is Quarters #208. This building is the very first one that we encounter as we begin to descend Norzagaray Street, as we are leaving the historic entrance of Castillo San Cristóbal. Current thinking at the park was that the building used to be one of the artillery pavilions constructed under Spanish rule during the 19th century. The artillery pavilions were used by the Spanish military to house personnel from the Artillery Corps. Since the building was located near the pavilions, the assumption was that its functions were similar.

However, there are some clues that we were dealing with a structure that had different functions. Contrary to the artillery pavilions, there is next to nothing in the way of documentation of the building. This was very peculiar, considering that the Spanish documented every institutional building meticulously. Another indication, and a very visible one, is the difference in architectural design. The pavilions followed a neoclassical architectural style, while 208 exhibits a Moorish-influenced style, atypical of military construction. The pavilions lack many ornamental elements that Quarters 208 has. For the casual observer, this building looked like a private home, rather than an actual government or military building.

Knowing why the building was constructed in this way is very important for the park. This information helps the park interpret the structure, informs treatment decisions, and ensures its proper preservation. Moreover, studying its architecture can help us understand the uses it had, giving us a glimpse into the lives of its inhabitants. It will help us understand a building that is relatively unknown to us. It will enable us to ensure that future treatment and use do not affect the character-defining features that make 208 unique. It will also inform future research that will help us answer questions such as: Who built the quarters? What was its original purpose? Why was the building located there, right in the middle of the San Cristóbal military complex, and why did the Spanish allow it? While this is not necessarily a biography of the building, this Historic Structures Report is the very first step in telling the story of Quarters 208.

A number of individuals contributed to the successful completion of this work. I would particularly like to thank the staff at the San Juan National Historic Site for their assistance throughout this project. Also, I would like to thank the staff of the Cultural Resources Branch of the Interior Region 2 of the National Park Service.

We hope that this study will prove valuable in our ongoing efforts to preserve the historic structure and to everyone in understanding and interpreting this unique resource.

Myrna Palfrey
Superintendent
San Juan National Historic Site

Left blank intentionally

Management Summary

At the request of the National Park Service (NPS), Panamerican Consultants, Inc. and its subconsultant, Wiss, Janney, Elstner Associates, Inc. (WJE), have developed this Historic Structure Report (HSR) for Quarters 208 at San Juan National Historic Site in Puerto Rico. Refer to figures at the end of this chapter for maps showing the location of Quarters 208 and San Juan National Historic Site. Figure 1 is a map of Puerto Rico showing the location of San Juan National Historic Site. Figure 2 is an aerial photograph of Old San Juan showing the location of Quarters 208 within the city. Figure 3 is an annotated aerial view showing Quarters 208 and its environs.

Quarters 208 at 507 Calle Norzagaray within the San Juan National Historic Site stands between the historic main access ramp and the Artillery Pavilion Buildings (Buildings 209, 210, and 211) of Castillo San Cristóbal (San Cristóbal). It was constructed in the second half of the nineteenth century and was possibly used for Spanish government activities, but it appears to have been used throughout most of its lifetime as a private, civilian residence. In 1968, Quarters 208 was sold to the National Park Service by a private citizen, Mrs. Dolores Marrero Viuda de Colón, for \$28,000.¹

San Juan National Historic Site was established by the Secretary of the Interior in 1949, as was possible at the time under provisions of the 1935 Historic Sites Act.² The Federal Register of

February 25, 1949, included the Secretary of the Interior's statement regarding the significance of the National Historic Site:

... the ancient fortifications of San Juan, Puerto Rico, particularly the massive masonry works of El Morro and San Cristobal and their connecting walls, are outstanding monuments of the past, possessing exceptional historical and architectural interest for the Nation, and have been declared by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments to possess exceptional importance as commemorating the history of the United States ...³

The National Register of Historic Places documentation for Zona Histórica de San Juan (San Juan Historic Zone), entered in the National Register in 1972, addresses the fortifications as well as selected primary historic resources (e.g., churches, hospital, convent, etc.) within the "historic zone" addressed by the nomination. Quarters 208 is not specifically addressed in this documentation.⁴

The National Register of Historic Places nomination documentation for San Juan National Historic Site, prepared in 1973, addresses fortifications consisting of the major fortresses of El Morro and San Cristóbal with their outerworks, the city walls, the satellite forts of El Cañuelo and

1. Deed Book 598, page 179, Entry 358, File 33-40-200-1, Deed 393, County of San Juan, Puerto Rico.
2. Historic Sites Act of 1935, 16 USC sec. 461–467, accessed May 2019, <https://www.nps.gov/history/local-law/hsact35.htm>.

3. *Federal Register* 14, no. 37, February 25, 1949, 871.
4. Luis M. Rodríguez Morales, Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, San Juan, *National Register documentation for Zona Histórica de San Juan (San Juan Historic Zone)*, June 1971; entered in the National Register, October 10, 1972 (NRIS 72001553).

San Jerónimo, and associated structures.⁵ The nomination notes that the San Juan defensive system is one of the major Caribbean fortifications of the Spanish empire, and helped to protect Spanish interests in the New World. In addition, the fortifications illustrate the adaptation of European defensive military construction to a challenging tropical site, and the evolution of these resources over multiple centuries. The fortifications and primary resources are identified as “First Order of Significance,” and Quarters 208 is identified as “Second Order of Significance” (hand annotated “Third”) in this documentation.⁶ (Refer to the Significance and Integrity chapter for more information.)

The National Register documentation for the Old San Juan Historic District, entered in the National Register in 2012, and National Historic Landmark documentation for the historic district, prepared in 2012, address the urban structures of Old San Juan as well as the fortifications.⁷ The 2012

5. F. C. Gjessing and Loretta Schmidt, *National Register of Historic Places Inventory – Nomination Form: San Juan National Historic Site*, San Juan National Historic Site, Puerto Rico, July 12, 1973, Section 8 (unsigned). Refer to Chapter 4 – Significance Evaluation for further discussion of National Register and National Historic Landmark documentation of the historic site and its resources.
6. Ibid. As was sometimes done in National Register nomination documentation for historic districts at the time, resources are identified as First, Second, or Third Order of Significance. These categories pertain to recommendations for treatment approaches that are also discussed in the documentation. For example, the treatment approach recommended for Quarters 208 in the 1973 documentation is “Adaptive Restoration.” Current National Register documentation narratives do not assign these significance categories or recommended treatment approaches.
7. Arleen Pabón-Charneco, Puerto Rico SHPO Consultant, *National Register of Historic Places documentation for Distrito Histórico del Viejo San Juan / Old San Juan Historic District*. Tallahassee, Florida. June 6, 2012, entered in the National Register, July 30, 2012 (NRIS 12000465); Arleen Pabón-Charneco, Puerto

National Register documentation represents a boundary extension of the historic site included in the 1973 National Register documentation, and incorporates the urban and residential resources of Old San Juan, as well as the defensive walls and other resources. Block 172, in which Quarters 208 is located, is discussed in both the 2012 National Register and the 2012 National Historic Landmark documentation. Quarters 208 (parcel 1) is indicated as a contributing resource on the map prepared with the National Historic Landmark documentation.⁸ Quarters 208 is considered a contributing building within the National Historic Landmark district.

Historical Data

The Spanish claimed what would become the island of Puerto Rico as part of their empire in the Americas and began colonizing it in the early sixteenth century and fortifying it by 1539. Other European powers were interested in Spain’s riches in the New World, and in several successful raids during the sixteenth century both the English and the Dutch ransacked the fledgling city of San Juan before being repelled. With these attacks in mind, the Spanish began to fortify San Juan, and by the end of the seventeenth century, the Spanish had completely encircled the city with massive walls and bastions which were part of a larger defensive complex that included San Cristóbal and Castillo San Felipe del Morro (El Morro).⁹ Civilian life within the wall surrounding San Juan was

Rico SHPO Consultant, *National Historic Landmark documentation for the Old San Juan Historic District/ Distrito Histórico del Viejo San Juan*, September 24, 2012. The Old San Juan Historic District was designated a National Historic Site on February 27, 2013 (NRIS 13000284).

8. Pabón-Charneco, National Historic Landmark documentation, 2012.
9. National Park Service, *San Juan* [brochure] San Juan National Historic Site, Puerto Rico (N.P.: US Department of Interior, National Park Service, n.d.).

exceptionally crowded and was essentially lived in a military dictatorship.¹⁰

During the last great Spanish military building phase in San Juan, 1840-1870, many new buildings and much infrastructure was completed throughout the city. As a part of this expansive growth, Pabellones de Artillería (Artillery Pavilions) were constructed on the west slope of San Cristóbal next to the entry ramp facing onto the newly expanded and upgraded Calle Norzagaray.¹¹ The Artillery Pavilions were created as officer's barracks for the corps of artilleryists newly garrisoned at San Cristóbal.¹² A map created in 1861 showed these new officers' barracks as well as the building that became Quarters 208.¹³ The building was not named, and it is not clear if it was part of the newly created military complex. From 1861 to date, the building that is Quarters 208 was illustrated on maps of San Juan, but its use is never clear.

Circa 1880, the Artillery Pavilions were renovated, and a plan created for that renovation showed the building that became Quarters 208 to its northside. This building was labeled "Casa Jornaleros" (laborers house).¹⁴ It is not clear whether or not

the jornaleros building was part of the Spanish army complex, especially since it does not have construction details like the pavilions.

During the nineteenth century in Puerto Rico, jornaleros were free citizens, most of whom did not own land or possess specific job skills, who served as laborers. Traditionally, jornaleros worked as they saw fit and as needed by their own lifestyle. However, as Puerto Rico suffered severe labor shortages, their unwillingness to work more was seen by many of the large landowners as "laziness."¹⁵ In an attempt to ameliorate the shortage, jornaleros were identified by the government and forced to work on private and public projects for which they were paid. This system was rampant with abuse of jornaleros and did not solve the labor shortage.¹⁶ Nevertheless, public works projects within San Juan were military projects, and it is possible that Casa Jornaleros was in some way associated with the military use of jornaleros in the continued expansion and maintenance of the fortifications and the military complex.

When the United States Army seized control of Puerto Rico after the Spanish-American War, the history of the building that became Quarters 208 became more difficult to trace. The building appears to have not been transferred to the US Army by the Spanish and was not transferred to the NPS by the US Army.¹⁷ During the more than sixty years of use of the fortifications by the US Army, the building probably remained a private, civilian house.

The house was sold to the NPS in 1968, and sometime after that date it became known as Quarters 208.¹⁸ It is believed by some in the San

-
10. Library of Congress, "Radicalism and Repression," *Puerto Rico at the Dawn of the Modern Age: Ninetieth- and Early-Twentieth-Century Perspectives*, Library of Congress Articles and Essays, accessed January 15, 2019, <http://www.loc.gov/collections/Puerto-pico-books-and-pamphlets/nineteenth-century-puerto-rico/radicalism-and-repression/>.
 11. The Center for Preservation Research, *Historic Structure Report Quarters 209* (New York: The Center for Preservation Research, Columbia University, 1989), 13.
 12. Ibid.
 13. *Plano de la Plaza de San Juan de Puerto Rico, 1861* (Park Archives, San Juan National Historic Site, Puerto Rico).
 14. *Proyecto de Reparación y Reforma de los Pabellones de Artillería* (Draft Repair and Reform of the Artillery Pavilions), Commander General Subinspection, Puerto Rico Command, Plaza De San Juan, El Comandante General Subinspector Ingeniero F. [Francisco] de Zaragoza, Circa 1880 (Park Archives, San Juan National Historic Site, Puerto Rico).

-
15. James L. Dietz, *Economic History of Puerto Rico: Institutional Change a Capitalist Development* (Princeton, New Jersey: Princeton University Press, 1986), 44.
 16. Ibid.
 17. *Map of the Military Reservation of San Juan, P.R. (and City of San Juan)* 65th Infantry (copied from original tracing in the US Engineering Office, San Juan, PR, May-1938), May 5, 1984 (Park Archives, San Juan National Historic Site, Puerto Rico).
 18. Gjessing and Schmidt, 7.

Juan preservation community that the significant Puerto Rican musician and composer, Braulio Dueño Colón (1854–1934), lived in Quarters 208. However, Dueño recalled living on Calle del Sol; Quarters 208 has always been located on Calle Norzagaray.¹⁹

This Moorish Revival-style house has been used by the NPS for a number of activities since its acquisition and is currently undergoing interior renovations and exterior rehabilitation.

Treatment and Use

Treatments for Quarters 208 should be appropriate to the building that is a contributing resource within the Old San Juan historic district. Despite alterations made to the building since its original construction, the building retains overall integrity and continues to convey its historic character. It is anticipated that the building will remain in use by the NPS as offices or similar functions. The recommended overarching treatment for the building is therefore *Rehabilitation* to support continued protection of historic character-defining features while incorporating modifications as needed to support continued use.

The Quarters 208 building is generally in fair to good condition. Distress conditions observed primarily include deterioration at interior plaster due to either leaks at the courtyard skylight or water infiltration at exterior walls and localized deterioration of exterior stucco.

Administrative Data

Locational Data

Building Name: Quarters 208

Location: San Juan National Historic Site, Puerto Rico

LCS Number: 006070

19. EcuRed, *Braulio Dueño Colón*, accessed January 10, 2019, https://www.ecured.cu/Braulio_Dueño_Colón.

Related Studies

Berkowitz, Joan, E. Baine Cliver, Richard Crisson, Billy Garret, Judy Jacob, Frank Matero, Barbara Yokum. *The Fortifications of San Juan National Historic Site: Historic Structure Report*, Volumes 1–3. Boston, Massachusetts: Building Conservation Branch, Cultural Resources Center, North Atlantic Region, National Park Service, and New York: Center Preservation Research, Columbia University, 1991.

The Center for Preservation Research. *Historic Structure Report Quarters 209*. New York: The Center for Preservation Research, Columbia University, 1989

The Collaborative, Inc., and Atkinson-Noland & Associates, Inc. *San Juan National Historic Site, Quarter[s] No. 211: Historic Structure Report*. Boulder and Denver, Colorado, 2016.

Gjessing, F.C., and Loretta Schmidt. *National Register of Historic Places Inventory – Nomination Form: San Juan National Historic Site*, July 12, 1973 (unsigned).

Morales, Luis M., Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, San Juan. *National Register Documentation for Zona Histórica de San Juan (San Juan Historic Zone)*, June 1971; entered in the National Register, October 10, 1972 (NRIS 72001553).

Pabón-Charneco, Arleen, Puerto Rico SHPO Consultant. *National Register of Historic Places Documentation for Distrito Histórico del Viejo San Juan / Old San Juan Historic District*. Tallahassee, Florida. June 6, 2012. Entered in the National Register, July 30, 2012 (NRIS 12000465).

———. *National Historic Landmark Documentation for the Old San Juan Historic District/ Distrito Histórico del Viejo San Juan*, September 24, 2012. The Old San Juan Historic District was designated a National Historic Landmark on February 27, 2013 (NRIS 13000284).

Cultural Resource Data

San Juan National Historic Site was administratively listed in the National Register of Historic Places on October 15, 1966. As noted in nomination documentation prepared for the National Historic Site in 1973, the San Juan defensive system is one of the major Caribbean fortifications of the Spanish empire, and helped to protect Spanish interests in the New World.²⁰ Construction of the fortifications began in 1539 and continued through World War II. The structures of the San Juan fortifications “. . . generally retain the character and appearance of the most advanced eighteenth century defense techniques that were applied to a difficult and unusual site.”²¹ The resources reflect both features of earlier origin and military construction characteristics of the nineteenth and twentieth centuries.

As also noted above, Block 172, in which Quarters 208 is located, is discussed in the 2012 National Register documentation (which represents a boundary extension to the historic district addressed in the 1973 documentation) as well as in the 2012 National Historic Landmark documentation for Old San Juan Historic District. Quarters 208 (parcel 1) is indicated as a contributing resource in the National Historic Landmark documentation.²² Quarters 208 is considered a contributing building within the National Historic Landmark district.

San Juan National Historic Site and the earlier fortifications of La Fortaleza were inscribed in the World Heritage List in 1983 as resources of outstanding universal value.²³

Period of Significance: circa 1861–1939

Proposed Treatment: Rehabilitation

-
20. Gjessing and Schmidt, Section 8.
 21. Ibid.
 22. Pabón-Charneco, *National Historic Landmark documentation*, 2012.
 23. UNESCO World Heritage List, “La Fortaleza and San Juan National Historic Site in Puerto Rico,” accessed January 2019, <https://whc.unesco.org/en/list/266>.

Project Scope and Methodology

The goal of the HSR is to develop planning information for use in the repair, maintenance, and preservation of historically significant buildings and structures. First developed by the NPS in the 1930s, HSRs are documents prepared for a building, structure, or group of buildings and structures of recognized significance. They are developed to record and analyze the property’s initial construction and subsequent alterations through historical, physical, and pictorial evidence; to document the performance and condition of the structure’s materials and overall physical stability; to identify an appropriate course of treatment; and, following implementation of the recommended work, to document alterations made through that treatment.²⁴

The HSR addresses key issues specific to Quarters 208, including the history of the building; the design and construction of the building; the existing physical condition of the exterior envelope, structural systems, and primary interior spaces and features; and the historic significance and integrity of the structure. The HSR consists of the management summary, history, description and condition assessment, and significance and integrity evaluation, followed by discussion of the treatment approach and recommendations. Two appendices are included: measured drawings and finishes analysis.

The following project methodology was used for this study.

Research and Document Review. Archival research was performed to gather information about the original construction and past modifications and repairs for use in assessing existing conditions and developing treatment recommendations for the building. Documents reviewed included maps, drawings, specifications,

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

historic photographs, and other written and illustrative documentation about the history of construction and repairs to Quarters 208. The research for this study built upon prior historical and archival research completed by the NPS and others, as outlined in the bibliography provided with this report. Primary reference material for this study was obtained from the San Juan National Historic Site archives and facilities collections. Additional research material was obtained from the National Park Service Technical Information Center (TIC) in Denver, Colorado, and the National Archives at College Park, Maryland.

Condition Assessment and Documentation.

Concurrent with the historical research, a condition survey of the building was performed and observations documented with digital photographs, field notes, and annotation on baseline drawings prepared by the project team while on site. The condition assessment addressed the exterior and primary interior spaces and features of the building.

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

Based on historical documentation and physical evidence gathered during the study, a context history and a chronology of design and construction were developed. An evaluation of the significance of the building was also prepared, taking into consideration guidelines provided by *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*.²⁵ This evaluation of history and significance provided the basis for the development of recommended treatment alternatives.

Guidelines for Rehabilitation. Based on the evaluation of historical and architectural significance of the structure, guidelines were prepared to assist in the selection and implementation of rehabilitation treatments.

25. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Washington, DC: National Park Service, National Register of Historic Places, 1997).

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, as well as for the features of the landscape included in this study. Following the overall treatment approach of *Rehabilitation* for the Quarters 208 building, the specific recommendations were developed to address the observed existing distress conditions as well as long-term preservation objectives.²⁶ The treatment section of the report comprises Part 2 – Treatment and Use, of the HSR.

Preparation of Historic Structure Report.

Following completion of research, site work, and analysis, a narrative report was prepared summarizing the results of the research and inspection and presenting recommendations for treatment. The HSR was compiled following guidance afforded by Director's Order NPS-28, *Cultural Resource Management Guideline*, and NPS *Preservation Brief 43: The Preparation and Use of Historic Structure Reports*, with modifications to organizational structure for purposes of this project.²⁷

Panamerican Consultants, Inc., and WJE thank Felix López, Cultural Resources Program Manager, Eric López, Park Historian, and the many staff members and volunteers of the San Juan National Historic Site who assisted us in the completion of this report.

26. 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, Historic Preservation Services, 2017).

27. NPS-28, *Cultural Resource Management Guideline*, accessed May 2019, <https://www.nps.gov/parkhistory/onlinebooks/nps28/28intro.htm>; Slaton.

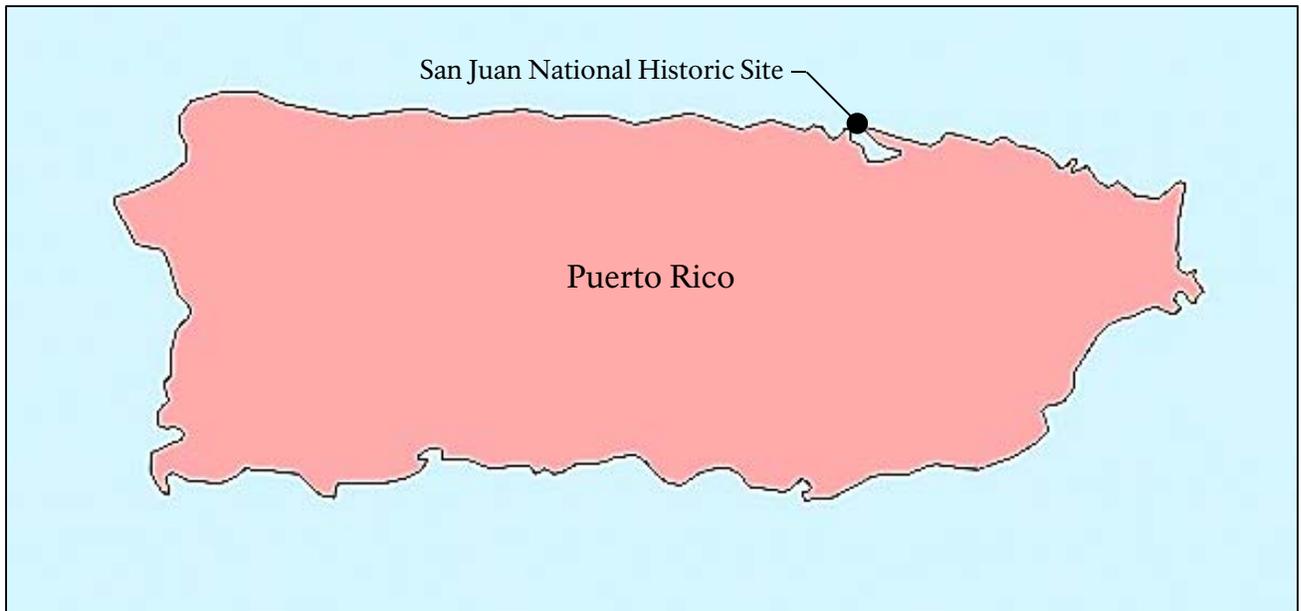


FIGURE 1. Map of Puerto Rico showing the location of the San Juan National Historic Site. (Source: Map by authors)

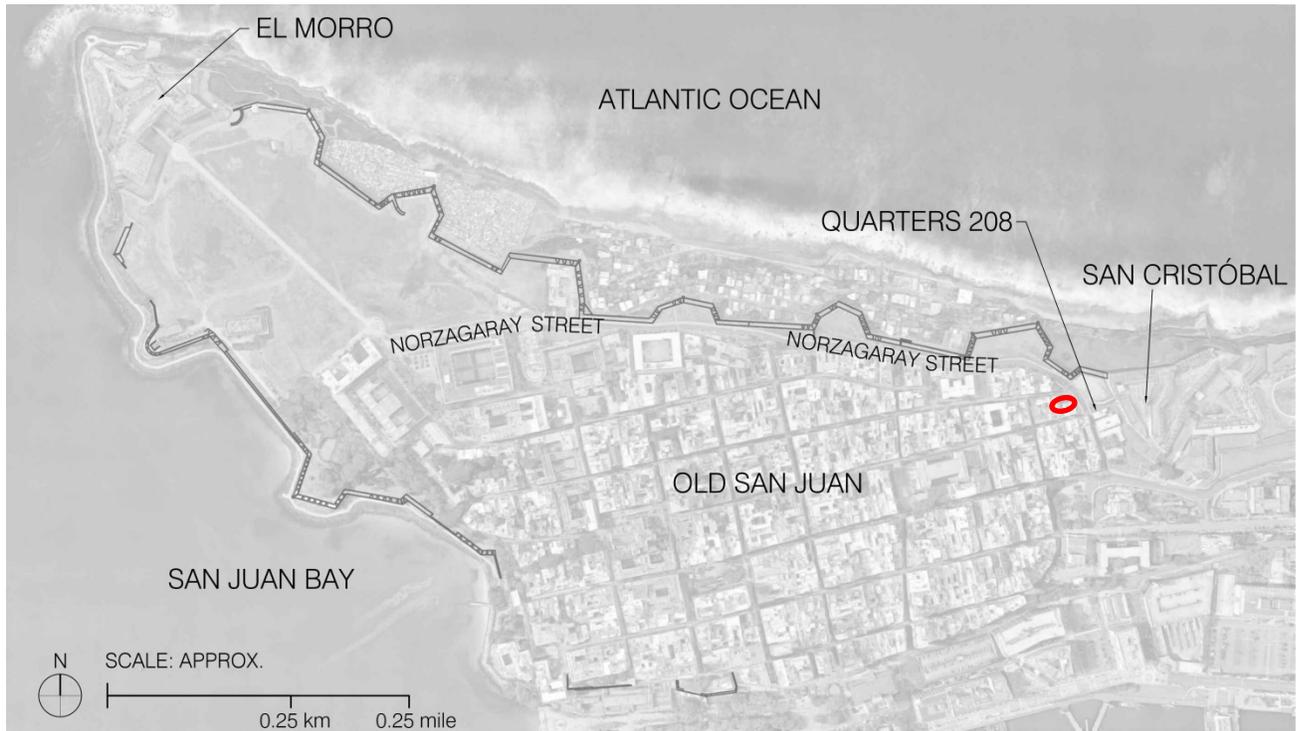


FIGURE 2. Aerial photograph of Old San Juan showing the location of Quarters 208. (Source: Google Earth, annotated by Liz Sargent HLA to indicate the Historic City Wall; additional annotations by the authors)



FIGURE 3. Quarters 208, San Cristóbal, and environs. (Source: Google Earth, annotated by the authors)

Developmental History

Historical Background and Context

Quarters 208 is situated at 507 Calle Norzagaray in the San Juan National Historic Site, and it stands between the historic main access ramp and the Artillery Pavilion Buildings (Building 209, 210, and 211) of Castillo San Cristóbal (refer to Figure 3). Constructed in the second half of the nineteenth century, the building was possibly used for Spanish government activities, but, more likely, it was used as a private, non-military residence throughout most of its life (Figure 4). In 1968, it was sold to the National Park Service (NPS) by a private citizen, Mrs. Dolores Marrero Viuda de Colón, for \$28,000.²⁸

San Juan National Historic Site, which incorporates both Castillo San Cristóbal and Castillo San Felipe del Morro (“El Morro”) and a significant portion of the original city wall, is bound on the north by the Atlantic Ocean, the community of *La Perla* and *Cementerio Santa María Magdalena de Pazzis*, and to the west by San Juan Bay. Southern portions of the site are bound by Calle Norzagaray and Calle Muñoz Riviera (refer to Figure 3). Quarters 208 along with the Artillery Pavilion Buildings, Quarters 209, 210, and 211, are located outside the walls of Castillo San Cristóbal facing Calle Norzagaray.

Quarters 208 is a contributing building to the San Juan National Historic Landmark District, the Old San Juan Historic District, and is part of the La

Fortaleza and San Juan National Historic Site World Heritage Site.



FIGURE 4. Quarters 208 (LCS 006070), 507 Calle Norzagaray, San Juan National Historic Site, Puerto Rico. (Source: All photographs by the authors from 2018 unless otherwise noted)

Castillo San Cristóbal. Spain was the unrivaled master of the oceans throughout large portions of the sixteenth century with a mighty navy which transported conquistadors to the Americas, the “New World,” and unimaginable wealth back to Spain from the subjugated lands. Spain’s conquests and new-found wealth did not escape the attention of its European rivals. The Spanish navy and lands were constantly probed and tested for weaknesses by its rivals who sought to pick off any piece of unprotected wealth.

By 1533, the Spanish government, as a way of maintaining their mastery of their possessions in the new world, began to fortify the small island that is now Puerto Rico. The island was the first major location in the Atlantic Ocean with water, shelter, and supplies at which Spanish ships, coming to the Americas from Europe by way of Africa’s west coast, could stop. The island was an especially good

28. Deed Book 598, page 179, Entry 358, File 33-40-200-1, Deed 393, County of San Juan, Puerto Rico.

place for large ships because it had a deep-water port that could be easily defended.²⁹ The first fortification, *La Real Fortaleza de Santa Catalina* or *La Fortaleza* (Royal Fortress of Saint Catherine), was quickly replaced by *Castillo San Felipe del Morro* (El Morro), the construction of which was begun in 1539. El Morro was built at the northwestern tip of the island projecting into the Atlantic Ocean. The supremacy of the castillo was tested by English attacks in 1595 and 1598, both of which were repelled, although San Juan was occupied by the English for nearly three months in 1598. An attack by the Dutch in 1625 succeeded in entering the city and ransacking and burning it, but was ultimately repelled.

As a result of the Dutch incursion, the Spanish government decided that a city wall would be erected, and as part of that plan a second fortification would be erected to protect El Morro and the city from land invasion. Construction of the second fortification, *Castillo San Cristóbal*, and the city wall began in 1634.³⁰ Over the next 150 years, the fortifications at San Cristóbal expanded to incorporate several layers of outer works as it became the largest European fortification in the Americas.³¹

Major construction at San Cristóbal was completed by 1783, and major construction at El Morro and the city wall were completed by 1790.³² Civilian life within the wall surrounding San Juan was exceptionally crowded and was lived under military dictatorship.³³ Throughout the nineteenth century, but especially during the period from

about 1840 to 1870, Spanish military architecture within the city served as a way of controlling the civilian population through a system of visual and physical experiences. Military buildings, especially barracks, were strategically placed across the city to ensure a constant intermingling of military personnel and the general public. The Spanish government sought to maintain order within the civilian population of San Juan by showing them the order maintained by military personnel and the might of Spanish authority.³⁴

By 1861, as a part of the expansive growth of the military within the city during the middle of the nineteenth century, *Pabellones de Artillería* (Artillery Pavilions) were constructed on the west slope of San Cristóbal next to the entry ramp facing onto the newly expanded and upgraded Calle Norzagaray.³⁵ These structures were officers' barracks for the corps of artillerists newly garrisoned at San Cristóbal.³⁶

-
29. National Park Service, *San Juan* [brochure].
30. Joan Berkowitz, E. Blaine Cliver, Richard Crisson, Billy Garret, Judy Jacob, Frank Matero, Barbara Yokum, *The Fortifications of San Juan National Historic Site Historic Structure Report*, Volume 1 (Boston: Building Conservation Branch, Cultural Resources Center, North Atlantic Region, National Park Service, and New York: Center Preservation Research, Columbia University, 1991), 21.
31. NPS, *San Juan*, n.p.
32. Ibid.
33. Library of Congress, "Radicalism and Repression."

-
34. Juan Blanco, "A Study of the Morphological Structure of the System of Fortifications of San Juan de Puerto Rico," pp. 773-864, in *Historic Structure Report Quarters 209* (New York: The Center for Preservation Research, Columbia University, 1989), 8-13.
35. The Center for Preservation Research, 13.
36. Ibid.

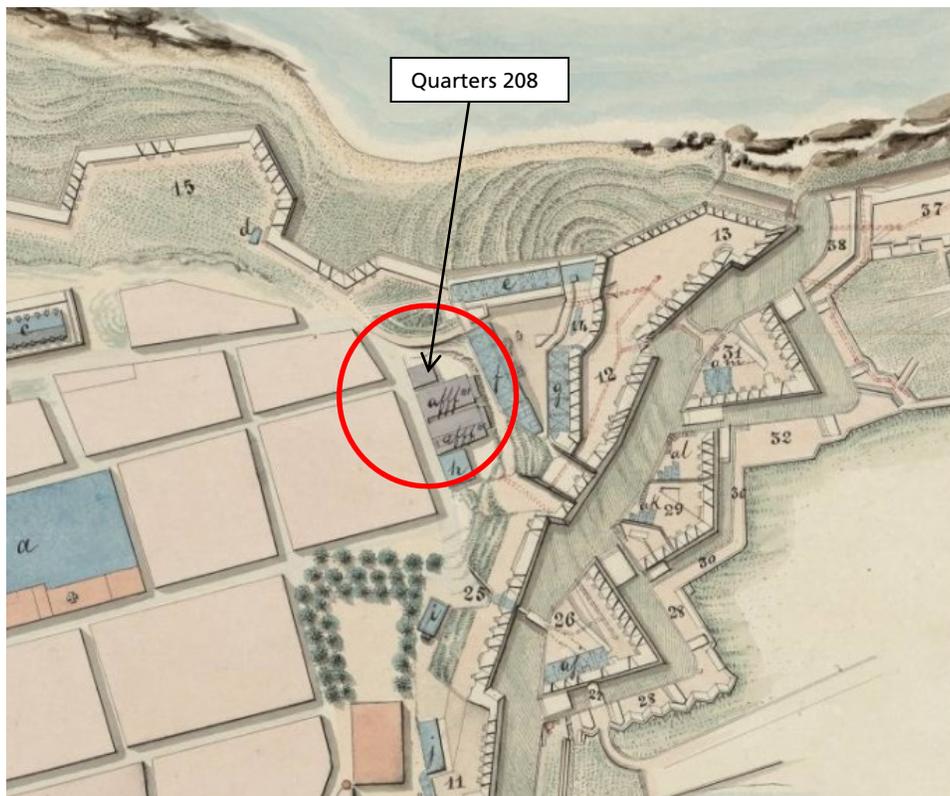


FIGURE 5. Detail from *Plano de la Plaza de San Juan de Puerto Rico*, 1861, showing the Artillery Pavilions and the building that will become Quarters 208 (in the red circle). (Source: Park Archives, San Juan National Historical Site, Puerto Rico)

Plano de la Plaza de San Juan de Puerto Rico (1861; Figure 5) appears to be the first document that illustrated what will become Quarters 208. This map shows an almost square building on the north side of the “Artillery Pavilions”—indicated by “afff” on the map—at the main entrance ramp to San Cristóbal. Although Quarters 208 is colored gray like the artillery pavilions, it is not specifically named as part of the complex; it is not named at all. In general, buildings on this map associated with the larger military complex are blue or green in color and are labeled as to their purpose. Other important buildings—government and religious edifices—are colored in pink, and although not named, some have a small cross on them indicating that they are churches.

Plano de la Plaza de San Juan de Puerto Rico, 1887 (Figure 6) is the next document that showed the building that will become Quarters 208. This map also clearly documents what is now Quarters 208 on the north side of the Artillery Pavilions, but it

shows the building as not related to the military fortifications. San Juan military fortifications and related buildings are indicated in red, and Quarters 208 is indicated in gray. Unfortunately, there is no map key that lists the color codes of the buildings. Important government buildings within the walls of San Juan appear to be colored orange. Quarters 208 was one of only three gray-colored buildings, all small and all associated with larger buildings, within the city walls. Outside the walls, gray buildings appear to be private enterprises and residences.

As the civilian population increased and began to squeeze the confines of the walls of San Juan even tighter, the government decided that portions of the city wall on the south and the east, but not the whole wall, would be taken down. In 1897, the agreed upon portions of the wall came down to allow the city to grow into those areas formerly outside the city to the east.



FIGURE 6. Detail from *Plano de la Plaza de San Juan de Puerto Rico, 1887*, showing the Artillery Pavilions and the building that will become Quarters 208 (in the black circle). (Source: Park Archives, San Juan National Historical Site, Puerto Rico)

End of Spanish Hegemony. Although Spain had improved its fortifications at San Juan for a period of more than several hundred years, they proved no match for the US Navy in 1898, when war broke out between Spain and the United States over the independence of Cuba, which was provoked by the explosion of the naval ship *USS Maine* in Havana Harbor. The United States declared war on Spain on April 25, 1898, and began naval operations in both Cuba and the Philippines. After resounding successes, the United States then undertook ground operations in Cuba. As part of the American strategy to drive Spain from the Caribbean, US Admiral William Sampson and a fleet of eleven ships conducted a blockade of Puerto Rico, and then he initiated a bombardment of San Juan on May 12, 1898 (Figure 7). Little material damage occurred, but the city’s population was terrified and many fled (Figure 8). A scarcity of food and basic goods followed the blockade, and a city that had been taught to rely on the might of the Spanish

government was demoralized when Spanish help failed to arrive.³⁷

On August 12, 1898, Spain and the United States signed a peace treaty, with Puerto Rico becoming a prize for the United States.³⁸ A military government was established on the island under the command of General John R. Brooke. Puerto Rico remained under direct US military control until the Foraker Law was passed and signed into law on April 12, 1900, bringing a civilian government to the island.

