historic structure report
architectural data section

GATEWAY
JACOB RIIS BATHHOUSE EXTERIOR
JACOB RIIS PARK HISTORIC DISTRICT

NATIONAL RECREATION AREA / NEW JERSEY - NEW YORK

HISTORIC STRUCTURES REPORT

ARCHITECTURAL DATA SECTION

February 1986

JACOB RIIS BATHHOUSE EXTERIOR
JACOB RIIS PARK HISTORIC DISTRICT

GATEWAY NATIONAL RECREATION AREA
NEW JERSEY/NEW YORK

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U.S. Department of the Interior / National Park Service

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PREFACE

The scope and intent of this report is to provide administrative and existing conditions information for the Administrative and Architectural Data Sections of the Historic Structures Report. This document partially fulfills the requirements for the Architectural Data Section, as described in NPS-28 (Cultural Resources Management Guidelines) since it concentrates only on the "Exterior building conditions" due to limited preparation time (6 weeks).

In preparation of this report, data was gathered from a number of people and sources. Lee Hanson, Chief, Division of Professional Services at Gateway National Recreation Area prepared the Administrative Data Section, along with James Skelton, Assistant Regional Historical Architect and Francis P. McManamon, Chief, Division of Cultural Resources, both of the North Atlantic Region. Mr. Skelton and Mr. McManamon also prepared the compliance section.

Background information was gathered from several sources: (1) the Existing Conditions Report - Jacob Riis Bathhouse, 1984 by Beyer, Blinder, Belle, Architects and Planners (Appendix 1), (2) the Historical Data Section, Historic Structure Report, Jacob Riis Park Historic District, by Harlan Unrau, 1981 and (3) the 1937 through 1982 drawings on file at the Denver Service Center (DSC). Background data was also gathered from the Inspection Report, Riis Park Bathhouse, 1982 by William W. Howell, Historical Architect (Appendix 2).

Field data gathered during the site visit was the key in pulling the report together, and with the assistance of the Superintendent and Staff, Gateway National Recreation Area, our jobs were made easier'. As the report was written and typed the process was facilitated by the efficiency and enthusiasm of the typists.

We would like to thank the Branch of Graphic Arts for their effort and the park staff for their assistance in the field. Architectural technician Norma Camerena, and archeological aid Joseph Bell are also thanked for the drawings they prepared. Without the help of these persons, this document could not have been produced in the limited time period.

This document should be read in conjunction with the Historical Data Section, Jacob Riis Park Historic District and the 1937 through 1982 drawings to get details of the bathhouse's physical history. The physical history is covered only in relation to the discussion of existing exterior fabric.

Evolution and Existing Conditions drawings and photographs have been included to guide the reader through the building while evaluating its current conditions.

Finally, recommendations and estimates for treating the building's problems are included, in addition to an appendices and bibliography to be used for further references.

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STATEMENT OF HISTORICAL SIGNIFICANCE

Jacob Riis Park, located near the western end of the Rockaway Peninsula in Queens County, New York, is historically significant as a relatively unaltered example of a publicly planned and designed municipal bathing beach in the 1930s. Named after Jacob A. Riis, a journalist and social reformer who did much to alleviate the plight of the New York City slums, the park was established to provide an inner-city beach and other noncommercial recreational facilities for the residents of Manhattan, Brooklyn, and Queens. Fully developed by June 1937, the park was formally laid out with playing fields and recreational courts, an 18-hole "pitch 'n putt" golf course, a large mall and concession area, the largest paved parking facility in the world to date, a boardwalk and promenade that stretched for almost a mile along the beach, and a large bathing pavilion. The bathhouse is the most important historic structure in the park and is an excellent example of beachfront recreational architecture of the early twentieth century.

I. Administrative Data Section

A. Project Identification

The Riis Park Bathhouse, BP-606, is located in Jacob Riis Park, Queens, New York on the Atlantic Ocean (see location map). It was built as a municipal facility in 1931 and enlarged in 1938 to serve the Riis Park Beach. The architecture is typical of bathhouses of the early Twentieth Century.

B. Order of Significance

It is listed on the List of Classified Structures as a Class B structure with an LCS Number of 08425. It is part of the Jacob Riis Park Historic District listed on the National Register of Historic Places.

C. Proposed Anticipated Development Work (Treatment)

The Riis Park Bathhouse has substantially deteriorated over the years. It is proposed that interim treatment will consist of in-kind replacement of deteriorated elements of the structure's envelope in order to make it weathertight. This will include the towers, roofs, walls, windows and foundations of the structure as well as structural members such as columns and roof trusses to increase structural stability.

The long-range treatment objective is to rehabilitate the structure. To accomplish this, (1) all ten of the Secretary of the Interior's Standards for Rehabilitation must be met, and (2) the 1937 alterations and development of Jacob Riis Bathhouse will be the standard to which all changes will be evaluated.

D. Proposed Use of Structure

It is anticipated that the Riis Park Bathhouse will be leased through the Concession Program or the Historic Property Leasing Program. In either case, an effort will be made to get a lessee whose operation will be in keeping with the recreational use of Riis Park. Present concession activities in the bathhouse will be retained, although not necessarily under the same locations.

Specifically, the Bathhouse is to be rehabilitated and adaptively used as a major visitor use facility through a public/private partnership. Functionally, the Bathhouse will continue to be the location for essential public services--restrooms, food services, recreation supplies, first-aid, visitor center, and Park Police. Since the accommodation of these functions will not require the entire building, the remainder of the Bathhouse may be used for a mix of recreation, athletic, entertainment, retail, restaurant, commercial or professional office facilities. The contemplated uses should serve both the local residential community and the general visitor to Jacob Riis Park.

E. Outline of Cooperative Agreements

The General Management Plan and Environmental Impact Statement were completed in 1979. A Development Concept Plan for Riis Park is currently under final review. A request for proposals to develop the structure is under review.

II. Architectural Data Section

A. Existing Conditions (Exterior)

1. General Overview of Existing Site

Jacob Riis Park, part of Gateway National Recreation Area, is located on a narrow strip of land between the Atlantic Ocean and Jamaica Bay, near the western tip of Long Island.

The Jacob Riis Bathhouse is on the south side of the park fronting the Atlantic Ocean. A large parking lot is to the north of the bathhouse, between Rockaway Boulevard and Beach Channel Drive. Rockaway Beach extends to the east and west along the south side of the bathhouse with a large semi-circular area of beach located to the west of the structure. A concrete boardwalk borders the beach from Beach 169th Street on the west, around the semi-circular beach area, along the south face of the bathhouse, to about 600 feet east of the bathhouse. From the apex of the semi-circular section of boardwalk, a wide mall extends northward.

While the bathhouse is the largest, there are a number of other structures in the park. Bordering either side of the mall/boardwalk intersection are concession and restroom buildings. Another small concession/restroom building is located east of the bathhouse. A small maintenance building is located in the northwest corner of the park on Beach 169th Street just south of Beach Channel Drive.

Several basketball courts are located just west of the bathhouse and a small golf course is just to the west of the mall. Various other game areas are located adjacent to the boardwalk. An ornate, four-faced clock is located at the eastern terminus of the semi-circular section of boardwalk. The clock is operable, but the face is boarded with plywood and much of the elaborate detailing has been destroyed by the harsh marine enviroment.

Currently, the park is experiencing difficulties with beach erosion due to the construction of a new jetty east of the park.

2. General Building Description and Analysis

a. General Building Description

Located east of and approximately 750 yards from the west property line (Beach 169th Street) along the northern edge of the promenade is the Main Bathhouse, Jacob Riis Park Historic District (Fig. 1). It was constructed in 1931-32. Major alterations to the structure were completed in 1937.

The bathhouse was described as a commercial recreation structure fashioned in a semi-Byzantine style or modeled after the east Bathhouse at Jones Beach State Park, New York.[1] To the contrary, it is a 20th century commercial recreation complex outdating, but exhibiting elements of "Eclecticism" or "Eclectic Architecture" in America.

The complex is dominated by two four-story towers which together with major entries are accented with decorative features (brackets, columns and column capitals, etc.) borrowed from several architectural styles. Its plan consists of four major buildings, and Walls enclosing a central rectangular courtyard and placed so that the major longitudal or entry face of each building forms a major elevation (North, South, East, and West) of the complex. The buildings are: (1) the Entrance Pavilion (Part 4); (2) the East Wing (Part 8); (3) the West Wing (Part 7); and (4) the Beach Pavilion (Parts 1, 2, and 3). (See Evolution and Existing Conditions drawings.)

The Entrance Pavilion (Figs. 5 and 33-56) is at the north elevation and historically served as the main entrance to the complex. It is a single-story, T-shaped building covered with an asphalt tiled gable, two asphalt tiled false hips, and three built-up flat roofs covering approximately 10,000 square feet of floor area.

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1. Historical Data Section, Historic Structures Report, Jacob Riis Park Historic District, Unrau 1981, p. 63.

Its facades are constructed of brick, cast stone and concrete with windows and doors placed symmetrically in the fenestration. The brick is laid in American bond with six course headers, and the cast stone in the window sills and wall coping.

At the center of the north facade is an arcade supported on arabesque columns and topped at the ends with two octagonal turrets. It is constructed of concrete, with plaster and wood ceilings and houses sets of boarded over double doors which provide access to the interiors.

The interiors of the Entrance Pavilion show evidence of past building uses, but no portion of this space is currently occupied, except, for storage and parking of National Park Service boats and equipment.

Along the East and West Elevations of the complex are the one-storied East (Part 8) and West (Part 7) Wings (Figs. 64 through 82). These structures are rectangular in plan, constructed of brick, cast stone, tile and concrete, and enclose floor areas of approximately 4,500 square feet each. Both buildings are covered with asphalt tile hip roofs and their brick walls laid in American bond with six-course headers.

Access to the interiors may be gained through three elevations at the functional areas housed in the buildings. The East Wing houses men's and women's restrooms and police sub-station, and the West Wing the men's and women's restrooms and first aid stations. These areas are currently managed by the National Park Service (NPS) as Riis Park Visitor facilities.

The Beach Pavilion (Figs. 2, 3, 4, 6-32) is at the south elevation of the complex and borders the north end of the promenade (boardwalk). It is a rectangular two-story building constructed of brick, cast stone, and concrete, and divided into 3 major parts.

Parts 1 and 3 are basically brick structures covered with combination hip and gable roofs. The fenestration consists of glass block windows and engaged brick piers on the north facade, and the same window types in brick with no piers at the other facades. All brick is laid in the American bond with 6 course headers.

Part 2 of the building has a concrete terraced front covered with built-up flat roofs. The second story with its glass block windows projects over an arcaded colonade (the loggia) on massive concrete columns. The colonade is flanked on both sides by passageways (entries) located under the towers and leading from the beach to the courtyard. These passageways are enclosed with an overhead metal door, at the south elevation, and left open at the north elevation or courtyard side of the pavilion.

Access to the interiors of the Beach Pavilion, an approximately 40,000 square foot area, is gained through doors at the north and south facades. The interior area is currently underutilized. Portions of the first floor are occupied by the NPS and house a surfguard locker room, a visitor center, and concession stands and storage area with walk-in coolers. The second floor is not used.

The central rectangular courtyard houses showers and dressing rooms associated with the bathhouse operations. Presently, this entire area is boarded-up and only a portion near the east end of the Beach Pavilion is used.

Generally the bathhouse structures are vacant and are deteriorating at this time, but most current conditions are reflected in the complexes past (Fig. 2-6) as seen in the discussion that follows.

Current roof finishes are not original, but are products of roof changes during the buildings history.

Original gable roofs (1932-53) of the Beach Pavilion were asbestos shingles and were replaced with the current roofs (ceramic veneer tiles) in 1953.[2] These ceramic veneer tile roofs have undergone several repairs but have not been replaced since installed.

The current gable and false hip asphalt shingle roofs of the Entrance Pavilion and wings are also the successors of the original asbestos shingle roofs which once covered these areas. Numerous repairs had been made throughout the original roofs history, however changes from the original to the current roofs of the Wings and the Entrance Pavilion did not occur until ca. 1953-63 and ca. 1948-64, respectively.[3,4]

Flat roofs of the Entrance and Beach Pavilions were originally slag and tar roofs and also received numerous repairs and replacements throughout their existence. Roofs of the Beach Pavilion were replaced in 1948-49, 1964, 1978, and 1982, and roofs of the Entrance Pavilion were repaired or replaced in 1948-49.[5]

Walls of the complex have also seen many changes some which are responsible for their condition today. For instance, they were painted, waterproofed, and cleaned several times. The remnant consequences of painting and cleaning can be seen currently on the wall surfaces.

The buildings were not originally painted (1932), but an addendum to the specifications for the 1937 alterations called for all the masonry walls of the bathhouse to be painted, and the paint color to be selected

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2. Drawing No. 646/62619, Partial Reroofing of Bathhouse, 1/28/53.