37. Yanelba Mota Maldonado, “The Spanish-American War in Puerto Rico,” *Enciclopedia de Puerto Rico*, Puerto Rico Endowment for the Humanities, accessed January 10, 2019, <https://enciclopediapr.org/en/encyclopedia/spanish-american-war-in-puerto-rico/>.

38. *Ibid.*



FIGURE 7. *Bombardment of San Juan, Puerto Rico, Stereoscope Card.* Note: the card reads “San Juan, Cuba,” but the Library of Congress entry for the card notes that the scene is “San Juan, Puerto Rico.” (Source: Library of Congress: Keystone View Company, circa 1899, LC-USZ62-104742)



FIGURE 8. *“Morro” Castle Wall struck by a 13-inch shell from Sampson’s guns, San Juan, Puerto Rico, Stereoscope Card.* (Source: Library of Congress: Stromeyer & Wymann, August 22, 1899, LC-USZ62-117179)

The American Period. For the first three decades of its rule, the United States government tried to “Americanize” the island and used San Juan as its home base.³⁹ After surveying the Spanish military infrastructure in the city, the US military moved into its buildings and structures and renamed the site the San Juan Military Reservation in 1898.⁴⁰ El Morro, San Cristóbal, and the city wall fortifications underwent changes and additions as necessary to accommodate a modern US fighting force. Much like the Spanish before them, the Americans used many of the old Spanish buildings as barracks, or barracks were sited on older Spanish fortifications, as American soldiers intermingled with the greater Old San Juan City population. The Artillery Pavilions, which had been conveyed as part of the Spanish military infrastructure, were used as officer’s quarters.⁴¹

Some US commanding officers became interested in the history and beauty of the old fortifications and sought special funding for their upkeep.⁴² During the years between World War I and World War II, the US Army and the US Army Corps of Engineers began a concerted effort to assess and restore the original Spanish military fortifications. However, these efforts were cut short by World War II. In 1943, the San Juan Military Reservation was renamed Fort Brooke after the first American occupying general, John R. Brooke.⁴³

The initial efforts by the Army and the Corps of Engineers to undertake preservation of the site did not go unnoticed by the larger community. In

1934, Eleanor Roosevelt, the first lady, visited the site as well as National Park Service officials.⁴⁴ In 1948, the Department of the Army and the Secretary of the Interior designated a portion of the Fort Brooke area as the San Juan National Historic Site.⁴⁵ The Secretary of the Interior established the park on February 14, 1949, under the provisions of the Historic Sites Act of 1935.⁴⁶

In 1917, the United States gave Puerto Ricans full US citizenship, and in 1948, Puerto Ricans were given the ability to elect their own governor. In 1952, the new Puerto Rican constitution made the island an autonomous commonwealth with its citizens still retaining full American citizenship.⁴⁷ After World War II, the new commonwealth was faced with the fact that the US military no longer considered Puerto Rico a strategic asset. The US military decided to move out of San Juan to more accessible naval bases and made plans to transfer their assets to the NPS. On September 13, 1961, the Department of the Army transferred El Morro, the north wall, San Cristóbal, and certain adjacent lands to the NPS.⁴⁸ On December 31, 1966, the US Army declared all remaining land at Fort Brooke as excess and began transferring properties to the NPS and the Commonwealth of Puerto Rico.⁴⁹ For the first time since its inception, San Juan was free of a large military presence.

In 1960, as part of the plans for the transfer of the US Army assets to the NPS, the US Army Corps of Engineers created a map of the real estate at Fort Brooke to be transferred (Figure 9). This map showed the Artillery Pavilions in red, numbered 211, 210, and 209, on the west slope of San Cristóbal, and immediately to the north of 209, a white rectangle was labeled, “No. 5,” the street address of this building. This building is what is now identified as Quarters 208, and it was depicted by the map as not a military building. It was also not transferred to the NPS. Immediately

-
39. History.com Editors, “Puerto Rico Invaded,” History, last updated August 21, 2018, accessed January 10, 2019, <https://www.history.com/this-day-in-history/puerto-rico-invaded>.
40. Department of Interpretive Planning, Harper’s Ferry Center and San Juan National Historic Site, *San Juan National Historic Site Long-Range Interpretive Plan* (Harpers Ferry, West Virginia: National Park Service, Department of the Interior, 2006), 6.
41. Center for Preservation Research, 18.
42. Berkowitz et al., Volume 3, 42-58
43. Department of Interpretive Planning, 7.

-
44. Berkowitz et al., Volume 3, 50-52.
45. Department of Interpretive Planning, 7.
46. Ibid.
47. History.com Editors.
48. Department of Interpretive Planning, 7
49. Ibid.

north of No. 5 is San Sebastián Bastion, on which was located US military Quarters 208. During the period 1900-1966, a US military discussion about a “Quarters 208” concerned this building and not the residence at what is now number 507 Calle Norzagaray which would later become Quarters 208.⁵⁰ It appears that US military Quarters 208 was torn down in a wholesale elimination of most US Army quarters in 1964.⁵¹

By 1984, the transfer of properties from the US Army to both the NPS and the Commonwealth of Puerto Rico was completed (Figure 10). The 1984 final transference was recorded on a 1939 base map of Fort Brooke and Old San Juan, hence the original name of the installation, and showed the Artillery Pavilions, numbered 29, 28, and 26, and Quarters 208 on San Sebastián Bastion, number 24, as transferred to the NPS.⁵² Once again, current Quarters 208 was shown as a white triangular blank north of number 26 indicating that it was a private building and did not transfer as a military property.

History of Quarters 208 (LCS 006070)

The 1973 *National Register of Historic Places Inventory – Nomination Form* for San Juan National Historic Site appears to be the first document to discuss the building now known as Quarters 208, located at what is now 507 Calle Norzagaray.⁵³ The building is described as

A modest example of mid-19th century civil residential architecture. Originally, a one-story rubble masonry structure, 28' wide by 67' deep, with a characteristic shallow “U” shaped plan for San Juan. The front section of the building is the full width of the lot and two rooms deep. It is joined to the rear section, also full width but only one-room deep, with an open patio along the north side of the lot. The patio is now somewhat diminished by a modern concrete staircase and balcony, which provides access to a small modern penthouse above the rear section of the structure.

The street elevation and the interior of the front section have characteristic Moorish revival details, somewhat brutalized by unsympathetic repairs and inappropriate replacement of the original sash. Ceilings are original, but floors and other finishes are of a later date.⁵⁴

-
50. Calle Norzagaray was renumbered circa 1990. Until 1990 Quarters 208 was located at 5 Calle Norzagaray. After 1990 5 Calle Norzagaray became 507 Calle Norzagaray.
 51. Removal of Buildings, Box 97, Folder 46, 1964, Park Archives, San Juan National Historic Site, Puerto Rico.
 52. The Map of the Military Reservation of San Juan, P.R. (and City of San Juan) is confusing. The legend, which is included in the detail shown here, indicates that the Artillery Pavilion building numbers are as follows: present Quarters 211 is Building No. 21, one set of Noncommissioned Officers [NCO] quarters; present Quarters 210 is Building No. 20, a double set of NCO quarters; present Quarters 209 is Building No. 19, four set of NCO quarters, and the US military Quarters 208 is Building No. 22, one set of NCO quarters. It is unclear why these buildings are numbered as such since the numbers do not seem to correlate with earlier or later military numbering.

-
53. Gjessing and Schmidt. Quarters 208, 507 Calle Norzagaray, has also been known as Quarters HS-208 (Gjessing and Schmidt, 7); No. 5 (Real Estate Transfer of Fort Brooke [map], 1960); quarters # 1 (List of Classified Structures), Building No. 208 (early NPS correspondence) and been located at 1 Calle Norzagaray (Gjessing and Schmidt, 7).
 54. Gjessing and Schmidt, 10-11.

The earliest depiction of the house appears to date to 1861.⁵⁵ Its façade, with exuberant Moorish Revival detailing, helps to verify the building's construction date to the last half of the nineteenth century. Aesthetic interest in architectural revivals that had been initiated in Europe during the last half of the eighteenth century "hit Old San Juan like a powerful stylistic wave during the [nineteenth] century."⁵⁶ In San Juan, during the early nineteenth century, the house became an important part of the expression of an individual's role within the larger society and the expression of Enlightenment ideals regarding the worth of individuals within that society.⁵⁷ As Enlightenment ideals were incorporated into city planning and aspects of building planning and decoration were taken from earlier cultural sources, Puerto Ricans began to use architecture as a way to express their wealth and separate themselves from the lower classes, especially as they began to feel a greater sense of security and to amass wealth.⁵⁸

The Spanish considered themselves *gente de razón*, people of reason, and it was important for those citizens living in Puerto Rico to assert their Spanishness over the migrants who arrived during the nineteenth century, as well as the native Indians and the black population.⁵⁹ The expression of this Spanish superiority for individual citizens was expressed many times through the style of house they chose, and the persistence of Spanish house styles in San Juan lasted until well into the twentieth century.⁶⁰ These houses included many high-style Spanish Revival details, but could also include Neoclassical, Renaissance, and Moorish elements, and some still incorporated Colonial Spanish idioms.

The Moors, people originally from North Africa of the Islamic faith, entered Spain in the year 711, and for the next 700 years various Christian rulers attempted to expel them.⁶¹ Nevertheless, during this period, they had a profound effect on the culture of Spain, particularly architecture by erecting some of Spain's most spectacular and well-known buildings. The *Alhambra*, a fortress complex, *Grenada*, *The Generalife*, the sultan's villa across from the *Alhambra*, and the Great Mosque at Córdoba are all celebrated Spanish buildings which typify Moorish architecture (Figure 11). Although these buildings are not Christian in origin, they have been embraced by the Spanish people and elements of their style adopted. The Moorish Revival style was a natural style for many Puerto Ricans to adopt since it would appeal to their sense of Spanish pride as well as to their desire to have a modern, updated house.



FIGURE 11. A portion of the famed *Alhambra*, Granada, Spain, shows one of the many architectural features that the Spanish adopted from the Moors, interior walled gardens as integral features of rooms and sections of buildings. (Source: "Photograph courtesy of CEphoto, Uwe Aranas")

One of the most commonly used elements in the Moorish Revival style is the horseshoe arch, many times used only for decorative purposes. This arch, with a rounded top that bends slightly inward at the side, looks like a horseshoe as the name implies. The Moorish arch is found throughout

55. *Plano de la Plaza*, 1861.

56. Pabón-Charneco, Section 8, page 153.

57. *Ibid.*

58. Carol F. Joping, *Puerto Rican Houses in Sociohistorical Perspective* (Knoxville: The University of Tennessee Press, 1988 and 1992), 26.

59. *Ibid.*

60. *Ibid.*

61. Daniel Medley, *The Moorish Invasion of Spain and the Christian Reconquest*, Hispanic Journey, last updated 2000, accessed January 10, 2019, <http://staff.esuhsd.org/balochie/studentproject/s/moorchristian/>.

Old San Juan. The three openings, two windows and a door, on the front of Quarters 208 are in the shape of horseshoe arches (refer to Figure 4). Other Moorish features include the non-defensive roof crenellations and the center roof acroterion, which features a panel made to look like an elaborate Moorish pediment. This is echoed by the plaque which was made to hold the building address number, 5 (at one time).

While Quarters 208 has many Moorish elements, there are also Spanish Colonial Revival details on the building including: quoining, louvered shutters on windows and doors (which are in poor condition), a simplified roof cornice, a classical balustrade across the windows, and pilasters with square capitals supporting the window and door surround.⁶² While traditional Moorish architecture is known for its rather plain exteriors, masking the wealth of detail found inside, the level of detail on the exterior of Quarters 208, with both Spanish and Moorish elements, is extensive for such a small building. When constructed, it looked quite different from its neighbors, the Artillery Pavilions (Figure 12).

Quarters 208 is currently undergoing interior and exterior renovations. In 2018, at the time of Panamerican's field work, the house was painted a deep terracotta color, and all trim was painted white. The shutters and window frames were painted a deep brown. The color of Puerto Rican houses is considered a fundamental component of the island's aesthetic.⁶³

Originally lime white was used by the Spaniards, but during the nineteenth century, Puerto Ricans began to add color to their houses. As the new idea of individualism expressed through the house took hold, the saying "Yo no soy peón," (I am not a peon) was given for painting the house. At first, just the porch and balcony balustrades were painted to prevent oxidization of metal railings, but soon the whole house was painted. Nevertheless, it was not until the introduction of

North American paint in 1898 that house painting became common.⁶⁴

In Puerto Rico, the use of color for a house varies according to stylistic period and regions. Colonial Spanish and Spanish Colonial Revival are white. Art Deco and Prairie houses are white or cream with Vernacular Art Deco example having brightly colored motifs. *Criollo* (creole), Bungalowoid wood, High Neoclassic, Beaux Arts, and some Eclectic Queen Anne houses have lively colors. Designed *Criollo* houses are often painted in pastel colors—green, blue, pink and yellow—often only on the façades, with all trim painted white.⁶⁵

Residents of Quarters 208. No actual residents of Quarters 208 are known. When the building was sold in 1968 by Mrs. Dolores Marrero Viuda de Colón to the NPS, it is not known if she was living there.

Jornaleros. Quarters 208 was shown in the draft blueprint for the repair and rehabilitation of the Artillery Pavilions, circa 1880 (Figure 13). The building was shown north of and beside the Artillery Pavilions, and it was simply indicated by a square and a dotted area to the rear, perhaps indicating a patio or enclosed yard, without details. In addition, the words "*Casa Jornaleros*" (laborers house) was written next to it. It is not clear whether or not the jornaleros building is part of the Spanish army complex, especially since it has no construction details like the pavilions.

62. Jopling, 23 and 25.

63. *Ibid.*, 204.

64. *Ibid.*

65. Jopling, 205.



FIGURE 12. Detail of Front Elevation of Quarters 209, Quarters 208 next door neighbor, showing its very different Spanish Colonial Revival style. (Source: Historic American Buildings Survey, Quarters Num. 209, Castillo de San Cristóbal, San Juan, Puerto Rico, HABS PR, 7-SAJU, 50, Sheet 4)

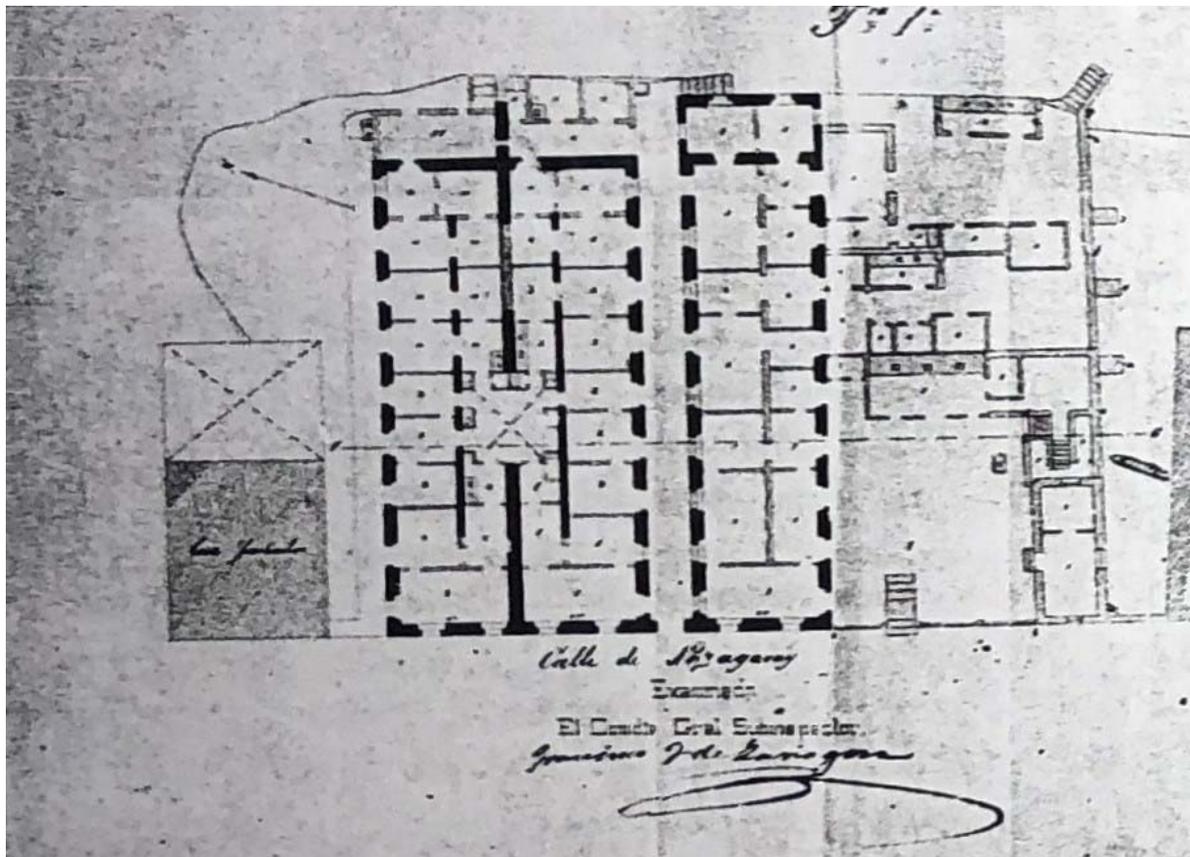


FIGURE 13. Detail of Casa Jornaleros from *Proyecto de Reparación y Reforma de los Pabellones de Artillería* (Draft Repair and Reform of the Artillery Pavilions), Commander General Subinspection, Puerto Rico Command, Plaza De San Juan, El Comandante General Subinspector Ingeniero F. [Francisco] de Zaragoza, Circa 1880. (Source: Park Archives, San Juan National Historic Site)

During the nineteenth century in Puerto Rico, jornaleros were free citizens, most of whom did not own land, and many of whom did not have specific job skills, who served as day or short-term laborers. In cities and towns, the jornaleros might work in cigar factories, as servants, or in other types of unskilled labor situations, but most lived outside urban areas and worked as agricultural laborers. However, each town was required to maintain a registry of those classified as jornaleros. Although Puerto Rico did not abolish slavery until March 1873, the island suffered a shortage of labor throughout most of the nineteenth century, and the jornaleros became a focus of much attention related to forced labor.

Traditionally, the jornaleros worked as they saw fit and as needed to maintain their own lifestyle, and their unwillingness to work more was viewed by many of the island's large land owners as "laziness."⁶⁶ It was felt that the jornaleros needed to be reined in and taught to "develop a love of work."⁶⁷ Further, it was believed that formalizing the jornaleros relationship with work would solve the demand for more laborers. Toward this end, the government began to pass a series of "anti-vagrancy" laws beginning in 1838. The *Bando de Policía y Buen Gobierno* (1838) required all landless males and the peasant population—those not having enough property for their subsistence needs—to be formally classified as "jornaleros" and to find work on another person's land. All jornaleros were required to work at least once during a month or, if they did not work, they would be declared "vagrants" and required to work as forced labor in public-works projects of the town.⁶⁸ However, this legislation was overruled by the Spanish overseas ministry in 1839 as inappropriate and oppressive.

During this period, Captain General (i.e., governor) Santiago Méndez Vigo created *Casa de la Beneficencia* (sometimes, *Asilo de Beneficencia*; 1841-1844) to house and instruct orphans and "deserving poor" in "useful employment and

trades" (Figure 14).⁶⁹ In addition, the city under the direction of Captain General Fernando de Norzagaray y Escudero began a series of public-works projects aimed at eliminating what he deemed undesirable sections of town, areas where poorer residents lived, and creating a more pliable citizenry.⁷⁰ These public works certainly affected the jornaleros living within San Juan.



FIGURE 14. Casa de la Beneficencia, now home of the Institute of Puerto Rican Culture. (Photograph in the public domain)

In 1847, the island government tried again to craft a law to meet the demand for labor and monitor the behavior of workers. The more inclusive law defined as "vagrants" all those who had "no trade, profession, income, salary, occupation, or lawful means of livelihood and those, who, having some trade do not practice it, or those who receive an income insufficient for their necessities."⁷¹ There was potential for great abuse in this law, and the new legislation frequently led towns to mistreat persons it regarded as undesirable.⁷² The law did not have the desired effect of creating a large labor pool, and in 1849 the government took another step.

In June 1849, Governor Juan de la Pezuela published the *Reglamento Especial de Jornaleros*, which defined "jornaleros" as "all males age 16 or over who, because of a lack of capital, or a skill, had to work for another, regardless of the nature of the work . . . or the length of time spent at such

66. Dietz, 39-45.

67. Ibid., 43.

68. Ibid.

69. The Center for Preservation Research, 10.

70. Ibid., 10-13.

71. Dietz, 43.

72. Ibid.

work.”⁷³ All persons defined as jornaleros “were required to register in their town and were to receive a *libreta*, a workbook, with a registration number.”⁷⁴ Jornaleros were required to carry the *libreta* which recorded his work history, as well as his behavior at work and the debts incurred there. If he was caught without his *libreta*, he could be punished with eight days of public labor at half-pay. Further, an officer in each town was responsible for ensuring that all jornaleros were always employed. If a man with a good record could not be found a position, a jornalero could be employed at public works with full pay.⁷⁵

It is possible that the building indicated in the illustration of the Artillery Pavilions (refer to Figure 13) was being used by those directing the work of jornaleros associated with the ongoing maintenance and construction of San Cristóbal, El Morro, and the city walls. While these were all military fortifications, they were also municipal government public works for the city of San Juan. Until 1898, separate buildings dedicated to serve simply as private offices or commercial ventures did not exist in San Juan; office or labor-related activities occurred in separate areas of a house, as part of military buildings, in the case of San Juan, or as part of religious edifices.⁷⁶ It is not clear for how long the building remained *Casa Jornaleros*.

Braulio Dueño Colón. There has been a belief among some people within the Old San Juan community that the significant Puerto Rican musician and composer Braulio Dueño Colón (1854-1934) lived in Quarters 208 (Figure 15). Dueño was born to Aurelio Dueño and Nicasia Colón in San Juan on Calle Sol (Sol de Viejo) “in a house next to Castillo San Cristóbal.”⁷⁷ He lived here with his parents and brother, Manuel, and took music lessons from his father, a Procurator of the Royal Audience of Puerto Rico, whose hobby

was music. At an unknown date, but while he is still young, Dueño’s entire family died of tuberculosis, all apparently within a short period of time.⁷⁸ At their deaths, he closed-up the house and moved in with his uncle, Eladio Dueño, in Mayagüez. After staying there for a short period of time, he moved back to San Juan to continue to study music.⁷⁹ At some point, Dueño moved to Bayamón where he spent the rest of his life.⁸⁰

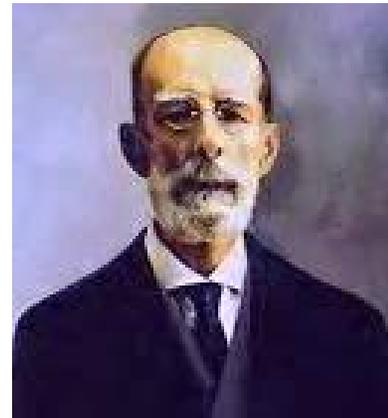


FIGURE 15. Braulio Dueño Colón (1854-1934). (Source Institute of Puerto-Rican of Culture, in the Public Domain)

Dueño is best known for his musical work in folklore and dances as well as the children’s songs, *Cantos Escolares*, which he created with some of the best-known Puerto Rican poets of the time

73. Dietz, 45.

74. Ibid,

75. Dietz, 43.

76. Pabón-Charneco, Section 8, 36.

77. EcuRed, Braulio Dueño Colón, accessed January 10, 2019, https://www.ecured.cu/Braulio_Dueño_Colón.

78. Ibid; in 1899, vital statistics indicate that the leading cause of death in Puerto Rico was tuberculosis. It was reported that eighty-five out of the 603 white people, fifty-seven out of the 284 people of mixed heritage, and thirty-nine out of the 264 black people who died in 1898 in San Juan died of tuberculosis (Mariola Espinosa, *Sanitary and American: Disease Eradication Efforts and the Transformation of Puerto Rico after 1899* (Chapel Hill: University of North Carolina, 2000), accessed November 16, 2018, <http://lasa.international.pitt.edu/Lasa2000/EspinosaMariola.pdf>.

79. Ibid.

80. Ibid; Grupo Editorial EPRL, *Dueño Colón, Braulio*, last updated September 3, 2014, accessed January 10, 2019, “Enciclopedia de Puerto Rico, <https://enciclopediaipr.org/en/encyclopedia/dueno-colon-braulio/>.

including Manuel Fernández Juncos and Virgilio Dávila.⁸¹ He received awards in Puerto Rico, Spain, and the United States for his compositions.⁸² Dueño died in Bayamón in 1934.

It appears that Dueño was born on Calle Sol, a very old street within the historic district of Old San Juan. Calle Sol and Calle Norzagaray (also known as Calle del Recinto Norte, Bulevar del Valle, and Boulevard del Valle) were known by these names during the nineteenth century, the period during which Dueño was born and lived in San Juan.⁸³ Given that Dueño's recollection was that he was born and lived on Calle Sol, he was never an occupant of Quarters 208 which has always been located on Calle Norzagaray.

Changes to Quarters 208

The maps and drawings of Quarters 208 from the nineteenth century indicate that the building originally had almost a square footprint and had a patio or small yard at its rear. No known interior drawings exist from the nineteenth century.

The 1899 US Army Historic Base Map showed Quarters 208 for the first time as a rectangle (Figure 16).⁸⁴ It appears that that patio or yard was enclosed and incorporated into the house sometime between 1880, the last known drawing showing the building as a square with a patio, and 1899. In a circa 1930s US Army aerial, Quarters 208 can be seen as a solid, rectangular building (Figure 17), and the base map of 1939 (see Figure 16) supports this shape.

Traditionally, the most basic house plans in Puerto Rico before the twentieth century can be divided into two major patterns of organization. The most

common pattern delineating the interior of the house bisected through the long dimension; the interior appears to be a series of rectangular spaces, one after another (Figure 18).⁸⁵ The least common is an interior with variable order to the spaces.⁸⁶ Based on examination of the interior by Panamerican Team member, Michael Ford, Historical Architect, WJE, the original section of Quarters 208 falls into the first category of common house interior-type of spaces which bisect the house through the long dimension (see Appendix A Floor Plan, Level 1).

No information could be found about the wall between Quarters 208 and the ramp to the original entrance of San Cristóbal. The gate between Quarters 208 and Quarters 209 is discussed briefly in correspondence related to the 1997 walkway and ramp that was constructed between the buildings (see *Changes to Quarters 208* below for a discussion on this topic). According to Sara L. Van Beck, Curator, the Historic Structure Report (for which building is not specified; Volume II, page 1, 11-9) indicates the original gate between the two buildings was wood and was replaced with a wood gate in 1965. At some unknown date, the gate was then replaced with metal.⁸⁷ In 1997, the metal gate was replaced with a wooden gate which currently still stands.

81. U. Sánchez, Dueño Colón, Braulio (1854-1934), *La web de las Biografías*, accessed November 16, 2018, <http://www.mcnbiografias.com/app-bio/do/show?key=dueno-colon-braulio>.

82. Ibid.

83. Pabón-Charneco, 30-32.

84. Base Map San Cristóbal & El Morro, US Army, 1899 (reproduced 1960) (in Quarter No. 211 *Historic Structure Report*, Feinberg et al., October 2016, 28).

85. Jopling, 67.

86. Ibid.

87. Sara Van Beck, Review of Walkway and Ramp for Quarters 208 and 209 for Conformity, April 22, 1996, Box 88, Folder 119, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

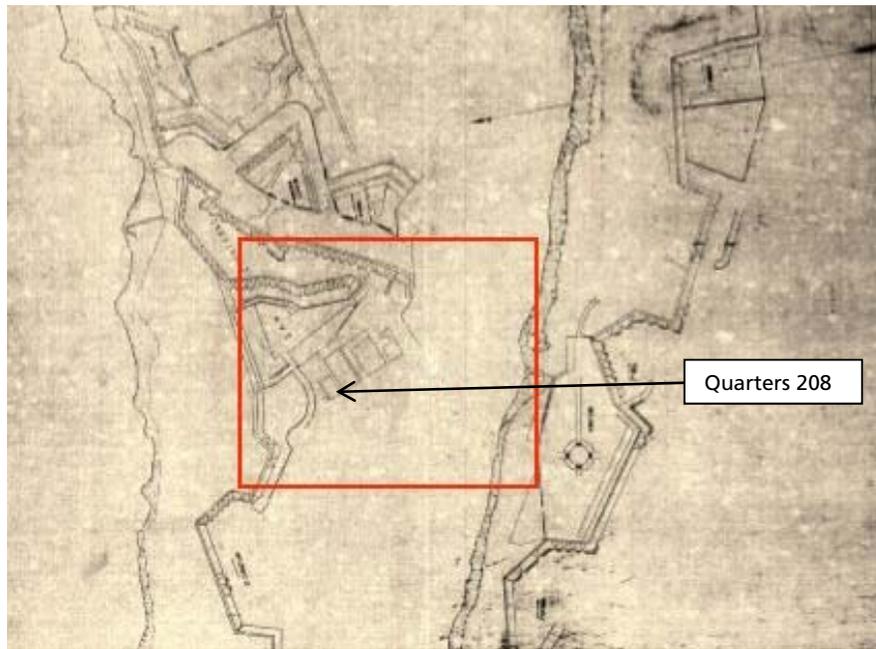


FIGURE 16. Detail of the Artillery Pavilion area showing the building that will become Quarters 208 in a rectangular shape for the first time, Base Map San Cristóbal & El Morro, US Army, 1899 (reproduced 1960). (Source: Quarter No. 211 Historic Structure Report, Feinberg et al., October 2016, 28)

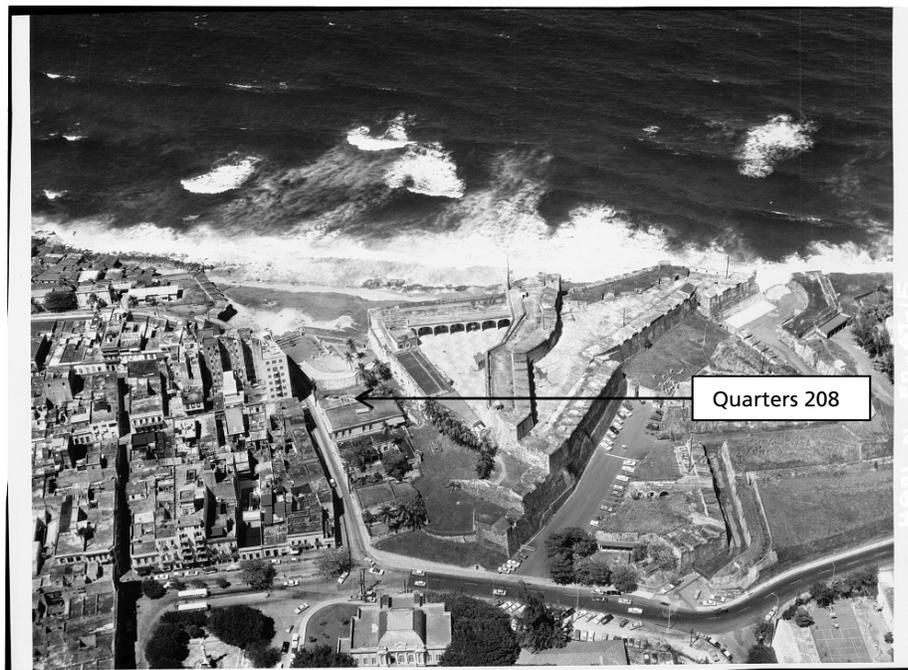


FIGURE 17. Aerial view of San Cristóbal showing the Artillery Pavilion area along Calle Norzagaray including Quarters 208 beside the original entrance ramp, at center left. Reproduction of Army photograph, aerial view, looking north, showing western end of fort (officers quarters, troops quarters, San Cristóbal, La Trinidad and San Carlos). Photographer and date unknown. (Source: HABS, Castillo de San Cristóbal, Boulevard Norzagaray, San Juan, San Juan Municipio, PR, Circa 1930, HABS PR, 7-SAJU, 5-15)

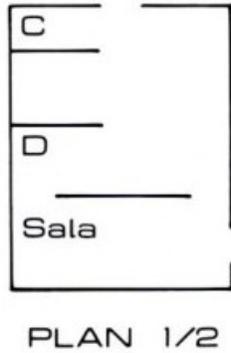


FIGURE 18. Most common house plan in Puerto Rico before the twentieth century—rooms bisect the long dimension of the house. *Sala* = living room; *D* (*dormitorio*) = bed room; *C* (*cocina*) = kitchen. (Source: Jopling, 67)

In 1968, when the house was sold to the “United States of America,” it was merely listed as “Urban house Number FIVE (5) of Norzagaray Street of this city [San Juan] . . .”⁸⁸ Aside from the legal location of the house, no other details about the property were given. Although the NPS had possession of the property for a number of years, there was no documentation that work was completed on the property until 1982. At this date, “Building No. 208” was patched and painted. A note was made that the building had not received any exterior maintenance or paint since it was acquired in 1966 (not 1968 as the deed indicates). “The walls have deteriorated becoming an eyesore. Action has to be taken as soon as possible to prevent additional deterioration and the continual loss of the resource.”⁸⁹

In preparation for the painting of the building in 1982, the National Historic Site contacted the Southeast Region Cultural Preservation Division about appropriate color schemes. The Cultural

88. Deed Book 598, page 179, Entry 358, File 33-40-200-1, Deed 393, Municipio of San Juan, Puerto Rico.
 89. Luis E. García-Curbelo, Superintendent, “Assessment of Actions Having an Effect on Cultural Resources [Exterior Wall of Building No. 2208, LCS#H-208],” April 2, 1982, Box 66 Folder 534, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

Preservation Division expressed concern about applying color to masonry and undertook some basic research which it explained:

historically, color was applied to masonry structures not through paints as known then but by renderings composed variously of natural earth pigments, glue, size, whitening, casein, lime, and water. These rendering were more in the nature of colored whitewash and were therefore very compatible with the masonry surface to which they were applied. Modern paints are often not compatible with masonry in which they are applied, resulting in blistering, flaking and other surface failures.⁹⁰

Since its research was inadequate to advise the National Historic Site as to the appropriate historic formulas, the Cultural Preservation Division had “no objection to using paint on the subject structures [Buildings No. 208, 209, and South Wall along Muñoz Riviera Avenue] . . . [however] we recommend that you seek informed counsel for the paint supplier to be certain that the paints selected will be compatible with the masonry” to prevent alkalinity problems between the paint and the masonry.⁹¹

Luis E. García-Curbelo, Superintendent at the National Historic Site, contacted the State Preservation Office, Puerto Rico, and later the Architect Beatriz del Cueto visited San Cristóbal and recommended the following colors for the three properties: Kitty Hawk (M) and Carlsbad Canyon (P).⁹² The brand of paint was not indicated.

90. John C. Garner, Letter to Superintendent San Juan National Historic Site Re: Color Scheme Building 208, 209 and South Wall Muñoz Rivera Avenue, LCS #H-208],” March 3, 1981, Box 66 Folder 534, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.
 91. Ibid.
 92. Luis E. García-Curbelo, Superintendent, Memorandum to John Garner Re: Color Scheme Building 208, 209 and South Wall Muñoz Rivera Avenue, February 17, 1981, Box 66 Folder 534, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

Within this same box of materials is a brief work proposal for the repairing of weather-damaged wood within “three round windows” on Building 208. However, the estimate for work included the replacement of glass. The estimate of work is from Lance Studio’s Leaded & Stain Glass Works (Taller de Vitrales), Old San Juan, and is dated April 16, 1982. There is no indication that this work was completed.⁹³

In 1987 a “rehabilitation of Building 208 for adaptive reuse” as administrative space was undertaken. The building had not been used by the National Historic Site until this date and “some windows and doors [had been] condemned as a security measure.” No changes were made to the building. Partitions and storage structures were free standing and temporary within the building. Air-conditioning units were installed on temporary frames to “leave the historic fabric unimpaired.” Temporary electrical installations made as required with installation were “made in a manner as to leave the historic fabric unimpaired.” The space was prepared so that the Facility Manager and Maintenance Foreman could move from the interior of San Cristóbal. There is no mention of repair work being completed on the condemned windows and doors.⁹⁴

A brief history of Building 208 was included with the 1987 rehabilitation statement. This history indicates that the property was “built during the mid 19th [sic] century and used as Quarters during the Spanish Army and United States Army occupancy.”⁹⁵ This is not footnoted, and there is no current research to support the statement

related to the building’s use by the Spanish Army as quarters.

Documents prepared in 1991 indicate that a second-floor ramp connecting Quarters 209 to 208 was proposed for construction. An NPS XXX Form was prepared since the proposed work was going to result in an effect on a cultural resource. However, only one resource was considered—Quarters 209. The XXX Form did note that the ramp would be at the “rear (northeast corner of Quarters 208) . . . and continue to Quarters 209. About mid-way along the ramp and inside quarters 208 an elevator will be install [sic] to provide handicapped accessibility to both floor levels of Quarters 208 and 209.”⁹⁶ The effects were described as “improv[ing] protection and preservation of Quarters 209.”⁹⁷ It is unclear why effects to Quarters 208 were not considered since construction activities would be undertaken in and outside the building.

This project lingered for the National Historic Site for some time and received renewed interest in 1996 after “lengthy and exhaustive planning exercises which reviewed all possible alternatives for meeting the Americans with Disabilities Act (ADA) requirements for handicap access to Building 209.”⁹⁸ The plans for the ramp and now a general access gate between Quarters 208 and 209 were discussed and reworked several times during the period 1996-1997. An alternative was finally selected in 1998. The State Historic Preservation Officer (SHPO) subsequently chided the National

93. Lance Studio’s Leaded & Stained Glass Work, “Job- Bldg # 208 San Juan, (Fort San Cristóbal), P.R,” April 16, 1982, Box 66 Folder 534, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

94. *106 Compliance Statement on the Effects of the Rehabilitation of Building 208 for Adaptive Use at San Juan National Historic Site Included in the National Register of Historic Places*, 1987, Box 38, Folder 96, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

95. Ibid.

96. David Ates, “XXX Form – Assessment of Actions Having an Effect on Cultural Resources,” 1991, 4, Box 58, folder 120, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

97. Ates, 7.

98. Lilliane D. López, Arch, State Historic Preservation Officer, Letter to William P. Crawford, Superintendent, San Juan National Historic Site Re: SHPO:04—16-96-03 Construction for Concrete Ramp at Building 209, Park Archives, San Juan Historic Site, San Juan, Puerto Rico, April 4, 1997, 1, Box 88, folder 119, San Juan National Historic Site, San Juan, Puerto Rico.

Developmental History

Historic Site for not considering the preservation of the historic character of *Fuerte San Cristóbal* in earlier plans.⁹⁹ While the historic character and adverse effects to Quarters 208 were also not considered, the SHPO did not comment on that absence. The project was completed in 1997.

In 2009, Building 208 underwent a rehabilitation which included:

- Interior finishes
- Plumbing
- Fixtures
- Replacement of doors and windows
- Masonry repairs on walls and ceiling
- Rehabilitation of restroom facilities
- Upgrade of IT systems
- Painting of exterior of building, and
- Correction of code deficiencies for electrical systems

All materials were replaced in kind if possible, and the non-historical access constructed in the 1980s located on the southside of the building and a set of stairs on the west side was eliminated. The sink below the staircase was eliminated.¹⁰⁰

The Assessment of Actions for the rehabilitation included a brief history of the building. It reads

The building known as Building 208 is the only park property located in the southeast side of Norzagaray Street that was constructed by the US Army. It was built in 1930 and was finished in 1939. It is located to the southwest of Fort San Cristóbal immediately behind and in front

99. Ibid.

100. Félix J. López, Park Historian, *Assessment of Actions Having an Effect on Cultural Resources*, December 19, 2008, Box 88, Folder 96, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

of the Officers [sic] Quarters . . . It is a one story masonry building with a total area of approximately 74” W X 98” L. The building is separated from it [sic] neighboring structure (Buildings [sic] 209) by a narrow concrete alley.”¹⁰¹

Certainly, the building history being recounted here is for the US Army Quarters 208 constructed on San Sebastián Bastion and not Quarters 208 at 507 Calle Norzagaray.

In 2011, as part of the rehabilitation of Quarters 208, a small educational site was constructed between Quarters 208 and Quarters 209 for the *Little Masons Program*. This project included the removal of 235 square meters of dirt which was overseen by an archeologist. A concrete slab of no higher than four inches with rubber pavers was laid on its surface was placed in the rear closest to Quarters 208. A small concrete theater-style seating area was created. This area was designed for educational programs related to the preservation and maintenance of the walls of the National Historic Site.¹⁰² At this same time a wheelchair lift was added to the south wall side entry off the alley between the Quarters 208 and 209.¹⁰³

In January 2012, the Discovery Center for the National Historic Site was opened in Quarters 208. The center was developed to be a hands-on learning environment created to arouse curiosity and interest of children in the fortifications of Old San Juan and to provide a way for them to connect to their shared heritage. The Discovery Center was described by NPS in a press release as

Includ[ing] several rooms each designed to engage young people in a variety of ways. In the

101. Ibid.

102. Walter Chavez, Superintendent, Letter to Carlos A. Rubio Cancela, State Historic Preservation Officer, Puerto Rico, re: Rehabilitation of Building 208 and Little Masons Program details, June 28, 2011, Box 88, Folder 96, Park Archives, San Juan National Historic Site, San Juan, Puerto Rico.

103. Reported by Eric López, Park Historian, San Juan National Historic Site, Puerto Rico, 2018.

navigation room, computers are available to conduct research. The adventure room, designed to give the feel of being on a ship's deck, children can listen to stories, imagine and read about days gone by. The highlight of the Discover Center is the *Little Masons* program, where kids can get their hands dirty applying stucco in much the way that the masons of the fortifications did centuries ago (Figure 19).¹⁰⁴

The Discovery Center was opened to much fanfare but was closed after Hurricane Maria in September 2017.



FIGURE 19. Little Masons program, a part of the Discovery Center, in Quarters 208. (Source: NPS photograph)

Quarters 208 is currently undergoing an interior and exterior rehabilitation that includes the painting of the exterior walls and interior changes.

104. Dilcia González, "Grand Opening of Discovery Center at San Juan National Historic Site," Park Archives, San Juan National Historic Site, Last updated 2015, accessed February 4, 2019, <https://www.nps.gov/saju/learn/news/grand-opening-of-discovery-center-at-san-juan-national-historic-site.htm>.

Quarters 208 Timeline

- 1533 Spain began fortifying the island of Puerto Rico creating *La Fortaleza*.
- 1539 *Castillo San Felipe del Morro*, “El Morro,” started.
- 1634 *Castillo San Cristóbal* and the San Juan city wall started.
- 1783 Major construction on San Cristóbal completed.
- 1790 Major construction on El Morro completed.
- 1861 Quarters 208 was first shown on a map, *Plano de la Plaza de San Juan de Puerto Rico*, and was possibly indicated as a part of the Artillery Pavilions, although it was not marked as such.
- 1887 Quarters 208 was shown on *Plano de la Plaza de San Juan de Puerto Rico* and was not indicated as military building.
- 1894 Quarters 208 was next shown on *Comandancia de Ingenieros*, a plan of changes within the city of San Juan, although changes were not indicated to the building.
- 1897 Part of the city wall was torn down.
- 1899 Quarters 208 was next shown in *Historic Base Map* [“Base” indicating a baseline map and not a map of the installation] of *San Cristóbal & El Morro, U.S. Army, 1899*.
- 1918 An earthquake caused damage to some historic buildings.
- 1930 Army aerial photography showed Quarters 208.
- 1931 A hurricane caused damage to surrounding buildings.
- 1940 Quarters 208 was not included in HABS recordation, *Castillo San Cristóbal, PR 7 - SAJU, 5*.
- 1949 San Juan Fortification System was designated as a National Historic Site.
- 1960 Map of *Real Estate Part of Fort Brooke Transfer for Department of Interior* showed Quarters 208 only as a faded outline labeled as “No. 5,” and Quarters 208 as located on San Sebastián Bastión.
- 1960 La Fortaleza designated a National Historic Landmark.
- 1964 US Army quarters 208 at San Sebastián Bastión was torn down.
- 1965 Gate between Quarters 208 and 209 was replaced.
- 1968, Dec 13 5 Calle Norzagaray, Quarters 208, was sold to the NPS.
- 1972 Old San Juan Historic Zone listed in the National Register of Historic places (NRIS 72001553).
- 1973 National Register of Historic Places nomination was completed for San Juan National Historic Site (NRIS 66000930).

- 1982 Exterior walls were patched and painted. Southeast Regional Office was consulted about paint colors; it advised seeking “informed counsel” from a paint supplier to be certain that paints selected would be compatible with masonry. The colors chosen for Quarters 208 and 209 and south wall along Calle Muñoz Rivera were *Kitty Hawk* and *Carlsbad Canyon*; the paint manufacturer was not indicated.
- 1983 La Fortaleza and San Juan National Historic Site in Puerto Rico are inscribed in the World Heritage List.
- 1987 Rehabilitation was proposed for Quarters 208 for use as administrative space by Facility Manager and Maintenance Foreman and as supply rooms. Air conditioning units were installed on temporary frames. Temporary electrical installations were made.
- 1990 Calle Norzagaray renumbered and the location of Quarters 208 became number 507.
- 1998 Calle Norzagaray wood gate was added between Quarters 208 and 209; elevated walkway was constructed from Quarters 209 to 208.
- 2008 Rehabilitation included interior finishes, plumbing, remodeling fixtures, replacement of windows and doors, correction of electrical systems code deficiencies, masonry repair on walls and ceiling, rehabilitate restroom facilities, and upgrade of information technology (IT) systems. Exterior was painted. Carpet was installed on floors. Sink below the stairs was eliminated. Access was located on the south side of the building and a set of stairs on the west side was proposed for elimination.
- 2011 A total of 235 square meters of dirt was removed and a 4-inch thick slab and a retaining wall with rebar was placed above the area in the backyard of Quarters 208 between it and Quarters 209; exterior wheelchair lift added to side entry.
- 2012 Discovery Center, a children’s hands-on learning, activity center, opened in Quarters 208 after internal alterations to accommodate activity rooms and experiences.
- 2012 Old San Juan Historic District listed on the National Register of Historic Places.
- 2013 Old San Juan Historic district designated a National Historic Landmark.
- 2017 Discovery Center in Quarters 208 closed after Hurricane Maria.
- 2018 Rehabilitation of interior and exterior painting.

Left blank intentionally

Physical Description and Condition Assessment

Site

Located within San Juan National Historic Site, Quarters 208 fronts the southeast side of Norzagaray Street (Calle Norzagaray) in San Juan, Puerto Rico. The building is adjacent to and west of Castillo San Cristóbal (Figure 20).

A row of two- and three-story masonry structures that also front Norzagaray Street are located southwest of Quarters 208. These buildings are referred to as Quarters 209, 210, and 211, and together with Quarters 208 were once associated with the Spanish fort. To the west of the site is historic Old San Juan, including another prominent Spanish fort, Castillo San Felipe del Morro. North of the site is the Bastión de San Sebastián, a portion of the historic city walls that wrap around the perimeter of Old San Juan, with the ocean beyond.

Norzagaray Street is a narrow, busy two-lane asphalt-paved road that, in general, runs east-west on a ridge that extends along the northside of the historic portion of the city (Figure 21). The east end of the road curves 90 degrees to the south and descends down the steep slope of the ridge. At the base of the ridge, Norzagaray Street meets Luis Muñoz Rivera Avenue (Avenida Luis Muñoz Rivera) to the east and San Francisco Street (Calle San Francisco) to the west. Quarters 208 faces the steep portion of the road that extends to the south and down the ridge. On either side of the road is a concrete curb and sidewalk measuring approximately 5 feet wide. The sidewalk and curb are approximately 8 inches above the surface of the road. The top of the curb is approximately 8 inches wide. The sidewalk is paved with mortar-set slate pavers, measuring 1 foot by 2 feet and cut to fit.

To the north of the building is a mown-turf lot that is walled off from the street by a thick masonry wall that aligns with the front elevation of Quarters 208 (Figure 22). The east end of the lot is equal in height to the second floor of Quarters 208. A concrete path follows along the east end of the site. The path measures 5 feet wide, has a brick curb, and extends from an arched opening in the historic city wall to a steel-framed catwalk at the east elevation of Quarters 208. The lot slopes down to the northwest and provides access to below-grade drainage systems through two manholes. At the northwest corner of the site is a wrought iron gate that provides access to the lot. The gate was locked at the time of the site visit for this study.

The south half of the site includes an alley shared with the neighboring building, Quarters 209 (Figure 23). A wood gate separates the alley from the street (Figure 24). The alley is approximately 8 feet wide and consists of a concrete walk and non-original concrete stair with landing and accessibility lift that provide access to the south elevation entrance of Quarters 208. The west end of the concrete walk, adjacent to the wood gate, is tan in color and has exposed aggregate. The remaining portion of the alley appears to be a different vintage of concrete, based on the configuration of control joints and less exposed aggregate. Control joints extend across the width of the alley and divide the walk into rectangular sections, approximately 4 feet wide. In addition, the concrete at the east side of the alley has numerous concrete patches associated with the installation of the stair, elevator lift, and subgrade pipes. There is a drain measuring 12 inches square at the center of the alley.

Behind Quarters 208, a wall of exposed natural stone indicates that portions of the site were excavated. The exposed natural stone portion of the wall extends along the north and east sides of the site, is approximately 12 feet tall, and is capped by a cast-in-place concrete retaining wall (Figure 25). The east half of the site is accessed from a metal pedestrian gate located at the east end of the Quarters 209 site. At the base of the natural stone wall is a small non-original concrete amphitheater. The amphitheater consists of three curved and stepped rows of concrete seats that face the east elevation of the Quarters 208. The northside of the amphitheater transitions to a mown-turf sloped embankment with the lower concrete seat extending to form a retaining wall that meets the north end of the east elevation of the building (Figure 26). Between the amphitheater and the building is a patio consisting of rubber interlocking tiles placed on a concrete slab.



FIGURE 20. The site south of Quarters 208, with views of Castillo de San Cristóbal (right) and Quarters 209 and 210 (left), 2018.



FIGURE 21. Norzagaray Street as seen from the entrance of Quarters 208, looking north in 2018.



FIGURE 22. The mown-turf lot to the north of Quarters 208 in 2018.



FIGURE 23. The alley to the south of Quarters 208 and adjacent to Quarters 209 (left) in 2018.



FIGURE 24. The entrance door to the alley south of Quarters 208 in 2018.



FIGURE 25. The retaining wall at the east end of the site in 2018.



FIGURE 26. The retaining wall and embankment where they meet the east elevation of Quarters 208 in 2018.

Exterior Description

See Appendix A for measured drawings of Quarters 208. See Appendix B for the finishes analysis conducted as part of this study.

Elevations

Quarters 208 is primarily a single-story building, with a second-floor section at the northeast portion of the structure. The building has a mostly rectangular plan measuring 29 feet 2 inches by 55 feet 6-1/2 inches. It is oriented on an east-west axis with the main entrance centered on the west elevation, fronting Norzagaray Street. At the north end of the east elevation, the building extends beyond its otherwise rectangular plan. The extension has a polygonal-shaped plan that extends an additional 11 feet beyond the rectangular portion of the building. The second-floor addition is located above and follows a

similar polygonal plan. A steel-framed catwalk attached to the east elevation of the building provides access to the second-floor addition. The catwalk extends from the site to the north of the building to Quarters 209.

Quarters 208 appears to have been constructed in three major campaigns: the original west portion of the building, a one-story addition to the east, and a second addition at the east end of the building (Figure 27).

The west elevation consists of three door openings with horseshoe arch transom windows and an eclectic mix of Moorish and Neoclassical decorative elements (Figure 28). The field of wall is painted orange, and the projecting decorative elements are painted white. The elevation has a solid base, painted white, which projects 4 inches from the main portion of the wall. The height of the base increases from 2-1/2 inches tall at the north to 29 inches tall at the south corner in relation to the slope of the road. At the base, centered below the north and south door openings, are 2-1/2 inch diameter holes that align with the interior finished floor height, which likely served as washout openings for draining water from interior floors.

The door openings are framed with applied pilasters, each measuring 7 feet tall and 16 inches wide, and capped with a Doric capital. The pilasters project 1-1/2 inches from the face of the wall. A balustrade, measuring approximately 28 inches tall, spans the width of the two outer door openings (Figure 29). Each balustrade consists of five balusters, measuring approximately 25 inches tall and 8 inches wide, with a bottom rail and top rail. A stringcourse extends across the west elevation at the height of the transom arch springline. It connects to an architrave that wraps around each horseshoe arch transom (Figure 30). The stringcourse and architrave each measure 11-5/8 inches wide and project 3 inches from the face of the wall. They consist of a stepped profile topped with a projecting band with ovolo. At the top of the center horseshoe arch is a frame with the number 5, presumably referencing the previous building address (Figure 31).



FIGURE 27. General overview depicting the construction chronology of Quarters 208, including the original building (by 1861), the first addition (by 1930), and the second addition (by 1973). Note that the building originally had a courtyard to the east, which was enclosed by the first-floor addition. (The above dates by which this construction was present are based on archival documentation.)



FIGURE 28. Overview of west elevation.



FIGURE 29. Detail of balustrade at north and south door openings.



FIGURE 30. Profiled architrave at horseshoe window openings.



FIGURE 31. Center door opening with plaque over transom.

Applied pilasters, measuring 16 inches wide and projecting 1-3/4 inches from the main portion of the wall, are located at each end of the elevation. Above the pilasters are three corner quoins, each measuring 8 inches tall and projecting 1-1/4 inch from the face of the wall (Figure 32). The quoins alternate between 16 inches and 12 inches wide on the west elevation and do not wrap around the corner of the wall. At the north end of the building, the pilaster and quoins separate Quarters 208 from the retaining wall of the adjacent site. The face of the pilasters and quoins are painted white.

A wide projecting cornice extends across the top of the west elevation and wraps around the north and south corners (Figure 33). The cornice measures 21-1/4 inches tall and projects 10-1/2 inches from the face of the wall. It consists of a series of bands, each stepped back 3/4 inch from the band above, with a center concave portion and projecting trim piece. Atop the cornice is a crenellated parapet with center acroterion. The crenellations sit on a base

measuring approximately 10 inches tall. Each crenellation is 11 inches tall by 8-1/2 inches wide, and features a ziggurat shape consisting of three stepped levels with the steps slightly undercut (Figure 34). The crenellations are spaced 20 inches on center. At the center of the parapet is an acroterion that sits on a profiled cornice and plinth, approximately 5 feet 5 inches wide and 6 inches tall. The acroterion measures 32 inches tall and consists of a center ogee arch element flanked by side panels with a curvilinear profile.

The south elevation has a uniform appearance but consists of two halves, the west section includes the stairs and original wall construction, and the east section includes a window opening and later wall construction (Figure 35).

At the west half of the wall, there is a stair and three buttressing piers spaced approximately 15 feet on center (Figure 36). Each pier is topped by half of a pyramidal cap measuring 20 inches tall and 12 inches deep (Figure 37). The west pier is located at the end of the elevation and aligns with the entry gate from the street. The pier is 12 inches wide, 11 inches deep, and 7 feet tall. The second pier measures 18 inches wide, 12 inches deep, and 5 feet 8 inches tall, and is located and partially concealed by the lower stair treads. The third pier is mostly concealed by the stair landing so that only the cap and the top 7 inches of the pier are exposed to view (Figure 38). The parapet at the west end of the elevation steps up 12 inches to meet the cornice of the adjacent west elevation. There is a door opening at the top of the stair.

The east half of the wall has a punched window opening located 10 feet 4 inches to the east of the door (Figure 39). There is a vertical crack in the wall that appears to align with the break between the original portion of the building and the first addition (Figure 40).



FIGURE 32. Corner quoins at west elevation.



FIGURE 33. Detail of cornice profile at west elevation.



FIGURE 34. Acroterion at center of roof parapet and ziggurat-shaped crenellations.



FIGURE 35. Overview of south elevation.



FIGURE 36. West half of south elevation.



FIGURE 37. Piers located at west half of south elevation.



FIGURE 38. Easternmost pier at south elevation. Note that pier is concealed by concrete stair and only the cap is visible.



FIGURE 39. Window opening at east half of south elevation.

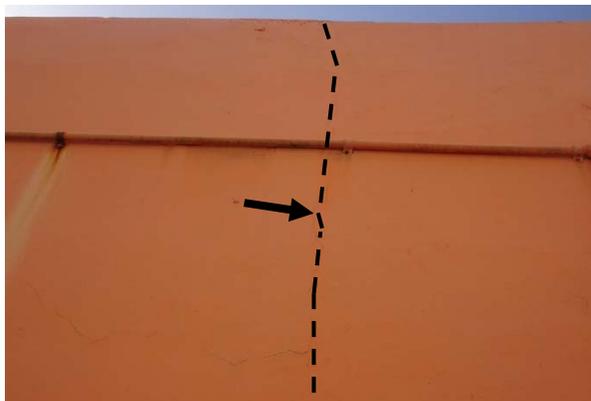


FIGURE 40. Vertical crack separating the east and west halves of the south elevation (arrow and dashed line).

Electrical conduit is surface mounted to the upper portion of both the east and west sections of the wall, and penetrates the wall at three locations. The wall penetrations have been filled with grout. There is also a non-original floodlight over the door opening and a motion sensor mounted to the wall (Figure 41).

The walls at the east elevation were all constructed as part of a later addition. The east elevation is divided into three sections by changes in the plane of the wall (Figure 42). The south section is approximately 12 feet 1 inch wide, the center section runs at a 45-degree angle to the adjacent wall and measures 14 feet 9 inches wide, and the north section is 7 feet 3 inches wide. The center and north sections of the wall are two stories in height. There are window openings at the south and north sections of the first-floor level. The base of the north section of the wall, below the window opening, is partially concealed by a mown-turf embankment and is overlaid with field stone set in grout. The elevation features a steel-framed catwalk that is mounted to the wall (Figure 43). It extends from a path at the northside of the site to an entrance at Quarters 209. The catwalk provides access to the main entrance of the second floor addition. A security camera is mounted to the wall below the catwalk. A free-standing metal-framed interpretive display case, located along the center and south sections of the elevation depicts the process of applying plaster to walls.

The north elevation is a relatively flat façade with only the upper portion of the walls visible above the sloping mown-turf lawn (Figure 44). The exposed portion of the wall at the east end of the elevation measures 2 feet 6 inches tall while the exposed portion at the west end measures 7 feet 6 inches. The wall is painted orange. There are three areas of insulated condensation lines for the air conditioning system, each associated with a large grouted penetration in the wall. The west end of the elevation includes the return of the projecting cornice (Figure 45).

The second-floor portion of the building measures approximately 16 feet 11 inches wide by 26 feet 10-1/2 inches long and extends 4 feet 8 inches above the height of the main building parapet line.

It is situated at the northeast corner of the building, is painted light grey, and appears to be the last of the additions to the building. The east elevation of the second floor aligns with that of the first floor portion of the building (Figure 46). As previously noted, it is accessed from the exterior by a door opening off the aforementioned catwalk.



FIGURE 41. Non-original flood light over door opening.



FIGURE 42. Overview of east elevation.



FIGURE 43. View of catwalk at east elevation as seen from below.



FIGURE 44. Overview of north elevation.



FIGURE 46. Overview of second-floor addition, east elevation.



FIGURE 45. Cornice return at west end of north elevation.



FIGURE 47. Overview of second-floor addition, north elevation.

The north elevation at the second floor is set back 16 inches from the first floor north elevation (Figure 47). The walls at the second floor were constructed inboard of the previously existing parapet wall. From the north elevation, the side elevation of the courtyard skylight and overhanging roof slab is visible. The roof overhangs 18 inches and has an integral drip.

The west elevation at the second floor is set back approximately 40 feet from the main first floor portion of the west elevation (Figure 48). It includes an overhanging roof slab and the skylight covering the courtyard below.

The south elevation at the second floor is set back approximately 11 feet from the first floor portion of the south elevation (Figure 49). Similar to the north elevation, the walls were constructed inboard of the parapet walls. In addition to the side elevation of the skylight and overhanging roof, the south elevation has a window opening at the far west side of the elevation.



FIGURE 48. Overview of second-floor addition, west elevation.



FIGURE 49. Window opening at south elevation of second-floor addition.

Walls

Original Building

The original walls at Quarters 208 are typically 18 inches to 19-1/4 inches thick and are constructed of rubble masonry. Historically, rubble masonry walls (*obra de mampostería*) consisted of a mix of undressed stone, sand, and lime with brick masonry used to define the edges at window and door openings and to provide structural vertical ties in the masonry. The walls were rendered with a brick-dust mortar (*argamasa*) and then finished with sand and lime stucco (*revoque*).¹⁰⁵

While exploratory openings were not included in the scope of this project, observations at areas of distress conditions on the south and west walls indicate that the exterior walls were constructed of rubble masonry. The rubble masonry consists of brown-colored matrix containing some white aggregate (Figure 50). At some locations, specifically adjacent to door openings and projecting decorative elements, brick units with similar brown-colored mortar with white stone

aggregate were observed (Figure 51 and Figure 52). Decorative elements such as cornice units were observed to have a corbelled brick masonry back-up. The decorative features therefore typically follow a module consisting of 1-1/2-inch projections and 2-inch bands. Exterior window and door openings have chamfered corners at the interior edge.

At areas where surface coatings have been removed, specifically at the west and south elevations, a stucco covering measuring 3/8 inch thick was observed at the face of the wall.



FIGURE 50. Wall construction at the west half of the building. Note underlying mortar and stucco visible at one area of distress.



FIGURE 51. Wall construction at west half of building. Note brick and mortar at perimeter of door opening.

105. Beatriz Del Cueto, "The Development of Hydraulic Mortars, Cement, and Concrete in Puerto Rico," *APT Bulletin: The Journal of Preservation Technology* 42, no.1 (2011), 45–52.



FIGURE 52. Wall construction at the projecting decorative elements on the west half of the building. Note underlying brick.

First Addition

Walls at the east half of the building were likely constructed as part of a later, one-story addition and appear to match the depth of the adjacent original walls. Openings at the exterior walls are punched and not chamfered as at the original wall areas. At the east elevation, the walls are 13-1/2 inches deep. Based on physical evidence, the walls have similar construction to the original portion of the building, including rubble and brick masonry covered with stucco (Figure 53).



FIGURE 53. Area of missing stucco at the east half of building, where underlying masonry was observed.

Second Addition

The second addition is of a different construction than the original building and first addition walls. Walls are 6 inches deep and, based on physical evidence, appear to be constructed of unit masonry with stucco. These walls were built inboard of previously existing parapet walls.

Multiple paint coatings were observed on the building exterior. At the time of the survey, the walls were painted orange, with decorative elements on the west elevation painted white. The exterior walls of the second addition at the east end of the building were painted light grey. Repainting of the building exterior walls was underway during the site visit performed for this study, reportedly with MasterProduct 250, an acrylic-based paint, in colors “Spice Trade” and “White Splendor.”

Stucco and Mortar Samples

Limited petrographic evaluation was performed on the stucco and underlying rubble masonry at three locations. (Note that some of the stucco samples also had paint coatings, which are addressed in Appendix B.) During the site visit, preparation were underway to repaint the exterior of the building. WJE obtained stucco samples were obtained from areas where the stucco was cracked and debonded and was being removed in preparation for work. Samples were taken from the south elevation, including two samples (M1 and M5) from the original portion of the building and one sample (M3) from the first addition. Samples M1 and M3 included the stucco and a small amount of the rubble masonry backup material. Sample M5 consisted of backup material within the rubble masonry construction of the wall. A full description of the samples is provided in Appendix B.

- The samples were examined petrographically at the WJE in-house laboratories in Northbrook, Illinois. Findings are summarized below. The stucco at samples M1 and M3 appeared to have similar composition, consisting of a calcitic lime-based material with a siliceous sand. No cement was identified in either sample.
- Although the samples were removed from portions of the building constructed at different periods, the backup material in samples M1 and M3 also appeared to be similar. In general, the backup material was more friable than the surface stucco. It was characterized by an overall dark orange-

brown color, indicating the potential presence of an iron-rich material. The backup also features large white-colored lumps of calcitic lime that were visible without magnification.

- Sample M5 consisted of backup material taken 1 inch into the rubble masonry construction of the wall. The mortar was sandy and easily broken apart when touched. It consisted of an abundance of sand with very little paste and included both siliceous and calcareous sand particles.

Additional petrographic studies, including preparation of thin sections, could be conducted to identify the composition of these materials. Further laboratory study could potentially provide further information about periods of construction.

Windows

There are five window openings on the building: one at the first floor of the south elevation; two at the first floor of the east elevation; one at the south elevation of the second floor; and one interior window at the second floor, overlooking the interior courtyard. The south elevation window and window at the south end of the east elevation are part of the first addition. The remaining three windows are part of the second addition. All windows are set in punched openings without interior or exterior trim. The windows are wood-framed and each includes some portion that is louvered.

First Addition

The window opening at the south elevation measures 3 feet 3 inches wide by 5 feet 2 inches tall and has a wood-framed window with a pair of casement sash (Figure 54). Physical evidence suggests that repairs or alterations were made at the window head (Figure 55). The window is set at the center of the wall cavity, creating a sill measuring 5-1/2 inches deep on the interior and exterior faces of the window. The wood frame is 3-1/2 inches deep. The casement sash includes an upper acrylic light and a lower louvered portion. The acrylic light encompasses the upper third of the sash. The lower two-thirds of the sash has louvers consisting of an operable metal-framed

louver system mounted to the wood frame and secured with a wood stop. Wood louver slats are fitted into the metal framework (Figure 56). There are turn mechanisms located at the interior face of each sash that control the rotation of the louvers (Figure 57). The interior face of the louvers has a sheet of acrylic that is surface-mounted to the framing. Each casement has two five-knuckle hinges. The west sash has a surface-mounted slide pin lock at the top and bottom. The east sash is temporarily held shut with tape applied to the interior face. There is a non-original security device mounted to the interior face of the sash. The window frame and sash are painted dark brown.

The window opening at the south end of the east elevation is similar in appearance and hardware to the window at the south elevation (Figure 58). One significant difference is the presence of a center wood astragal mounted to the exterior face of the sash with slide locking mechanisms (Figure 59).



FIGURE 54. Casement window opening at first floor of south elevation.



FIGURE 55. Physical evidence of previous repair or alteration at window head.

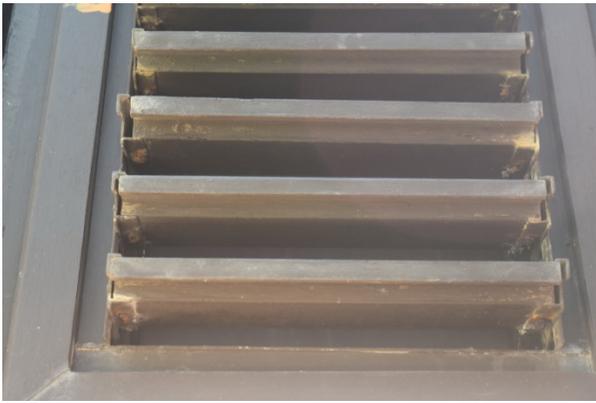


FIGURE 56. Wood window louvers set in metal frame.



FIGURE 57. Interior turn mechanism for louvers.



FIGURE 58. View of casement windows at first floor of east elevation. Note center astragal (arrow)



FIGURE 59. Top of first-floor east elevation window with slide lock (arrow) as viewed from the interior.

Second Addition

The windows at the second addition are all different from one another. The window opening at the north end of the east elevation measures 25-1/2 inches wide by 35-1/2 inches tall (Figure 60). It has a louvered window with the frame set 8-1/2 inches from the exterior face of the wall and 1-1/2 inches from the interior face of the wall. The sash consists of stiles and rails measuring 2-3/4 inches wide with louvers measuring 1-1/2 inches. The exterior face of the window is painted dark brown and the interior face has a clear surface coating.

The window at the second floor of the south elevation is set in a square opening measuring 3 feet wide and 3 feet tall (Figure 61). The opening has a louvered wood window with the frame measuring 3-3/8 inches deep. The frame is positioned so that it is flush with the face of the interior wall. Within the frame is a fixed louvered sash that has the appearance of two louvered casement sash with a center astragal. Each faux sash measures 17-1/2 inches wide by 35 inches tall and has fixed wood louvers. The window has a clear surface coating.



FIGURE 60. Louvered window at first floor of east elevation.



FIGURE 62. View of interior casement windows at west elevation of second-floor addition.



FIGURE 61. Louvered window at south elevation of second-floor addition.

The interior window is located on the west elevation of the second floor portion of the building and overlooks the covered courtyard (Figure 62). Archival documentation and physical evidence indicate that the opening was originally a door opening that has been partially infilled and the window installed.¹⁰⁶ The opening measures 49 inches wide by 47 inches tall and has a wood frame. Set in the frame is a fixed louvered sash that has the appearance of two louvered casement sash. Each faux sash consists of stiles and rail measuring 3-5/8 inches wide and louvers measuring 1-1/2 inches. The wood has a clear surface coating.

106. Archival photos obtained from San Juan National Historic Site archives dating from December 12, 2008, and October 18, 2011.

Doors

There are five exterior doors on the building: three evenly spaced on the west elevation, one centered on the south elevation, and one on the second floor of the second addition. All doors are wood-framed and non-original.

Original Building

The three entrances on the west elevation include a set of hinged louvered double-doors and a horseshoe arch transom (Figure 63). The door openings are 4 feet 6-1/2 inches wide with the door measuring 7 feet 9 inches tall and the transom measuring 4 feet 6 inches tall. The door frame is 3-1/2 inches deep and set at the center of the wall depth. The interior edge of each door opening is chamfered at a 45-degree angle (Figure 64). Each door frame has jambs measuring 2 inches wide and heads measuring 3 inches wide. Each door leaf measures 1-1/2 inches thick and has a top, middle, and bottom rail measuring 5 inches wide and vertical stiles measuring 4 inches wide. The upper panel of the door includes fixed wood louvers, measuring 46 inches tall by 17 inches wide. Acrylic is mounted to the interior face of the louvered panel (Figure 65). The lower panel consists of two vertically oriented recessed panels, each measuring 28 inches tall and 7-1/2 inches wide (Figure 66). Each door leaf has three five-knuckle hinges, security device, and two steel U-shaped brackets mounted to the interior of the

frame to support a 2x4 cross bar. The transom is set into the horseshoe arch. It is wood-framed and divided into four glass lights by a curved X-shaped mullion, measuring 2-3/4 inches wide (Figure 67). The transom has monolithic wire glass.