3. Ibid.

4. Drawing No. 646/62772, Alterations to Bathhouse and Waterproofing Bathhouse, 11/19/48.

5. Ibid.

by the architect or engineer.[6] The paint color was not specified. Several 1937 photos (Figs. 5 and 6) indicate that the building was painted, and "exterior masonry painting" was one of the items to be completed in Robert Moses' August 1937 punchlist.[7]

In the summer of 1943, the bathhouse was waterproofed, but the medium used was not specified.[8] In 1948-49, it was waterproofed again with an opaque substance on the other exterior masonry walls, and a transparent substance on the stone walls.[9]

Walls were sandblasted in 1964[10] to remove all waterproofing, and in 1978 the walls were steam cleaned and wire brushed to remove loose and flaking material.[11] Masonry joints were raked and repointed, steel lintels were cleaned and caulked, and a clear waterproofed coating was applied to all of the masonry surfaces.

With the application and removal of paints and other waterproofing materials over the years it is understandable why the walls are in their current deteriorating and porous condition.

The doors and windows have also undergone many changes. Original windows of 1932, and the 1937 alterations were double hung wood sash and projected steel windows later replaced with glass block windows and

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6. Addendum #1, Alteration to Batthouse and Ocean Pavilion - Job. No. Q-A-49-1900, 10/26/36.

7. Historical Data Section, Historic Structures Report, Jacob Riis Park Historic District, Unrau 1981, p. 123.

8. Ibid., p. 187.

9. Ibid., p. 188.

10. Ibid., p. 192.

11. Drawing No. 646/41,044, Repairs and Partial Restoration - Bathhouse, 7/17/78.

glass block windows with vents in 1948 and 1956, respectively.[12,13] The window changes were completed in 1964 and 1974 with additional glass block windows with vents and aluminum projected windows, both which have survived today. Plain glass block windows have survived only at the towers and utility penthouse.

Door changes began in 1948[14] with the steel rollup doors which replaced the cafeteria windows at that time. Door changes of 1949 relocated these doors to the exterior walls.[15] The 1951, 1958, 1964 and 1974 door changes replaced the remaining original (1932 and 1937) two and five light hollow metal doors with the current rollup and flush metal doors.[16,17,18,19]

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12. Drawing No. 646-62769, Alteration to Bathhouse and Pavilion, 11/19/48.

13. Drawing No. 646-62625, Replacing Windows with Glassblock, 4/26/56.

14. Drawing No. 646-62772, Alteration to Bathhouse and Waterproofing Bathhouse 11/19/48.

15. Drawing No. 646-62772A, Alteration to Bathhouse and Waterproofing Bathhouse 5/2/49.

16. Drawing No. 646-62618, Installation of Rolling Steel Doors, 4/26/51.

17. Historical Data Section, Historic Structures Report, Jacob Riis Park Historic District, Unrau 1981, p. 191.

18. Ibid., p. 193.

19. Ibid., p. 194.

b. Exterior Material Analysis

(1) Beach Pavilion, Towers and Utility Penthouse, and Screen Walls

(a) Beach Pavilion

(i) Roof Systems

This structure of the bathhouse complex is covered by three types of roofs all which are functioning with problems. Parts 1 and 3 are covered with a combination hip/gable roof and Part 2 with flat roofs. The combination roofs of parts 1 and 3 are basically gable roofs with hip sections constructed at the end bays. The flat roofs of Part 2 are built-up roofs stepped into 3 distinct levels (terraces).

In parts 1 and 3 the roofs are in good condition but some repairs are needed. These roofs slope north and south with a pitch of 1:2.

Roof framing is constructed of timber trussed rafters with a steel post at their centers (Fig. 7). The truss rafters are spaced approximately 12 feet on center and rest on engaged brick piers similarly spaced along the walls. Structural members in the truss rafters are 5 inches or more in size and appear adequate for supporting the imposed design loads. These members are in good condition but some are water stained due to previous leaks along the roofs.

Tieing the rafters together and spanning the distance between them are wood purlins constructed of 2 x 6 inch members spaced approximately 1 foot 6 inches on center. The purlins are covered with approximate 1 inch by 8 to 10 inch continous sheathing which, like the purlins, is water stained but not structurally damaged. Both the sheathing and purlins appear sound and capable of supporting the roof loads above.

Original finishes for the combination hip/gable roofs were asbestos shingles, but these were replaced with the current roof, as noted in a

1953 drawing.[20] The current roof finishes are a green scored terra-cotta (ceramic veneer) tile (Figs. 8 and 9). Some repairs have been made to the tiles over the years but the roof is in generally good condition. A few tiles are cracked, broken or missing and portions of the ridge cap are missing, but these have not developed into serious problems. A few minor leaks have resulted from the broken tiles and faulty flashing at the base of the towers, but these can be corrected with repairs (Figs. 8 and 9).

Along the roof's edges drip flashing is rusting or missing (Figs. 9 and 10). The flashing is contributing to the leaking problems and should be replaced with suitable materials which would endure the salt-laden environment.

In the cornices and eaves, crevices have developed where lengths of the materials meet. Paint is also blistering and cracking in areas along the length of the cornices, but the wood of these areas is basically sound. Overall, the cornice and eave conditions are good but the problems noted above should be corrected before they trigger decay.

The most obvious roof problems are those caused by the gutters and downspouts. These are either deteriorating, missing or inadequate for proper roof drainage.

In Part 1 of the Beach Pavilion, there are no gutters or downspouts at the north and west cornices. The single length of galvanized iron gutter and one downspout on the south cornice is bent, deteriorating, and inadequate for proper draining of the large roof area above it. Consequently the missing or inadequate downspouts contribute to the wetting and deterioration of walls in this area, and should be replaced. Continuing problems caused by these will eventually result in extensive damage to the building.

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20. Drawing No. 646/62619, Partial Reroofing of Bathhouse, 1/28/53.

Similar to the problems of Part 1 are the problems of Part 3. The walls below the roofs in this section are being wet and are deteriorating due to roof water splashing against them. There are no gutters or downspouts at either elevation, except for a small twelve foot section of gutter at the intersection of the roof and the wall of Part 2.

Gutters and downspouts need to be replaced and additional gutters and downspouts provided to help correct the walls' moisture problems. These should be properly sized and installed to adequately drain a roof of this size and pitch in the 6 inch per hour (for 5 minutes each 10 years) rainfall intensity area. Materials of the gutters and downspouts should be resistant to the marine environment.

Roofs of Part 2 (Figs. 11, 12, and 13) are in generally good condition and for discussion will be addressed as the upper and lower terraces and the kitchen roof. All roofs are serviceable, but repairs are needed.

Evidence in several drawings show major changes in the roof finishes throughout its history, but the roof has always been flat.

Drawings of the 1937 alterations show that the concrete roof deck of the upper and lower terraces were built-up, resloped, and drained toward their centers, after a layer of cinder fill was placed atop them.[21] The fill was waterproofed, then topped with paver tile which served as the finish decking for the terraces. The roof over the kitchen was a slag and tar built-up roof.[22] Beams supporting these areas are composite concrete/steel construction.

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21. Drawing No. 646/62854, Exterior Details of Cafeteria and Loggia, 5/11/37.

22. Ibid.

Stairs built to serve the upper terrace are extant, but those serving the lower terraces have been removed. Evidence (ghostmarks) of the stairs' locations are visible on the walls of parts 1 and 3, but the stairs were removed in the winter and spring of 1948-49.[23] This was the first structural modification to the bathhouse since 1937.

Also in 1948-49 the paver tiles were removed and replaced with a new built-up roof.[24] The original stone copings were flashed with monel flashing, and the roof was resloped to drain outward. These modifications along with the removal of the stairs are believed to have ended the terraces' use as a sundeck.

The terraces also received new built-up roofing in 1964, and several repairs thereafter in a 15-year period led to major reroofing work in 1978[25] and 1982.[26] During these periods, new built-up roofs were installed at the lower and upper terraces. The roofs are serviceable today, but they have several flaws.

Currently, the roofs' finishes and top of concrete decks are worn or damaged and their structures are continuously damp. Roof drains and leaders are plugged or broken and are not functioning properly.

Finishes consist of alternating layers of bituminous coal-tar impregnated fabric (4-ply) topped with a protective gravel cover. They

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23. Drawing No. 646/62772, Alterations to Bathhouse and Waterproofing Bathhouse, 11/19/48.

24. Ibid.

25. Drawing No. 646/41044, Repairs and Partial Restoration Bathhouse, 7/17/78.

26. Drawing No. 646 (GATEWAY NRA--North Atlantic Region, Repairs and Partial Restoration--Built-Up Roof Bathhouse, 5/28/82.

are currently cracked or snagged and some of the gravel has washed away. Water is trapped under the cracked or snagged areas so that the roof is not weathertight. Cracked finishes along with poor flashing and plugged or leaking drains and leaders are potentially contributing to the interior moisture problems.

Flashing abutting the towers and thru-the-wall flashing at the parapets are poorly detailed and installed and some of their reglets are deteriorated. Water entering the reglets is getting into the wall and causing the wall to bow outward in some areas during cycles of expansion from freeze/thaw. Inferior flashing around the towers is also letting water into the building.

If current conditions persist they will eventually worsen the roof problems and other problems around the building. To correct the current flaws, either adequate repairs to the roof should be made or the entire roof should be replaced.

Due to the current problems and the condition of the roof replacement have been considered above repairs. Replacement should include resurfacing, reflashing, or resloping the roof surface after the concrete deck is replaced.

In the interiors, beneath the roofs, the steel and concrete framing are damp and stained from the problems above. The framing (beams, columns, girders and slabs) is so damp that portions are deteriorating (Figs. 14, 15, and 16). Concrete and plaster of several members are spalling, and in other members the steel is rusting. Most spalling and rusting is on the surface of the materials.

Dampness, spalling, and rusting of the members are indications of hidden structural defects. Consequently the safety or load bearing capacity of the roof framing should be analyzed by a structural engineer prior to repairing surface damage to the concrete and plaster. The problems are most prevalent in structural members along the paths of

roof drains and interior leaders. These areas appear to be major contributors to the leaks.

Areas at the ceilings and walls near the chase spaces are heavily damaged by water, and a general analysis indicate that the cast iron drainage system piping is deteriorated at its joints or broken along its length.

The entire drainage system should be replaced at the same time the roof is replaced.

(ii) Walls and Piers

Generally, the wall materials of Parts 1, 2, and 3 are original, but some have been altered or repaired. The walls are constructed of reinforced brick masonry with window sills, wall copings and quoining of cast stone, all bonded in portland cement mortar. The brickwork is laid in American bond with six-course headers. Portions of the wall in Part 2 are constructed of reinforced concrete and painted.

Although most of the wall surface has been sandblasted and left porous and vulnerable to the salt laden environment, there are additional problems. There is deterioration in the walls due to wetting and freeze/thaw, insufficient thermal controls and improper maintenance over the years. Brickwork, cast stone, and concrete are cracking, spalling and disintegrating, and steel in the walls (wall reinforcement and lintels) is rusting.

The abraded wall surfaces are covered with stains, dirt and efflorescence such that the appearance is highly blemished and the structural integrity threatened. Mortar joints, however, have been maintained.

Specific problems on the elevations are as follows:

On the North Elevation, Parts 1, 2, and 3 are in view. (See Existing Conditions drawings) A staircase projects from the main wall of both Parts 1 and 3 and the kitchen area projects from the main wall of Part 2.

Inspection shows that the brick walls of all these areas have been abrasively cleaned (sandblasted), except for those covered under the dressing room sheds (Figs. 17, 18, and 19), which were constructed ca. 1934-36. Remaining are the original surface textures of these walls with remnants of a past grey paint or an opaqued waterproofing as specified in the 1948-49 alterations.[27] No traces of a white paint are seen. Spots of the white paint, however, are located on other walls around them. Based on this evidence, it is presumed that the sheds were in place when the walls outside of the sheds were painted but, it is not known when the white paint was applied. Paint samples should be taken from walls under and around the sheds and analyzed to establish the date of painting in these areas. The paint analysis should be coordinated with known dates of painting or waterproofing.

Problems resulting from expansion, oxide jacking, and rusting are numerous at this facade. Beginning at Part 1 just left of the first story glass block window (W126) are two 1/8 inch cracks that extend above the next two windows (W124 and 125) and the door (D140). Each crack extends a length of 20 feet or more, and the expansion problem which caused them may be active. Although these cracks had been repaired they have reopened.

Other cracks are located in the vicinity of Part 2 below the west tower and left of the second story windows (W252 and 253). The

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27. Historical Data Section, Historic Structures Report, Jacob Riis Park Historic District, Unrau, 1981, p. 188.

horizontal cracks near windows W249, W250 and W251 are caused by jacking of the rusted steel lintels which have bowed out nine brick courses of wall section above them. The bowed wall appears to be further aggravated by the thru-the-wall flashing of the parapet, which had been leaking water. Although the brick courses are bowing they appear stable.

The vertical cracks in the wall just under the west tower and in the passageway jambs below the tower seem to be caused by the weight or movement of the tower. These should be reexamined by a structural engineer. The movement in this area appears to be active since repaired cracks have reopened.

At the point where the west wall of the kitchen projects beyond the north wall of Part 2 there are stains caused by the wetting of the brick due to a missing downspout. This area is stained badly with moss and should be cleaned, let dry, and the missing downspout replaced.

On the north wall of the kitchen area are cracks due to jacking of the steel lintels. These cracks are in line with the lintels and a few protrude upward in the direction of the parapet and wall coping. Although the cracks were repaired, they have reopened. The stone copings of the walls above them have been covered with metal coping.