The center door opening is the main entrance. In addition to the previously mentioned hardware, it also has a metal handle on the interior face of the north leaf, manual closers on each leaf, a surface-mounted vertical slide pin lock. The door has a tiled access step consisting of six 9-inch-square ceramic tiles with a four point pinwheel design. An exterior push plate mounted to the center of the north leaf, push plate mounted to the interior wall adjacent to the south door leaf, and wiring were observed and appear related to a universally accessible entrance, the mechanisms for which had been disconnected and were no longer operable at the time of the site visit. A piece of acrylic was mounted to the exterior face of the south leaf to hold temporary signage. The doors to either side of the main entrance have a balustrade that prevents access through these openings (Figure 68).

The door opening at the south elevation is accessed from the stair landing and measures 3 feet 2 inches wide by 6 feet 11 inches tall. At the interior face of the door opening, the jambs have chamfered edges (Figure 69). The door frame is 4-1/4 inches deep and positioned at the center of the depth of the wall. The frame measures 1 inch wide and has rabbet joinery. The door leaf is wood with veneer plywood and measures 1-3/4 inches thick. At the upper portion of the door is a glazing panel measuring approximately 2 feet wide by 3 feet tall with single-pane tempered glass. The door has three five-knuckle hinges, a security device, steel interior and exterior knobs with rosette, mortise lock, and strike plate. The door has a tile threshold, similar to that at the west entrance but partially covered with a strip of sheet asphalt. The exterior face of the door is painted dark brown and the interior has a stained finish.



FIGURE 63. Exterior view of main entrance door at west elevation.



FIGURE 64. Interior view of main entrance door.



FIGURE 65. Louvered panel with interior acrylic at main entrance door.



FIGURE 68. View of door opening at the north end of the west elevation.



FIGURE 66. Recessed panels at lower portion of main entrance door.



FIGURE 69. Interior view of the south elevation exterior entrance door.



FIGURE 67. Horseshoe-shaped transom with applied mullions at main entrance door.

Second Addition

The door to the second addition measures 35 inches wide and 7 feet 2 inches tall. The door replaced a previously existing louvered opening and is accessed from the catwalk, has a concrete curb, and steps down 12 inches at the interior. There is a wood-framed step located at the entrance (Figure 70). The door is 1-3/4 inch thick and has an upper and lower panel defined by a recessed pattern in the door (Figure 71). The panels measure 26 inches wide and approximately 36 inches tall at the top panel and 28-1/2 inches tall

at the lower panel. There are three brass five-knuckle hinges on the door, steel interior and exterior knobs with rosette, and mortise lock with strike plate. At the base of the exterior face of the door is a wood sweep that projects approximately 3 inches and is nailed to the door (Figure 72). The door is painted dark brown.



FIGURE 70. Interior step adjacent to the second-floor addition exterior entrance.



FIGURE 71. The second-floor addition exterior entrance door.



FIGURE 72. Door sweep at the second-floor addition exterior entrance door.

Roof

Original Building

The main roof measures approximately 29 feet by 30 feet and includes the original west half of the building (Figure 73). The roof slopes to the east and has a parapet measuring 5 inches at the west end, upon which are located the more decorative crenelated parapet and acroterion. The parapet at the northside and southside of the roof measures 13 inches wide and decreases in height from 5 inches at the west end to 1 inch at the east end. The roof system includes a mechanically fastened base sheet and a modified bitumen top sheet with a plastic waffle-pattern surfacing (Figure 74). The membrane appears to be set in bitumen. Joints in the membrane are spaced 34-1/2 inches. Patterns of ghosting indicate that the joints were originally taped, although all of the tape has since been removed. Bitumen has been applied along some of the joints. At the west side of the roof, the edge of the membrane has been secured by an aluminum roof termination flashing with sealant across the top (Figure 75). At the northside and southside of the roof, the membrane laps the full width of the parapet wall and is set in bitumen (Figure 76).

There are two small skylights on the main roof; one on the northside and one on the southside. The skylights are framed by a wood curb measuring 4-1/2 inches tall and wrapped with roofing membrane. The north skylight has a fiberglass frame with translucent dome (Figure 77). The south skylight dome has been removed, and the opening covered by a piece of sheet metal secured by sand bags placed on the sheet metal

(Figure 78). There is a scupper drain located at the east parapet that separates the roof from the courtyard skylight.



FIGURE 73. Overview of the main roof, located over the west half of the building.



FIGURE 74. Roof membrane with joints spaced 34 inches on center and waffle-pattern surfacing.



FIGURE 75. Sheet-metal roof termination flashing along west parapet wall.

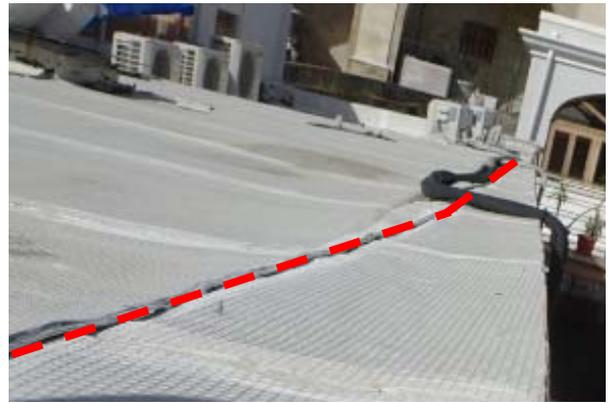


FIGURE 76. Roof membrane wraps the top of the parapet at the north and south parapet walls (parapet in image is right of the dashed line).



FIGURE 77. Fiberglass skylight at the northside of the roof.



FIGURE 78. Missing skylight at the southside of the roof.

First Addition

The roof at the south end of the east addition is 12 inches below the height of the main roof (Figure 79). It has a 10 inch parapet wall. As with the main roof, the roof system includes a mechanically fastened base sheet and modified bitumen top sheet with a plaster waffle-pattern surfacing. There

is evidence of tape at the joints, although the tape has since been removed. The membrane wraps up the parapet walls and over the full width of the parapet wall (Figure 80).

The roof slopes to the northwest, where there is a scupper drain at the parapet wall that separates the roof from the courtyard skylight (Figure 81). A vent stack is also located at the northwest corner of the roof, adjacent to the drain. There are seven split-type air conditioning units: four along the south end of the roof and three along the north end (Figure 82). The units are set on plastic paver pedestals. As indicated by the manufacturer's labels mounted on the units, the units were manufactured in June 2017 by TGM Industries. Metal conduit extends between the units and sits directly on the roof membrane.



FIGURE 79. View of the first-floor addition roof. Note air conditioning units.



FIGURE 80. Roof membrane wraps the top of the parapet wall.



FIGURE 81. Scupper drain for first-floor addition roof.



FIGURE 82. One of seven air conditioning units at roof.

Second Addition

The roof at the second addition is a low-slope roof (Figure 83). The roof slab measures approximately 4 inches thick and widens at the outer 6 inches of the roof slab to a thickness of 5-3/4 inches. The west end of the roof slab overhangs 18 inches and has an integral drip edge, measuring 1-1/4 inches deep, at the underside of the overhanging slab (Figure 84). Similar to the other roofs, the roof system consists of a modified bitumen sheet with waffle-pattern surfacing that is set in bitumen. There is no evidence of an underlying base sheet. The membrane extends to the edge of the roof slab, with no visible flashing or membrane termination. Evidence of previous joint seam tape was observed but the tape has since been removed. The roof has a vent pipe that extends approximately 3 inches above the roof deck at the east end of the roof (Figure 85). A cast-iron pipe, approximately 12 inches tall, is located approximately 4 feet to the west (Figure 86).

Between the main roof and the second-floor addition is a courtyard covered by a non-original aluminum-framed skylight. The skylight, constructed in 2009, is sloped to the west at an angle of approximately 15 degrees and covers an opening measuring 14 feet 7 inches by approximately 13 feet. The skylight is constructed of 3-inch-wide mullions with a white-colored finish. The framing is spaced 2 feet 11 inches on center in both directions, creating a framework that supports clear single-pane glass lights. The mullions are secured to the exterior walls of the second-floor addition with aluminum brackets on either side of each mullion (Figure 87).



FIGURE 83. View of second-floor addition roof.



FIGURE 84. Overhang with drip edge at second-floor addition roof.



FIGURE 85. Vent stack penetration at second-floor addition roof.



FIGURE 86. Plumbing stack penetration at second-floor addition roof.



FIGURE 87. Aluminum skylight framing attached to wall with brackets (arrow).

Exterior Stair

A concrete stair with landing is located at the center of the south elevation (Figure 88). The stair extends to the west of the landing and measures 8 feet 4 inches long and 4 feet 8 inches wide. It consists of stair treads measuring 12-1/2 inches deep with a rise of 5-1/2 inches. A landing is located on the east and measures 10 feet 2 inches

Physical Description and Condition Assessment

long and 4 feet 8 inches wide. The landing is approximately 3 feet 8 inches tall. The side of the stair and landing are painted orange. The upward-facing surface is unpainted. At the west side of the landing is the side entrance door. To the east of the landing is a non-original steel accessibility lift (Figure 89).

Along the southside of the stair and landing is a stainless steel handrail constructed of 2-1/2 inch diameter tubular steel and consisting of a top rail and intermediate rail (Figure 90). The handrail is 42 inches tall and set in grouted pockets in the concrete. A steel gate, installed as part of the accessibility lift, was installed at the east end of the landing.

Physical evidence suggests that the stair and landing were modified since construction. Cold joints in the concrete and the appearance of the concrete indicate that the original stair was 4 feet wide and the landing was 4 feet square (Figure 91 and Figure 92).



FIGURE 88. Stair at south elevation.



FIGURE 89. Accessibility lift to east of stair.



FIGURE 90. South entrance stair with handrail (arrow).



FIGURE 91. Concrete at stair with cold joint between original concrete (arrow side) and concrete addition.



FIGURE 92. Concrete at landing with cold joint between original concrete (arrow side) and concrete addition.

Exterior Catwalk

The catwalk was constructed after 1975. It consists of three sections that follow the plan of the building and extend across the east elevation. It is a steel-framed structure with wood planking and a stainless steel handrail. The catwalk is constructed of steel I-beams measuring 8-1/4 inches tall and 4 inches wide. The structural system includes perimeter beams, girts, and bracing (Figure 93). The perimeter beams extend along either side of the catwalk and are fastened together by 3-1/2 x 3-1/2 x 7-1/4 steel angles. The beams are supported by 4-inch by 4-inch angles that are anchored to the wall of Quarters 209 to the south and the retaining wall to the north (Figure 94). An intermediate beam, measuring 8-1/4 inches tall and 6-5/8 inches wide, extends between the east wall of Quarters 208 and a west-facing wall at Quarters 209 (Figure 95). It supports the center of the perimeter beams. Girts, spaced approximately 4 feet on center, span perpendicular to the perimeter beams and wall and are welded to the beams. At the north end of the catwalk, vertical bracing is anchored to the wall with four 3/4-inch-diameter bolts on each side of each brace (Figure 96). The lower portion of the bracing is welded to the west perimeter beam and aligned with the girts. The vertical bracing is approximately 42 inches tall and supports a handrail. The top of the bracing has a curved flange closure.

The handrails are stainless steel, measure 42 inches tall, and consist of 2-inch-diameter pipe top rails and vertical posts (Figure 97). Along the east side of the catwalk and at the south end of the west side of the catwalk, there are intermediate horizontal rails that consist of 3/4-inch-diameter rods spaced 9 inches apart. The catwalk has 2x12 wood decking secured to the flange of the perimeter beams with 3/8-inch-diameter bolts (Figure 98).



FIGURE 93. View of the underside of the catwalk structure including perimeter beams (line), girts (arrow), and underside of vertical bracing (circle).



FIGURE 94. Steel support angle mounted to retaining wall at north end of catwalk.



FIGURE 95. Intermediate beam (arrow) supporting midspan of catwalk.



FIGURE 96. Vertical bracing mounted to the wall (arrow).



FIGURE 97. Catwalk as seen from entrance at Quarters 209.



FIGURE 98. 2x12 wood deck boards for catwalk.

Exterior Condition Assessment

Exterior Masonry Walls

- Spalled and debonded stucco was observed at numerous locations on the west and south elevations. Where debonded, the stucco was bowed and could be moved back into place when pushed by hand (Figure 99). The distress was often associated with a pattern of radial cracking that extended beyond the area of bowing. At some locations, the stucco had spalled or deteriorated and was no longer intact (Figure 100 and Figure 101). At these locations, the underlying brick masonry was exposed to view. Where rubble masonry was present, the masonry appeared to be deteriorated and could be crumbled by hand. Areas of observed distress were typically located at the west end of the south elevation, with smaller areas located at the west elevation. As noted above, additional petrographic analysis could be conducted to identify the composition of the stucco and backup materials.
- Cracking was observed at the stucco on the north and south elevations of the building (Figure 102). The cracking was observed to run horizontally along the top edge of the roof parapet, with vertical cracking extending from the horizontal cracks at some locations.
- A vertical crack extending the full height of the wall was observed at the east end of the south elevation. The crack appears to denote the joint between original wall construction to the west and the later addition to the east.
- Deteriorated and previously patched stucco was observed at the perimeter of the south window opening on the west elevation (Figure 103). There was an open gap measuring as much as 2 inches wide between the stucco and the wood window frame. The underlying rubble masonry wall construction was visible through the gap.
- Cracking was observed at the second-floor addition (Figure 104). The cracking was

located at the north and south elevations and consisted of step cracking that appeared to follow the joint lines of the underlying structure. At the time of the survey, the area adjacent to the cracks appeared moist.



FIGURE 99. Bulging of the exterior stucco (dashed line).



FIGURE 100. Spalled exterior stucco. Underlying brick is exposed to view.



FIGURE 101. Spalled exterior stucco. Underlying mortar was exposed to view.



FIGURE 102. Cracking at exterior stucco was typically located along the parapet.



FIGURE 103. Spalled and previously repaired stucco was observed at some wall openings. At some locations, the underlying brick substrate was exposed to view.



FIGURE 104. Step cracking observed at the masonry unit construction on the north elevation of the second-floor addition.

- Cracking was observed at the underside of the overhanging roof slab at the west elevation of the second floor addition (Figure 105). The area of cracking was adjacent to the integral drip for the roof slab.

- Wall penetrations for conduit and insulated condensation are present at the upper portion of the south and north elevation walls (Figure 106). The penetrations have typically been filled with grout. It appeared that the grout had been installed since the building was last painted. Distress was observed at the interior wall finishes opposite some of the grouted penetrations.
- Abandoned anchors were observed embedded in the wall (Figure 107). The anchors were typically located near wall-mounted conduit and often had surface corrosion and staining.
- Perimeter sealant was missing at wall-mounted light fixtures at the west elevation (Figure 108).
- Physical evidence consisting of small previously patched and painted areas, presumably where light fixtures were mounted, were observed at the west elevation (Figure 109).
- Bubbling and peeling paint was observed at the stucco (Figure 110). At the time of the survey, loose and deteriorated paint was being scraped off and removed in preparation for repainting. Areas of bubbling paint were typically in close proximity to areas of observed debonding of the stucco.
- Staining was observed at anchors supporting wall-mounted conduit and wall-mounted framework for the catwalk (Figure 111 and Figure 112). Corrosion staining extended from anchors and was also observed immediately below the wall-mounted conduit and at the catwalk framing.
- Soiling was observed on the face of the stucco below the west cornice and at locations below wall-mounted conduit, wall penetrations, and roof copings on the north and south elevations (Figure 113). The soiling consisted of dark staining on the stucco and may represent biological growth.



FIGURE 105. Cracking observed at the underside of the second-floor addition roof overhang



FIGURE 106. Open grouted wall penetration at south elevation.



FIGURE 107. Corrosion staining at embedded anchor on north elevation.



FIGURE 108. Missing perimeter sealant at light fixture.



FIGURE 109. Patch at previously existing wall-mounted light fixture.



FIGURE 110. Peeling paint at the west elevation.



FIGURE 111. Corrosion staining at ferrous anchors supporting conduit clips and from conduit.



FIGURE 112. Corrosion and staining at the catwalk framing members and wall surfaces below.



FIGURE 113. Soiling on the face of the west elevation.

Concrete

- Cracking and spalling was observed at the concrete pier at the north end of the catwalk (Figure 114). The pier is located on top of the retaining wall and supports the north end of the catwalk handrail. Cracking appears to originate from the pocket in which the handrail is placed. There are also smaller

hairline cracks. Patch material was previously installed at the handrail pocket. It does not appear that the cracking and spalling associated with the handrail is currently active.



FIGURE 114. Extensive cracking and previous repairs at concrete handrail pier.

- Cracking was observed at all three wire glass transom windows (Figure 119). The cracking typically extended the full width of the transom. Some windows had multiple cracks.



FIGURE 115. Displaced and missing wood louvers. Note corrosion staining attends of louvers.

Wood Windows and Doors

- Missing, displaced, and damaged wood louvers were observed at some louvered shutters and doors at the west elevation (Figure 115). The distress was typically located at the ends of the louvers, where nails used to secure the louvers had corroded and the adjacent wood deteriorated.
- Deteriorated and missing surface coatings were observed at the window of the second-floor addition (Figure 116). Deterioration consisted of peeling, flaking, and debonding of the surface coating. Where missing, the exposed wood was weathered and had a grey patina.
- An astral was missing at the south window of the first-floor addition. As a result, the windows are not secured shut and are currently taped together from the interior.
- Peeling and bubbling paint was observed at the exterior face of the doors on the west elevation (Figure 117 and Figure 118). Peeling paint was typically located near edges and at joints between wood members. Bubbling typically consisted of 3/8-inch diameter bulges in the surface coating.



FIGURE 116. Peeling and deteriorated surface coating at exterior face of second-floor addition window opening on south elevation.



FIGURE 117. Bubbling paint at door frame at west elevation.



FIGURE 118. Peeling paint along joints of door framing.



FIGURE 119. Cracked transom glass.

Roof

- The skylight over the courtyard had been covered with a blue tarp and was reported by park personnel to be an active source of water infiltration (Figure 120). As noted by park personnel, damage to the skylight resulting in the leakage occurred during Hurricane María in September 2017. Water leakage testing was not within the scope of this assessment; however staining was observed at the interior wall below the southwest corner of the skylight (Figure 121). Potential sources of infiltration include openings at joints between framing members and discontinuities in the drainage system.
 - A missing skylight was observed at the south half of the building (Figure 122). The fiberglass skylight frame and light over the south entrance room was observed to be missing and a piece of sheet metal had been placed over the opening.
- Spalling of the 2-inch-thick topping slab was observed along the perimeter of the second floor addition roof (Figure 123). The roof membrane at spalled areas appeared to be debonded.
- An open hole for a previous roof penetration was observed at the north parapet roof membrane (Figure 124). The hole was approximately 3 inches in diameter and was surrounded by roofing mastic. The extent of the penetration could not be determined without inspection openings that are beyond the scope of this assessment.
- Failed sealant was observed along roof flashings and at edges (Figure 125). The sealant had failed adhesively and cohesively. Nearly all sealant along the top edge of the sheet-metal flashing on the west elevation parapet had failed.
- Roof scupper drains lack proper flashing and detailing (Figure 126). Each existing scupper drain consists of a pipe penetration without a drain strainer, flashed with modified bitumen roofing membrane and roofing mastic that wrap the edge of the drain. At the main roof, the drain is obstructed and partially concealed by bundles of roof-mounted pipes and conduits that may inhibit drainage of the roof (Figure 127).
- Evidence of ponding water including staining of the roof membrane was observed at the roof (Figure 128). The staining was most pronounced along the center of the roof area. Drains are located at the east end of the roof.
- Bubbling and blistering was observed in the field of the roof at the second-floor addition roof (Figure 129). The blistering typically extended north–south, across the width of the roof sheets.
- Tape at the seams between the white waffle-pattern surfacing was observed to be missing (Figure 130). The joints between the surfacing were open and at some locations covered with a bituminous coating. At some locations, the

edge of the surfacing was not bonded to the modified bitumen roof membrane and had curled (Figure 131).



FIGURE 120. Skylight with blue tarpaulin covering lower portion, where leakage was reported.



FIGURE 121. Evidence of water infiltration at courtyard wall below skylight.



FIGURE 122. Missing skylight frame and light at south side of roof, above south entrance room.



FIGURE 123. Concrete spalling along second-floor addition roof.



FIGURE 124. Open penetration at the north parapet of the main roof.



FIGURE 125. Open and debonded sealant joint along top edge of sheet-metal flashing.



FIGURE 126. Existing roof scupper. Note that the drain does not have a strainer or typical flashing details.



FIGURE 127. The roof scupper at the main roof is obstructed by bundles of conduit and insulated piping.

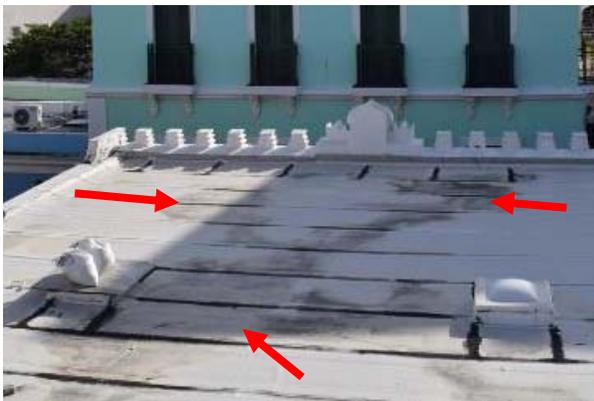


FIGURE 128. Numerous areas of ponding water at the center of the roof.



FIGURE 129. Puckering and bubbling of the roof membrane.



FIGURE 130. Missing seam tape at joints between sections of membrane.



FIGURE 131. Open joint in surfacing between membrane sections.

- Corrosion staining and deteriorated flashing were observed at a pipe penetration on the second-floor roof (Figure 132). The pipe extended approximately 4 inches above the roof membrane, was adjacent to the sloped roof edge.

- Corrosion staining was observed on the roof membrane below rooftop air conditioning units at the southeast roof area (Figure 133). The corrosion consisted of streaks that followed the slope of the roof.
- Biological growth was observed along bundles of pipes that wrap the perimeter of the roof (Figure 134). The growth was most pronounced at the east end of the main roof, which is adjacent to the roof drain and partially concealed by the tarpaulin at the skylight.



FIGURE 132. Corrosion staining and deteriorated flashing at vent pipe.



FIGURE 133. Corrosion staining at the roof membrane below the individual air conditioning units.



FIGURE 134. Biological growth adjacent to conduits and insulated pipes on the roof.

Metal Framing and Handrails

- Corrosion staining was observed along the edges of flanges, at joints between framing members, and along the face of webs of the steel catwalk framing (Figure 135)
- Corrosion was observed at the wall-mounted vertical bracing members that support the catwalk (Figure 136). The corrosion was concentrated near the top of the bracing, where it meets the handrail, and at the flanges in contact with the wall surface.
- Slight surface corrosion was observed on the face of the metal handrails at the catwalk and south entrance stair (Figure 137). Corrosion staining was present at small discolored spots and scratches on the surface of the handrail.
- Surface corrosion was observed at the steel framing for the accessibility lift adjacent to the south stair (Figure 138). The corrosion was most pronounced at the corners and anchor locations of the framing.



FIGURE 135. Corrosion of steel framing for catwalk.



FIGURE 136. Corrosion at the steel vertical bracing members.



FIGURE 137. Mild scratches and surface corrosion at handrail.



FIGURE 138. Surface corrosion at the framing for the accessibility lift. Corrosion is concentrated near the corners.

Interior Description

Refer to Appendix A for measured drawings of Quarters 208. Refer to Appendix B for historic paint analysis.

The building has a mostly rectangular plan with a polygonal-shaped extension at the north end of the east elevation and a second-floor addition. The main entrance to the building is located at the west elevation. The first floor is divided into three piles by walls that extend north-south. From west to east, the first two piles are part of the original building plan and the remaining pile is part of the later addition. Each pile is separated into rooms—one at the north and one or more rooms at the south—by walls that extend east-west. The first pile includes the main entrance room (measuring 15 feet 10 inches by 14 feet) to the north, and the officer's office (measuring 9 feet 2 inches by 14 feet) to the south (Figure 139 and Figure 140). The second pile includes the ranger's office (measuring 11 feet 8 inches by 14 feet 4 inches) at the north end and the south entrance room (measuring 13 feet 2 inches by 14 feet 4 inches) to the south (Figure 141 and Figure 142). As the name implies, the south entrance room provides access to the south exterior entrance. A covered courtyard (measuring 12 feet 6 inches by 21 feet 6 inches) is

Physical Description and Condition Assessment

located at the north end of the third pile (Figure 143). The south portion is divided into two rooms: the ranger's support room (measuring 11 feet 11 inch by 10 feet 5 inches) to the west, and a classroom (measuring 11 feet 11 inch by 10 feet 5 inches) to the east (Figure 144 and Figure 145). Two restrooms are located at the first floor of the east section and are accessed from the covered courtyard (Figure 146 and Figure 147). At the second-floor addition, directly above the restrooms and the east half of the covered courtyard, is a storage room (measuring 14 feet 7 inches by 21 feet) that is separately accessed from an exterior door (Figure 148).



FIGURE 139. View of the main entrance room at the north end of the first pile.



FIGURE 140. View of the officer's office at the south end of the first pile.



FIGURE 141. View of the ranger's office at the north end of the second pile.



FIGURE 142. View of the south entrance room at the south end of the second pile.



FIGURE 144. View of the ranger's support room at the southwest corner of the third pile.



FIGURE 143. View of the covered courtyard at the north end of the third pile.



FIGURE 145. View of the classroom at the southeast corner of the third pile.



FIGURE 146. View of the men's restroom.



FIGURE 147. View of the women's restroom.



FIGURE 148. View of the storage room at the second-floor addition.

Floors

All of the interior floor finishes are non-original. Typical interior floors consist of one-foot-square vinyl composition tile (VCT) in red and green with a blue border (Figure 149). This floor type is present in the main entrance room, officer's office, ranger's office, south entrance room, and ranger's support room.

The covered courtyard has grey concrete pavers, measuring 4 inches by 8 inches (Figure 150). Joints between the pavers do not contain mortar or grout, and are oriented in an east-west direction. The joints between pavers measure 1/16 inch or less in width and are open.

Wood laminate is used for the flooring in the classroom (Figure 151). The flooring is designed to appear as tongue-and-groove floor boards with seams that follow the joint lines.

The restrooms have ceramic floor tiles with an irregular edge. The tiles measure 14 inches square, have a mottled brown color, and are set in grout with 1/4-inch joints (Figure 152).

The second-floor storage room has interlocking hexagonal rubber tile flooring with each tile measuring 2 inches thick and 9 inches wide. The tiles are laid loose on a substrate of terra cotta-colored ceramic tiles, each measuring 8 inches square. Ghosting and residue from previous adhesives indicate that an adhered tile flooring was previously applied over the ceramic tile. A section of the floor tile measuring approximately 6 feet by 3 feet has been removed and replaced with concrete (Figure 153). The concrete section of the flooring is adjacent to a landing at the south side of the roof that is raised 4 inches above the slab. The landing is located at the point where the wall transitions from running diagonal to parallel with the south elevation. Thus, the landing is polygonal in plan. The landing floor finish consists of beige ceramic tile measuring 8 inches square. At the east end of the landing is an infilled toilet bowl ring, indicating that the landing, and likely the adjacent concrete section of the flooring, were previously part of a restroom.



FIGURE 149. Typical VCT flooring throughout the building.



FIGURE 152. 14-inch-square ceramic tile flooring at restrooms.



FIGURE 150. Concrete pavers at the covered courtyard.



FIGURE 153. Floor at storage room includes rubber tile flooring over previously existing ceramic tile and concrete patch repair.



FIGURE 151. Wood laminate flooring at classroom.

Walls

The interior walls vary in thickness and appearance, indicative of the numerous past alterations made to the interior. The interior face of all first-floor walls has been altered as part of the installation of electrical conduit. A plaster finish with surface coating has been applied over the interior face of the walls. Walls have openings that provide access to the various rooms. While most of the interior wall openings have semicircular arches, each opening is unique in size. Some of the doors have non-original wood-framed doors, and some of the openings have non-original subframes installed within the depth of the opening that reduces the opening width and height.

Original Building

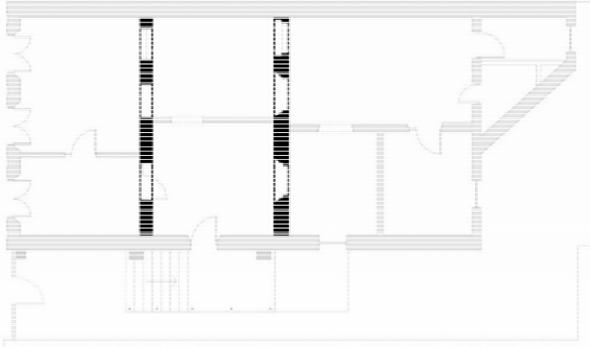


FIGURE 154. Plan showing location of historic north-south interior walls.

Two historic interior walls, located at the west half of the plan and extending north-south, divide the plan into piles (Figure 154). These walls measure approximately 17-1/2 inches deep (Figure 157). There are three openings at each historic interior wall. Openings at the west wall, between the main entrance room and the ranger's office, are semicircular arched openings. The northernmost opening measures 45 inches wide by 7 feet 8 inches tall and has been infilled by a partial height wall measuring 41 inches tall and 7-1/2 inches deep (Figure 158). The opening to the south measures 4 feet wide and 9 feet 2 inches tall (Figure 159). The opening between the officer's office and the south entrance room measures 4 feet 1 inch wide and 8 feet 10 inches tall and includes a wood-framed door with transom and side panel (Figure 160). At the arched portion of the opening, the wall profile steps in 1-1/4 inches to frame the arched transom.

At the east historic interior wall, there are two semicircular arched openings between the ranger's office and the covered courtyard, and one rectangular opening between the south entrance room and the ranger's support room. The northernmost opening measures 4 feet 2 inches wide by 9 feet 1 inch tall (Figure 161). There is a subframe along the south jamb and arched portion of the opening. The subframe is 6 inches deep, situated on the east side of the opening, and reduces the original opening width by 4 inches. The lower portion of the opening is infilled with a partial height wall measuring 41 inches tall. The opening to the south measures 3 feet 10 inches wide and 8 feet 8 inches tall (Figure 162). The

corners of the opening on the west elevation are chamfered approximately 20 degrees. The perimeter of the opening has a subframe that is 8-1/4 inches deep and 3 inches wide, set on the east side of the opening. The southernmost opening is located between the south entrance room and the ranger's support room. It is a rectangular opening measuring 3 feet 7 inches wide by 6 feet 9 inches tall (Figure 163). The west elevation of the entrance has corners that are chamfered at a 35 degree angle to a depth of 7-1/2 inches. The opening has a subframe set back 10 inches from the west elevation of the wall that measures 3-3/4 inches wide at the jambs and 7-5/8 inches wide at the head.

First Floor Addition

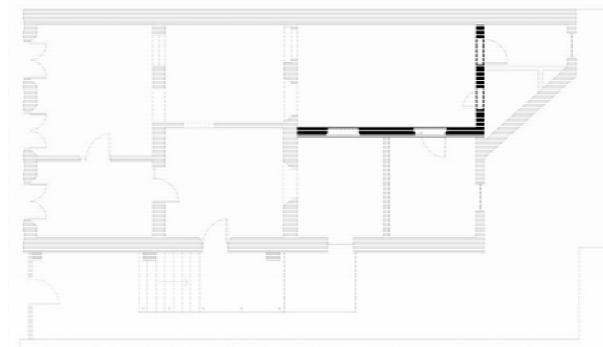


FIGURE 155. Plan showing location of first-floor addition interior walls.

Walls to the south and east of the covered courtyard measure approximately 13-1/2 inches thick (Figure 155 and Figure 164). Segmental arched openings at the south wall provide access between the courtyard and either the ranger's support room or the classroom. The ranger's support room opening measures 50-1/4 inches wide by 8 feet 10 inches tall. It has a subframe that is 7-1/8 inches deep and situated on the north side of the opening (Figure 165). It reduces the opening width by 2-3/8 inches on all sides. The opening to the east provides access to the classroom and has a non-original door, transom, and side panel (Figure 166). The opening measures 4 feet 3 inches wide by 9 feet 6 inches tall. There is a subframe at the perimeter of the opening that measures 7 inches deep and 3-5/8 inches wide. It is located at the south side of the opening.

Door openings at the wall to the east of the courtyard provide access to the restrooms. The south opening provides access to the men's restroom. The rectangular opening measures 2 feet 4 inches wide by 7 feet 4 inches tall (Figure 167). The opening has been altered, and the upper 6 inches infilled. There is flat wood casing, measuring 3 inches wide, which is stained and has a clear finish. The opening to the women's restroom measures 3 feet 2 inches wide and is 7 feet 6 inches tall (Figure 168).

Later Additions

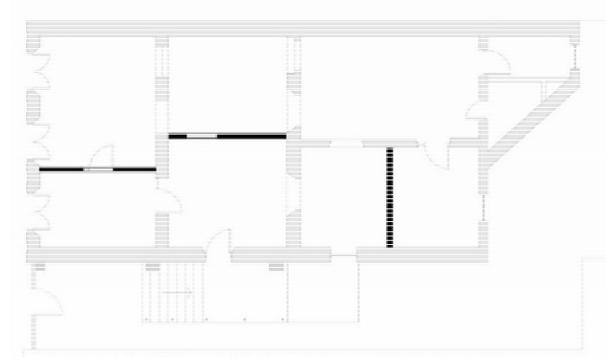


FIGURE 156. Plan showing location of later interior wall additions.

A number of non-original walls, measuring 7-1/2 inches deep, divide the overall space into rooms (Figure 156). These walls separate the main entrance room from the officer's office, the ranger's office from the south entrance room, the ranger's support room from the classroom, and the two restrooms from one another. There is a semicircular door opening between the main entrance room and the officer's office. The opening measures 4 feet 3 inches wide by 9 feet 6 inches tall, and includes a wood-framed door with transom and side panel (Figure 169). A semicircular arched opening measuring 3 feet 9 inches wide by 9 feet 1 inches tall is located at the wall that separates the ranger's office from the south entrance room (Figure 170).

Walls have painted interior finishes of either yellow, blue, green, or orange. The restrooms walls are finished with ceramic tile. The tiles have a mottled brown appearance, measure 8 inches by 12 inches, and are arranged in a stack bond (Figure 171). The walls of the second floor addition have a

plaster finish, painted white, over a previously existing ceramic tile (Figure 172).

For each room, typical wall features include light switches with adapters for holding ceiling fan and light remotes and outlets. With the exception of the second-floor storage room, the conduit for the light switches and outlets are embedded in the walls, indicating that alterations were made to the interior walls to integrate electrical systems. Security features, motion sensors, and ductless evaporator units are mounted to the upper portion of the walls (Figure 173). Many of the rooms have wall-mounted strips of cork, located approximately 5 feet above finished floor, on which to pin items.

In addition to the typical wall features, some rooms have additional elements of note. Wall sconces are located at the north and south walls of the covered courtyard and above vanity mirrors at the restrooms (Figure 174). The sconces are semicircular with frosted-glass shades and brass trim.

A soffit projects approximately 4 inches from the west wall of the covered courtyard, above the door openings (Figure 175). The ledge was historically part of a larger soffit that wrapped the courtyard walls. The soffit, as well as a staircase along the north wall, were removed in 2009. Only the wall-mounted portion of the soffit framing remains and has been clad with plaster. At the east wall, there is physical evidence of door openings, one on either side of the elevation, that have been removed and infilled. An electrical panel is set into the north wall. A wall-mounted drinking fountain is located to the east of the electrical panel.

At the main entrance room, there is a wall-mounted thermostat at the northeast corner, accessibility push plate adjacent to the main entrance, and various cabinets for first aid kits and fire extinguishers located at the southeast corner.

At the classroom, there is a metal bar mounted to the top of all four walls. The bar is used to hang a painted muslin curtain that wraps around the room (Figure 176). The classroom also has a laminate baseboard, 6 inches in height (Figure 177).

Physical Description and Condition Assessment

The restrooms have non-original wall-mounted sinks, mirrored vanity cabinets, soap dispensers, toilet paper dispensers, and hand dryers (Figure 178).

The second-floor storage room has surface-mounted features such as light switches, outlets, and an electrical switch box, which have surface-mounted conduit (Figure 179). The storage room also has a ceramic tile base consisting of tiles measuring 6 inches square. Steel channel framing is located at the interior face of the east wall (Figure 180). The framing is 6 inches wide and extends from floor to ceiling. The framing appears to be attached to the catwalk framing at the exterior face of the building.



FIGURE 157. Typical wall opening at historic north-south interior wall.



FIGURE 158. North wall opening, between the main entrance room and the ranger's office, at the west interior wall.

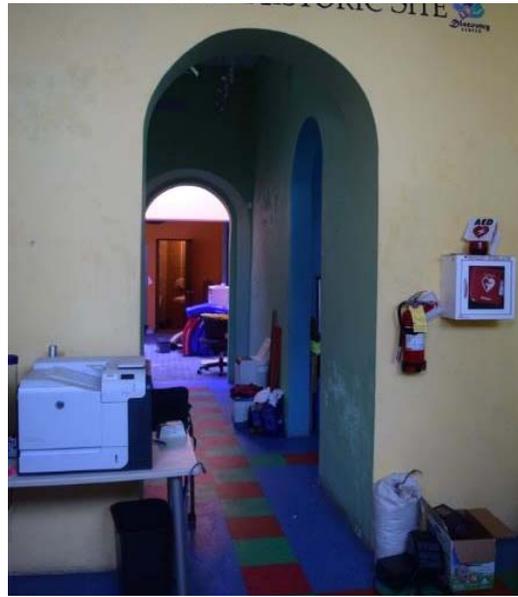


FIGURE 159. Center wall opening, between the main entrance room and the ranger's office, at the west interior wall.



FIGURE 160. South wall opening, between the officer's office and south entrance room, at the west interior wall.



FIGURE 161. North opening, between the ranger's office and the covered courtyard, at the east interior wall.

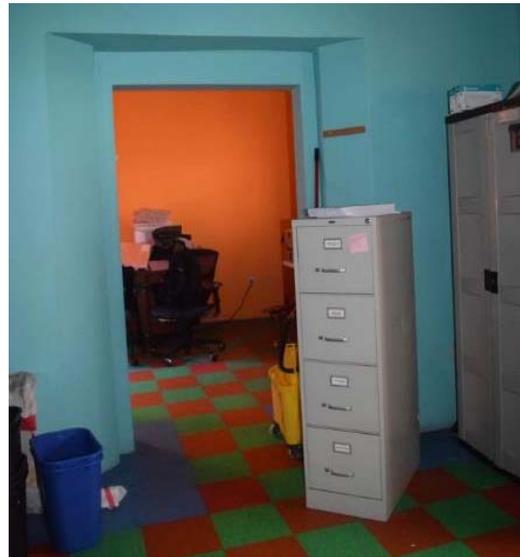


FIGURE 163. South opening, between the south entrance room and the ranger's support room, at the east interior wall.



FIGURE 162. Center opening, between the ranger's office and the covered courtyard, at the east interior wall.



FIGURE 164. Typical interior wall at the first-floor addition.



FIGURE 165. West opening, between the ranger's support room and the covered courtyard, at the south wall.



FIGURE 167. Men's restroom entrance at the south end of the east courtyard wall.



FIGURE 166. East opening, between the classroom and the covered courtyard, at the south wall.

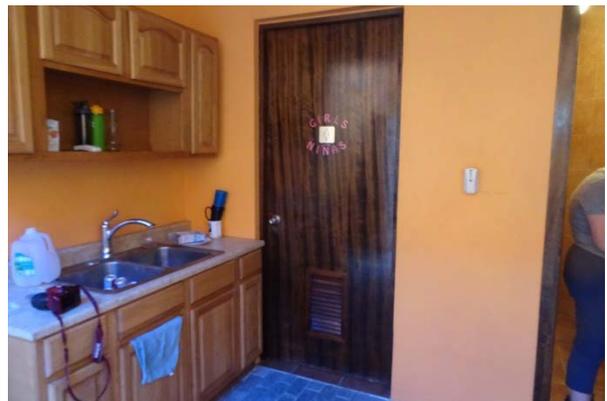


FIGURE 168. Women's restroom entrance at the north end of the east courtyard wall.



FIGURE 169. Door opening at later addition wall separating the officer's office and the main entrance room.

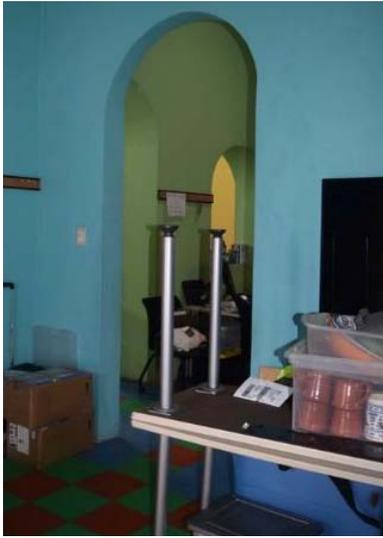


FIGURE 170. Door opening at later addition wall separating the south entrance room from the ranger's office.



FIGURE 173. Typical wall-mounted evaporator unit at interior spaces.



FIGURE 171. Interior tile finishes are similar at the men's and women's restrooms.

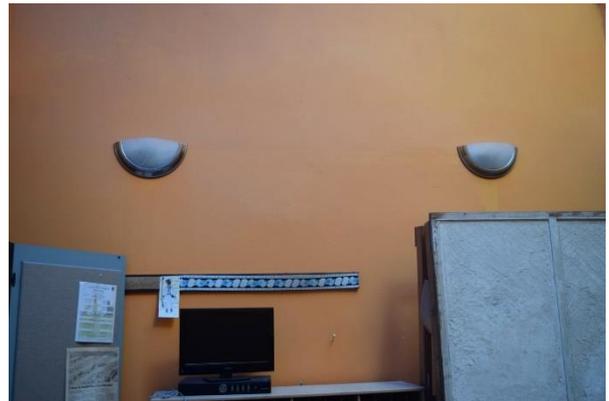


FIGURE 174. Typical wall-mounted sconces.

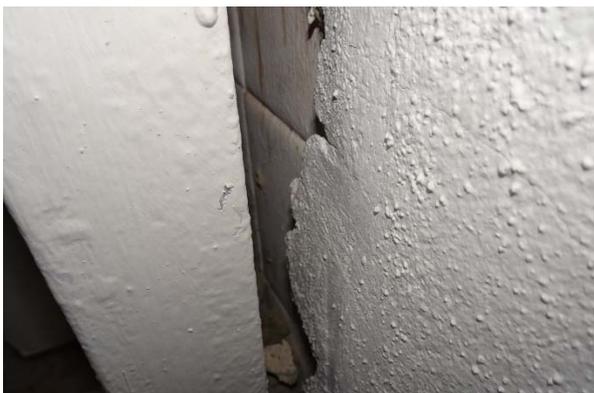


FIGURE 172. Interior wall finishes at the storage room consist of plaster over previously existing ceramic tile.



FIGURE 175. Soffit at west wall of covered courtyard (arrow).



FIGURE 176. A wall-mounted bar at the classroom supports a muslin curtain.



FIGURE 179. Wall-mounted outlet at second-floor addition storage room.



FIGURE 177. Laminate baseboard at perimeter of classroom.



FIGURE 180. Steel channels were mounted to the east wall of the second-floor addition (arrow).



FIGURE 178. Typical interior restroom finishes including a wall-mounted sink, cabinet, air dryer, and toilet paper dispenser.

Ceilings

Ceilings at Quarters 208 are painted white. At the west half of the building, which includes four rooms, ceiling heights are 13 feet 10 inches from finished floor. The ranger's office and south entrance room each have a skylight opening, measuring 18 inches square at the west end of the ceiling (Figure 181). The skylight at the south entrance room has been removed and the opening covered with sheet metal. The ranger's support room and adjacent classroom have ceiling heights of approximately 12 feet 7 inches. The east portion of the courtyard, under the second-floor addition, has a ceiling height of 8 feet 9 inches. A soffit, measuring 24 inches wide and 12 inches deep, extends north-south across the west end of the courtyard ceiling. The restrooms at the east end of the building plan have ceiling heights of 9 feet 5 inches.

Typical features at ceilings are non-original and include suspended ceiling fans with pendent lights (Figure 182). All rooms except the classroom and second-floor storage room have fans and lights. The fans have wood blades and a frosted-glass dome light with brass trim. At the classroom, the main source of lighting is ceiling-mounted track lighting (Figure 183). The lighting system consists of electrical tracks, mounted parallel to the walls that have individual lamps set in the track and directed toward the walls. Track lighting was also observed at the main entrance room and ranger's office to support the fan light. Other typical ceiling features include ceiling-mounted carbon monoxide / fire detectors.

The second-floor addition has a ceiling height of approximately 9 feet. It has two fluorescent light fixtures oriented east-west across the center of the ceiling with surface-mounted conduit. The ceiling also has a soffit, measuring 8 inches wide and approximately 16 inches deep (Figure 184). The soffit outlines a polygonal-shaped area that appears to denote the location of a previous bathroom.



FIGURE 181. Skylight opening as observed from the ranger's office.



FIGURE 182. Typical ceiling-mounted fan.



FIGURE 183. Typical track lighting.



FIGURE 184. Soffit at storage room ceiling.

Doors

There are six non-original interior wood doors throughout the building. Doors at the northside and eastsides of the officer's office, as well as the door at the classroom, are single-leaf hollow-core wood doors with plywood veneer and an operable wood side panel and arched transom (Figure 185). The doors measure 34 inches wide by approximately 8-1/2 inches tall and are 1-3/8

inches thick. They have a glazing panel at the top half. Adjacent to the doors is an operable side panel that, depending on the width of the door opening, ranges from 7 inches to 14 inches wide. The panel is used to fill the space between the standard sized door and the opening width. The transom is separated from the door and side panel by a wood astragal. The transom has a single glass light with applied wood mullions measuring 2 inches wide. Typical hardware includes two five-knuckle hinges per operable leaf, metal knobs with rosettes, mortise lock, and strike plates at the doors, and surface-mounted slide locks at the top and bottom of the operable panels. At the officer's office, there are vinyl shades at the door light.

Although similar in appearance to one another, the doors to the restrooms are different sizes; the women's room door measures 35-1/4 inches wide by 90-1/2 inches tall and the men's room measures 28 inches wide by 88-1/4 inches tall. Each door is a single-leaf hollow wood door, measuring 1-3/8 inches thick and has a louvered panel near the bottom (Figure 186) The doors have two five-knuckle hinges and metal knobs with rosettes, and mortise lock and strike plates. The men's restroom door is set on the courtyard side of the wall and the women's restroom door is set at the center of the wall depth.



FIGURE 185. Wood-framed door between the covered courtyard and the classroom. The door includes a hollow-core door leaf, wood side panel, and semicircular transom. The door shown is one of three similar doors.

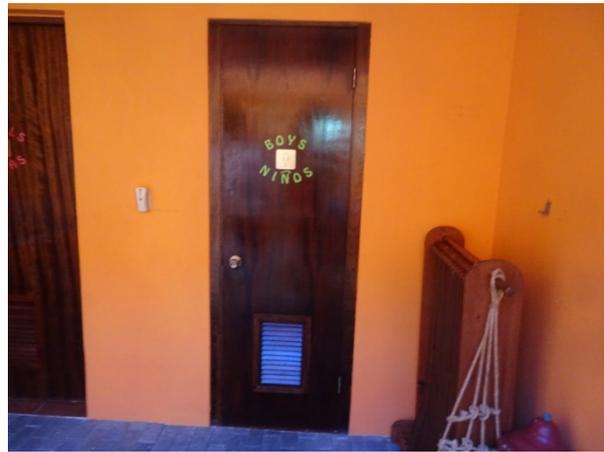


FIGURE 186. The men's restroom door is a hollow-core door with a louvered vent opening, similar to the door at the women's restroom.

Interior Condition Assessment

Interior Wall Finishes

- Bubbling and blistering paint was observed at interior face of the north and south exterior walls as well as at some interior walls (Figure 187 and Figure 188). At a few locations where distress was observed, the paint was observed to be debonded, and the underlying substrate exhibited efflorescence (Figure 189). Conditions observed included small raised bubbles measuring approximately 1/4 inch in diameter as well as larger blisters measuring anywhere from a few inches to few feet in length. Bubbling was usually concentrated in small clusters on the wall. Blisters located at the interior face of exterior walls sometimes corresponded to wall penetrations at the exterior wall.
- Cracking was observed at the plaster on the east and south walls of the classroom as well as at the wall separating the ranger's support room from the classroom (Figure 190). The cracking was located at the top of the wall and consisted of a web of wide interconnected cracks. Cracks were typically 1/16 inch wide. The plaster appeared to be debonded at some crack locations, and was displaced on one side of the crack.

- Cracks were observed in the plaster at the subframe adjacent to some doors (Figure 191). The cracking was typically located near door hinges.
- Physical evidence of previous alterations was observed at walls, specifically at the covered courtyard. Alterations included removal and infill of some doors, windows, and stairs at the second-floor addition; installation of conduit, light fixtures, outlets, and junction boxes; and localized infill where previous repairs or alterations had been performed, such as at door heads (Figure 192 through Figure 194).



FIGURE 187. Bubbling paint at the base of an interior wall of the ranger's office.



FIGURE 188. Bubbling paint at the top of the wall at the main entrance room, opposite a conduit penetration at the exterior face of the wall (within dashed area).



FIGURE 189. Bubbling paint at the south entrance room. Portions of the paint has peeled away and the underlying plaster is exposed to view.



FIGURE 190. Cracking at the interior plaster. The plaster at some cracks appears to be displaced.



FIGURE 191. Cracked plaster at subframe of door between the officer's office and the south entrance room.

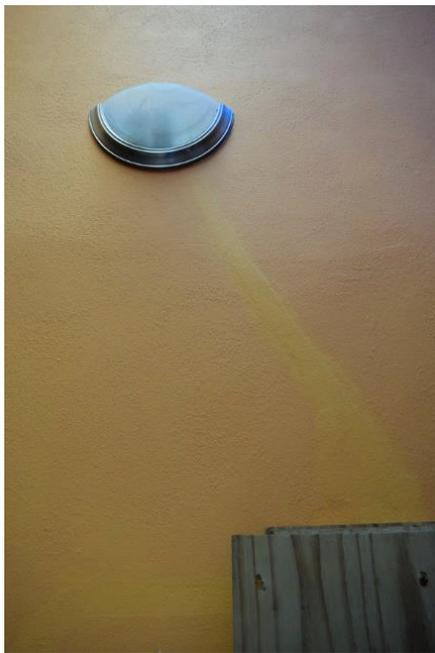


FIGURE 192. Evidence of previous electrical repairs at the covered courtyard.



FIGURE 193. Evidence of previously infilled door opening at the south end of the east interior elevation of the covered courtyard.

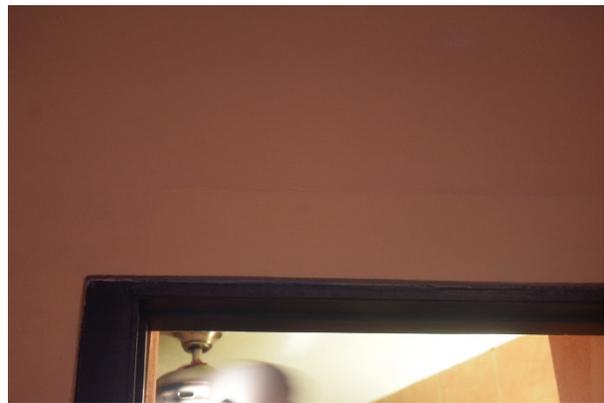


FIGURE 194. Evidence of previous repair at the door head of the men's restroom.

Interior Ceiling Finishes

- Cracking and spalling of the surface coating were observed at the ceiling of the officer's office (Figure 195). The distressed area was located at the center of the ceiling and measured approximately 1 foot in diameter.
- Cracking was observed at the ceiling adjacent to the skylight opening at the south entrance room (Figure 196). The crack extended from the corner of the opening and along the east edge of the skylight opening. The skylight at this location was missing.



FIGURE 195. Spalled and peeling paint at the ceiling of the officer's office.



FIGURE 196. Cracked plaster adjacent to missing skylight at the south entrance room.

Wood Windows and Doors

- A surface-mounted slide lock was missing at the operable wood panel in the classroom. The top lock was still present.
- Moisture staining was observed at the interior face of wood window and door frames. The staining was typically located along the bottom of window sash and at interior sills and framing.

Mechanical and Electrical Systems

Mechanical System

The building is cooled by seven ductless split-type air conditioning systems manufactured by TGM Industries (Refer to Figure 82). Each system consists of an exterior condenser unit that is set on plastic pedestals at the southeast corner of the roof (Refer to Figure 79). Insulated refrigerant lines extend from each exterior unit, penetrate the exterior wall, and connect to a wall-mounted evaporator unit at the interior of the building (Refer to Figure 173). The system also includes a drain line that extends from each indoor evaporator unit to the exterior. One interior unit is located in each of the main entrance room, officer's office, ranger's office, south entrance room, courtyard, ranger's support room, and the classroom.

Electrical Systems

The electrical systems throughout the building were reportedly replaced in 2008.

The building electrical systems feed load centers located at the first and second floors (Figure 197). Each load center is rated for 125 amperes. The first-floor load center is located along the north wall of the courtyard and provides breakers for some of the air conditioning units as well as the lights, fans, and outlets at the first floor. The second-floor load center is located along the north wall of the storage room and controls power to the remaining air conditioning units as well as the lights and outlets at the second floor.



FIGURE 197. Electrical load center at first floor.

Left blank intentionally

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, the National Park Service's National Register of Historic Places 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.¹⁰⁷

The significance evaluation identifies the important historical associations of the property, and comments on its architectural, archeological, and social value as they relate to the National Register of Historic Places. 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 of Historic Places, it must possess significance under one of four criteria. The Criteria for Evaluation for listing in the National Register of Historic Places 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.¹⁰⁸

In addition, the Criteria for Evaluation identify the following 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 fifty years are not 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

107. National Park Service, "National Register of Historic Places" accessed November 22, 2019, <https://www.nps.gov/subjects/nationalregister/index.htm>.

108. *Code of Federal Regulations*, Title 36, Part 60, "The National Register Criteria for Evaluation."

- 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.¹⁰⁹

109. *Ibid.*

National Register Significance Evaluation

San Juan National Historic Site, together with La Fortaleza, was administratively listed in the National Register of Historic Place on October 15, 1966, under the National Historic Preservation Act.

Following administrative listing, there have been several efforts conducted to prepare National Register documentation, including the following:

- *National Register nomination Zona Histórica de San Juan (San Juan Historic Zone)*, prepared by Luis M. Rodríguez Morales, Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, June 1971, signed, listed in the National Register on October 10, 1972 (NRIS 72001553).¹¹⁰ Areas of significance are identified as Aboriginal: Historic, Architecture, Art, Commerce, Conservation, Military, Political, Religion/Philosophy, Theater, and Urban Planning. As was customary with the form used at the time of this documentation, the period of significance is broadly identified: the sixteenth, seventeenth, eighteenth, and nineteenth centuries. This nomination lists principal structures including Fort San Felipe del Morro, Fort San Cristóbal, the City Walls, and other resources of the defensive fortifications, as well as several churches, the hospital, convent, etc. Quarters 208 is not specifically mentioned in this documentation.
- *National Register documentation for San Juan National Historic Site*, prepared by F.C. Gjessing, Architect, and Loretta Schmidt, Chief Park Historian, San Juan National Historic Site, June 12, 1973 (NRIS

110. Luis M. Rodríguez Morales, Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, *National Register nomination for Zona Histórica de San Juan (San Juan Historic Zone)*, dated June 1971, signed, listed in the National Register on October 10, 1972 (NRIS 72001553).

66000930).¹¹¹ This documentation is unsigned.¹¹² Areas of significance are identified as Aboriginal: Historic, Architecture, Engineering, and Military. As was customary with the form used at the time of this documentation, the period of significance is broadly identified: the sixteenth, seventeenth, eighteenth, nineteenth, and twentieth centuries are indicated. Specific dates of 1539–1945 are also noted as important.

The nomination notes that the San Juan defensive system is one of the major Caribbean fortifications of the Spanish empire, and helped to protect Spanish interests in the New World.¹¹³ As noted in the nomination, the structures “. . . generally retain the character and appearance of the most advanced eighteenth century defense techniques that were applied to a difficult and unusual site.”¹¹⁴

The 1973 National Register nomination documentation for San Juan National Historic Site addresses the fortresses of El Morro and San Cristóbal, their outworks, the city walls, the satellite forts of El Cañuelo and San Jerónimo, and associated structures. The fortifications and primary resources are identified as “First Order of Significance,” while Quarters 208 is identified as “Second Order of Significance” (hand annotated

“Third”).¹¹⁵ Quarters 208 is described in this documentation as:

A modest example of mid-19th century civil residential architecture. Originally, a one-story rubble masonry structure, 28’ wide by 67’ deep, with a characteristic shallow “U” shaped plan for San Juan. The front section of the building is the full width of the lot and two rooms deep. It is joined to the rear section, also full width but only one-room deep, with an open patio along the north side of the lot. That patio now is somewhat diminished by a modern concrete staircase and balcony, which provides access to a small, modern penthouse above the rear section of the structure.

The street elevation and the interior of the front section have characteristic Moorish revival details. . . .¹¹⁶

- *National Register documentation for the Old San Juan Historic District*, prepared by Arleen Pabón-Charneco, PhD, JD, Puerto Rico SHPO Consultant, 2012, listed in the National Register on July 30, 2012 (NRIS 12000465).¹¹⁷ This documentation represents a boundary extension of the historic district included in

111. F. C. Gjessing, Architect, and Loretta Schmidt, Chief Park Historian, San Juan National Historic Site, *National Register documentation for San Juan National Historic Site*, dated June 12, 1973, unsigned (NRIS 66000930).

112. Based on research conducted by the National Park Service Southeast Region and the authors, a signed copy of the National Register nomination documentation for the National Historic Site cannot be found at present. Preparation of a new or updated National Register nomination for the National Historic Site is currently underway.

113. Gjessing and Schmidt, Section 8.

114. Ibid.

115. Ibid. As was sometimes done in National Register nomination documentation for historic districts at the time, resources are identified as First, Second, or Third Order of Significance. These categories pertain to recommendations for treatment approaches that are also discussed in the documentation. For example, the treatment approach recommended for Quarters 208 in the 1973 documentation is “Adaptive Restoration.” Current National Register documentation narratives do not assign these significance categories or recommended treatment approaches.

116. Ibid. The 1973 narrative also notes that window sash, floors, and interior finishes had been replaced, but that ceilings remained original at that time.

117. Arleen Pabón-Charneco, Puerto Rico SHPO Consultant, *National Register documentation for the Old San Juan Historic District*, 2012, listed in the National Register on July 30, 2012 (NRIS 12000465).

the earlier National Register documentation, incorporating the urban and residential resources of Old San Juan, as well as the defensive walls and other resources.

The 2012 National Register documentation for the historic district cites eligibility under National Register Criterion C, and Criteria Considerations A, C, D, and E. The 2012 documentation also cites two areas of significance: Architecture, and Community Planning and Development. The 2012 National Register documentation summarizes the significance of the historic district as follows:

The Distrito Histórico del Viejo San Juan / Old San Juan Historic District is the second oldest continuously inhabited European settlement in the Western Hemisphere. Conceived as the capital of the island of Puerto Rico and known for centuries as the *ciudad del puerto Rico* (the city of the rich Port), it is the oldest urban core in the island and the United States of America. Listed in the National Register of Historic Places in 1972, some of its components—the Castillo de San Felipe del Morro, Castillo de San Cristóbal, circuit of defensive walls, and Palacio de Santa Catalina—are considered part of the cultural heritage of humanity.¹¹⁸

The period of significance is given as 1519–1939 (see further discussion below), with specific dates of 1519, 1625–1700, 1812, and 1898 cited as important.

Block 172, which includes Quarters 208 (as parcel 1), is addressed in the nomination and three houses on that block are identified as contributing resources within the historic district. Quarters 208 is not specifically discussed, and the available copy of the 2012 National Register documentation did not include a map. (See further discussion of Block 172 as addressed in the 2012 National Historic Landmark documentation, below.)

118. Pabón-Charneco National Register nomination documentation (2012), Section 7.

- *National Historic Landmark documentation for the Old San Juan Historic District*, also prepared by Dr. Arleen Pabón-Charneco, Puerto Rico State Historic Preservation Consultant, September 24, 2012 (NRIS 13000284).¹¹⁹ The National Register web site indicates that the Old San Juan Historic District was designated as a National Historic Landmark on February 27, 2013.

The 2012 National Historic Landmark documentation cites eligibility under National Register Criteria A and C, and Criteria Considerations A, C, D, and E. In addition, this documentation cites National Historic Landmark Criteria 1 and 4, and Criteria Exception 1 (which pertains to properties owned or used by a religious institution).

The documentation also indicates significance under two NHL themes—I. Peopling Places, 6. Encounters, Conflicts, and Colonization; and III. Expressing Cultural Values, 5. Architecture, Landscape Architecture, and Urban Design—and the following areas: Architecture, Community Planning and Development, and Ethnic Heritage: Hispanic. The 2012 National Historic Landmark documentation summarizes the significance of the historic district as follows:

The Old San Juan Historic District (Distrito Histórico del Viejo San Juan) in Puerto Rico is nationally significant under NHL Criterion 1 and Criterion 4 as one of the premier colonial cities in the United States and the nation’s most important and complete Spanish urban center. It is significant because of its architectural history and as a reflection of Spanish culture and colonial history. Much of the southern and western portions of what is now the continental United States were once controlled by Spain; however, Puerto Rico was located on the northern fringe of Spain’s massive American empire and documented historic sites predominantly

119. Arleen Pabón-Charneco, Puerto Rico SHPO Consultant, *National Historic Landmark documentation for the Old San Juan Historic District*, September 24, 2012 (NRIS 13000284).

offer insight about religious and military activities and settlement on their frontier, and the relationships and conflicts between the Native Americans and the Spanish.¹²⁰

Further, the 2012 National Historic Landmark documentation notes:

The Old San Juan Historic District is nationally significant under NHL Criterion 1 as the only extant representation of an almost four hundred year old Spanish colonial city in the United States. It is the oldest city in the United States and the second oldest continuously-inhabited European settlement in the Western Hemisphere. Old San Juan's location in the heart of the Caribbean (the first area in America to be colonized and settled by Spain) provided the Spanish with a key port from which to establish their cultural, military, and political agendas throughout Spanish America.¹²¹

Block 172, in which Quarters 208 is located, is discussed in the National Historic Landmark documentation, and Quarters 208 (parcel 1) is indicated as a contributing resource on the map prepared with the National Historic Landmark documentation.¹²²

The period of significance for the historic district is given as 1519–1898, with specific dates of 1625–1700 and 1812 cited.

120. Pabón-Charneco, National Historic Landmark documentation (2012), 81.

121. Ibid.

122. The map that accompanies the 2012 National Historic Landmark documentation indicates Quarters 208 as parcel 1 in Block 172. This block is identified as contributing on the map. A table of contributing resources in the NHL documentation (see page 69) lists three other houses in Block 172 as contributing. These houses are identified as parcels 2A, 2B, and 2C, and all are noted as having National Park Service ownership. Parcel 1 (Quarters 208) is not specifically identified in this table.

World Heritage Listing

San Juan National Historic Site and the earlier fortifications of La Fortaleza were inscribed in the World Heritage List in 1983 as resources of outstanding universal value. The listing notes that the fortifications:

... outstandingly illustrate the adaptation to the Caribbean context of European developments in military architecture from the 16th to 20th centuries. They represent the continuity of more than four centuries of architectural, engineering, military, and political history.¹²³

The World Heritage List citation for the fortifications also notes:

These fortifications, which retain the general appearance of advanced 18th-century defense technology, clearly illustrate both a transfer of technology from Europe to America over a long period and its adaptation to the topography of a strategically significant yet difficult tropical site. Reflecting Italian Renaissance, Baroque, and French Enlightenment designs, the defenses express successive techniques and technologies in fortification construction. The varied examples of military architecture from the 16th to 20th centuries in the fortifications of San Juan are evidence of the imperial struggles that defined the development of the Americas. As one of the first as well as one of the last of the numerous seats of power in Spain's American empire, these structures are now potent symbols of the cultural ties that link the Hispanic world.¹²⁴

The possible lack of signed National Register documentation does not affect the World Heritage Listing of San Juan National Historic Site. Listing requires official recognition of national significance by the country in which the property is located, which can be met by National Historic Landmark designation. (La Fortaleza is a designated National Historic Landmark, for

123. UNESCO World Heritage List, "La Fortaleza and San Juan National Historic Site in Puerto Rico," accessed January 2019, <https://whc.unesco.org/en/list/266>.

124. Ibid.

example.) The criterion for official recognition of national significance for inclusion in the World Heritage List and can also be met by designation as a unit of the US National Park System, which in itself provides official recognition of national significance. This issue is addressed by 36 CFR section 73.7(b) of the World Heritage regulations, as follows:

(1) The property must be nationally significant. For the purposes of this section, a property qualifies as “nationally significant” if it is:

(i) A property that the Secretary of the Interior has designated as a National Historic Landmark (36 CFR part 65) or a National Natural Landmark (36 CFR part 62) under provisions of the 1935 Historic Sites Act (Public Law 74-292; 49 Stat. 666; 16 U.S.C. 461 et seq.);

(ii) An area the United States Congress has established as nationally significant; or

(iii) An area the President has proclaimed as a National Monument under the Antiquities Act of 1906 (16 U.S.C. 433).

For San Juan National Historic Site, the official recognition of national significance is addressed both by its status as a unit of the US National Park System and by its designation as a National Historic Site.¹²⁵

Period of Significance

The 1972 National Register nomination documentation for Old San Juan, which includes the fortifications, and the 1973 nomination documentation for San Juan National Historic Site, both address the period of significance of the property as extending from the sixteenth through

the nineteenth / twentieth centuries.¹²⁶ The 2012 National Register documentation identifies the period of significance as 1519–1939, beginning with the founding of Viejo San Juan by Juan Ponce de León, and ending with “eve of World War II,” characterized by the documentation’s author as the end of the “Modern Period.”¹²⁷ The 2012 National Historic Landmark documentation identifies the period of significance as 1519–1898, noting that the period of significance for the historic district is defined by the centuries of Spanish rule from the founding of San Juan in 1519 until annexation of Puerto Rico as a territory of the United States in 1898.¹²⁸

The Historic Structure Report / Cultural Landscape Report prepared for San Juan National Historic Site in 1991 identified two primary periods of significance for the site: Period I, Spanish Occupation, circa 1540–1898 and Period II, US Occupation, circa 1899–1961.¹²⁹ By 1540, the main defensive fortifications for the city had been relocated to the morro (rocky outcrop) that rises above the eastern side of the entrance to the bay. The HSR / CLR considers this period of primary significance. The HSR / CLR considers the latter period, corresponding to the US Army occupation from 1898 to 1961, as being of secondary significance.¹³⁰

The recommended period of significance for Quarters 208 is circa 1861–circa 1939, based on information about the building available for this study to date. The beginning date of circa 1861 is the earliest known date at which the building existed, and the end date is that established for the overarching period of significance established in the 2012 National Register documentation. This period of significance incorporates original construction as well as the first addition, which

125. The US Secretary of the Interior established the park in 1949 under provisions of the 1935 Historic Sites Act (see Federal Register: 14 Fed. Reg. 851 (February 25, 1949), <http://cdn.loc.gov/service/ll/fedreg/fr014/fr014037/fr014037.pdf>; Historic Sites Act of 1935, 16 USC sec. 461–467, <https://www.nps.gov/history/local-law/hsact35.htm>, accessed March 2019.

126. As noted, these broad periods of significance are common in nomination documentation of the period because of the form used by the National Register at that time.

127. Pabón-Charneco, National Register nomination documentation (2012), Section 8.

128. Pabón-Charneco, National Historic Landmark documentation (2012), 81.

129. Berkowitz et al., volume III, 44–45.

130. Ibid.

extended the building to the east, creating a rectangular floor plan. (Further research is required to determine the date of origin of the second addition, which added a two-story polygonal addition to the east of the first addition.)¹³¹

This period of significance falls within the overarching period of significance established for the National Historic Site and the period established by the National Historic Landmark documentation, and incorporates the period during which the building remained in use as quarters.

Should additional documentation be discovered that dates the original construction, first addition, and particularly the second addition, and informs understanding of the function and use of the building over time it may be possible to refine this period of significance.

Character-Defining Features

The historic nature of significant buildings and structures is defined by their character, which is embodied in their identifying physical features. Character-defining features can include the shape of a building; its materials, craftsmanship, interior spaces, and features; and the different components of its surroundings.¹³²

The following list identifies existing character-defining features on the exterior and interior of the Quarters 208 building:

- General exterior configuration and orientation (excluding later two-story addition to the east)
- Mass rubble exterior masonry walls
- West (street) façade, including cornice and crenelated parapet with acroterion and ziggurats; curved string course around transoms; applied pilasters; corner quoins; and door openings with semi-circular transoms; balustrades and north and south door openings
- Three piers on south elevation
- Two-pile interior plan of original portion of building
- Courtyard
- Historic interior mass masonry walls
- Tall interior ceiling heights
- West wall door openings with chamfered surround / jambs / head (varies with specific opening)

Assessment of Integrity

Assessment of integrity is based on an evaluation of the existence and condition of the physical features which date to a property's period of significance, taking into consideration the degree to which the individual qualities of integrity are present. The seven aspects of integrity as defined in the National Register Criteria for Evaluation are location, design, setting, materials, workmanship, feeling, and association. As noted in the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*:

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

-
131. The second addition has been altered by demolition of the interior courtyard stairs and infill of window and door openings. The second addition is thought to predate 1964 (establishment of park) but its date is not known.
132. Lee H. Nelson, FAIA, *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* (Washington, DC: National Park Service, Technical Preservation Services, 1988).

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 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.¹³³

The property must retain the essential physical features that enable it to convey its historical significance. The essential physical features are those features that define both why a property is significant (National Register criteria) and when it was significant (period of significance). The National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*, defines integrity as “the ability of a property to convey its significance.”¹³⁴

Integrity of Location. Quarters 208 retains integrity of location. The location of the building has remained unchanged since original construction.

Integrity of Design. Quarters 208 retains integrity of design, although somewhat diminished by construction of additions to the east, particularly the second addition (undated); modifications to the interior; and the addition of skylights. The street facing elevation in particular retains its historic features.

Integrity of Setting. Quarters 208 retains integrity of setting. The relationship of the building to the surrounding buildings and site, and to the overall fortifications, remains largely intact. Newer construction within the viewshed and alterations to nearby structures have slightly diminished integrity of setting.

Integrity of Materials and Workmanship. Quarters 208 retains integrity of materials and

workmanship, although somewhat diminished by application of contemporary finishes to the exterior facades, and by extensive alterations to interior materials. Also, doors and windows do not appear to be from the period of significance, although portions of existing door frames from that period may be present.

Integrity of Feeling. Quarters 208 retains integrity of feeling, although slightly diminished by change in function. However, the building continues to convey its historic character.

Integrity of Association. Quarters 208 retains integrity of association, although slightly diminished by change in function.

133. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, 44–45.

134. *Ibid.*

Treatment and Use

Requirements for Treatment and Use

The following discussion of treatment and use for Quarters 208 has been prepared based on historical research, condition assessment, and discussion with the National Park Service to understand intended current and future use of the building. The building is considered a contributing structure to the establishment of the San Juan National Historic Site. It survives with sufficient integrity to convey its historic associations.