Like its counterpart (west wall), the intersection of the east wall of the kitchen and the north wall of Part 2 exhibit moisture problems due to a missing downspout. This problem should be corrected.

The north elevation wall of Part 2, west of the kitchen has similar problems to the north wall to the east of the kitchen. The thru-the-wall flashing of the parapet and section beneath the tower in this area is bulging out, probably due to moisture once seeping from the faulty flashing. The cast stone (Fig. 21) coping has also been covered with metal coping and should be uncovered and repaired because it is deteriorating and its repairs would help restore the building's architectural character.

In line with the east tower and just below it several problems are present. Moisture and staining of the tower architraves above the beltcourse are quite noticeable, and the brick work between the architraves is spalling. Below the beltcourse the steel lintels are rusting and the supported brickwork of the masonry openings is cracked and loose. Brick in this area has spalled and the mortar joints are deteriorating.

Beside the first floor passageway are two pairs of double doors (D133 and D134). Their steel frames and the steel lintel above are rusting. The masonry opening of the door to the left has cracked at the upper left corner and the left jamb.

Further along the wall to the left of the double doors are two windows (W119 and W120) between the dressing rooms intersecting the walls. The lintels of both windows are rusting much like those in the door and the second story window above. The masonry of the door (D132) and second story window (W235) is cracked due to the jacking of the lintels.

At the intersection of the north wall of Part 3 and the west wall of the staircase are moisture stains. These are due to the missing downspout above.

The abraded walls of the staircase are in fair condition but the lintel above the door is rusting. This lintel is in poor condition and replacement is necessary.

On the north wall just left of the staircase a large expansion crack spans the first floor walls brickwork. Wall movement in this area is present.

Walls of the East and West Elevations of the Pavilion have similar problematic conditions.

In the east elevation of the Beach Pavilion Parts 2 and 3 are seen and in the west elevation Parts 1 and 3. Parts 2 and 1 at the east and west elevations have badly deteriorating stonework and their abraded brickwork is more porous than that in other areas of the building. Signs of white paint on the brickwork can be seen. The steel in the concrete canopies (Fig. 20) is badly rusted and areas of the concrete covering are cracked. Consequently, steel in the canopy is visible. Quoining stone and brick have begun to spall and the lintels above the steel roll-up doors and in the windows above them are rusting. The stone window sills (W231 and 258) are also deteriorating.

The worst wall problems are at the South Elevation (Fig. 21). Most of the oxide jacking and extreme masonry deterioration is taking place here, due to its proximity to the ocean and salt-air.

Visible in this elevation are the brick facades of Parts 1 and 3 intersected by the concrete and glass block walls of the second story and loggia of Part 2. At the intersection of Parts 1 and 3 with Part 2 the walls of Part 2 project outward as does the kitchen and staircases of the north elevation. These walls form the entries and major passageways from the beach to the courtyard.

At the West end of Part 1 beneath the hip section of the roof, the brick and stone are deteriorating severely and salts and spots of white paint are clearly seen on its surface. Some of the cast stone needs repointing and the concrete reinforcement is rusting badly at the canopy. For example, at several areas along the canopy bars are rusted heavily and are spalling the concrete cover. Their locations can be determined simply by following the pattern of the rust stains. These areas should be examined for structural integrity to inspect specifically their load carrying capacity.

The wall to the right of this section under the gable roof is also in poor condition. The second story wall is constructed with piers and the piers are bowing out. Wall steel is visible and deteriorating, and so is the stone belt course below it. These areas should be reexamined.

Window sills and wall areas between the second floor piers and the first floor below are also deteriorating. Rusting steel is visible and some brickwork is cracked. Some of the cracked areas were repaired, joints repointed and wall surfaces patched, but the cracks have reopened. Lintels in the doors and windows are rusting. These problems are seen from the far left to the far right end of this section, and are also visible in the brickwork of Part 2 at the entrance of the passageway.

In the concrete walls of Part 2 deterioration has lessened, possibly because the portland cement in the concrete provides some resistance to the salt air and the sandblasting. There is, however, some cracking and minimal spalling in the beams and columns but most have been repaired. (See columns at loggia.)

The worst concrete problems are at the canopies overhanging the entries at either side of both passageways beneath the towers. The steel in these canopys is rusting and their concrete cover is spalling much like that in other areas of Parts 1 and 3.

Other problems of the walls are quite noticeable at the parapets. Most of the cast stone coping is deteriorating and has been covered with metal coping. If the building is to take on its architectural appearance or character of 1937, the cast stone copings should be uncovered and repaired.

Part 3 walls are deteriorating similarly to those of Part 1. The deterioration, however, is somewhat worse. In addition to the salt air nipping at the abraded walls there are numerous cracks and visible rusted steel spalling the cast stone and brickwork. At least 2 wythes of brick have fallen from the wall near the east end door (D127). Most of the steel lintels are rusting severely and cracks resulting from their jacking is carried across the wall in line with them. Some of the lintel aggravated cracks have spread perpendicular to the lintels and are moving downward across the wall. These lintels should be replaced.

Conditions in the area beneath the hip roof of this section are characterized by spalling brickwork and cast stone, and rusting of the steel in the concrete canopy. Rusting steel in the canopies, stone, and concrete is causing the spalling.

Noting the specific areas of wall problems above, threats to the wall's structural integrity and possibly the building's existence are inevitable if exposures to the current problems are allowed to continue. For instance, since the hard protective brick surface or protective weathering finishes no longer cover or protect the wall surfaces, the walls are vulnerable to moisture penetration and other conditions of the environment. The steel reinforcement is also rusting and jacking, and helps to spall the wall surfaces.

Under current conditions, the salt laden environment created by the ocean in proximity to the building produces salt water vapor which passes into the porous building walls (brick, stone, concrete, etc.). The salt carried by the water vapor worstens the wall's conditions under continuous cycles of water wetting and evaporating from the walls. As evaporation takes place, deposits of crystallized salts (efflorescence) remain on the surface or slightly below the voids in the surface of the walls. With each cycle of wetting and drying the efflorescence can develop sufficient internal pressures to cause cracks, spalling, or eventually disintegration of the wall surfaces.

The environment is also hard on the steel reinforcement which is as close as (±¼") to the wall surface. The salt environment is causing the steel in the walls and window lintels to rust and damage the masonry and concrete of the building. The rusted steel expands and develops internal forces (oxide jacking) that crack and spall the masonry and concrete. The rusting steel is also deteriorating and losing cross-section which is diminishing its strength to perform. Whether the masonry and concrete deteriorates or the steel looses strength, the walls' structural integrity is

jeopardized. Continuation of these problems could cause the wall to collapse.

Continuous wetting and freeze/thaw action has also contributed to the walls' deterioration. Water from rain, snow, and the leaking roofs, gutters and downspouts has entered the walls during cold weather and freeze/thaw action has taken place. The frozen water in the walls must have developed sufficient internal pressures when expanding to produce the cracks in the wall. These cracks can be made larger with each cycle of freeze/thaw and eventually material may be weakened or removed by spalling or total dissentegration. The water has also rusted the walls' steel.

Other wall problems are due to insufficient thermal controls which cause cracks. Because the walls move under various temperature conditions, and the design of the building has not allowed for movement, the walls are moving outward and forming small cracks. As the water enters and freezes in the cracks, or as the walls continue to move, the cracks may grow wider. The widening of the cracks can produce serious problems in the wall as time goes on.

Improper construction and maintenance have also contributed to the present condition of the building. For example:

1. The walls should have never been abrasively cleaned in 1964.

2. The correct protective coating should have been applied and maintained on the walls.

3. Drainage systems and roofs should have been maintained.

4. Expansion joints should have been introduced in the walls during construction or after.

5. Steel lintels should have been painted and steel reinforcement should have been adequately covered in the walls.

These problems must be corrected if the walls and buildings are to survive.

(iii) Loggia Columns, Beams, Ceilings, and Floor

At the loggia, the columns, beams, ceilings, and floor are all constructed of reinforced concrete and are in good condition (Fig. 24), despite minor cracking, pitting, and spalling caused by the salt-laden environment and expansion.

The columns are oval shaped with the reinforced concrete encasing steel I-beam shafts. All columns are structurally sound, but some have developed minor surface cracking and spalling due to expansion (oxide jacking) of the reinforcing steel near the surface.

Rust has stained several column faces and some steel is exposed. It is obvious from these conditions that the steel is too close to the concrete surface under the current environmental conditions. Several of the concrete cracks at the exposed steel have been patched but are reopening.

Beams are constructed similarly to the concrete columns, but there are no additional steel rods surrounding the encased I-beam. Most of the beams appear structurally sound, but like the columns, some have minor cracking and spalling of the concrete cover. Consequently, some steel has been exposed, but not enough to pose a threat to the beams' structural integrity. The exposed steel areas are at most ½ inch by 6 inch sections at the beams' flanges.

The ceiling is the underside of the concrete floor slab above, and appears to be in good condition. There is, however, rusting and cracking in several areas such that reinforcing steel has been exposed.

Evidence, as in the columns and beams, indicates that the reinforcing steel is too close to the concrete surface.

Although there are no major structural problems in these members the columns, beams, and ceiling should be protected from the effects of the salt environment. Maintenance should keep them covered by patching the cracks from time to time and keep the concrete painted.

Concrete floors are slabs on grade and are in good condition. There is no exposed steel, but the floors have surface cracks and their surfaces are worn from the elements and use. No major structural defects were seen.

(iv) Windows

There are over 81 windows in the Beach Pavilion and they are of two different types (glass block and projected). About 23 are on the first floor and the others are at the second floor and roof. The existing windows are not original, but left over from the last window replacements (ca. 1964-74). The building was originally fitted in 1932 with double hung wood sash and steel projected windows (industrial sash), and in 1937-38 with steel lintels throughout, and projected steel windows in Part 2.[28] Windows in Part 2 were later replaced with glass block windows and glass block vented windows in 1948 and 1956, respectively.[29]

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28. Drawing No. 646/62854, Bathhouse and Ocean Pavilion, 4/16/37.

29. Drawing No. 646/62769, Alteration to Bathhouse and Pavilion, 11/19/48.

Major changes to the glass block windows and glass block windows with vents occurred in 1964, and projected aluminum windows were also installed at the north elevation at that time.[30] The remaining glass block windows did not receive vents until later in the decade (ca. 1965-74), and several window openings were also altered or closed.

Currently the projected aluminum windows and glass block windows with vents are in good condition. These windows are of varying dimensions throughout the building at the first and second floors.

The glass block windows with vents (Fig. 24) are constructed of 6" square glass block arranged around a varied sized-single light aluminum operable hopper light.

The projected aluminum windows (Fig. 25) are 3' 1-5/8" by 4 2-3/8" and contain a fixed light and hopper light. All windows are housed in brick masonry or concrete openings and rest on cast stone or concrete sills. Present window openings date from 1937.

At the South elevation, the 40 windows are in basically good condition, except for broken lights due to vandalism, and rusting steel lintels. These windows are located in both Parts 1 and 3.

In Part 1 the windows are all glass block and number 101 through 105 at the first floor, and 201 through 208 at the second floor. The first floor windows are smaller and spaced further apart than those of the second floor. With the exception of rusting lintels, pitted sills, and the need for recaulking, these windows are serviceable. Window numbers 101, 103, and 206 each have two broken glass blocks and window numbers 104 and 105 are boarded over with plywood. Nos. 104 and 105 were not inspected because entry could not be gained at the concessioners area.

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30. Drawing No. 646/62625, Replacing Windows with Glassblock, 4/26/56.

Windows of Part 2 are all large glass block windows. Most are located above the loggia at the second floor, and only two (numbers 107 and 108) are beneath the loggia at the first floor. Both the first and second floor windows need recaulking and all windows have rusted lintels which can be saved. Stone window sills at the loggia are enclosed in planters and the second story windows have no stone sills to contend with. Stone sills in the windows that have them are damaged from abrasion and the salt air. Window Number 211 has several broken glass blocks.

Part 3 windows are similar in size and arrangement to the windows of Part 1, except that the windows of the first floor are asymetrical in location to Part 1 windows. Nevertheless, all windows are in good condition but have the same basic problems as the windows in the other two parts of the Beach Pavilion. Rusting lintels on the first floor are more serious than in any other area of the Beach Pavilion. These lintels are severely rusted and have caused cracks in the masonry openings and the adjacent walls.

The North Elevation has fewer windows than the south elevation and the windows are generally spaced farther apart. A distinguishing feature of this elevation is that both the glass block and the projected windows remain side by side.

In Part 1, there are only six windows sparsely arranged so that no two windows are closer than 10 feet apart. At the second floor are window numbers 252, 253, and 254 above numbers 124, 125, and 126 at the first floor. All windows are glass block except No. 252, which is projected. There are no major problems with the windows, except that the jacking steel lintels of the first floor windows and door are contributing to the cracks in the wall above them. These lintels are severely rusted and should be replaced or at least removed, cleaned of rust, painted and reset.

The windows of Part 2 are mostly glass block and are larger than the windows in Parts 1 and 3. Only a single projected window frame and

two bricked-in windows remain at the first floor. The windows' lights and rails are broken and should be replaced.