As such, treatment and use of the building should be considered within the context of the legal mandates and policy directives established by the National Park Service Cultural Resources Management Guideline (Director's Order 28) for the protection of cultural resources. Quarters 208 should be understood as a context structure for the San Juan National Historic Site. The exterior of the building is, therefore, more important in providing historic context than the interior, although original features of the interior are character defining. The building is expected to remain in use as the central office for park security.

Laws, Regulations, and Functional Requirements

Key laws, regulations, and functional requirements that apply to the recommended work include the following:

- National Park Service Cultural Resources Management Guideline (Director's Order 28), which requires planning for the protection of cultural resources on park property.

- Section 106 of the National Historic Preservation Act, which mandates that federal agencies, including the National Park Service, take into account the effects of their actions on properties listed or eligible for listing in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment.

Treatment of the building and site are also to be guided by the following:

- *Secretary of Interior's Standards for the Treatment of Historic Properties*
- National Park Service Management Policies 2006
- Architectural Barriers Act Accessibility Standards (ABAAS)
- International Building Code (IBC), 2018
- International Existing Building Code (IEBC), 2018
- International Plumbing Code (IPC)
- National Electrical Safety Code (NESC)
- National Fire Protection Association (NFPA) 101: Life Safety Code (LSC), 2015 and NFPA 1 Uniform Fire Code
- NPS Guiding Principles of Sustainable Design

The Commonwealth of Puerto Rico is an unincorporated territory that has adopted the 2018 IBC, IEBC, IPC, and International Energy Conservation Code (IECC). The National Park

Treatment and Use

Service is self-regulating in terms of enacting and enforcing building code standards. The San Juan National Historic Site is, therefore, not legally subject to local or Commonwealth building code requirements. When undertaking repairs to buildings and structures, the National Park Service endeavors to have the work comply with model building code standards. At this time, the 2018 IBC is the model building code used by the National Park Service for design and construction. The NPS Denver Service center also references the 2018 IEBC, with appendices and Resource A.

With historic structures, attempts to achieve strict conformance with model building code standards that are intended for new buildings can lead to destruction of the historic fabric. Alternative compliance procedures, such as Chapter 12 of the IEBC relating to historic buildings, should be referenced in determining code compliance. For Quarters 208, alternatives to full prescriptive legislative and code compliance should be considered where such compliance would compromise the integrity of the structure.

The 2018 IEBC includes the following statements in Section 507, Historic Buildings:

507.1 Historic buildings. The provisions of this code that require improvements relative to a building's existing condition or, in the case of repairs, that require improvements relative to a building's predamage condition, shall not be mandatory for *historic buildings* unless specifically required by this section.

507.2 Life safety hazards. The provisions of this code shall apply to *historic buildings* judged by the building official to constitute a distinct life safety hazard.

507.3 Flood hazard areas. Within flood *hazard areas* established in accordance with Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, where the work proposed constitutes *substantial improvement*, the building shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable:

Exception: *Historic buildings* meeting any of the following criteria need not be brought into compliance:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2. Determined by the Secretary of the US Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

507.4 Structural. Historic buildings shall comply with the applicable structural provisions in this chapter.

Exceptions:

1. The *code official* shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor.
2. Repair of *substantial structural damage* is not required to comply with Sections 405.2.3, and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.¹³⁵

The IEBC exceptions noted above pertain to San Juan National Historic Site as a property listed in the National Register.

In addition, the National Park Service provides guidance on sustainability in work on historic structures, in terms of energy efficiency, technology, and sustainable preservation in practice, as described in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated*

135. International Code Council, Inc., *International Existing Building Code 2018* (Country Club Hills, Illinois: International Code Council, 2017).

*Guidelines on Sustainability for Rehabilitating Historic Buildings.*¹³⁶

Also, newly installed electrical systems and components, including any significant alterations to existing electrical systems, should comply with applicable provisions of the NFPA 70: National Electrical Code (NEC).

In addition, San Juan National Historic Site and the earlier fortifications of La Fortaleza were inscribed in the World Heritage List in 1983 as resources of outstanding universal value.¹³⁷ Inscription in the World Heritage List does not convey specific laws or requirements; however, the listing itself identifies protection afforded the property as follows:

La Fortaleza, which was designated a National Historic Landmark in 1960, is owned in fee by the Government of the Commonwealth of Puerto Rico; San Juan National Historic Site, which was established in 1949, is held by fee title by the Government of the United States of America. La Fortaleza is protected under the regulations of the Puerto Rico Legislative Assembly, as well as by the Commission of the Historic Zone of San Juan, an independent commission of the Capital of Puerto Rico. The Institute of Puerto Rican Culture has established standards of conservation and restoration in the historic zone. In addition, there is a Consultant Committee for the Restoration, Conservation, and Improvement of La Fortaleza. San Juan National Historic Site in Puerto Rico—comprised of San Felipe del Morro, San Cristóbal, and El Cañuelo forts and most of what remains of the of the old San Juan City fortress wall along with the San Juan Gate

—is protected under the National Park system, which affords it the highest possible level of protection by the federal government and assures a high standard of interpretation and public access. The inclusion in 2013 of both La Fortaleza and San Juan National Historic Site within the Old San Juan Historic District National Historic Landmark affords another level of protection as well.¹³⁸

In addition, agreements are in place for cooperative management of the property between the Government of Puerto Rico and the National Park Service. Guiding documents include the General Management Plan (1985), Long-Range Interpretive Plan (2006), and Alternative Transportation Plan, as well as interpretive plans for waysides and exhibits for San Juan National Historic Site.

Alternatives for Treatment and Use

The National Park Service has developed definitions for the four major treatments that may be applied to historic structures: preservation, rehabilitation, restoration, and reconstruction. The four definitions are 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. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. However, new exterior additions are not within the scope of this treatment. The Standards for Preservation require retention of the greatest amount of historic fabric along with the building's historic form.

136. Anne E. Grimmer with Jo Ellen Hensley, Liz Petrella, and Audrey T. Tepper, *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings* (Washington, DC: US Department of the Interior, National Park Service, Technical Preservation Services, 2011).

137. UNESCO World Heritage List, "La Fortaleza and San Juan National Historic Site in Puerto Rico," <https://whc.unesco.org/en/list/266>, accessed January 2019.

138. *Ibid.*

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. The Rehabilitation Standards acknowledge the need to alter or add to a historic building to meet continuing or new uses while retaining the building's historic character.

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. The Restoration Standards allow for the depiction of a building at a particular time in its history by preserving materials, features, finishes, and spaces from its period of significance and removing those from other periods.

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. The Reconstruction Standards establish a limited framework for recreating a vanished or non-surviving building with new materials, primarily for interpretive purposes.¹³⁹

Of the four treatment approaches, *rehabilitation*, which involves making possible a compatible use through repair, alterations, or additions, is most appropriate for Quarters 208. This treatment would allow for the repairs necessary to stabilize and preserve the buildings, while permitting minor renovation to meet the needs of contemporary park visitation, interpretation, and National Park Service management needs.

Preservation, which involves sustaining the building in its existing form, is to some extent in progress as a result of ongoing repair and cyclical maintenance implemented by the park, and is considered overly limiting for a contributing but not individually significant building within the historic district. Further, similar preservation efforts would be incorporated in the overarching rehabilitation treatment approach. *Restoration*, which would return the building to its appearance during the period of significance, is also considered overly limiting for a contributing but not individually significant structure. In addition, sufficient documentation has not been discovered to support accurate restoration of the building.

Retention of original materials and character-defining features during rehabilitation work is practical and appropriate, and will also assist in the reuse of Quarters 208.

Ultimate Treatment and Use

Guidelines for Treatment

Guidelines and recommendations for treatment for Quarters 208 have been defined based on the preservation objectives and requirements for treatment and use outlined above. All treatment guidelines and recommendations were developed in accordance with the Secretary of Interior's Standards for Rehabilitation.

The Secretary of the Interior's Standards for Rehabilitation are as follows:

1. A property will be used as it was historically, or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive 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.

139. Grimmer.

Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

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. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
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. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and special relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic

property and its environment would be unimpaired.¹⁴⁰

Guidelines for implementing the treatment recommendations provided herein are as follows:

- Undertake all work on the structure in compliance with the *Secretary of the Interior's Standards for Rehabilitation*.
- Retain the character of the historic structure and environs by protecting the building and significant site features.
- Ensure that proposed new elements or construction are compatible with the historic character of the structure and its site.
- Protect adjacent natural resources during construction activities.
- Document through detailed as-built drawings, photographs, and written narrative 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 records in the NPS archives.
- Retain features and materials at both the exterior and interior of the buildings that survive from the period of significance to the greatest extent possible.
- Incorporate sustainable design principles in all future projects that respect the preservation principles listed above.

140. Ibid.

Recommendations

The following specific recommendations for treatment of Quarters 208 respond to the overarching treatment approach of *rehabilitation*.

Exterior

- When recoating of the existing stucco is required, a breathable surface coating should be used on the exterior. Consideration can be given to acrylic or silicate coatings.
- Loose, cracked, and spalled stucco should be removed and replaced with stucco matching the surface texture and general composition of the existing stucco. The use of a bonding agent should be considered when new stucco is applied. After curing, coat the new stucco with a breathable surface coating to match the adjacent original surfaces. Where the stucco is removed and replaced, repair the underlying masonry, including replacing deteriorated masonry units in kind and repointing open or friable mortar joints with new mortar.
- Source(s) of water infiltration at the covered courtyard skylight should be investigated. Investigation may include performing water leakage testing or removing glazing panels to assess the installation and performance of the existing system. Perform repairs as necessary to address source of infiltration and remove exterior tarping. Once repairs have been successfully performed and no leakage is observed, interior finishes should be repaired.
- Spalled and unsound concrete at the edge of the second-floor addition roof should be removed. The area of spalling should be cut square and formed concrete repairs should be installed. New concrete should match the existing. Once the concrete has sufficiently cured, the roof membrane should be patched as necessary. Temporary protection will be required to protect the roof while the concrete cures.
- Consideration should be given to replacing the existing roof membrane. While no leakage has been reported at the roof, the existing membrane exhibits deterioration, such as gaps at joints, as well as distress conditions that can accelerate deterioration, such as ponding water, obstructed drains, and open roof penetrations, which are potential sources of leakage. As part of the roof replacement, repairs should be made as needed to the concrete deck if it is found to be spalled or deteriorated. A new roof membrane should include proper detailing of flashings at parapet walls, scupper drains, and pipe penetrations, and should be designed to direct water to drain.
- The source of cracking and step cracking at the north elevation of the second-floor addition should be investigated. Potential sources may include open spalls along the edge of the roof slab or open joints in the wall construction. Once the source(s) have been addressed, repoint open and cracked mortar joints in the wall and recoat wall surface.
- Embedded anchors in the wall should be removed and holes filled with a patch material compatible with the original masonry. Adjacent wall areas should be cleaned of corrosion staining, and primed and recoated using a breathable surface coating such as acrylic or silicate coatings.
- Where missing, a new fiberglass skylight dome should be installed to match the existing dome at northside of building.
- Open and abandoned penetrations in the roof and gaps at the perimeter flashings of pipes should be patched. Abandoned penetrations should be capped and then covered with a roofing material compatible with the existing modified bitumen roof membrane. The patch should be integrated with the existing roof system. Gaps at pipe penetrations should also be patched with a roofing material compatible with the existing roof membrane.
- Damaged non-original wood louvers at windows and doors should be removed and replaced with new wood louvers to match the profile of the existing. The louvers should be

installed with noncorrosive anchors. Finish new wood louvers to match the texture and color of the existing. Consideration may be given to replicating appearance of original louvers if sufficient archival documentation becomes available.

- Open joints at the perimeter of light fixtures and at conduit and pipe penetrations in the wall should be sealed with perimeter sealant. A membrane or non-corroding sheet-metal flashing sleeve should be installed at all conduit and insulated pipe penetration to protect the adjacent wall cladding and provide a surface to which the perimeter sealant will bond.
- Cracked and unsound concrete at the handrail pier should be removed. If the reinforcing bar is present, it should be exposed, prepared, and coated with a corrosion-inhibiting coating prior to installation of patch. A formed repair should be installed with concrete to match the existing. The perimeter of handrail penetrations should be sealed with sealant.
- Cracked and damaged transom window glazing should be removed and replaced with new wire glass to match existing. Existing wood mullions should be removed and repaired needed, as part of glass replacement.
- Soiling and organic growth should be treated with a mild detergent or biocide. Cleaning trials should be performed at localized areas prior to cleaning larger areas.
- Deteriorated clear finish on wood window at the south elevation of the second-floor addition should be stripped; the wood prepared and treated with a biocide; and refinished with a protective clear surface coating.
- Peeling, blistered, and loose paint on wood elements such as window frames should be removed by hand scraping and hand sanding, and then a new paint finish should be applied that matches the existing finish.
- Peeling paint at steel catwalk framing members should be scraped off, the corrosion removed, and the metal primed and painted to match the existing color scheme using a rust-inhibitive coating system.

Interior

- Cracked and displaced plaster should be removed and the replaced with new plaster compatible with the existing substrate. Following repair, these areas should be repainted to match existing wall.
- Bubbling and blistering paint at interior walls should be removed and replaced with a new paint to follow a color scheme determined for the building interior based on paint analysis or, if localized repainting is being performed, to match the existing color. Prior to repainting, sources of distress, such as water infiltration at the parapet or through open penetrations in the exterior wall, should be addressed and plaster repaired.
- Missing window and door hardware and astragals should be replaced with new hardware to match hardware and astragals at other window door locations in color, finish, appearance, and size.

Mechanical, Electrical, Plumbing, and Fire Protection Systems

- Remove mortar at wall penetrations for condensation lines and install new sealant to close penetrations and prevent water or insect infiltration.
- Extend existing condensate lines to grade and direct moisture away from building.

Structural System

- Consideration should be given to assessing the need for seismic retrofits and upgrades to the structure in preparation for potential strong earthquakes. According to the Federal Emergency Management Agency (FEMA), Puerto Rico has a seismic design category (SDC) of D and thus could experience very strong shaking during an earthquake event.

Current and Forthcoming Work

Work currently in progress or planned by the park to be completed at the Quarters 208 building includes the following:

1. Repainting of the exterior walls with an acrylic-based paint. Work was underway at the time of the documentation and assessment by the project team.
2. Alterations to the interior for adapted use of the space as offices for park security.

Recommendations for Further Research

1. Inspection openings could be performed at selected locations of the historic interior and exterior walls to confirm the method of construction, assess existing conditions, and provide information to inform understanding of the physical history of the building.
2. Additional materials analysis could be performed of the plaster at the interior and stucco at the exterior face of the walls and identify potential locations of historic wall finish for additional sampling, testing, and analysis.
3. As noted above, a water leakage investigation could be conducted to identify potential sources of water infiltration at the skylight.

Resilience to Natural Hazards

Puerto Rico is part of the Greater Antilles, a group of islands that extend across the northside of the Caribbean Sea. Puerto Rico is the easternmost island in the archipelago. The Greater Antilles, along with the Lesser Antilles to the south and east, indicate the edge of the subduction zone between the North American and Caribbean tectonic plates. Puerto Rico is positioned with the North Atlantic Ocean to the north and the Caribbean Sea to the south. Because of its physical and geophysical location, the island has historically been affected by earthquakes, tsunamis, and hurricanes.

Quarters 208, as part of the San Juan National Historic Site, is located along the west end of the Island of San Juan, a small island connected to the main island of Puerto Rico by bridges and causeways. It is situated on a bedrock foundation along the North Atlantic coastline and is approximately 100 feet above mean sea level. The Bay of San Juan separates the Island of San Juan from the main island.

The first recorded earthquake in Puerto Rico occurred in the 1520s. The event reportedly resulted in severe damage to Ponce de Leon's home. Other major earthquakes occurred in 1717, 1787, and 1867. The 1787 earthquake resulted in severe damage to El Morro and San Cristóbal, among other large and prominent buildings. While there have been many smaller seismic events, the last major earthquake in Puerto Rico occurred in October 1918. This earthquake was measured at a magnitude of 7.5 on the Richter scale and was accompanied by a tsunami that claimed many lives. Tsunamis, associated with earthquakes elsewhere along the archipelago, were also reported in May 1922 and August 1946.¹⁴¹

Earthquakes will continue to be a natural hazard to which Quarters 208 is vulnerable. As tectonic plates continue to shift and realign, they will produce shocks and earthquakes. FEMA has identified Puerto Rico as having a seismic design category of D, indicating that the area could experience very strong shaking due to earthquakes. The results could potentially include considerable damage to ordinary substantial buildings and extensive damage to poorly built structures.¹⁴² As Quarters 208 is an unreinforced masonry building; this type of construction has been observed to perform poorly in major seismic events. Based on physical evidence, it appears that the building has not been seismically retrofitted.

141. Risa Palm and Michael E. Hodgson, "Natural Hazards in Puerto Rico," *Geographical Review* 83, no.3 (1993): 280–289.

142. Federal Emergency Management Agency Earthquake Hazard Maps. Accessed December 21, 2018, <https://www.fema.gov/earthquake-hazard-maps>.

During the 1918 earthquake, many rubble masonry structures were destroyed. Those rubble masonry buildings that remained standing were mostly government buildings constructed of higher quality materials and with engineered designs. The strength of the construction relies on the quality of the bricks (often locally made) and lime mortar, as well as the general construction which uses bricks as vertical ties in rubble masonry. While Quarters 208 survived the 1918 earthquake, it does not appear to have been seismically retrofitted and weathering-related deterioration of the walls may have diminished the structures ability to dampen the shocks of another earthquake.

Hurricanes occur frequently in the Caribbean region and are often accompanied by storm surges, winds, rainfall, tornados, and flooding. Some of the most devastating hurricanes in Puerto Rico include the San Ciriaco hurricane in August 1899, which produced 23 inches of rain in a twenty-four-hour period and claimed 2,184 victims and \$35 million in damage. In September 1928, the San Felipe II hurricane had recorded winds of 200 miles an hour and claimed 300 lives with an economic impact of over \$50 million. On September 18, 1989, Hurricane Hugo struck Puerto Rico and was responsible for twelve deaths and one billion dollars in damages.¹⁴³ On September 21, 1998, Hurricane Georges made landfall on Puerto Rico and over a two-day period produced 30 inches of rainfall and caused \$2 billion in damage. Hurricane María, the most recent and destructive hurricane in Puerto Rico's history, reached the island on September 20, 2017, as a Category 4 hurricane. It resulted in loss of power for much of the island for almost a year, temporary loss of potable water, the death of 2,975 people, and \$90 billion in damages; to date the island has not yet fully recovered.¹⁴⁴

Increasingly frequent strong storms and heavy rainfall have been noted for several years in the Caribbean and southeastern United States. Over the last thirty years, Puerto Rico has experienced three of its most destructive recorded hurricanes, claiming the lives of thousands of people, totaling

billions of dollars in damage, and devastating local communities. In addition to the initial impact of an earthquake or hurricane, natural hazards resulting from these hazards, such as landslides and flooding, cause damage and distress.

In planning for these storms, historic sites and parks similarly require identification of the resources anticipated to be threatened—both buildings and landscapes—and planning for protection as well as mitigation in the face of increased storms.

As loss of historic resource integrity may occur, suddenly or slowly, from conditions related to natural hazards, documentation is a proactive measure to mitigate anticipated loss or diminishment, or to plan for the impacts associated with natural hazards. This Historic Structure Report, including the historical narrative, condition assessment, and recommendations, together with photographs and measured drawings, is an important part of the documentation process.

As part of future efforts to build on and update the documentation provided in this HSR, the National Park Service should consider such approaches as more detailed documentation resulting from new three-dimensional scanning technology, monitoring weather-related deterioration, updating emergency and disaster planning to address resiliency to natural hazards, and strategic planning for mitigation of the effects of natural hazards on park resources. The latter may include special protection, documentation, and interpretation measures to address resources that are especially vulnerable to damage or loss due to climate change-related conditions.

In addition to threats to the historic resources, natural hazards will affect visitation patterns. If not already underway, a study of the impacts of natural hazards on the park and visitation patterns would be beneficial.

Efforts conducted for the San Juan National Historic Site will benefit from coordination with other planning and documentation projects to address effects of natural hazards change under

143. Ibid.

144. Ibid.

consideration or in the process of being implemented by the National Park Service in the Southeast Region. Future severe weather events, rising sea levels, and other impacts related to natural hazards should be anticipated and considered in planning for protection and maintenance of the site and its resources.

Other natural hazards to which the San Juan National Historic Site is vulnerable include rising sea level change, wave erosion, and flooding. It is projected that the sea level in the area will rise as much as 0.64 meters by the end of the twenty-first century.¹⁴⁵ While the rise in sea level will not directly affect Quarters 208, it will impact the many of the coastal features of the San Juan National Historic Site, such as the fortress walls, and will likely accelerate their deterioration.

145. 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: US Department of the Interior, National Park Service, Natural Resources Stewardship and Science, May 2018). The study is the first to analyze information from the United Nations Intergovernmental Panel on Climate Change (IPCC) and National Oceanic and Atmospheric Administration (NOAA) models. This research is the first to analyze IPCC and NOAA projections of sea level and storm surge under climate change for US national parks.

Bibliography

- 106 Compliance Statement on the Effects of the Rehabilitation of Building 208 for Adaptive Use at San Juan National Historic Site Included in the National Register of Historic Places, 1987.* Box 38, Folder 96, San Juan National Historic Site, San Juan, Puerto Rico.
- "Assessment of Actions Having an Effect on Cultural Resources [Exterior Wall of Building No. 208, LCS#H-208]," April 2, 1982. Box 66, Folder 534, San Juan National Historic Site, Puerto Rico.
- Ates, David, Historical Architect. *XXX Form – Assessment of Actions Having an Effect on Cultural Resources*, 1991. Box 58, Folder 120, San Juan National Historic Site.
- Berkowitz, Joan, E. Baine Cliver, Richard Crisson, Billy Garret, Judy Jacob, Frank Matero, and Barbara Yokum. *The Fortifications of San Juan National Historic Site: Historic Structure Report, Volumes 1–3.* Building Conservation Branch, Cultural Resources Center, North Atlantic Region, National Park Service, and the Center Preservation Research, Columbia University, for the Southeast Regional Office, National Park Service, 1991.
- Blanco, Juan. "A Study of the Morphological Structure of the System of Fortifications of San Juan de Puerto Rico." The Center for Preservation Research, Columbia University. Prepared for the National Park Service. In *Historic Structure Report: Quarters 209*, March 1989.
- Bombardment of San Juan, Puerto Rico.* Stereoscope Card Keystone View Company, circa 1899. Item LC-USZ62-104742. Washington, DC: Library of Congress.
- Caffrey, Maria A., 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: US Department of the Interior, National Park Service, Natural Resources Stewardship and Science, May 2018.
- The Center for Preservation Research. *Historic Structure Report: Quarters 209.* Prepared for the National Park Service. New York: The Center for Preservation Research, Columbia University, 1989.
- Chavez, Walter, Superintendent. Letter to Carlos Rubio-Cancela, State Historic Preservation Officer, Puerto Rico; re: Rehabilitation of Building 208 and Little Masons Program details, June 28, 2011. Box 88, Folder 96. Park Archives, San Juan National Historic Site, Puerto Rico.
- Code of Federal Regulations*, Title 36, Part 60, "The National Register Criteria for Evaluation."
- The Collaborative, Inc., and Atkinson-Noland & Associates, Inc. San Juan National Historic Site, Quarter[s] No. 211: Historic Structure Report. Boulder and Denver, Colorado, 2016.
- Deed Book 598, page 179, Entry 358, File 33-40-200-1, Deed 393, County of San Juan, Puerto Rico.
- Del Cueto, Beatriz. "The Development of Hydraulic Mortars, Cement, and Concrete in Puerto Rico," *APT Bulletin: The Journal of Preservation Technology* 42, no.1 (2011), 45–52.
- Dietz, James L. *Economic History of Puerto Rico: Institutional Change a Capitalist Development.* Princeton, New Jersey: Princeton University Press, 1986.

Bibliography

Department of Interpretive Planning, Harper's Ferry Center and San Juan National Historic Site. *San Juan National Historic Site Long-Range Interpretive Plan*. Harpers Ferry, West Virginia: National Park Service, Department of the Interior, 2006.

EcuRed, *Braulio Dueño Colón*, accessed January 10, 2019. https://www.ecured.cu/Braulio_Dueño_Colón.

Espinosa, Mariola. *Sanitary and American: Disease Eradication Efforts and the Transformation of Puerto Rico after 1899*. Chapel Hill, North Carolina: University of North Carolina, 2000. Accessed November 16, 2018. <http://lasa.international.pitt.edu/Lasa2000/EspinosaMariola.pdf>.

Federal Emergency Management Agency (FEMA). *Earthquake Hazard Maps*, accessed December 21, 2018. <https://www.fema.gov/earthquake-hazard-maps>.

Federal Register 14, no. 37, February 25, 1949, 871.

García-Curbelo, Luis E., Superintendent. Memorandum to John Garner, re: Color Scheme Building 208, 209 and South Wall, Muñoz Rivera Avenue, February 17, 1981. Box 66, Folder 534, Park Archives, San Juan National Historic Site, Puerto Rico.

Garner, John C., Letter to Superintendent, San Juan National Historic Site, re: Color Scheme Building 208, 209 and South Wall Muñoz Rivera Avenue, LCS #H-08, March 3, 1981. Box 66, Folder 534, Park Archives, San Juan National Historic Site, Puerto Rico.

Gjessing, F.C., and Loretta Schmidt. *National Register of Historic Places Inventory – Nomination Form: San Juan National Historic Site*, July 12, 1973 (unsigned).

González, Dilcia. "Grand Opening of Discovery Center at San Juan National Historic Site." San Juan National Historic Site. Last updated 2015, accessed February 4, 2019, <https://www.nps.gov/saju/learn/news/grand-opening-of-discovery-center-at-san-juan-national-historic-site.htm>.

Grimmer, Anne E. *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, Historic Preservation Services, 2017.

_____, with Jo Ellen Hensley, Liz Petrella, and Audrey T. Tepper. *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*. Washington, DC: US Department of the Interior, National Park Service, Technical Preservation Services, 2011.

Grupo Editorial EPRL. *Dueño Colón, Braulio*. Last updated September 3, 2014, accessed January 10, 2019. *Enciclopedia de Puerto Rico*, <https://enciclopediapr.org/en/encyclopedia/dueno-colon-braulio/>.

Historic American Buildings Survey. *Castillo de San Cristóbal, Boulevard Norzagaray, San Juan, San Juan Municipio, PR*. Circa 1930. Historic American Buildings Survey, HABS PR, 7-SAJU, 5-15.

_____. *Quarters Number 209, Castillo de San Cristóbal, Quarters No. 209, San Juan, Puerto Rico*. Historic American Buildings Survey, HABS PR, 7-SAJU, 50-.

Historic Sites Act of 1935, 16 USC sec. 461–467. Accessed May 2019, <https://www.nps.gov/history/local-law/hsact35.htm>.

- History.com Editors. "Puerto Rico Invaded" in History. Last updated August 21, 2018, accessed January 10, 2019. <https://www.history.com/this-day-in-history/puerto-rico-invaded>.
- International Code Council, Inc. *International Existing Building Code 2018*. Country Club Hills, Illinois: International Code Council, 2018.
- Jopling, Carol F. *Puerto Rican Houses in Sociohistorical Perspective*. Knoxville: The University of Tennessee Press, 1988 and 1992.
- Lance Studio's Leaded & Stained Glass Work. Job- Bldg # 208 San Juan, (Fort San Cristobal), April 16, 1982. Box 66, Folder 534, Park Archives, San Juan National Historic Site, Puerto Rico.
- Library of Congress. "Radicalism and Repression." *Puerto Rico at the Dawn of the Modern Age: Ninetieth- and Early-Twentieth-Century Perspectives*. Library of Congress Articles and Essays. Accessed January 15, 2019. <http://www.loc.gov/collections/Puerto-pico-books-and-pamphlets/nineteenth-century-puerto-rico/radicalism-and-repression/>.
- López, Félix J., Park Historian. *Assessment of Actions having an Effect on Cultural Resources*, December 19, 2008. Box 88, Folder 96, Park Archives, San Juan National Historic Site, Puerto Rico.
- López, Lilliane D., Arch, State Historic Preservation Officer. Letter to William P. Crawford, Superintendent, San Juan National Historic Site, re: SHPO:04—16-96-03 Construction for Concrete Ramp at Building 209, San Juan Historic Site, San Juan, Puerto Rico, April 4, 1997. Box 88, Folder 119, Park Archives, San Juan National Historic Site, Puerto Rico.
- Map of the Military Reservation of San Juan, P.R. (and City of San Juan) 65th Infantry* (copied from original tracing in the U.S. Engineering Office, San Juan, PR, May-1938), May 5, 1984. Park Archives, San Juan National Historic Site, Puerto Rico.
- Medley, Daniel. "Moorish Invasion of Spain and Christian Reconquest." *Hispanic Journey*, accessed January 10, 2019. <http://staff.esuhsd.org/balochie/studentprojects/moorchristian/>.
- "Morro" Castle Wall struck by a 13-inch shell from Sampson's guns, San Juan, Puerto Rico. Stereoscope Card, Stromeyer & Wymann, August 22, 1899, item LC-USZ62-117179. Washington, D.C.:Library of Congress.
- Mota Maldonado, Yanelba. "The Spanish-American War in Puerto Rico," *Enciclopedia de Puerto Rico*, Puerto Rico Endowment for the Humanities. Accessed January 10, 2019. <https://enciclopedia.pr.org/en/encyclopedia/spanish-american-war-in-puerto-rico/>.
- National Park Service. *San Juan* [brochure]. San Juan National Historic Site. Puerto Rico. N.P.: US Department of the Interior, National Park Service.
- _____. NPS-28, *Cultural Resource Management Guideline*, accessed May 2019, <https://www.nps.gov/parkhistory/onlinebooks/nps28/28intro.htm>
- _____. National Register of Historic Places. Accessed February 4, 2019, <https://www.nps.gov/subjects/nationalregister/database-research.htm>.
- National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Washington, DC: National Park Service, National Register of Historic Places, 1997.

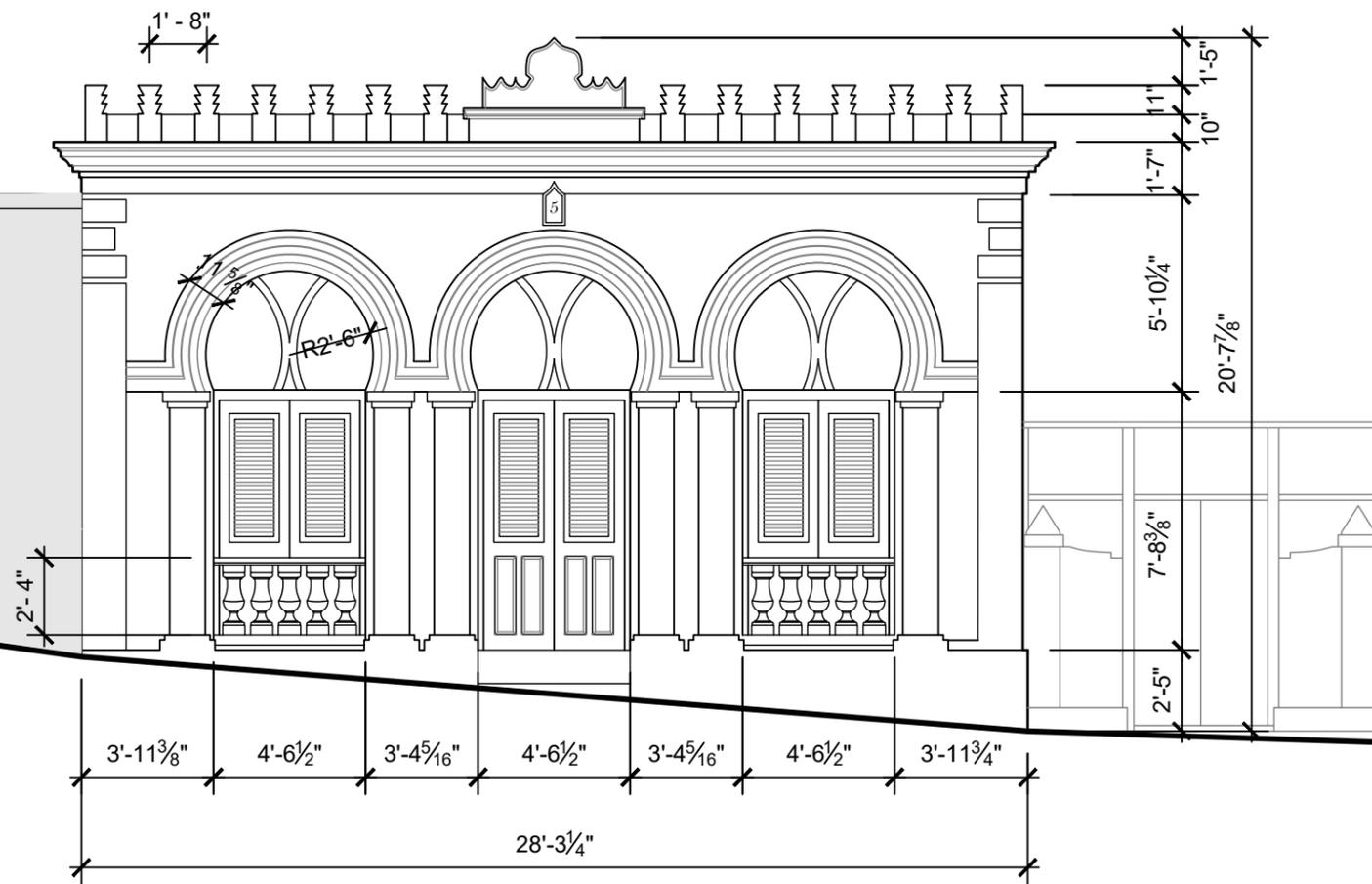
Bibliography

- Nelson, Lee H. *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*. Washington, DC: National Park Service, Technical Preservation Services, 1988.
- Pabón-Charneco, Arleen, Puerto Rico SHPO Consultant. *National Register of Historic Places documentation for Distrito Histórico del Viejo San Juan / Old San Juan Historic District*. Tallahassee, Florida. June 6, 2012. Entered in the National Register, July 30, 2012 (NRIS 12000465).
- _____. *National Historic Landmark documentation for the Old San Juan Historic District/ Distrito Histórico del Viejo San Juan*, September 24, 2012, accepted by the National Register on February 27, 2013 (NRIS 13000284).
- Palm, Risa, and Michael E. Hodgson. "Natural Hazards in Puerto Rico." *Geographical Review* 83, no.3 (1993): 280–289.
- Plano de la Plaza de San Juan de Puerto Rico*, 1861. Park Archives, San Juan National Historic Site, Puerto Rico.
- Proyecto de Reparación y Reforma de los Pabellones de Artillería* (Draft Repair and Reform of the Artillery Pavilions). Commander General Subinspection, Puerto Rico Command, Plaza De San Juan, El Comandante General Subinspector Ingeniero F. [Francisco] de Zaragoza, circa 1880. Park Archives, San Juan National Historic Site, Puerto Rico.
- "Puerto Rico Invaded," *History*, August 21, 2018. Accessed November 28, 2018. <https://www.history.com/this-day-in-history/puerto-rico-invaded>.
- Rodriguez Morales, Luis M., Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, San Juan. *National Register documentation for Zona Histórica de San Juan (San Juan Historic Zone)*, June 1971; entered in the National Register, October 10, 1972 (NRIS 72001553).
- Sánchez, U. "Dueño Colón, Braulio (1854-1934)," *La web de las Biografías*, accessed November 16, 2018, <http://www.mcnbiografias.com/app-bio/do/show?key=dueno-colon-braulio>.
- San Juan County Deed Book 598. File 33-40-200-1. Deed 393. Entry 358. Page 179. County of San Juan. Puerto Rico.
- San Juan National Historic Site. Removal of Buildings, 1964. Box 97, Folder 46, Park Archives, San Juan National Historic Site, Puerto Rico.
- Section 106 Compliance Statement on the Effects of the Rehabilitation of Building 208 for Adaptive Use at San Juan National Historic Site Included in the National Register of Historic Places*, 1987. Box 38, Folder 96, Park Archives, San Juan National Historic Site, Puerto Rico.
- Slaton, Deborah. *Preservation Brief 43: The Preparation and Use of Historic Structure Reports*. Washington, DC: National Park Service, Technical Preservation Services, 2000.
- UNESCO World Heritage List. "La Fortaleza and San Juan National Historic Site in Puerto Rico." Accessed January 2018, <https://whc.unesco.org/en/list/266>.

- US Army Corps of Engineers. *Real Estate, Part of Fort Brooke for Transfer to Dept of Interior, San Juan, Puerto Rico, SJA-11*. San Juan Area US Army Engineering District Jacksonville, San Juan Puerto Rico, September 22, 1960. On file, San Juan National Historical Site, Puerto Rico.
- Van Beck, Sara. *Review of Walkway and Ramp for Quarters 208 and 209 for Conformity*, April 22, 1996. Box 88, Folder 119, Park Archives, San Juan National Historic Site, Puerto Rico.
- Vasquez, J. Sargent [sic]. *Military Reservation of San Juan Puerto Rico (and the City of San Juan)*, 65th Infantry (copied from original tracing in the U.S. Engineering Office, San Juan, PR, May-1938), reprint May 5, 1984. Park Archives, San Juan National Historic Site, Puerto Rico.

Bibliography

Appendix A: Measured Drawings



1 West Elevation
 Scale: 3/16" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, INC., AUGUST 2018

NATIONAL PARK SERVICE
 U.S. DEPARTMENT OF THE INTERIOR
 SOUTHEAST REGIONAL OFFICE

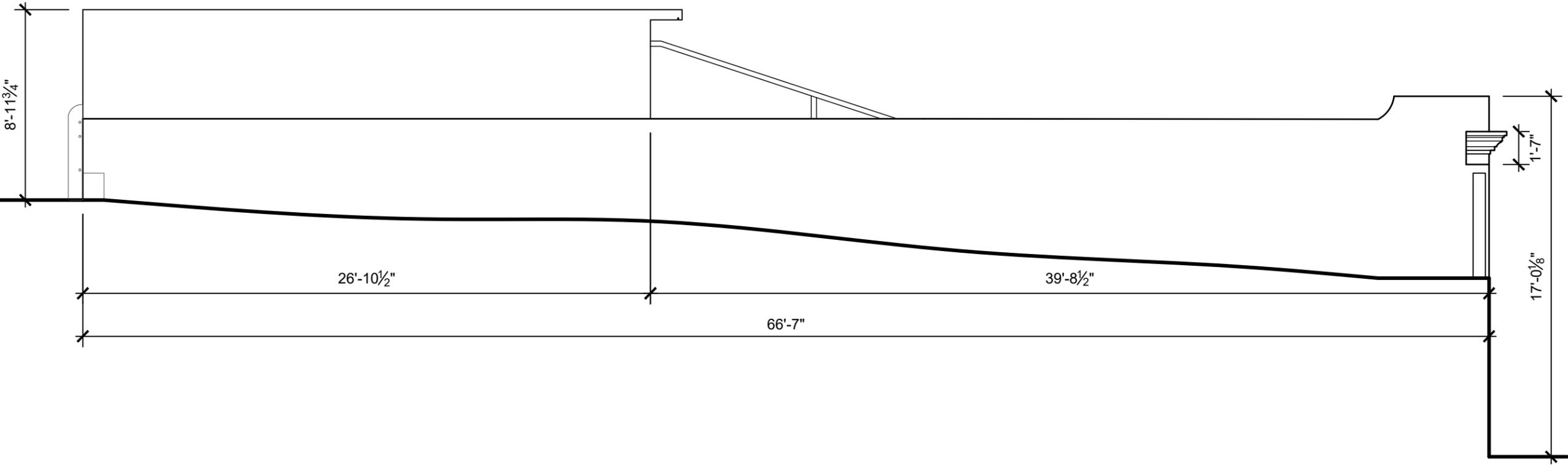
CASTILLO DE SAN CRISTOBAL

QUARTERS 208
 SAN JUAN NATIONAL HISTORIC SITE

SAN JUAN, PUERTO RICO

HISTORIC STRUCTURE REPORT

SHEET
 1 OF 6



1 North Elevation
 Scale: 3/16" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, INC., AUGUST 2018

NATIONAL PARK SERVICE
 U.S. DEPARTMENT OF THE INTERIOR
 SOUTHEAST REGIONAL OFFICE

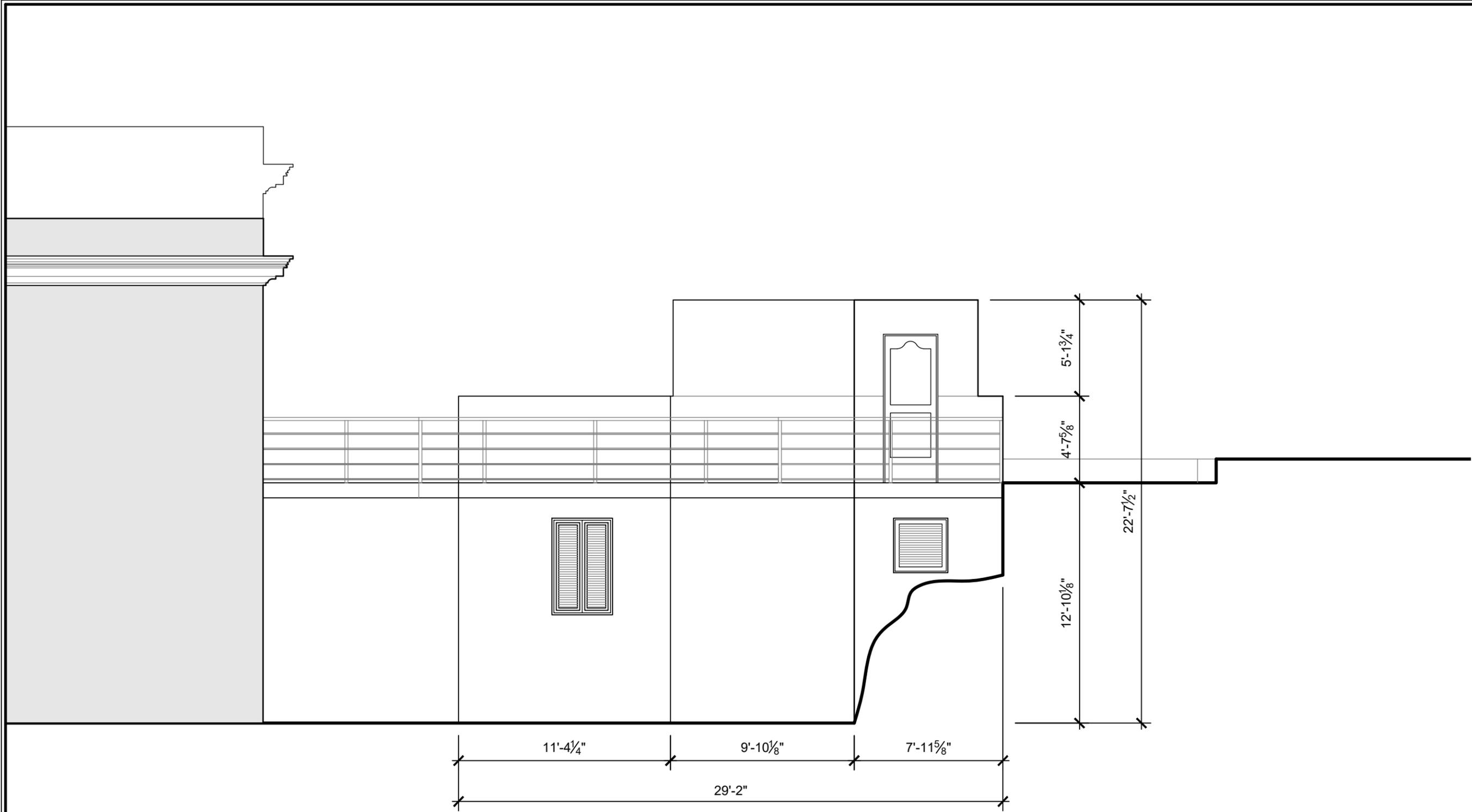
CASTILLO DE SAN CRISTOBAL

QUARTERS 208
 SAN JUAN NATIONAL HISTORIC SITE

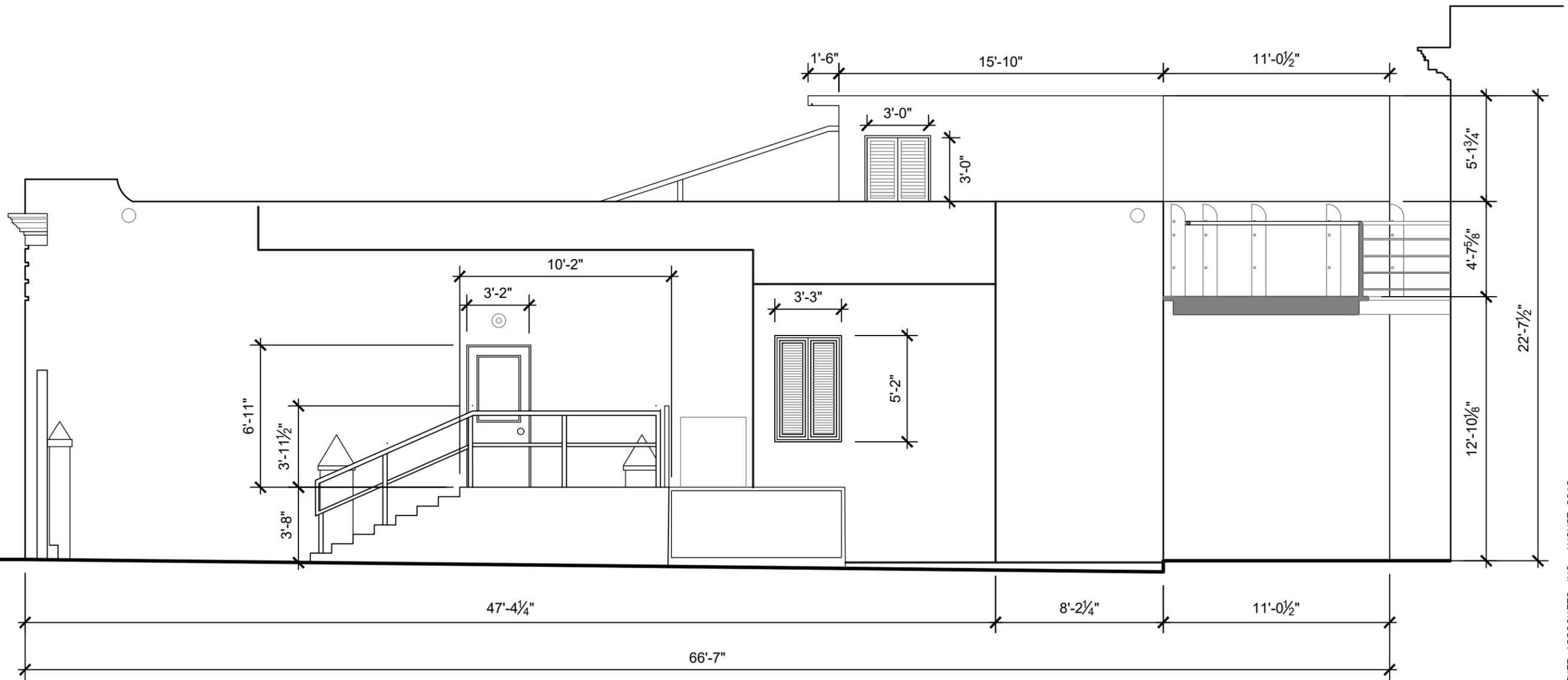
SAN JUAN, PUERTO RICO

HISTORIC STRUCTURE REPORT

SHEET
 2 OF 6



1 East Elevation
 Scale: 3/16" = 1'-0"



1 South Elevation
 Scale: 3/16" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, INC., AUGUST 2018

NATIONAL PARK SERVICE
 U.S. DEPARTMENT OF THE INTERIOR
 SOUTHEAST REGIONAL OFFICE

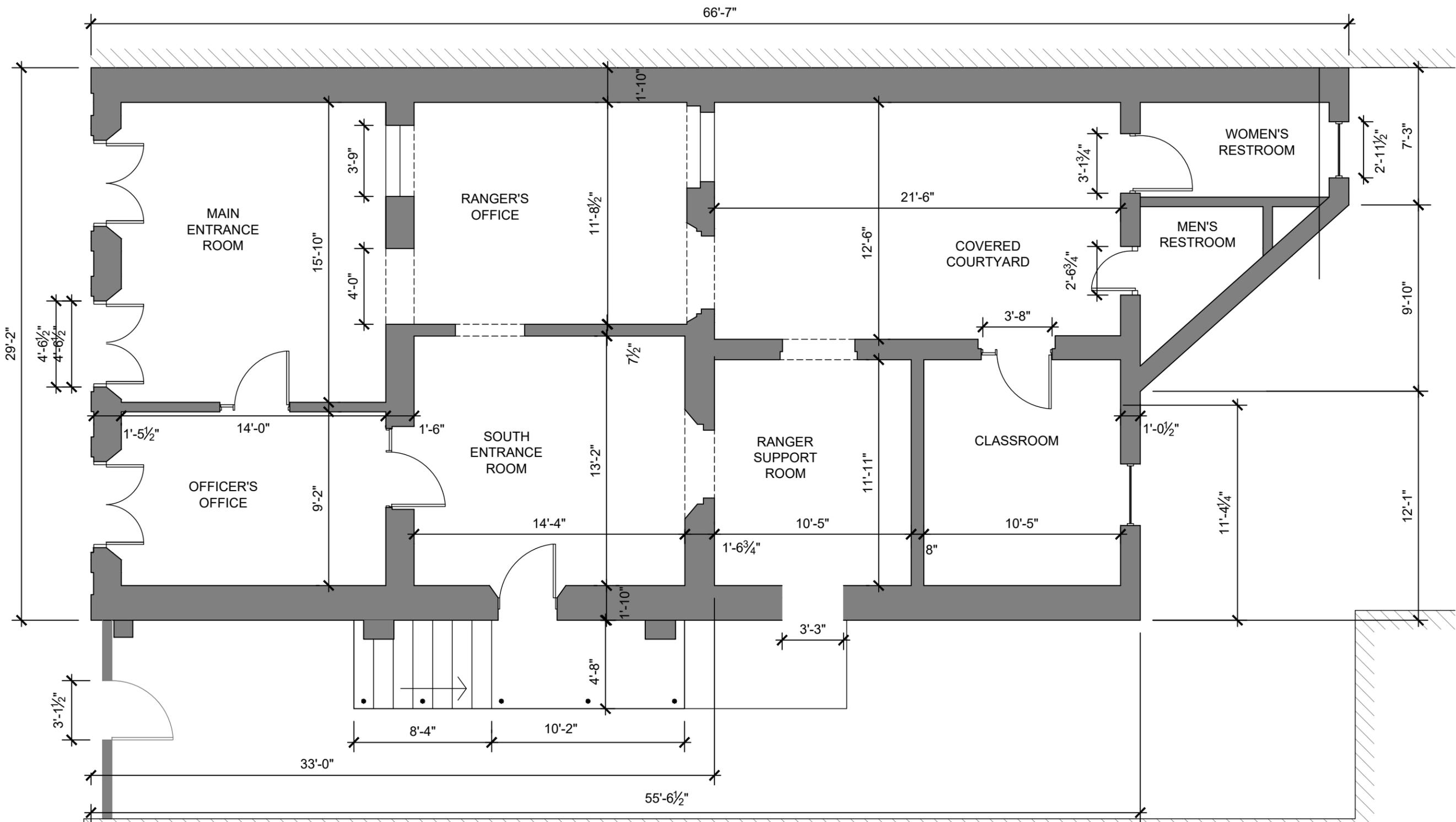
CASTILLO DE SAN CRISTOBAL

QUARTERS 208
 SAN JUAN NATIONAL HISTORIC SITE

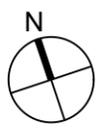
SAN JUAN, PUERTO RICO

HISTORIC STRUCTURE REPORT

SHEET
 4 OF 6



1 Floor Plan - Level 1
 Scale: 3/16" = 1'-0"



DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, INC., AUGUST 2018
 NATIONAL PARK SERVICE
 U.S. DEPARTMENT OF THE INTERIOR
 SOUTHEAST REGIONAL OFFICE

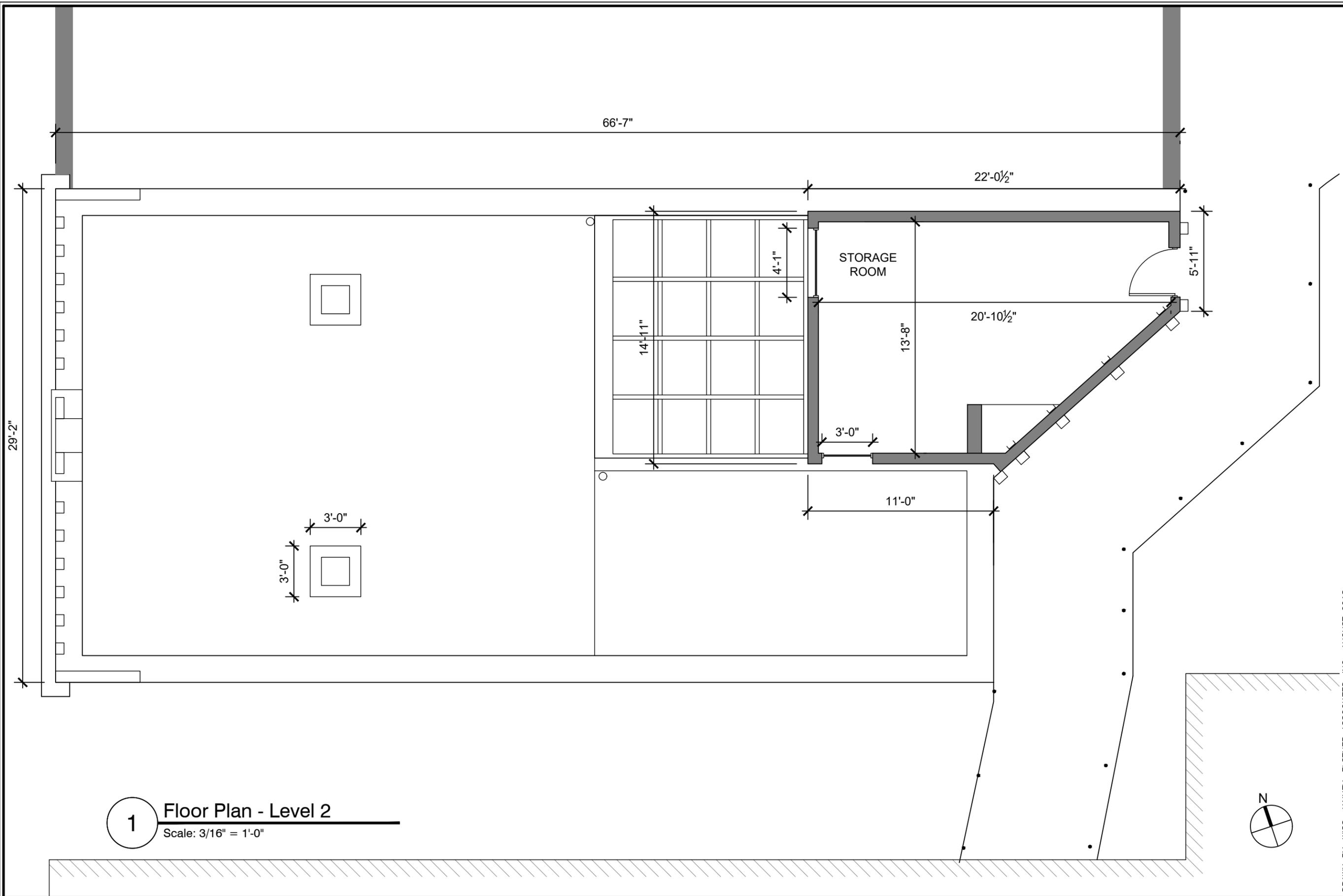
QUARTERS 208

SAN JUAN NATIONAL HISTORIC SITE

SAN JUAN, PUERTO RICO

HISTORIC STRUCTURE REPORT

SHEET
 5 OF 6



1 Floor Plan - Level 2
 Scale: 3/16" = 1'-0"

DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, INC., AUGUST 2018

NATIONAL PARK SERVICE
 U.S. DEPARTMENT OF THE INTERIOR
 SOUTHEAST REGIONAL OFFICE

CASTILLO DE SAN CRISTOBAL

QUARTERS 208
 SAN JUAN NATIONAL HISTORIC SITE

SAN JUAN, PUERTO RICO

HISTORIC STRUCTURE REPORT

SHEET
 6 OF 6

Appendix B: Historic Paint Analysis Report

SAN JUAN NATIONAL HISTORIC SITE, QUARTERS 208

Historic Paint Analysis Report



Image 1. San Juan National Historic Site. <https://www.nps.gov/saju/index.htm>



Image 2. San Juan National Historic Site. <https://www.nps.gov/saju/index.htm>

Date: June 14, 2019

Prepared by: Emily MacDonald-Korth

Site: San Juan National Historic Site, 501 Norzagaray Street, San Juan, PR 00901

Client: Wiss, Janney, Elstner Associates, Inc., 330 Pflingsten Road, Northbrook, Illinois 60062

Analyst: Emily MacDonald-Korth, President and Chief Analyst, Longevity Art Preservation LLC, Miami, FL, emilymk@artlongevity.com, 917-684-1065

Executive Summary

Longevity Art Preservation, via Wiss, Janney, Elstner Associates, Inc., carried out historic paint analysis for San Juan Historic Site, Quarters 208 in January - June 2019, with an aim to identify the earliest extant paint colors and finishes, and full chromachronology, of interior and exterior surfaces. Using cross-sectional optical microscopy, nine samples were analyzed to identify the paint layer stratigraphy, and each layer was exposed to reveal that hue. Colors from the exposures created on the samples were matched and measured using the Munsell color system for use in future restoration projects. From the analysis of this sample set and associated microexposure investigation, the substrate in each sample (except sample R and mortar sample M1) is red-brown wood or buff stucco followed by a series of paint layers. Estimated original exterior paint colors include white, ivory, light green, and buff. All samples taken from wooden elements have gray paint as the earliest extant layer; this layer may be original. One mortar sample shows brown stucco beneath the buff stucco layer seen on most samples; this layer may be original.

Introduction

Longevity Art Preservation (or Longevity) was contacted by Deborah Slaton, of WJE, regarding historic paint analysis for San Juan Historic Site, Quarters 208. Slaton explained that the chromachronology of the decorative surfaces needs to be analyzed and reported, with a focus on the earliest generation of finishes. In January 2019, MacDonald-Korth received 41 samples by mail; nine of the samples were mounted in cross-section and imaged. Microexposures were carried out on each layer of each sample for color matching using the Munsell color system. The findings from the paint investigation will be discussed in the following report.

Purpose

- a. Mount and analyze nine cross-section samples from the interior and exterior surfaces to determine the original finishes, and identify the layer stratigraphy.
- b. Carry out microexposure windows on each layer of each sample and match the colors using the Munsell color system.
- c. Report the chromachronology and Munsell color system matches of the entire layer structure for each sample, with cross-section diagrams, to inform future preservation efforts and restoration campaigns.

Procedure

Optical Microscopy

In January 2019, Emily MacDonald-Korth received 41 samples by mail. All samples were named by WJE and those sample names were retained. In the laboratory, the samples were examined with a stereomicroscope under low power magnification (20x) to identify the areas of sample with the most complete layering structure, therefore having the potential to give the most information during cross-sectional analysis while leaving a large remaining sample for subsequent microexposure steps. Samples aimed at studying the stratigraphy of the finishes were cast in resin cylinders, sanded, and polished to expose the cross-section surface; nine samples were mounted and imaged. Once mounted, the cross-section samples were examined and digitally photographed in reflected visible and ultraviolet (UV) light at 40x – 100x. Cross-sectional optical microscopy provided information about paint layer stratigraphy and some characterization of binders and coatings, based on the morphology of layers and particles and autofluorescence of the layers under varying wavelengths. Images collected during optical microscopy can be found in Appendix II.

Microexposures and color matching

Microexposure (very small exposure windows) Sites were selected for each sample based on proximity to the cross-section sample locations and completeness of the projected stratigraphy. Remaining sample material that was not cast for examination or used in the microexposure process was retained for future study. Using a small stainless steel microscalpel blade, and other mechanical techniques, each paint layer was carefully scraped and cleaved away under low power magnification (20x) to reveal the layer beneath, from the uppermost paint layer to the substrate, layer by layer. The appearance of each layer and the total number of existing finish layers was compared to observations made during optical microscopy. After each microexposure was completed, that layer was visually matched to a swatch from the Munsell Book of Color (matte edition; a color standard used in the Architectural Preservation field) using a color-corrected light source and/or daylight. Analytical techniques can be found in Appendix I.

Reporting

The chromachronology of each sample is reported in the following “Results” section using a cross-section image and stratigraphic diagram that labels each layer with a partial boundary line and layer number; layers are numbered from earliest (#1) to current (# variable). Each diagram is coupled with a table that defines and describes each layer, and reports the matching Munsell color swatch code. These color measurements can be used to select a modern paint in a matching hue.

Notes on complementary techniques

Cross-sectional optical microscopy and exposure windows are valuable complementary techniques for multiple reasons. Cross-sectional optical microscopy is necessary to compare the layers revealed in the exposure window to the layers visible in the cross-sectional sample; often more layers are visible in cross-section. Cross-sectional representations of colors often cannot represent hues accurately (though relative color differences can be compared between strata) and for communication purposes, exposures can be extremely valuable. It is possible to see very subtle structural differences using optical microscopy, identify differences between layers using ultraviolet light, and see temporal changes (e.g. dirt). Exposures reveal paint layers on a scale visible with the unaided eye, and gather textural material property data not possible to gather with microscopy. There are advantages in each method, but using both techniques together is the most valuable system.

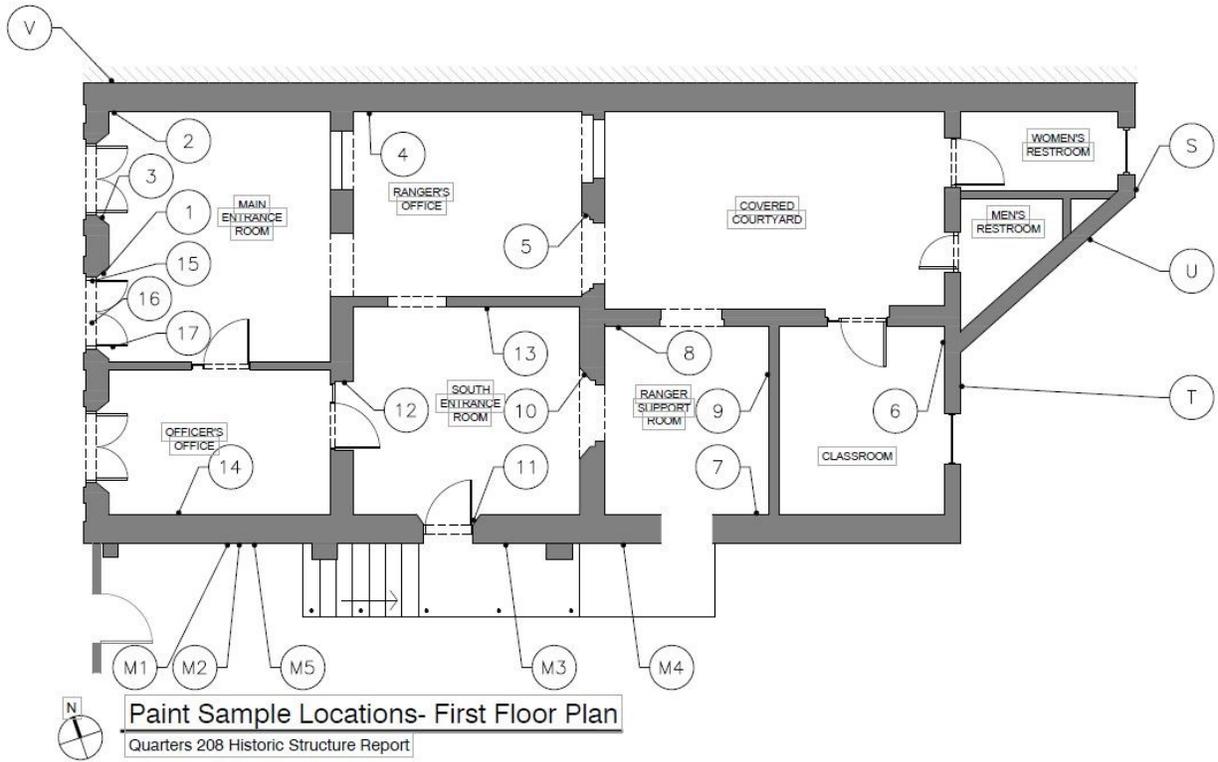
Procedural limitations

In many paint excavations, it can be nearly impossible to separate all interlayers because of the texture, bonding, or cleaving at layer interfaces, or the level of deterioration of the layers. For example, a very thin and brittle paint layer is often more difficult to reveal than a thick and tough paint layer because the brittle layer will likely fracture during removal of the upper paint layer. Similarly, two semi-soft layers can interact in such a way that their interface becomes joined and impossible to separate with standard excavation methods. In most cases the sheen cannot be accurately evaluated in an exposure window, because of abrasion to the surface and interactions between layers over time; this includes possible sanding between layers before repainting and damage to the paint layer during excavation with a scalpel. In some cases paint layers cleave completely and cleanly because of poor adhesion, in these cases it is sometimes possible to accurately evaluate the sheen.

Sample Table

Sample Number	Room	Wall/Elevation	Location Description
15	Interior	West	Main entrance room; wood door frame exterior coating taken below hinge
16	Interior	West	Main entrance room; wood transom interior mullion coating
G	Exterior	West	Mid-height of north jamb pilaster at north door opening
I	Exterior	West	North door opening, exterior of door frame
J	Exterior	West	Return wall at balustrade at south door opening
P	Exterior	West	Upward face of cornice, at north of center
Q	Exterior	West	Vertical face of crenellation at parapet
R	Exterior	West	Vertical face of parapet between crenellations
M1	Exterior	South	One sample location to west of south door at original portion of building: outer parking

Sampling Locations (diagrams provided by WJE)



Sampling Locations, detail photos (images provided by WJE)

Sample number: 15



Sample number: 16



Sample: G



Sample: I



Sample: J



Sample: P



Sample: Q



Sample: R



Sampling Locations, detail photos (images provided by WJE)

Sample: M1



Results

This section includes stratigraphic diagrams and chromachronology data tables for each sample.

The table uses the following abbreviations:

No XS: Not included in cross-section image, but observed during microexposure

No ME: Not included in microexposure, but observed in cross-section

~ : Approximately; layer that corresponds chromatically (in cross-section and/or microexposure) to an adjacent layer or analogous location.

* : More sample material required for accurate evaluation.

— : Not applicable for measurement, e. g. translucent varnish, concrete, some repairs, etc.

Interpretation limitations

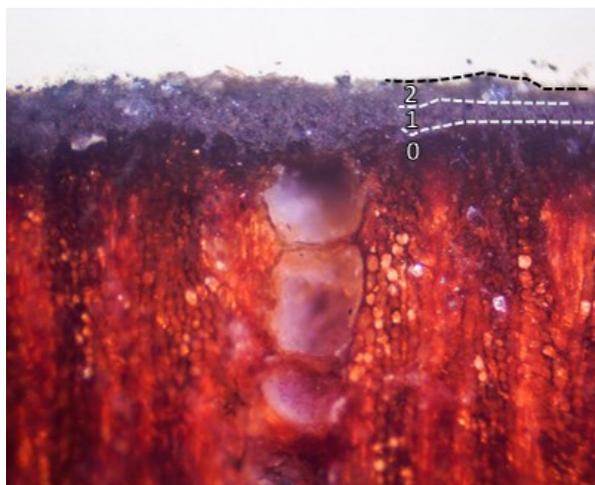
Because the Munsell color system sometimes lacks the exact color match, all Munsell colors listed are the nearest possible visual match. The structure has had a number of painting campaigns since its original construction. The painting history in one location may differ from another, and the small nature of the paint samples leaves room for misinterpretation because of the limited surface area that is revealed. Some areas may have been painted more frequently than others, and there is a possibility that some locations were stripped, sanded, or repaired. Typically, sampling and exposures are selected in areas that do not appear to have been repaired, however this does not rule out the possibility. While the results of this research can give insight into the history of the location, more sampling and exposure windows are required to have an accurate understanding of the complete history.

Imaging limitations

Sometimes, all layers cannot be in focus within one image because of the nature of the sample and the function of the microscope. The compound microscope, a complex and advanced tool used to look at specimens under very high magnification, has a very low depth of focus that decreases as magnification increases. In deteriorated or otherwise altered samples several factors make it impossible to have all layers in plane, including: layers that may not be continuous, microscopic fractions of original material may be all that remains, and fragile layers can fracture during sample mounting thereby increasing the number of desired focal planes. Sometimes all layers within a sample can be polished during mounting to be in plane, but this is rarely the case with very old and/or very deteriorated paint samples. The analyst examines the sample under the microscope in varying depths of focus, but the camera can only capture one. The analyst identifies the target layers during mounting and microscopic examination and images those layers, though other layers may not be in plane. Interpretation is carried out slowly and with a great deal of careful observation using the microscope under various light sources, sample mounting data, and microexposure; images and diagrams are not intended to be used for interpretation alone. The images included in the body of the report are focused on the target layers, not all layers; supplementary images can be found in the Appendix.