Problems of Part 2 windows are similar to those in other areas and are due to the oxide jacking of the steel lintels. The steel lintels are rusted and have exerted pressures on the wall above causing cracking in line with the lintels from one window to the next. This problem carries through to twelve windows. Deterioration is visible in several stone sills and several lights have been broken by vandals. Broken lights in Window 245 and glass block in Window 120 should be replaced.

Like Part 1, the windows of Part 3 are similarly arranged and Window No. 237 is the last surviving projected window of the group. All other windows are glass block and these and the projected window have similar problems. The lintels are rusting and several glass lights are broken. The broken light should be replaced in Window Number 236.

At the East and West elevations are 13 windows divided among Parts 1, 2, and 3. There are six glass block windows (118, 119, 248, 249, 258, and 314) and one projected window (250) at the west elevations and four glass block (231, 233, 234, 309) and two projected windows (117, 232) at the east elevation. The glass block windows are located at the west facades of Parts 1, 2, and the utility penthouse and east facade of Parts 2, 3, and the utility penthouse. Window Numbers 117, 232 and 250 are projected windows and are located at the east facade - Part 2, stair tower - Part 3, and stair tower - Part 1, respectively.

Although windows have problems of rusting lintels, deteriorating sills, and the need to be recaulked, no window is in total disrepair. Lintels in window numbers 117, 119, and 250 should be repaired and recaulked and all other windows recaulked. Steel lintels in other windows should be treated for rust and the lintels in Window 232 replaced. The cast stone sills of all windows should be cleaned and stabilized.

(v) Doors

Generally, the door changes of the Beach Pavilion are believed to be concurrent with changes to the windows.

The original doors of 1932, and the 1937 alterations were two light (2-glass panels) hollow metal doors, and five light (5-glass panels) or full glass hollow metal doors, respectively. The hollow metal doors were of the single or accordian type. Entries to the passageways were not originally furnished with doors per se but were closed off with metal folding gates.[31]

In 1948, a major change took place at the Logga. Most of the windows and one door were removed, their openings enlarged and the first steel rolling shutter doors (roll-up doors) (D111, D112, D113, D114, D115, D116, D117, D118, and D119) were installed in their place, at the buildings interior wall.[32] These doors were later relocated to the exterior wall in 1949, and replaced with new rollup doors in 1961.[33]

It was not until 1951 that other roll-up doors (D101, D102, D123, D124, D128, and D129) were installed to replace the 1932 accordian hollow metal doors and later in 1958 the remaining steel roll-up doors D105, D107, D108, D120, D121, D123 and D124 were installed for the same reason.[34]

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31. Drawing No. 646/62854, Bathhouse and Ocean Pavilion, 4/16/37.

32. Drawing No. 646/62772, Alteration to Bathhouse and Waterproofing Bathhouse, 11/19/48.

33. Drawing No. 646/62772A, Alteration to Bathhouse and Waterproofing Bathhouse, 5/2/49.

34. Drawing No. 646/62618, Installation of Rolling Steel Doors, 4/26/51.

The last major rehabilitation to the pavilion doors took place in 1964 and in 1978 after the takeover by the National Park Service.[35] The doors installed at these times are believed to be the existing flush hollow doors (Fig. 26) and the rollup doors (Fig. 20) over the pavilion entries.

Currently, all doors of the pavilion are in fair condition but several problems exist. The steel roll-up doors are all operable and appear to be well maintained through frequent painting, but some minor rusting has set in at the frames. If the rusted frames are cleaned and repainted frequently, minimal effort will be needed to preserve the doors. Steel lintels over the doors should also be cleaned and repainted to maintain their integrity.

At the north elevation, several of the doors are sticking and rust is eating away the finish surfaces. Door D141 at the west stairwell has a rusted lintel above it; it appears to be structurally weakened and deflecting due to the load above. In addition, the head jamb of the door is bent. Joints in the brick above it are cracked.

Doors D140, D139, and D138 to the left of D140 also have rusting lintels which should be repaired by pulling, cleaning, and resetting them in the masonry wall. These doors are rusting slightly and should be cleaned and painted. Door No. D137 and its frame, however, are both severely rusted and should be replaced. The door just to the left of D136 is boarded over and should also be replaced. It is in poor condition.

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35. Historical Data Section, Historic Structures Report, Jacob Riis Park Historic District, Unrau, 1981, pp. 191, 193, and 194.

East of the kitchen area are doors D135, D134, D133 and D131. These doors are flush doors like the others above, and they exhibit similar problems.

The lintels of door D134 and D135 are badly rusted and should be replaced. They have jacked the brickwork at the jambs and cracked it in several places. The same holds true for doors D133 and D131.

The south elevation doors are rusting but are in fair condition. However, the door lintels are in an advanced state of deterioration like those of windows of this elevation. The lintels should be removed and replaced. All doors must be cleaned of rust and repainted, and hardware should be installed as needed.

(b) Towers and Utility Penthouse

(i) Roof Systems

The roofs of the East and West Towers are octagonal in plan and pitched to a 1:3 slope to facilitate proper drainage. Both roofs are covered with standing seam lead coated copper finishes topped with simple pinnacles at the apex (Fig. 26).

Supporting the finishes is solid wood sheathing measuring approximately 1 inch by 8 to 10 inches and resting on approximate 2 by 4 inch rafters (Fig. 27). The rafters radiate from a single post at the apex of the roof and rest on an elevated wood top plate (knee wall) anchored to the top of the brick masonry walls. The elevated top plate not only provides a return for the roofing and an area for counterflashing the walls, but support for the rafters as well.

The rafter framing is further supported by a 4 by 4 inch post suspended from the apex and crossbraced at its center and bottom edge with a series of collar ties. These structural systems are sturdy.

In addition to sturdy structural systems, both roof finishes are in good condition and appear quite serviceable. However, some roofing members are water stained, most likely from an earlier period. There are other water stains along the walls. Inspection indicates that these stains were caused by water flowing through the deteriorated masonry (brick and stone) in the walls, and from the area between the sill plate of the knee walls, and top of the brick walls. There is a one inch gap there, and water is entering the towers. Water also enters through the openings around the roofs hatchways and frames. The roofs of the towers have no cornices, gutters, or downspouts, yet the systems function well.

At the utility penthouse the flat built up roof on its concrete deck is serviceable and appears to be in good condition. Its edges, however, should be reinspected to determine if there are leaks around them. Several moisture stains are currently in areas below them.

(ii) Walls and Decorative Features

The east and west towers are four-storied structures constructed in brick with decorative stone elements trimming the wndows and doors. Square sections below the false balconies are original (1931-32) but octagonal sections containing the balconies, glass block windows and towers were not built until the 1937 alterations. Several repairs have been made to the towers over the years, but today the main structures are stable. They do, however, have moisture and other problems in the walls. These are described below.

At the North Elevation of the West Tower there are several problems in the brick walls and decorative stone (Fig. 28). Brick walls are abraded and some are cracked from stresses of the crystalline salts filling their pores. The materials are somewhat fragile and fatigued. Mortar joints were poorly repointed in portland cement and are partially smeared

on the face of the brick. Remnants of paint can be seen on the brickwork.

Decorative stone elements (architraves, brackets, false balusters and balconys, etc.) are heavily deteriorated and some are falling apart. Elements of the architraves surrounding the windows have been temporarily repaired and are at least somewhat stable. Permanent repair or replacement is needed. Porous fabric is heavily abraded and stained from leaching salts.

Beneath the windows, the false stone balcony and balustrade are deteriorating. Pieces of stone are spalling and should be stabilized or replaced. The area is severely water stained and portions of the brackets below have spalled and lost decorative attributes. Stone coping on the abutting walls are deteriorating and the steel lintels above the windows are rusting.

The west elevation of this tower is relatively stable although it too is blemished with porous and spalling brick and stone. The brick appears much like the brick at the North Elevation and salts from the stone is leaching. Surfaces of the stone and brick are moisture stained.

The south elevation walls are in somewhat worse condition. Features are blemished from porous and spalling materials, but material degradation is worst. At the top of the tower the steel lintels are severely rusted and should be replaced. Large sections of stone are cracked, spalled, and felled, or removed in fear that their falling would injure park visitors.

In 1982, Architect William Howell, DSC, made repairs to the stonework of the West Tower and the East Tower.[36] The repairs were

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36. Trip Report, Jacob Riis Bathhouse Stabilization, Pkg. 953, 5/14/82.

temporary and consisted only of removing loose or spalling cast stone back to a solid base, and patching the face of the exposed area to stabilize it. This treatment has slowed down the stone deterioration, but is not effective in the long run and is aesthetically displeasing.

Currently, stone is loosening in other areas around the repairs. Consequently, permanent repairs or replacement of materials are needed to stabilize or preserve the repaired areas and others on the towers.

The east elevation also contains porous and spalling brick and stone walls which are severely water stained. Problem areas must be corrected promptly to arrest deterioration in the dissentegrating cast stone. The stone architraves around the glass block windows and that at the rail and floor of the false balcony has lost its protective cover, soft interiors and steel reinforcement are exposed to the weather. Pieces of stone composing 1 to 3 cubic foot sections of several cast stone members have spalled, and the metal reinforcement is rusted. In many cases the spalled or dissentigrating stone and rusted reinforcing is degraded beyond repair. Sections such as these warrant total replacement in-kind or with materials compatible to the surrounding walls or features (e.g.: remaining architraves and false balcony). Brickwork can be reasonably preserved when the proper measures are taken.

The East Tower has similar problems to those at the West Tower. Masonry walls are abraded and some are deteriorating due to exposure to the elements.

At the North Elevation there are moisture stains which are seen throughout the walls. The cast stone architrave around the window is damp and so is the cast stone of the false balcony below. Efflorescence is present in the stonework and has begun to crack and spall its surfaces. Aggregates are leaching from the stone, and chemical stains have also developed. These reactions are staining the adjoining porous brickwork. In addition, brickwork has cracked from expansion in the

wall. Other cracks or feathered edges may be due to the repointing mortar which appears incompatible to the already fragile brick. Testing of the mortar and brick strength should be performed to establish their compatibility.

East Elevation walls are also deteriorating, but worse than those above. Major decay is detected in the cast stone such that portions of the stone are spalling and dissentegrating, and sections of reinforcement are exposed and rusting. Inspection of several sections at the architraves and copings atop the walls indicate that most of these members must be removed to reach solid bearing and anchoring surfaces for dutchmen. Impregnation of smaller sections to consolidate materials and increase strength is not feasible, but replacement of larger sections with matching and compatible materials is.

Deterioration of masonry at the Towers' South Elevation is more severe than at any section of the building or towers. About 25 percent of the stonework (cast stone) is either deteriorating or missing and the remaining loose portions are held in place by wood supports. At worst the horizontal projections surrounding the copings at the corners are completely deteriorated; in order to rebuild them, extensive material must be removed to create suitable weatherproof and sturdy connections. Portions of the quoining, architraves and false balcony have fallen and must be treated in the same manner if they are to be repaired. The extent of any material removed during repairs will depend on the necessary bearing surface to provide solid bearing and anchoring for the new dutchmen. In cases where sizeable portions of the irregularly shaped decorative bracketing must be repaired recasting of the entire piece is recommended.

Wall sections at the West Elevation contain similar problems to those of the South elevation, possibly due to their proximity to the ocean vapor and orientation to the drying and evaporative effects of the sun. Since both sections receive most of the salt water vapor and evaporative cycles

of salt air they are in the worst condition. Crystalline salts (efflorescence) are piled heavily on the wall surfaces and more cracking and spalling of brick and stone are seen. Several areas have been temporarily repaired but are still deteriorating at cold joints formed by the new and old material.

Moisture from the exterior walls of both towers have carried through to the interiors. The interiors are very damp and are not properly ventilated. This is due to the inability of the louvers and solid glass block windows to provide the required air circulation.

Due to the desire to preserve the towers and retain their exterior architectural character, it is suggested that some type of mechanical ventilation be installed at the interiors and vented through the louvers. This will help to keep the tower interiors dry.

At the utility penthouse, the exterior walls are stable, but interior tile attached to them has loosened due to moisture. Moisture reaches the interiors through porous brickwork and the door which does not close. Walls of this structure should be repaired and made weathertight. The interiors of the penthouse and towers should both be cleaned of pigeon waste.

(iii) Windows

The East and West Tower windows are solid glass block and are located at either face of the octagons (Fig. 29). Each tower has eight windows supplemented by louvered vents which circulate some air into the structures. Four of the eight windows are wider than the others, and are installed in the stonework of the architraves. The smaller windows are set diagonally in the brickwork above the stone copings and the end walls.

Generally, the windows at both towers are in good condition. However the wider windows should be recaulked around the openings and the steel lintels should be removed, cleaned, repainted, and reinstalled. Steel lintels of the narrower windows should all be replaced.

Tower louvered vents are in generally fair condition but several louvers are bent and need recaulking. Steel lintels should also be removed, cleaned, repainted, and reinstalled. Several East Tower lintels were replaced in 1964.

The utility penthouse windows are constructed of glass block, and are in good condition. The steel lintels above the windows, however, are rusting and should be removed, cleaned, repainted, and reinstalled.

(iv) Doors

Doors of the east and west towers and the utility penthouse are flush steel doors installed at the upper terrace roof level of Part 2 (Fig. 30). Each tower and the penthouse has only one door and its condition is poor.

At the East Tower, the door and frame are rusted and racked so that the door cannot be closed. In addition the frame is bent and pulled out of the wall. The lintel above the frame has rusted, sagged and is responsible for the frames bending. The opened door and bent frame provide room for pigeons to enter the tower; it should be replaced to match the existing.

The West Tower door has similar problems but it is not bent. It still closes, and is not pulled out of the wall. It is, however, heavily rusted and deteriorated in several areas and should be replaced.

Similarly, the utility penthouse door is rusted, deteriorated, bent, pulled out of the wall, and cannot be closed. Consequently, it and its frame should also be replaced.

(c) Screen Walls

The East and West Screen Walls enclose the space between, and join the Beach Pavilion and the Wings. Each wall stands 8 feet high and spans a length of 28 feet. The walls, like others of the complex, are constructed of brick with cast stone caps, and a central pier helps support them. In addition these walls share similar problems to the other walls. For example:

(i) West Screen Wall

At the West Wall (Fig. 31) there are numerous vertical cracks all which had been repaired but reopened at the top and in the cast stone coping. The cracks in the coping are letting water enter the walls and the water is contributing to the wall's deterioration.

Along the courtyard side of the wall major cracks have developed at the pier and the wall is bowed-in at the bottom. The wall area near the coping leans from 3 to 4 inches toward the courtyard.

The beach side of the wall is deteriorating more: cracks from the courtyard side are transferred here and those that have reopened have widened. The wall is exfoliating in several areas and its bottom is bowed toward the beach side. Its coping, however, is bowed toward the courtyard side. Generally, the wall's condition seems to have started with expansion problems and worsened by problems of freeze/thaw.

(ii) East Screen Wall

This wall (Fig. 32) has similar problems but they are substantially greater.

At the beach side several bricks are missing and the brickwork needs repointing. Repaired horizontal and vertical cracks have reopened.

The courtyard side of the wall is bowing out and its coping is badly spalled in the vicinity of the pier. It also needs repointing and several cracks must be repaired at the beach side.

(2) Entrance Pavilion and Screen Walls

(a) Entrance Pavilion

The Entrance Pavilion is a one-story brick structure housing the main public entrance to the bath house, along with locker and towel rental counters. The Entrance Pavilion is somewhat Byzantine in character with ornate cast stone arches supported on ornate cast stone columns. The arcade formed by these arches runs along the north side of the pavilion. This arcade or loggia originally ran across the northern half of the east and west facades as well. As part of the 1937 alterations, these side loggias were enclosed by small additions.

(i) Roof Systems

There are two types of roofs at the Entrance Pavilion. Flat, built-up roofs exist over the east and west loggias, and over most of the lobby area. Around the east, west and north perimeter of the lobby area is a false hip roof. This roof and the turret roofs are finished with asphalt shingles.

The built-up roofing of the east and west loggia is in poor condition and needs to be replaced. The main portion of the built-up roof over the lobby is in fair condition, with approximately 300 square feet requiring repair (Fig. 33). The lower flat roof at the south end of the Entrance Pavilion is in poor condition and requires total replacement. Approximately 40 square feet of new flashing is needed at the ridge of the false hip roofs.

Six hip-roofed skylights are found in the built-up roof over the lobby area. These skylights have two layers of glazing--one on the exterior and one on the interior--of sixteen lights each (Fig. 34). Each light measures approximately one by two feet. All of the interior lights are missing and twelve exterior lights are missing for a total of 78 square feet of new glass required. All the skylights need new flashing at their bases.

The asphalt shingle roofs are generally in good condition with approximately ninty square feet of missing or damaged shingles in need of replacement. As late as 1964, portions of the false hip and turrets were roofed with asbestos shingles as well as asphalt shingles with rehabilitation drawings from that time showing both. The 1964 drawings[37] also show the back of the false hip to be covered with asphalt shingles. Today the back of the false hip is covered with tar paper. The top of the false hip is covered with metal flashing, of which approximately 75% (125 linear feet) is missing or rusted and needing replacement.

At the base of the false hip, along the north face of the Entrance Pavilion, there is a ten-inch wide gutter (Fig. 35). Approximately seven feet of the gutter framing is severely deteriorated. The remainder of the framing should be inspected more closely to verify its stability. The gutter lining and base flashing all around both turrets are of bituminous built-up roofing, which is pulling away from the walls and allowing water to flow behind and underneath it. Approximately 60 linear feet of new metal step flashing is required at the turrets while the entire gutter needs approximately 75 linear feet of new lining. The gutter drains into 4½-inch diameter iron downspouts that run down along the north face

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37. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

of the Entrance Pavilion at either end of the gutter. The downspouts appear to be sized adequately but they are plugged with debris. These downspouts were shown on the 1937[38] drawings as located within the adjacent wall. It is not known whether the downspouts were indeed originally located within the wall and later altered to their current configuration or if their current location is original.

Both turrets have copper gutters. These gutters were not well constructed, with gaps between the gutters and the cast stone cornice, allowing water under the gutter. Also, the gutters are not hooked into any kind of downspout. There is evidence of downspouts in the turret walls that empty onto the east and west loggia roofs. The turret gutters need to be replaced, with better detailing and construction. Downspouts or leaders should also be installed at the interiors.

Originally (1932) both turrets were topped with small finials, and it is not known when these finials were removed. They are shown in the 1964 rehabilitation drawings.[39] Neither exists today and should be replaced.

The flat roofs at the east and west loggias each have two downspouts that run down, exposed, on the interior of the building. Calculations should be done to verify that these downspouts are of adequate capacity. The flat roof over the lobby area has only two downspouts, running down the interior of the south wall. It is quite unlikely these two downspouts have the capacity to carry the entire water load of this roof. Calculations should be done and additional downspouts added as needed.

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38. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

39. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

(ii) Walls

The walls of the Entrance Pavilion north of the screen wall are faced with multicolor brick, while those south of the screen wall are of red brick.

The north arcade of the Entrance Pavilion is the most ornate portion of the building, with patterned brickwork and elaborate cast stone. The cast stone arches, lintels, columns, and flagpole brackets are discussed in a separate section below. The north wall of the arcade is composed of a central vestibule section with five ornate arches (Fig. 36), two wide piers topped with small turrets, and side loggias with three arches each, the end arched bay topped with a pedimented coping. Two plain square cast stone blocks are set into the brickwork above each cast stone arch. The piers between the vestibule arches--piers G, H, I, and J--are topped with stepped cast stone caps. Piers E, F, K, and L are topped with a hipped cast stone coping, surmounting a band of brick and cast stone laid in a zig-zag pattern. The walls between pairs of piers are decorated with a panel of brick and cast stone laid in a diamond pattern (Fig. 37). The entire north half of the Entrance Pavilion, with the exception of the east and west facades of the 1937 additions,[40] is wrapped with a cast stone watertable and a cast stone belt course.

The north face of the north arcade wall is in fair condition, although numerous bricks are spalled and cracked. Approximately 20 percent of the bricks warranting replacement. The upper two-thirds of Pier B have already been rebuilt with red brick, with the cast stone coping replaced with brick. New cast stone coping should be installed at Pier B. The original brick remaining at the bottom of pier B is in poor condition and needs to be replaced. Other concentrations of damaged brick are located at piers C, E, F, and G. In addition to the coping at Pier B, approximately 32 linear feet of cast stone coping needs to be replaced due

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40. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

to severe deterioration. These areas of coping are located at bays CD, FG, GH, HI, IJ, JK, and MN. Corners of the cast stone water table are crumbling at piers B and C. These appear to be repairable. The turret walls appear to be in good condition, requiring only some cleaning and repointing.

The south face of the north arcade is in fair condition. Moderately heavy grey efflorescence and small patches of a light colored cementituous paint are found over most areas of this wall. A vertical line of three large bolts with wood blocking occurs at each pier, presumably remnants from an enclosure of the arcade at some time (Fig. 38). These bolts are rusty and in some cases have precipitated the spalling of adjacent brick. Piers EF and KL contain a recessed alcove that originally contained public telephone booths. The back of each alcove is finished with a cast stone panel below a brick arch. The cast stone water tables at both alcoves are deteriorated and require substantial repairs or replacement. Vertical cracks occur at Pier K while minor cracks occur at pier D. Pier L is damp.

The north face of the south arcade wall is finished with a number of different materials. The wall at the vestibule--bays FG to JK--is finished with plaster scored to resemble blocks of ashlar masonry, with a plaster cornice at the ceiling. Generally, this section is in good condition, although there are some areas of deterioration. Approximately 13 linear feet of molding is slightly water damaged at beams G, H, and I, and approximately 20 linear feet of molding is severely water damaged at the foyer areas near doors 410 and 411 (Fig. 39). The plaster wall is water damaged east of Door 411, and above and to both sides of Door 410, with damage above and to the east of door 410 being extremely severe (Fig. 40). At either end of this stretch of plaster-finished wall, at bays EF and KL, the wall is finished with a brick arch infilled with a cast stone panel (Fig. 41). These are described in the "Decorative Features" section below.

Bays CE and LN were originally open as part of the east and west loggias. They were later filled in with the current wood walls. Bay CE

is finished with vertical tongue-and-groove boarding. A wood door frame exists in the center of the wall, although the opening is filled in with vertical tongue and groove. Bay LN is finished with horizontal boarding. A wood door frame also exists in the center of this bay, but this opening is closed by an operable door. The bottom of both wooden walls is rotting. The south wall of bays BC and NO, originally had arched openings similar to those in other portions of the arcade. These openings were bricked in, with red brick and new cast stone bases, during the 1937 alterations[41] (Fig. 42).

The east and west interior arcade walls are similar to the north interior arcade wall, with heavy grey efflorescence and rusted bolts in each pier.

The west side of the Entrance Pavilion, to the north of the screen wall, is in fair condition. Pier B, above the cast stone belt course, has been rebuilt in red brick (Fig. 43). The brick below the belt course and just to the north of Arch AB is severely spalled and requires replacement. Approximately 16 linear feet of new cast stone coping is needed to replace deteriorated coping stones. Heavy efflorescence deposits are found at the top of the wall, just underneath each area of deteriorated coping. Another area of efflorescence is found eminating from a horizontal crack, two courses below the coping that runs between Door 407 and Window 405. Another ¼-inch crack runs from the lower corner of Window 405 south to the screen wall. There is a rusty lintel just south of Door 407 and there is loose brick just below the coping at the south corner of the wall.

The east side of the Entrance Pavilion, to the north of the screen wall, is also in fair condition. The cast stone water table at Pier O is deteriorated, as is a small section of coping adjacent to Pier O (Fig. 44). Eight feet of coping above the 1937 addition[42] needs to be replaced due

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41. Ibid.

42. Ibid.

to severe deterioration. Several additional sections of coping are cracked or chipped and in need of repair (Fig. 45). As at the west side, heavy efflorescence occurs at the top of the wall, under sections of deteriorated coping. Individual bricks scattered throughout the wall are spalled, with approximately 10 percent of the wall requiring replacement.

The east and west walls of the Entrance Pavilion, south of the screen wall, are in good condition. A small area of efflorescence occurs just below the coping on the east wall (Fig. 46). The west wall has apprxoimately 28 linear feet of rusted metal coping in need of replacement (Fig. 47). Concrete block walls that enclose a central courtyard abut both walls.

The section of south elevation that is in the same plane as, and adjacent to, the west screen wall is in fair condition. A four foot section of coping to the east of Door 406 is deteriorated and in need of replacement. Just to the west of Door 406 is the ghost of a partition, and there is a horizontal crack running across the entire top of the wall. This crack has been patched previously, but has since recracked. The corresponding wall on the east side of the Entrance Pavilion is also in fair condition (Fig. 48). Approximately eight linear feet of coping needs to be replaced, and several other sections of coping require some repair. Two concentrated areas of spalled brick occur at the top of the wall at the east and west corners. A faint horizontal crack runs across the top of the wall.

The south wall of the Entrance Pavilion is in fair condition (Fig. 49). Sixteen feet of coping is deteriorated and needs replacement. Efflorescence occurs on the wall under these deteriorated sections of coping. In the center of the wall are ghosts of two doorways that were bricked in during the 1937 modifications.[43] Between these two doorways, a short section of brick wall abuts the south wall. A ghost on the south wall indicates the abutting wall once was higher.

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43. Ibid.

(iii) Arcade Ceiling and Floor

The ceiling of the arcade (logga) that runs along the north side of the Entrance Pavilion is divided into 13 bays by reinforced concrete beams. These beams run north and south, and for the purposes of this report, will be designated by the letter of the pier which they abutt. The bays will be designated by the letters of the piers they fall between.