San Juan National Historic Site, Quarters 208

Sample number: 15



Discussion

The substrate for this sample is wood. The lowest layer (1, Gray) makes up the first generation of coatings; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color
2	Gray	Thin, flexible, white particles; paint.	N 4
Generation 1 1	Gray	Thin, hard, possible gloss sheen; paint.	N 2.5
0	Red-brown	Wood; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: 16



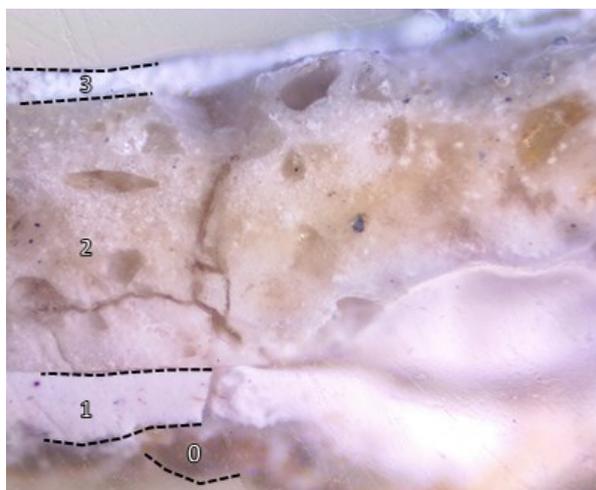
Discussion

The substrate for this sample is wood. The lowest layer (1, Gray) makes up the first generation of coatings; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color
5	Dark gray	Thin, flexible, white particles; paint.	N 2.75
4	Gray	Thin, flexible, white particles; paint.	N 4
3	Light gray	Thin, flexible, white particles; paint.	5Y 6/1
2	Light gray	Thin, flexible, white particles; paint.	5Y 6/1
Generation 1 1	Gray	Thin, hard, possible gloss sheen; paint.	N 2.5
0	Red-brown	Wood; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: G



Discussion

The substrate for this sample is stucco. The lowest layer (1, White) makes up the first generation of coatings; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color
3	White	Thin, flexible; paint.	N 9.5
2	Buff	Thick, shiny brown flakes (possibly mica); plaster layer/ stucco.	5Y 8.5/1
Generation 1 1	White	Very hard, orange flecks; paint.	Between N9 and 5Y 9/1
0	Buff	Stucco; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: I



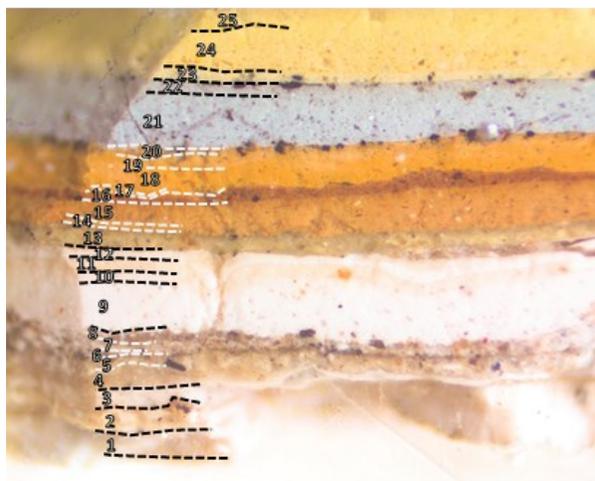
Discussion

The substrate for this sample is wood. The lowest layer (1, Gray) makes up the first generation of coatings; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color
3	Dark gray	Thin, flexible, possibly part of layer 1; paint.	N 3
2	White	Not continuous, marbled into layers 2 and 3; paint or primer.	Between N 9 and 5Y 9/1
Generation 1 1	Gray	Thin, flexible, white particles; paint.	N 3
0	Red-brown	Wood; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: J



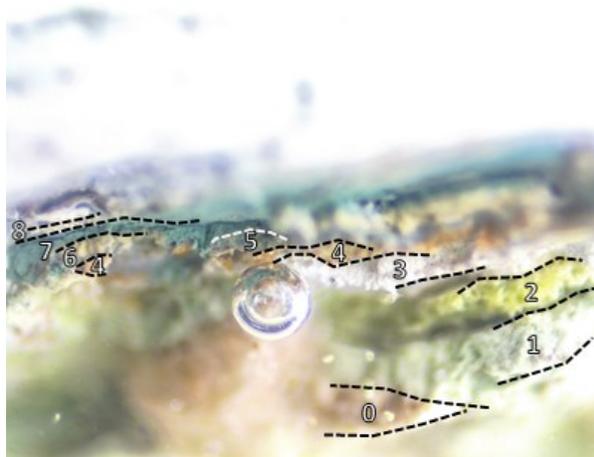
Discussion

The substrate for this sample is stucco (not visible in cross-section diagram). The lowest layer (1, Ivory) makes up the first generation of coatings; this layer may be original. See layers 26-34 in Appendix II.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color
30-34	Series of white	Paint.	No ME
29	Green	Paint.	No ME
26-28	Series of yellow	Paint.	No ME
23-25	Series of yellow	Too thin for microexposure; paint.	2.5Y 7/6
21-22	Gray	Too thin for microexposure, dirt layer above; paint.	N 6.75
17-20	Series of orange	Too thin for microexposure, dirt layer above; paint.	7.5YR 6/8
16	Brown	Too thin for microexposure; paint.	10R 3/2
14-15	Dark orange	Too thin for microexposure; paint.	Between 7.5YR 5/4 and 7.5YR 5/6
13	Beige	Too thin for microexposure; paint.	2.5Y 6/2
10-12	Ivory	Paint.	2.5Y 8/2
9	Ivory	Paint.	2.5Y 8/2
5-8	Series of beige	Paint. Insufficient material for evaluation.	*
4	Beige	Dirt layer above; paint.	2.5Y 8/2
3	Ivory	Paint.	2.5Y 8/2
2	Beige	Dirt layer above; paint.	2.5Y 6/2
Generation 1			
1	Ivory	Dirt layer above; paint.	2.5Y 8/2
0	Buff	Stucco; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: P



Discussion

The substrate for this sample is stucco. The lowest layer (1, Light green) makes up the first generation of coatings; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color	
9+	Series of white	Paint.	No ME	
8	Light orange	Too fragile for microexposure; paint.	Between 2.5 8/4 and 10YR 8/6	
7	Light green	Very thin, fragile; paint.	10GY 6/2	
6	Light yellow	Too thin for microexposure; paint.	2.5Y 8/4	
5	Gray	Not continuous; paint.	5Y 6/1	
4	Orange	Very thin; paint.	7.5YR 7/8	
3	White	Paint.	5Y 8.5/1	
2	Light yellow green	Crumbly; paint.	10Y 8/4	
Generation 1	1	Light green	Crumbly; paint.	5GY 8/2
	0	Buff	Stucco; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: Q



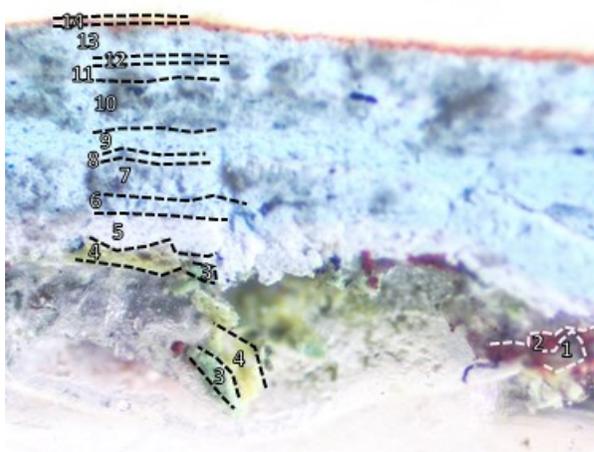
Discussion

The substrate for this sample is stucco. The lowest layer (1, Buff) makes up the first generation of coatings; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color
12	Ivory	Biological growth present; paint.	2.5 Y 8/2
11	White	Biological growth present; paint.	5Y 9/1
10	Buff	Plaster layer/stucco.	—
9	Ivory	Paint.	2.5 Y 8/2
8	Gray	Insufficient amount for microexposure; paint.	*
7	Green	Insufficient amount for microexposure; paint.	*
6	Yellow	Insufficient amount for microexposure; paint.	*
5	Gray	Insufficient amount for microexposure; paint.	*
4	Orange	Thin; paint.	7.5 YR 7/6
3	Orange	Thin; paint.	7.5 YR 7/6
2	Brown	Very hard, shiny; paint or coating.	7.5 YR 5/4
Generation 1 1	Buff	Thin; paint	5Y 8.5/1
0	Buff	Stucco; substrate.	—

San Juan National Historic Site, Quarters 208

Sample number: R



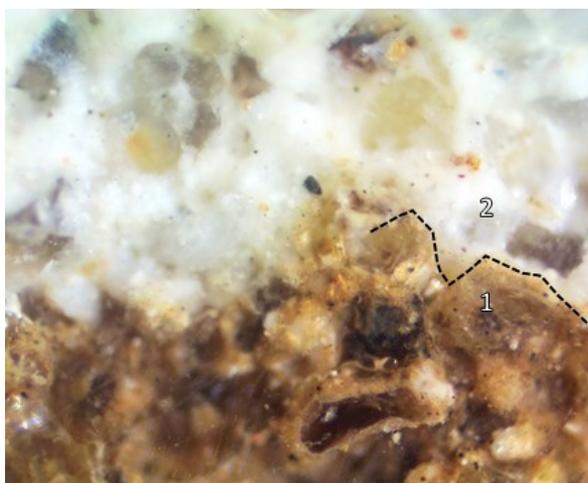
Discussion

The substrate for this sample is stucco (not visible in cross-section diagram). The lowest layer (1, Gray) makes up the first generation of coatings; it is unclear if this layer is historic. A darker blue paint was observed on the sample during microexposure but, because of the extent of deterioration, the chronological position could not be determined and has been excluded from reporting.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color	
14	Orange	Very thin; paint.	2.5YR 7/6	
6-13	Series of blue	Flexible; paint.	Between 7.5B 8/4 and 7.5B 8/2	
5	Buff	Flexible; paint.	5Y 8.5/1	
4	Yellow	Very deteriorated, fragile; paint.	10Y 8/4	
3	Green	Very deteriorated, fragile; paint.	5GY 8/2	
2	Red-brown	Very deteriorated, fragile; paint.	7.5R 4/6	
Generation 1	1	Gray	Very deteriorated, fragile; paint.	N 6.75

San Juan National Historic Site, Quarters 208

Sample number: M1



Discussion

The substrate for this sample is stucco. The lowest layer (1, Brown) makes up the first generation of stucco; this layer may be original.

Layer	Description (Color)	Comments (Coarseness, texture, thickness, continuity; material. Notes)	Munsell Color	
>5	Orange	Paint.	~ 2.5YR 7/6	
4+	Series of blue	Paint.	~ Between 7.5B 8/4 and 7.5B 8/2	
3	Orange	Paint.	~ 2.5YR 7/6	
2	Buff	Stucco.	—	
Generation 1	1	Brown	Stucco; substrate.	—

Conclusion

Longevity Art Preservation carried out historic paint analysis for San Juan Historic Site, Quarters 208 in January - June 2019, with an aim to identify the earliest extant paint colors and finishes, and full chromachronology, of interior and exterior surfaces. Through the use of cross-sectional optical microscopy, the samples were analyzed to identify the paint layer stratigraphy, and each layer was exposed to reveal that hue. From the analysis of this sample set and associated microexposure investigation, the substrate in each sample (except sample R and mortar sample M1) is red-brown wood or buff stucco followed by a series of paint layers. Estimated original exterior paint colors include white, ivory, light green, and buff. All samples taken from wooden elements have gray paint as the earliest extant layer; this paint may be original. One mortar sample shows a brown stucco beneath the buff stucco layer seen on most samples; this layer may be original. All samples had a notable lack of priming layers.

Recommendations

- Carry out large exposure windows in Siteu followed by Munsell color matching and colorimetry (in CIELAB) to accurately gauge and communicate the appearance of the original finishes
- Additional analysis of samples with intact original surfaces

References

- Gettens, R., and G. Stout. 1942. *Painting materials: a short encyclopedia*. New York, Dover Publications, Inc.
- Horie, C. 1987. *Materials for Conservation*. Oxford, Architectural Press.
- Hughes, H. 2002. *Layers of Understanding*. Dorset, Donhead Publishing Ltd.
- Learner, T. 2005. *Analysis of Modern Paints*. Los Angeles, Getty Publications.
- McAlester, V. and L. McAlester. 1997. *A Field Guide to American Houses*. New York, Alfred A. Knopf.
- Moss, R. 1994. *Paint in America: The Colors of Historic Buildings*. Washington, The Preservation Press.
- Standeven, H. 2011. *House Paints, 1900-1960: History and Use*. Los Angeles, Getty Publications.
- Stoner, J. H. and R. Rushfield. 2012. *Conservation of Easel Paintings*. New York, Routledge.
- Tyler, N. 2000. *Historic Preservation*. New York, W. W. Norton & Company, Inc.

Appendix I: Analytical Techniques

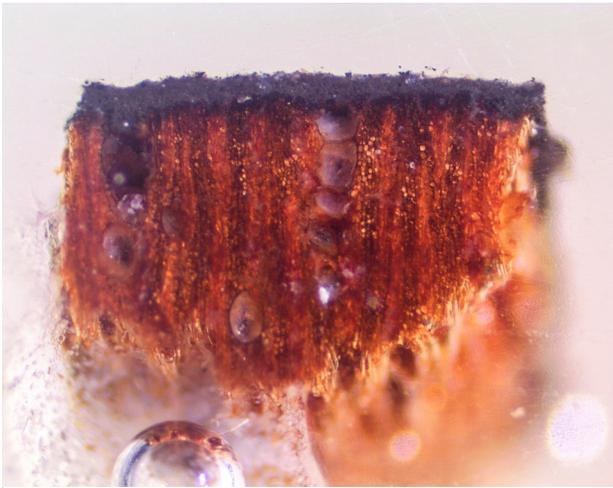
Non-destructive macroscopic, microscopic, and spectroscopic techniques of examination and analysis were used as much as possible. The observations made through examination were recorded in writing, with digital photodocumentation, and with digital mapping. To obtain information about the stratigraphy and of the paint layers, pigments, binders, and plant fibers, minimally destructive methods of analysis were employed.

Cross-sectional optical microscopy provides information about paint layer stratigraphy and characterization of binders and coatings, based on the morphology of layers and particles and autofluorescence of the layers under varying wavelengths. Samples were collected using a stereomicroscope and stainless steel micro scalpel. The samples were cast into columns of clear acrylic resin and cured under an ultraviolet bulb. After curing, the columns were fine-sanded and dry-polished using Micro-Mesh silicon carbide sandpaper in grits ranging from 1,500-12,000. A Nikon Optiphot II epi-fluorescent microscope (Nikon 4X, 10X, 20X, 40X objectives; 10X oculars), was used to examine the samples under high-powered magnification using a Nikon LH-M100C-1 Mercury light source. Digital images of the magnified samples were taken using the Amscope MU100 digital microscope camera in conjunction with the Amscope software for image capture.

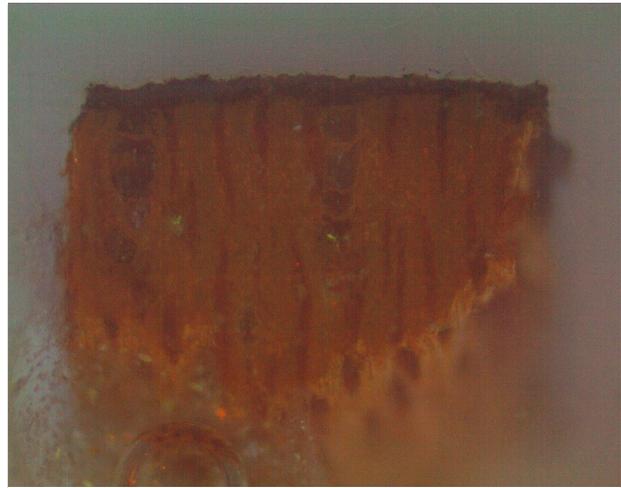
The colors of the original finishes were evaluated by eye using the Munsell Book of Color color system, matte edition, under daylight balanced lighting.

Appendix II: Photomicrographs

Sample number 15, magnification 40x

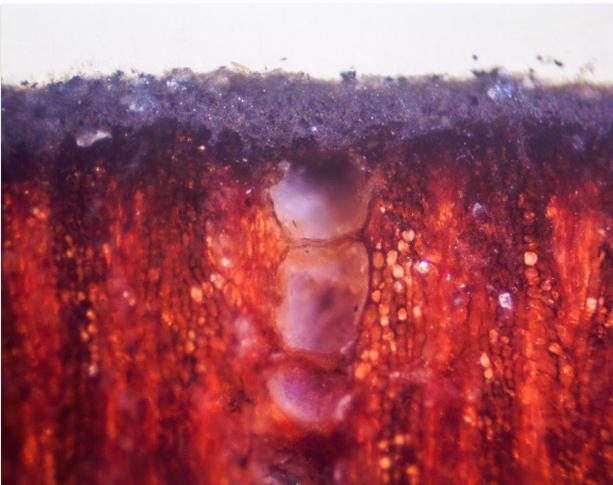


Visible light



Ultraviolet light

Sample number 15, magnification 100x

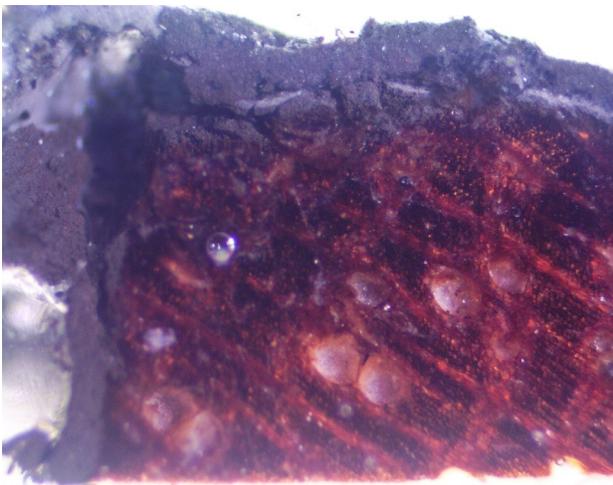


Visible light

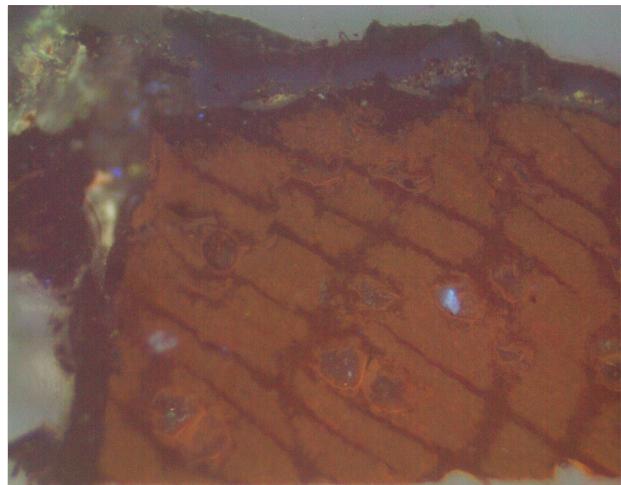


Ultraviolet light

Sample number 16, magnification 40x

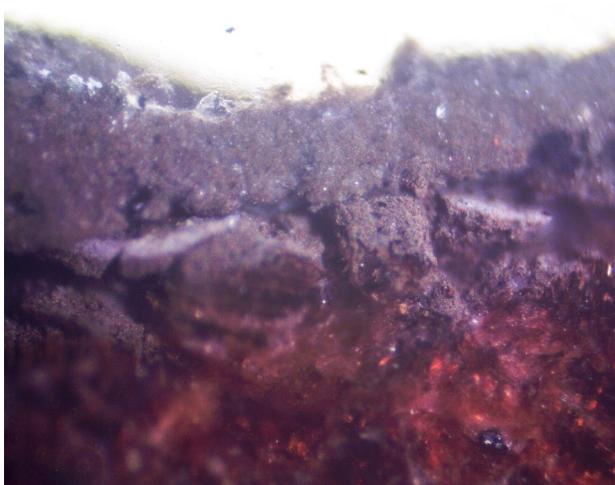


Visible light



Ultraviolet light

Sample number 16, magnification 100x

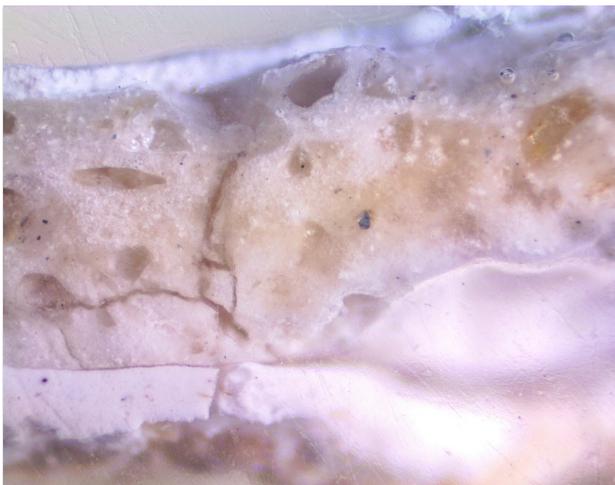


Visible light

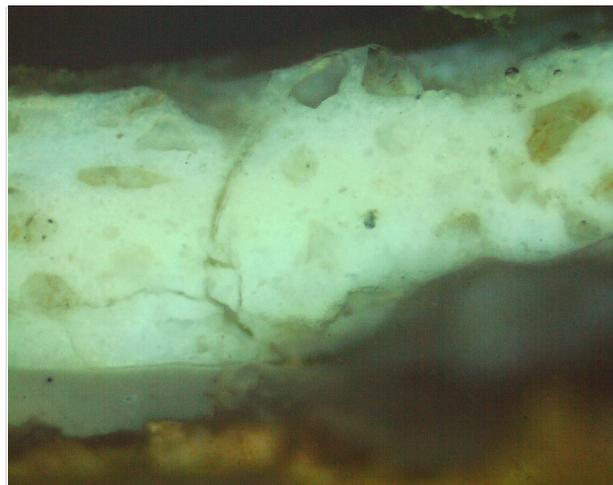


Ultraviolet light

Sample number G, magnification 40x

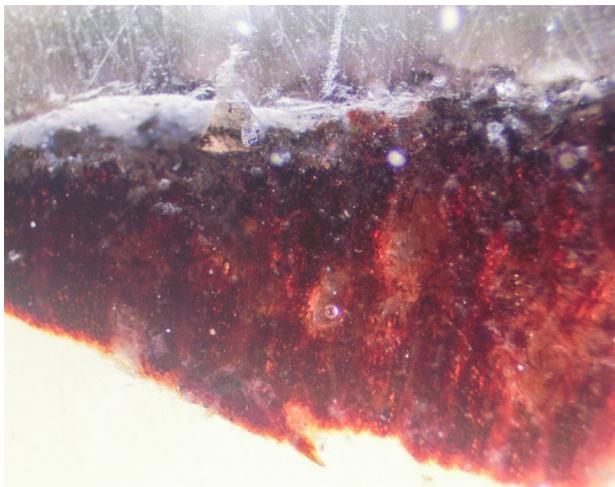


Visible light

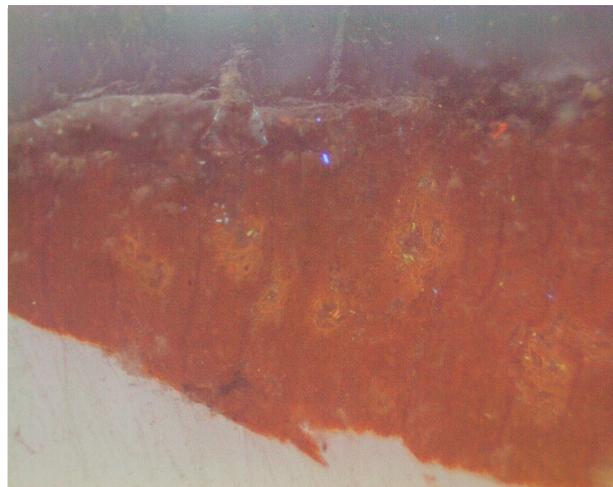


Ultraviolet light

Sample number I, magnification 40x

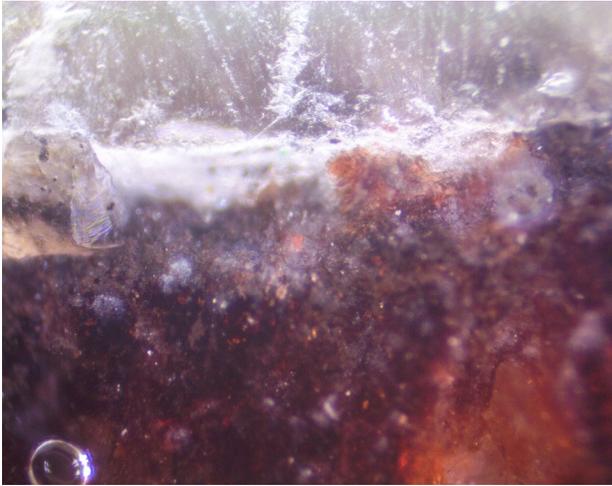


Visible light



Ultraviolet light

Sample number I, magnification 100x

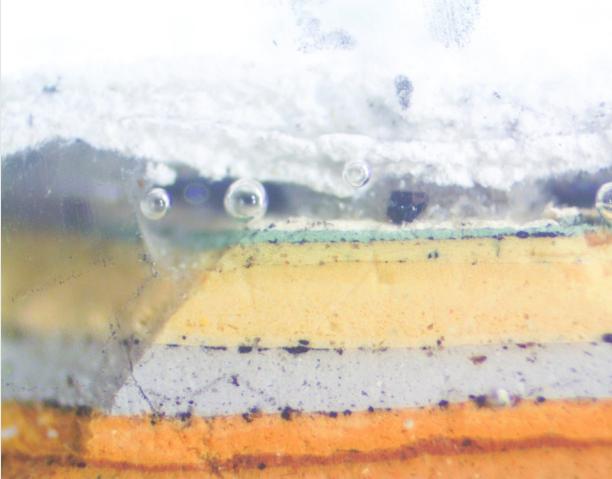


Visible light

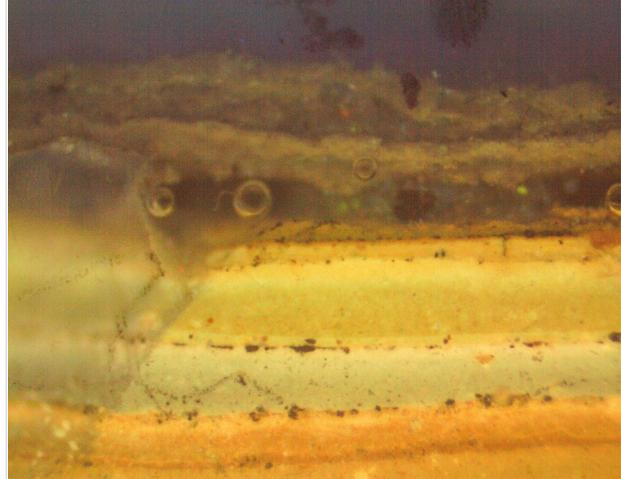


Ultraviolet light

Sample number J, magnification 40x (upper)



Visible light

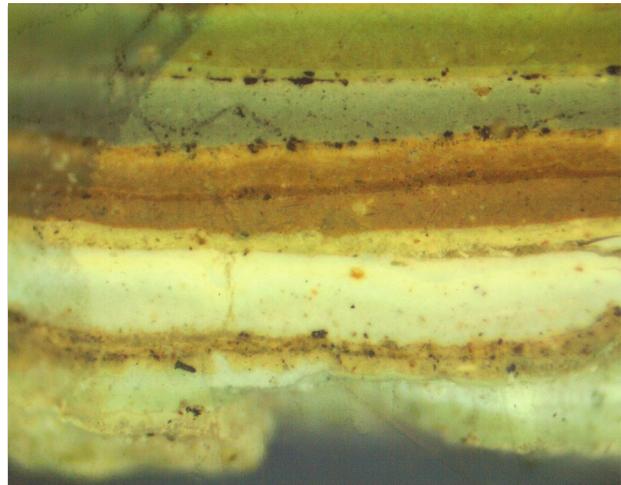


Ultraviolet light

Sample number J, magnification 40x (lower)

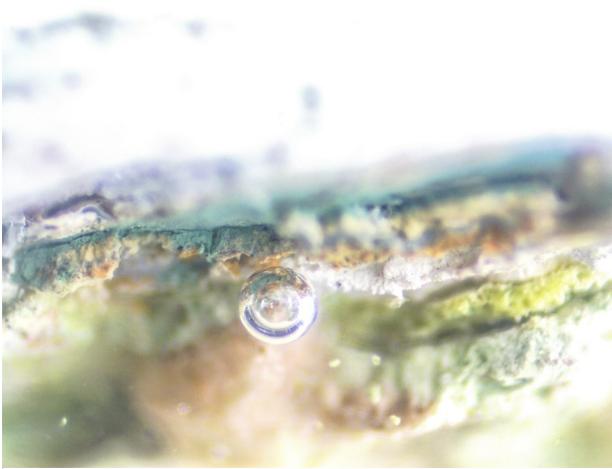


Visible light



Ultraviolet light

Sample number P, magnification 40x

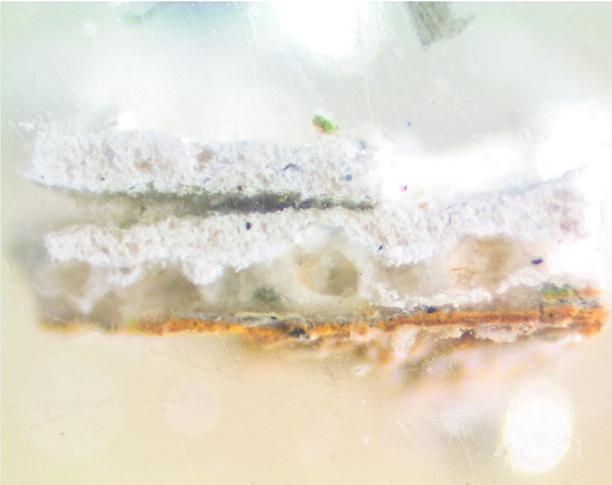


Visible light

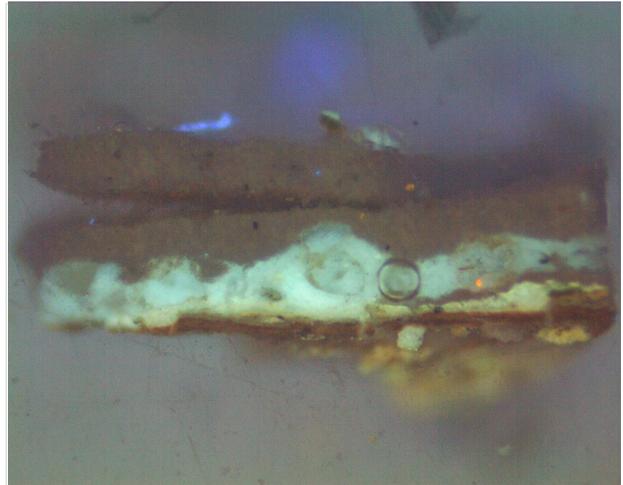


Ultraviolet light

Sample number Q, magnification 40x



Visible light



Ultraviolet light

Sample number Q, magnification 100x



Visible light



Ultraviolet light

Sample number R, magnification 40x

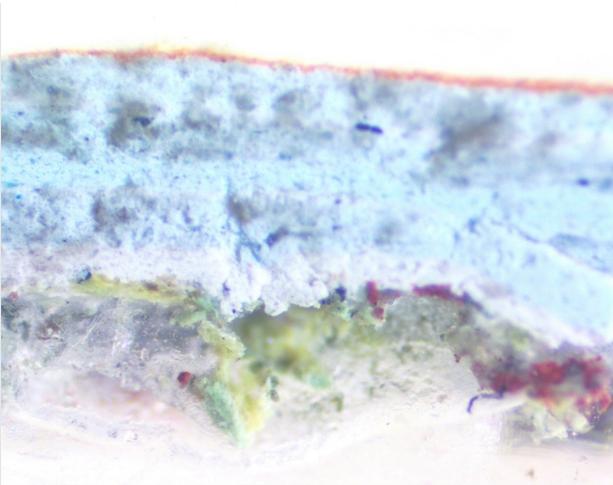


Visible light

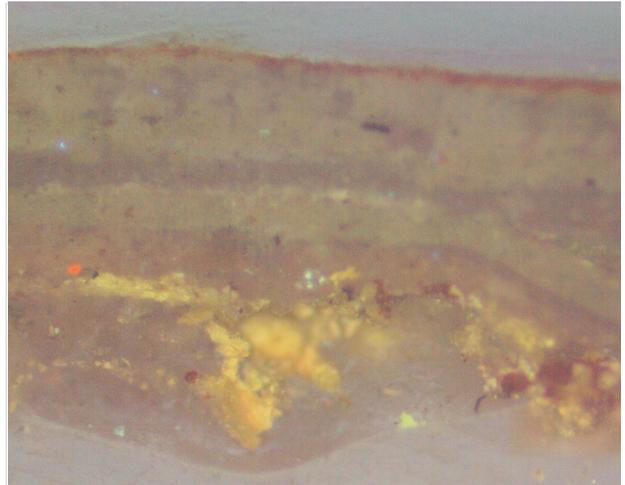


Ultraviolet light

Sample number R, magnification 40x

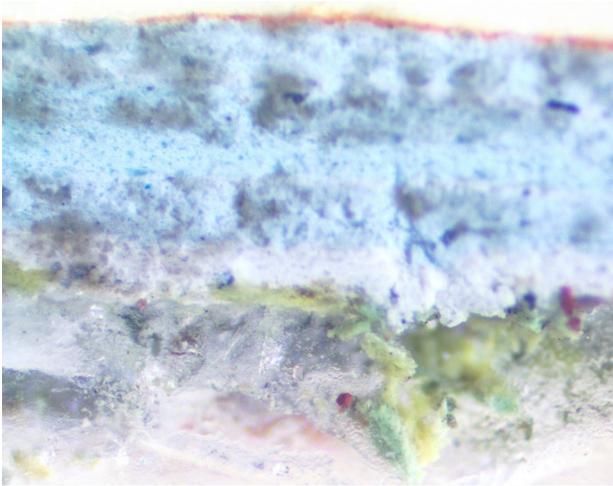


Visible light

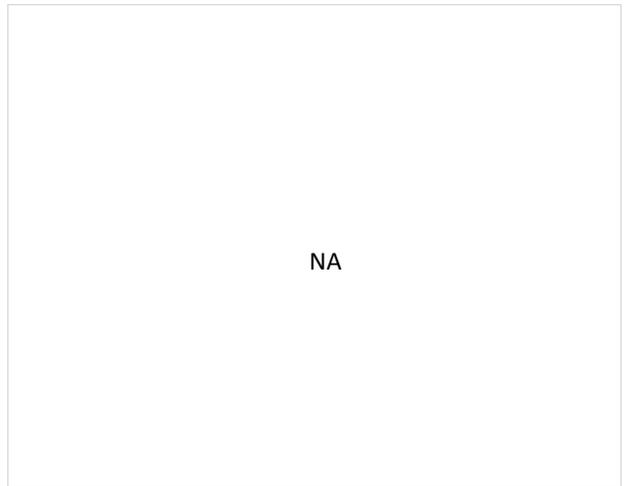


Ultraviolet light

Sample number R, magnification 40x

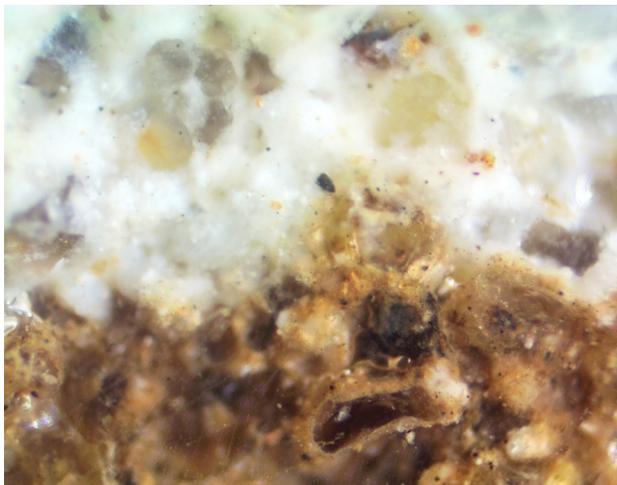


Visible light

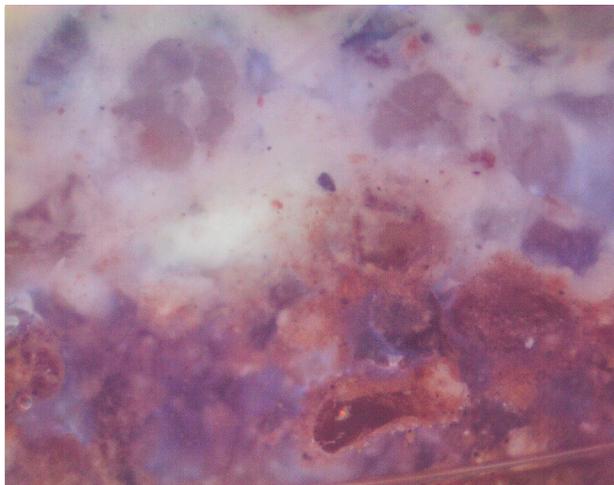


Ultraviolet light

Sample number M1, magnification 40x



Visible light



Ultraviolet light

Quarters 208
San Juan National Historic Site
501 Norzagaray Street
San Juan, Puerto Rico 00901

www.nps.gov/saju