The majority of the beams are nine inches wide, while beams E, F, K and L are 16 inches wide and are supported on cast stone brackets decorated with acanthus leaves. For the most part, the beams are in fair to good condition. Peeling paint is a common problem, along with dark stains from the reinforcement bars. Beams D and I each have three cracks running east and west. These cracks appear to be structural in nature, due to the beam's inability to withstand tensile forces in the bottom of the beam. The paint at Beam D and L is peeling severely and there are heavy efflorescence deposits at each crack (Fig. 50). The decorative bracket at the south end of Beam L is covered with a heavy deposit of efflorescence, while the north bracket is spalled and has some efflorescence. Efflorescence also occurs at the joint between the beam and south bracket at beams E and F. The ceiling of the arcade is a flat concrete slab, with bays FG, GH, HI, IJ and JK divided into three areas by wood beams running east and west. Each wood beam is decorated with three rosettes. The ceiling at bays EF and KL is vaulted and is of coffered plaster. The concrete ceiling is generally in good condition with small areas of peeling paint. Bays FG, JK, and NO have significant cracks. The coffered ceiling at Bay KL is in good condition, (Fig. 51) while the coffered ceiling at Bay EF is in poor condition. The plaster at ceiling EF is loose, missing, and water damaged and has efflorescence deposits. This section of ceiling will require extensive repairs and replacement.

The floor of the entry arcade is pink colored concrete scored to resemble paving stones. The floor is in good condition, although there

are patched areas adjacent to the ticket booths where railings and turnstyles were removed in 1937.[44] Also some areas of the floor are stained, especially in bays EF, IJ, and LM, by water dripping from the ceiling.

(iv) Windows

There are seven existing window openings in the Entrance Pavilion. Windows 401 and 402 on the east side of the Pavilion are boarded up with plywood. It is not known what type of window, if any, may exist behind the plywood. The 1937 drawings[45] show these windows to have had six light steel awning sashes. Window 403 is also boarded up with plywood which is in poor condition and has delaminated. While it was not verified during the investigation for this report, the 1964 rehabilitation drawings[46] show this window as being replaced by glass block with a hopper insert. The wood counter that had been in place below the window prior to 1964 has been removed. Three courses of brick infill below Window 403 indicate the counter's location. Window 404 on the west side of the Pavilion is glass block with a hopper insert. The hopper portion of the window is broken and is boarded over with plywood, and nine glass blocks are broken. Like Window 403, the glass block and hopper unit at Window 404 were installed as part of the 1964 rehabilitation.[47] The wooden shelf below the window was removed at the same time. Both windows were shown in the 1937 drawings[48] as double steel, vertical sliding sashes. The counter below the windows was shown as brass on the interior and stainless steel on the exterior.

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44. Ibid.

45. Ibid.

46. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

47. Ibid.

48. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

Window 405 is solid glass block. The window is in good condition with all glass block units intact. Although it is not specifically shown on the 1964 drawings,[49] it may be assumed the glass block was installed in 1964. The 1937 drawings[50] show this window to originally have had a 12-light steel sash.

Windows 406 through 417, at the ticket booths, have wood frames and are all in good condition with all lights intact (Fig. 52). Windows 406, 408, 409, 411, 412, 414, 415, and 417 are double, six-light casement windows, while windows 407, 410, 413, and 416 are fixed, with one large light surrounded by seven smaller lights. The large central lights have round speaker holes cut into them. All of these ticket booth windows are currently boarded over with plywood.

There once were two additional windows on the south face of the Entrance Pavilion. These two windows were installed in 1937[51] and were removed and bricked in as part of the 1964 rehabilitation.[52]

(v) Doors

Most of the existing doors of the Entrance Pavilion, are metal and are in poor condition. Door 401 has a wood frame and a rusted lintel. The door is a hollow wood door, faced with plywood, constructed by the Park staff. Evidently, this door replaces or covers an earlier metal door. This wood door is in fair condition with some deterioration at the bottom of the door.

Door 402 is a metal door in a metal frame. Both door and frame are rusted with the bottom of the door rusted away.

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49. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

50. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

51. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

52. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

Doors 403, 404, 405 and 406 are wide, arched openings. In the 1964 rehabilitation drawings,[53] these openings were shown with bi-fold doors. Currently, Door 403 is completely boarded up with plywood, with the plywood beginning to deteriorate, especially at the bottom. Doors 404 and 405 both have double hollow metal doors and frames, set into a plywood partition. Both sets of doors are rusted with the bottoms rusted completely away. The door frames are rusty and the plywood is severely weathered, with the plywood at Door 404 beginning to delaminate. Door 406 is boarded up with plywood. This plywood appears to be in good condition.

Door 407 is a metal louvered door in a metal frame. The door is rusted with the rust being especially severe at the bottom. The original door, as shown in the 1937 drawings,[54] was a louvered steel door, with much smaller louvers than the current door.

Doors 409 through 413 were the main entry doors to the bath house. They are double width, wood framed openings with a wood, semi-circular fanlight above. Currently all of these door openings are filled in with plywood partitions. All of the wood door frames and fanlights are in good condition, with the exception of the frame and fanlight at door 409, which may need some repair work. The fanlight at Door 409 has five broken lights. The fanlights at doors 410, 411, and 413 each have two broken lights, while the fanlight at Door 412 is not broken.

Doors 408 and 414 are wood panel doors. They are both in excellent condition.

Door 415 is made of plywood and hangs in a wood frame. The door and frame are in good condition except for the bottom of the frame which has peeling paint and may be rotted.

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53. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

54. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

(vi) Decorative Features

The Entrance Pavilion is the most decorative section of the Riis Bathhouse. In addition to the decorative brickwork previously mentioned, the decorative elements of the pavilion include ornate cast stone columns and arches and flag poles supported on cast stone brackets. See the Entrance Pavilion floor plan for the column and arch designations used below.

The columns are arabesque with hexogonal, slightly tapered shafts. Column shafts engaged with a pier are rectangular. The bases are square with a scotia leading up to a hexagonal (or rectangular at the rectangular shafts) torus at the bottom of the shaft. All column capitals are roughly hexagonal with large acanthus at the diagonals (Figs. 53 and 54). The exteriors of the arches is decorated by rinceau designs with griffins, birds and other animals replacing the more usual flower motifs. The depth of the vestibule arches (arches FG to JK) have a center band of decoration. This decoration consists of plain blocks alternating with blocks with paterae designs, both bordered on either side with twisted cable molding (Fig. 55).

The following chart lists the conditions of the columns.

Column	Base	Shaft	Capital
A1	crack at joint with shaft patched but has recracked	spalled slightly at top and bottom	dark stain
A2			very dark stain acanthus tip gone
B1		top chipped	severely spalled and cracked - (replace)
B2		chipped at top vertical cracking	two acanthus tips gone

B3	top cracked and spalling	top and bottom cracked	
B4	top cracked and spalling	top and bottom cracked	
C1	torus severely cracked or missing	dark stain top cracked	heavily crazed (replace)
C2	torus severely cracked or missing	top cracked	heavily crazed acanthus tip gone (replace)
F1			cracked acanthus tip gone
F2	crazed	slight horizontal crack	4 acanthus tips gone, dark stain eflorescence
F3		dark stain	dark stain
F4		faint horizontal cracks	dark stain mossy
G1	slight efflorescence		slight efflorescence
G2	joint with shaft cracked	joint with pin cracked	
G3	efflorescence from capitals, torus chipped		heavy efflorescence
G4	efflorescence from capitals	dark stain cracked	heavy efflorescence dark stain
G5	torus badly cracked and spalling, very mossy, heavy efflorescence from under base	cracks	
G6	torus cracked, very mossy	cracks	4 acanthus tips gone
G7	two corners chipped one severely	1/16"± vertical cracks on four sides efflorescence at bottom of cracks	dark stain acanthus tip chipped
G8	very mossy	cracked and spalled	

H1			
H2			
H3			heavy efflorescence dark stain
H4		dark stain	dark stain
H5	corner chipped, heavy efflorescence from under base	slight efflorescence	cracked, top corners gone
H6			acanthus tip gone
H7	efflorescence from capital	cracked and spalled exposed rebar, dark stain	heavy efflorescence
H8			
I1	corners shipped	top chipped	acanthus tips missing, efflorescence
I2			acanthus tips missing, corners worn and crumbled
I3		heavy efflorescence cracked and spalling	heavy efflorescence severely crazed acanthus tip missing
I4			
I5	torus cracked and spalled	heavy efflorescence at top cracked and spalling rebar exposed and rusted	severely cracked (replace)
I6			acanthus tips missing
I7		dark stain cracked	efflorescence, dark stain
I8			
J1	torus worn		
J2			
J3	cracked 1/8"± chipped	cracked vertically patched previously	acanthus tip gone

J4	torus spalled	severe 1"± cracks previous patch cracking replace	acanthus tip gone
J5			
J6			
J7	efflorescence from capital	cracked vertically dark stain	heavy efflorescence dark stain
J8			efflorescence dark stain acanthus tip chipped
K1			dark stain
K2			very dark stain worn by water (replace)
K3		cracked 1/8" to 1/4" one face loose	
K4		cracked vertically	3 acanthus tips gone, dark stain worn by water
N1			
N2	corner chipped and crumbling, cracked, mossy		acanthus tip chipped
O1			cracked
O2			acanthus tip gone cracked mossy
O3	top worn and crumbling	cracks at joints with pier and capital	dark stain
O4		cracked vertically spalled, rebar exposed and rusty	heavy efflorescence
P1			acanthus tip gone
P2			top corner chipped

The following chart lists the conditions of the cast stone lintels.

Lintel	Condition
A1/2	dark stain, some cracks
B1/2	dark stain
B3/4	cracked and spalling (replace)
C1/2	
C	spalled
D	spalled
E	
F1/4	mossy, dark stain
G1/4	cracked, crumbled, spalled, efflorescence
G5/8	slight spalling
H1/4	cracked, spalling
H5/8	cracked, spalled, crumbling, efflorescence, very mossy
I1/4	cracked, efflorescence, spalled, crumbling
I5/8	hairline cracks, efflorescence, crumbling corners
J1/4	cracked, dark stain
J5/8	cracked, crumbling, efflorescence
K1/4	cracked, crumbling, efflorescence, dark stain
L	spalled
M	spalled
N	spalled
N1/2	cracked, spalled, replace
O1/2	cracked, probably replace
O3/4	cracked, spalled, efflorescence, dark stain (replace)
P1/2	dark stain

The following chart lists the conditions of the cast stone arches.

Arch	Exterior	Depth	Interior
AB	one stone split	dark stain at top	joint with brick cracked at top and north
BC	one stone severely cracked spalling at top edge (replace)	dark stain at top stone cracked severely, with heavy efflorescence	joint with brick cracked at top
FG	cracked, spalling at top edge	heavy efflorescence at top, moderate efflorescence over rest cracks, dark stain	
GH	one stone cracked	dark stain at top efflorescence two stones cracked	
HI	50% stones cracked and spalling	efflorescence at top	
IJ	3 stones cracked spalling	efflorescence at 50% of exterior course	
JK	2 stones cracked	heavy efflorescence at exterior course spalling at middle course	
NO	two stones cracked	dark stain and efflorescence at top	top of arch appears to have moved north about 1/2 inch
OP		dark stain, efflorescence and spalling at top	

In addition to the decorative elements listed above there are four cast stone flagpole brackets. These are located at piers G, H, I, and J, between the five vestibule arches. The brackets at piers G and J are in good condition and still support metal flagpoles. The paint is peeling off

the flagpoles, but otherwise they, too, appear to be in good condition. The bracket at Pier H is in good condition with some slight spalling at one corner. The remaining bracket, at Pier I, is in poor condition, with severe spalling.

Also, at the south wall of bays EF and KL, the main portion of the wall is of cast stone with a central panel enclosed with elaborate cast stone molding. The molding is decorated with seahorse, crab and shell designs. At EF, a bronze plaque dedicating the building, and dated 1932, is located within the central panel.

(b) East and West Screen Walls

The screen walls are brick, 2 wythes thick and eight feet high, stretching approximately 200 feet to the east and west of the Entrance Pavilion, enclosing the north side of the men's and women's outdoor dressing areas. The walls are divided into thirteen bays by twelve brick piers, approximately 14' on center, along the north face of each wall. Each bay is capped with three 4' lengths of cast stone coping units. The piers and attached wall section are also capped by cast stone coping units. Remains of copper or lead coated copper flashing is visible under the coping stones along the south face of both walls. This may be thru-the-wall flashing or counterflashing for the roofs of the changing rooms that once lined these walls. No visible sign of this flashing exists on the north face of either wall. Similar remains of flashing exist at the meter houses at either end of both walls, with this flashing starting two courses below the coping stones. The tar paper roofing at the east meter house of the west wall still extends up the wall and behind this 4" flashing.

The north face of each wall is constructed of multi-color brick, laid in common bond with 6th course headers. The top eight courses are of red brick, added during the 1937 alterations.[55] Along most of the length of each wall, these eight courses lean toward the south so that the top of

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55. Ibid.

the wall extends over the base of the wall by approximately two inches. The south face of the wall is constructed mainly of red brick, with the header courses of multicolor brick. Nailers for changing room partitions are found in the south face, set in every 11th course and 3 feet on center, with the top nailer approximately 6'-3" above the concrete floor. Most, but not all, of the nailers have been patched over with mortar.

Set into the far east and west bays, adjacent to the end wings, are rusted metal frames for small doors opening into the meter rooms. Presumably, these doors allowed water meters to be read from the exterior of the building. The doors themselves no longer exist (Fig. 56) and should be replaced.

(i) West Screen Wall

Materially and structurally, the West Screen Wall is in poorer condition than the East Screen Wall. Along with small areas of spalled brick, several individual missing bricks, and some minor cracks here and there throughout the wall, there are a number of significant structural cracks and several areas of deteriorated coping units. Approximately 48 linear feet of cast stone coping are deteriorated enough, with rebar exposed and rusted away, to warrant replacement.

Most of the significant cracks are visible at the south face of the wall. A horizontal crack extends over the western half of the wall about five brick courses above the floor. The section of wall above this crack has shifted to the north approximately 3/4-inch. Vertical cracks also occur along the south face at approximately half of the piers. The cracks at the pier between bays seven and eight, (counting west from the Entrance Pavilion) is approximately 1/16-inch wide and the crack of the pier between bays nine and ten is approximately 1/8-inch wide at the top of the wall, with the wall to the west side of this crack having shifted to the north by a half inch. The south face of the wall has a slightly darker coloring at each pier, especially noticeable at the top of the wall. Presumably this staining is caused by the piers retaining moisture longer than surrounding wall areas.

Also visible on the south face of the wall are faint remains of green paint outlining the location of old changing room partitions. Fewer nailers are patched over on this wall than on the east wall, and several are missing. Two large flowering shrubs are growing out of the crack between the wall and the concrete floor. These shrubs should be removed.

The horizontal crack visible on the south face of the wall is also visible on the north face of the wall. Here the crack has been patched over with mortar sometime in the past. Similar to the east wall, the west end of the west screen wall has expanded about 1½ inches to the west. The brick piers at the west end of the wall have cracked horizontally, approximately in line with the horizontal crack in the wall itself, to allow this movement to occur (Figs. 57 and 58). Also similar to the east wall, is a crack above the header course at grade. However, at the west wall, this crack occurs only in the three or four bays adjacent to the Entrance Pavilion.

Several of the brick piers of the West Screen Wall have significant problems. The bottom of the pier between bays seven and eight contains a vertical crack ¼" wide, which shows no evidence of having previously been patched. The top of this same pier also leans to the south three to four inches. The two adjacent piers also lean slightly to the south. Pier 7/8 also appears as if it may have been rebuilt at some time, or, at least, it has had extensive repointing. Piers 2/3, 5/6, 6/7, and 8/9 have areas of severely spalled brick, with several brick courses at Pier 8/9 having already been replaced with red brick. Piers 10/11 and 12/13 each are missing bricks at the top course or two. Also, much of the top two courses at the west end of the south face of the west wall requires repointing.

At the far west end of the West Screen Wall is a small brick meter room. The meter room is about seven feet tall, with walls one brick wythe thick. The floor is a raised concrete slab. The roof is also a concrete slab, covered with roofing felt. The lintel above the door is rusted, causing the brick above and to the side of the door to crack and

move upward. There is also a severe horizontal crack several courses above the floor, starting to the west of the door and wrapping around the meter room to the east and north. The entire meter room above this crack has rotated counterclockwise about a half inch (Fig. 59).

(ii) East Screen Wall

Over all, the East Screen Wall is in fair condition, with areas of spalled brick, individual spalled bricks, and cracks throughout the length of the wall. The cast stone coping appears to be in good condition, with no visible spalling or crumbling. In the ninth bay east from the Entrance Pavilion, there is a large area patched in red brick, as if there once had been a door in that location (Fig. 60).

On the south face of the East Screen Wall, in addition to approximately a half dozen missing nailers, and a few areas of spalled brick, there are three significant vertical cracks. The first, at the pier between bays four and five (counting east from the Entrance Pavilion), is approximately 1/16" wide and extends the full height of the wall. A similar crack occurs at the pier between bays 9 and 10. The top of the wall to the east of this crack is approximately a half inch further north than the top of the wall to the west of the crack. The third crack occurs in Bay 13, extending upward from the west corner of the meter house.

Slightly above grade level on the north face of the East Screen Wall is a header course, the top of which is approximately even with the interior concrete floor. The joint above this header course has cracked at the eastern half of the wall. The crack has previously been patched, but has reopened. The wall above this crack at the two most eastern bays has shifted to the north by ¼" to ½". Starting at the fifth pier from the east and working east, the piers have cracked at grade, with the upper portion of each pier having shifted to the east, by as much as two inches (Figs. 61 and 62). There is also a patched horizontal crack, especially noticeable at the east end of the wall, four courses above the header course at grade.

At the east end of the wall, the north face of the wall is mossy where water has washed off of the adjacent roof and over the face of the wall. There is also a fine layer of moss all along the bottom of the wall. The mortar joint under the cast stone coping needs to be repointed at the three bays adjacent to the Entrance Pavilion.

At the far east end of the East Screen Wall is a small brick meter room. The meter room is about seven feet tall, with walls one brick wythe thick. Like the far west meter room, this room has a raised concrete floor slab and a flat concrete roof. Also like the far west meter room, the door lintel is rusted, cracking the brick to either side of the lintel and causing the brick above the crack to move. At the floor line, a large crack starts to the east of the door and wraps around the structure to the west and north. The entire meter room above this crack has rotated clockwise about a half inch (Fig. 63).

(3) West Wing

The West Wing is a one story rectangular brick structure that encloses the west end of the women's changing courtyard and contains toilet rooms and first aid offices. Part of the original 1932 bath house, this wing has seen only minor alterations since that time. In 1941,[56] the original women's toilet room was divided and modified to accommodate a small men's toilet room. The existing windows were installed in 1964,[57] with doors being repaired or replaced at that time as well.

(a) Roof Systems

The roof of the West Wing is a modified hip roof, with small gables at the north and south ends. These gables are finished with plywood to which a rectangular metal louver unit is attached. From 1964 rehabilitation drawings[58] for the bathhouse, it would

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56. Drawing No. 646/62877, Alterations to Toilet Rooms, 1/23/41.

57. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

58. Ibid.

appear that those gables were originally (1932) fitted with full-size triangular louver units. The north gable is in fair condition. It is in need of paint, and the louver unit is dented and bent. The south gable is in poor condition, with the louver unit missing and the resulting hole boarded over. The exterior finishes of this gable will require replacement.

The roof itself is finished with asphalt shingles. The roof structure consists of wood trusses, with round steel center posts, bearing on exterior walls. The roof appears to be in excellent condition, with the exception of approximately 25 square feet of cracked or missing shingles that need to be replaced. The framing is in good condition.

The eaves of the West Wing are of wood and conceal a built-in gutter. The gutter has been covered over with a metal cap, which is now rusted. The seams of this cap have broken, allowing water to enter the gutter. While a visual inspection of the eaves indicates the north, south and west eaves are sound, at least half of the eaves along the east face are severely deteriorated, with the remaining half showing definite signs of rot and deterioration. Approximately 140 linear feet of eave need to be replaced.

In order to maintain the historic appearance of the wing, built-in gutters should be retained when repairing or replacing the eaves. The lining material and its detailing are critical to the gutters' performance. Copper with folded seams or an elastomeric membrane are suitable lining materials.

Like the downspouts around the entire bathhouse, the downspouts on the West Wing are of 4½" diameter cast iron pipe. There are eight downspouts at this wing, four each on the east and west sides. The upper sections of pipe are missing at the four eastern downspouts and at the far southern downspout of the western facade. These sections of pipe need to be replaced. Also, it should be verified that all downspouts drain properly and are not clogged.

(b) Walls

The exterior walls of the West Wing are constructed of a wythe of hollow clay tile on the interior and a wythe of brick on the exterior. The majority of the exterior brick is multicolor. The east facade between the north and south screen walls is of red brick. As with the rest of the bathhouse, individual bricks scattered throughout the wall are spalled or cracked. Approximately 15% to 20% of the brick needs replacement.

The exterior of the north facade is in good condition, with one very slight crack at the northwest corner pier. At the interior, the north wall is cracked horizontally at either side of Window 502, recracking a patched mortar joint below the window and stairstepping up to the west of the window.

The exterior and interior of the south facade is in good condition (Fig. 64).

The west facade is also in good condition, although the wall bows out to the west slightly below window 506. A large power pole is attached to the wall between windows 509 and 510 (Fig. 65). The interior face of the west wall has numerous problems at the toilet rooms. In the men's toilet horizontal cracks occur a course above and below the window sill, and the wall below and adjacent to window 507 bows inward slightly. Similar cracks occur in the west wall of the women's toilet room. Three courses of glazed structural tile immediately under windows 503 and 504 and extending south to Door 503 have been replaced at some time with concrete block and brick (Fig. 66). The interior finishes around windows 509, 510 and 511 are deteriorating due to water leaking in from the gutter (Fig. 67).

The condition of the exterior of the east wall is almost exactly the same as that of the west wall of the East Wing. Horizontal cracks occur where the north screen wall and meter house hit the West Wing. One crack, about window sill height, extends from inside the meter house south toward Window 528. Another crack occurs just above the floor in

the meter house and stair steps up to the south. The wall below both cracks bulges out toward the east. Just to the north of the screen wall below Window 529, the wall also bulges out to the east. At the juncture of the South Screen Wall and the West Wing, a horizontal crack extends from the screen wall, below Window 318 to the lower south corner of Window 319. A vertical crack occurs under Window 317. This crack has been patched before and has recracked.

On the interior, the wall has been rebuilt from the north wall to Window 528, using concrete block and brick in place of the glazed hollow tile. The concrete block has cracked vertically at the screen wall, and the top of this portion of wall is bowed in about an inch (Fig. 68).

At windows 517 and 518 the interior wall is severely bowed, with a large crack in the pier between the windows (Figs. 69 and 70). The gutter leaks profusely at this point with the water destroying the plaster ceiling and wall finishes. Cracks from differential settlement occur at the intersections of the interior walls and the east all.[59]

The loggia in the center of the West Wing is in fair condition. The walls are of glazed structural tile, of which approximately 35 square feet needs to be repointed. The floor is of concrete and is in good condition. The ceiling is plastered and is cracking (Fig. 71).

(c) Windows

The windows of the West Wing are of three types: glass block, glass block with aluminum hopper vents, and aluminum projected with a center hopper light and a fixed bottom light. These windows were installed in 1964,[60] replacing original (1932) casement windows. The windows are generally in good condition, although a number of glass blocks are broken at the east side of the wing. Approximately sixty glass blocks need to be replaced.

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59. Existing Conditions Report, Beyer Blinder Belle, Architects, 1985, p. 26.

60. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

The only undamaged glass block window at the West Wing is Window 512. This window is protected on the exterior by a chain link screen.

Windows 513, 514, 515, 516 and 517 were boarded up at the time the investigation for this report was done. These windows are of the projected variety to match the corresponding windows of the East Wing. Other projected type windows occur at windows 503, 504, 505, 506, 507, 510, 511, 524, 525, 526, 527, and 528. The bottom, fixed lights of windows 510, 511, 513, 514, 515, 516, and 517 are of dark glass, with upper lights of clear plate. The hopper lights of windows 508 and 509 are of clear plate. The remainder of the windows, including the small hopper vents set in glass block, are glazed with obscure glass.

The exterior window sills are all of cast stone. Eight of the sills are spalled with exposed rebar or are severely cracked, and require replacement. One sill has a previous patch which is beginning to crack. This sill should be replaced if it is not possible to adequately repair it. The interior sills in the toilet rooms are of glazed tile with the exception of window 528 which has a brick sill. All are in good condition. The interior sills in the first aid offices are of unknown type and condition.

The lintels at the toilet room and first aid offices windows are wooden, and those at windows 507, 509, 510, 511, 513, 514, 524, 525 and 526 are rotted. The remaining lintels, while not appearing to be rotted, should be inspected further to verify their condition. The lintels at windows 501 and 502 are covered over by the wall finish. The type and condition of these two lintels needs to be investigated. The lintel at window 301 appears to be jacking.

(d) Doors

All exterior doors of the West Wing are hollow metal doors. Door 501, at the south end of the wing is rusted under its paint. Doors 502 and 503 are rusted, dented and do not open and close completely or easily.

(e) Decorative features

The only decorative feature at the West Wing is a cast stone drinking fountain at the north end of the east facade. The fountain consists of a cast stone bowl on a cast stone pedestal, set into a cast stone niche. The fountain no longer works, with the bowl broken off at the wall and all the hardware missing (Fig. 72).

(4) East Wing

The East Wing is a one story rectangular brick structure that encloses the east end of the men's changing courtyard and contains toilet rooms and park police offices. While this wing was part of the original 1931 bath house it has seen some alterations since that time. In 1937,[61] the central entrance loggia area - like that still existing at the West Wing - was remodeled to house a police garage and to expand the police offices. The roof line was altered, the brick archways constructed and several new doors and windows installed (Fig. 73). New windows were installed throughout the wing in 1964.[62] Doors were rehabilitated or replaced at that time as well. Over the years, some of the partitioning of the police offices has altered. The current layout has been made sometime since 1964. In 1941,[63] the toilet rooms at the north of the wing were divided and modified into the present men's and women's toilets. Prior to 1941, the north end was devoted entirely to men's toilet facilities.

(a) Roof Systems

The roof of the East Wing is a modified hip roof with cross-gables at the midpoint of the wing. Small gables at the north and south ends of the roof are finished with plywood to which a rectangular metal louver unit is attached. From 1964 rehabilitation

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61. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

62. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

63. Drawing No. 646/62877, Alterations to Toilet Rooms, 1/23/41.

drawings[64] for the bath house, it would appear that these gables were originally fitted with full-size triangular louver units. The gable ends of the cross-gables are finished with their original stucco, wood cornice and trimwork, and round, wood louver units.

Like the West Wing, the roof is finished with asphalt shingles. The roof structure consists of wood trusses, with round steel center posts, bearing on the exterior walls. At the cross-gables, two trusses were removed. The cross-gables, according to 1937 drawings,[65] are framed with 2 x 6 rafters and 3 x 8 ceiling joists.

The roof itself appears to be in excellent condition. Approximately 15 square feet of cracked or missing shingles need to be replaced. Interior ceilings show no trace of any leaks or water damage. While the attic spaces and framing were not inspected for the preparation of this report, the Existing Conditions Report states that "the roof structure is dry and in good condition."[66] The north and south gables appear to be in stable condition. The north gable is well painted in Park Service brown, while the south elevation surely needs to be painted. The louver unit at the north gable is bent and dented. The east gable is in excellent condition with no visible repairs necessary. At the west gable, the stucco is cracked and crazed, and will need repairs. The wood trim appears to be in good condition. The condition of the stucco and wood elements of all four gables should be more closely verified before any repairs are planned.

The eaves of the East Wing are of wood and conceal a built-in gutter. The gutter has been covered over with a metal cap. This metal cap has rusted and the seams in it have broken, allowing water to enter

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64. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

65. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

66. Existing Conditions Report, Beyer Blinder Belle, Architects, June 1985, p. 26.

the gutter. While a visual inspection of the eaves indicates the eaves at the north, south and east sides of the wing are sound, at least half of the eaves along the west face are severely deteriorated, with the remaining half showing definite signs of rot and deterioration. Approximately 126 linear feet of eave need to be replaced on the west face of the wing (Figs. 74 and 75).

In order to maintain the historic appearance of the wing, built-in gutters should be retained when repairing or replacing the eaves. The lining material and its detailing are critical to the gutters' performance. Copper with folded seams or an elastomeric membrane are suitable lining materials.

The downspouts on the East Wing are of 4½" diameter cast iron pipe. There are eight downspouts at this wing, four each on the east and west sides. The upper sections of pipe are missing at the four western downspouts and at the far southern downspout of the eastern facade. These sections of pipe need to be replaced. Also, it should be verified that all downspouts drain properly and are not clogged.

(b) Walls

The exterior walls of the East Wing are constructed of a wythe of hollow clay tile on the interior and a wythe of brick on the exterior. The majority of the exterior brick is multi-color with the exception of the central portion of the east facade at the police garage and the entire west facade between the north and south screen walls, which are constructed of red brick. As with the rest of the bathhouse, individual bricks scattered throughout the wall are spalled or cracked. Approximately 15% to 20% of the brick needs replacement.

The exterior of the north wall of the East Wing is in good condition. Several badly spalled brick were noticed at the eastern edge of the wall. At the interior, the north wall has cracked horizontally below the windows and just below the ceiling. The crack at the windows actually begins about two feet above the floor at the northwest interior corner and

stair-steps up to about three feet below the ceiling where it continues horizontally (Fig. 76).

The exterior of the south wall is in fair condition. There is a deep "Y" shaped crack at the base of the east corner pier. The brick around the eastern arm of the "Y" is badly spalled. A much less severe vertical crack occurs in a similar location of the west corner. Also at the west corner is evidence of a previous horizontal crack at the same height as the adjacent window sill. This crack has been patched and has not reopened.

The exterior of the east wall of this wing is in good condition. The only problem, other than spalled brick, in this facade is a hole approximately one foot square, located in the second bay north of the pedimented area of the police garage. The grout with which the hole is currently filled should be removed and the hole filled in with brick. The southern half of the interior of this wing has no visible problems. The wall just to the south of the police garage shows evidence of moisture, with peeling paint and crumbling plaster. It may be that water runs in along the cable leading to a roof mounted antenna and then runs down the wall. Otherwise, the source of the moisture in the wall at this point is unknown. The east interior wall at the north end of the wing has several areas of cracking. The most severe area is at the far northern end of the wall, in the women's toilet room. The wall bows to the interior under the windows in this room, with horizontal cracking and loose tiles along the entire wall. The lintel above the southernmost window in the men's toilet room has jacked, cracking the wall above it.

The west wall of the East Wing has a number of significant structural cracks in it. The worst area is where the North Screen Wall hits the East Wing. There is a vertical crack in the exterior wall under the window to the north of the screen wall, with the bottom of the wall shifted slightly to the west (Fig. 77). To the south of the North Screen Wall, a horizontal crack occurs approximately halfway up the wall and extends from inside the meter house, south to the next window. Another

lower horizontal crack occurs inside the meter house, stairstepping up toward the south (Fig. 78). The wall below both of these cracks bows outward to the west. On the interior at this same point, the hollow clay the portion of the wall bows inward to the east, accompanied by horizontal and stair-stepping cracks in the wall (Fig. 76). A similar, though less severe condition, occurs at the juncture of the South Screen Wall, with the east wing. Horizontal cracks extend, under the adjacent window, north approximately twelve feet from the screen wall. The wall below this crack leans to the west (Fig. 79). To the south of the screen wall, three courses of brick above the adjacent window sill have shifted to the west. The interior of the wall at this location is cracked and jacked at the window sills.

(c) Windows

The windows in the East Wing are of two types: glass block with aluminum hopper vents, and aluminum projected with a center hopper light and fixed bottom light. These windows were installed in 1964,[67] replacing the original windows, which, presumably, were wood or metal casement units. The windows are in good condition, although several glass blocks are broken at windows of the west side. A total of approximately ten glass blocks need to be replaced. Windows 613, 614, 615, 616, and 617 of the police reception area are glazed wih clear plate, the bottom pane of each window covered with a dark film. This dark pane is broken at window 617. The remainder of the projected windows are glazed with obscure glass.

The exterior window sills are all of cast stone. Twelve, or approximately 40% of the sills, are spalled, with rebar exposed, or severely cracked, and warrant replacement. Another sill or two require patching. The majority of the deteriorated sills are those on the south and south west portion of the wing and those most exposed to the prevailing winds and weather (Fig. 80). The interior sills are of glazed

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67. Drawing No. 646/62806, Rehabilitation of the Exterior, 1/17/64.

tile, with the exception of two slate sills at windows 624 and 625. The interior sill at Window 623 is cracking.

In the toilet rooms at the north half of the wing, the wood lintels of the east and west windows are visible. Two lintels are rotted to the point of falling apart, while another five lintels appear to be rotted (Fig. 81). While it may be assumed that the lintels of the north windows are also of wood, the wall finishes run right up to the window itself, preventing verification of the type or condition of these lintels. As the interiors at the south half of the East Wing are finished with plaster, it is not possible to determine the type or condition of the window lintels. However, drawings do exist for the 1937 modifications to the police garage area.[68] These drawings show several steel angles at the heads of the two new windows, windows 624 and 625. The exterior lintel at Window 624 is rusted and sagging, and needs to be replaced. The type and condition of all lintels not readily visible need to be verified by further investigation.

(d) Doors

The exterior doors of the East Wing, with the exception of the overhead door of the police garage and Door 602, are all hollow metal doors. At the south facade, the entry into the police reception area is by double metal doors in a metal frame. These are in fair condition, with some rust showing under the paint and with a small rust hole at the bottom of the eastern door. The toilet room doors on the east side of the wing are also in fair condition. These doors are wide, single doors, are ill-fitting and do not completely open or close without difficulty. In addition to having small spots of rust under the paint, the doors are dented and the women's toilet room door is locked with a hasp and padlock as the regular lock cylinder is missing. The panels above the toilet room doors are of painted plywood, with a somewhat unsightly gap between these panels and the soffit trim.

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68. Drawing No. 646/62854, Alterations to Bath House, 3/4/37.

The overhead door at the police garage is wooden, and of panel construction with three panels horizontally and seven panels vertically. Evidently, this is not the original garage door as the 1937 drawings[69] show a wood overhead door of six panels by seven panels. The current door is in good condition. One panel is, however, covered over on the exterior with plywood, implying that panel is damaged. This panel needs to be repaired or replaced.

On either side of the police garage are brick archways, the north are opening onto a passage leading to the men's changing area and the south one opening into a police office. When this section of the East Wing was altered in 1937,[70] both archways opened into short passages. Both openings have since been filled in with doors. The north archway (Door 604) has been filled in by the National Park Service with a plywood-faced partition, inset with a metal door. While the door and the surrounding infill are in good condition, the door loosely fits the opening and the entire assembly is of a temporary character. While this door could be replaced during an exterior rehabilitation project, it would be more appropriate to replace this door after a new use for the building has been determined allowing the most suitable type of door to be installed.

The archway Door 602 has been filled in, at an unknown date, with a wood fanlight, double flush wood doors, and double wood screen doors. The fanlight needs some minor repairs, while the wood doors are in good condition. The screen doors are in good condition except for loose and torn screening.

(e) Decorative Features

The only decorative feature at the east wing is a cast stone drinking fountain at the north end of the west facade. The fountain consists of a cast stone bowl on a cast stone pedestal, set into a cast stone niche. All of the cast stone elements are

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69. Ibid.

70. Ibid.

in good condition. The fountain no longer works, and all hardware is missing (Fig. 82).

c. Exterior Materials/Structural Summary

As discussed in the existing conditions for the bathhouse complex, corrective measures must be undertaken to arrest deterioration of building fabric. These measures however must be appropriate and feasible whether preserving the existing or replacing-in-kind known original fabric for the current and proposed uses (adaptive uses) and appearance of the building.

In any effort to preserve and rehabilitate the bathhouse its structural stability and weathertightness are of prime concern, and are inherent in the performance of its exterior fabric or envelope (roof, walls, windows, doors, column etc.). However, the 1937 appearance of fabric will also be considered and possibly used when determined that it is feasible to do so, and that the quality of treatment is not diminished.

Treatment will be in keeping with the "Secretary of the Interior's Standards for Rehabilitation" and is outlined in the discussion below.

(1) Roofs

All roofs, for instance, shall be made weathertight and structurally sound. Their current finishes and drainage system shall be repaired or replaced and any structural deficiencies shall be corrected.

At the Entrance Pavilion and both the East and West Wings the roofs are structurally sound but their finishes are not weathertight.

Finishes on the built-up roofs of the Entrance Pavilion should be replaced due to their cracking, deterioration and inability to drain properly. Inferior performance has resulted in leaks at the building interiors.

Although the current finishes are similar to those of 1937, they are superior and should only be replaced-in-kind or with other built-up roofing materials that surpass their performance. Because of the hidden nature of the roof, appearance is not important, but durability for protection of the structure should not be compromised. Drains and leaders should also be repaired.

Gables and false hip roofs of this section need only be repaired with materials matching its green asphalt shingles in-kind. Several of its gutters and downspouts should be rebuilt, repaired or replaced.

The gable roofs of the wings should also be repaired with materials to match the existing finishes and their cornices and built-in gutters should be repaired or rebuilt and the downspouts replaced.

No attempt should be made to reinstall the original 1937 finishes (asbestos shingles) on the gable or false hips of the Entrance Pavilion, East Wing or West Wing, because of the health hazards and limited availability of the material. Asbestos has been associated with respiratory and other health problems such that its availability is limited by law. It may be possible however, to salvage this material from other buildings or duplicate the shingles appearance in the use of a substitute material. Moreover, since the exact color or arrangement of the original shingles are unknown and duplicate materials have in some cases been proven inferior when representing original fabric, the use of savaged shingles or duplicate shingles is considered unacceptable.

Overall, roofs of the Beach Pavilion are in good condition, but repairs or replacements to finishes, gutters, leaders, or downspouts and even the concrete roof deck are needed to make them weathertight. Repairs should be made to preserve and retain the current gables' finishes since reinstallation of the original asbestos finishes are not feasible for the reasons above. The roof gutters and downspouts however should be replaced.

The flat built-up roofs and their concrete decks (the terraced areas--Part 2) should be replaced with similar materials. The roofs' structural framing should be examined by a structural engineer to correct deficiencies caused by water leaks. Roof drains and leaders should also be replaced at the same time the roofs are replaced to help stop the wetting and dampness of the interior spaces.

(2) Walls, Windows, Doors, and Structure

Walls of the bathhouse complex all have similar problems which should be treated similarly. Problems of insufficent thermal controls, wetting and freeze/thaw, and improper maintenance in the salt laden environment are the bulk of these problems and should be treated to make the building weathertight and structurally sound as outlined in the discussion below.

Insufficient thermal controls (lack of expansion joints) have caused uncontrolled cracking along walls, (building walls and screen walls) and reopening of cracks that were repaired indicates that the problems are not relieved.

Ideally, these problems could be relieved if vertical control joints were introduced along the walls, but this treatment is not recommended for the building walls. Installation of these joints will alter the appearance of and possibly create other problems (e.g.: water penetration and freeze/thaw) if the joints are not properly constructed.

A most effective means to stop or reduce expansion at the exterior walls of the building is to heat the buildings' interiors during the winter months. Heating the interior spaces will prevent the exterior walls from becoming excessively cold and at the same time reduce its expansion and cracking. The reduction of cracks and expansion will keep the wall watertight and maintain its structural integrity. Measures to heat the interior spaces should be taken as soon as possible.

Walls around the courtyard should be stabilized and made structurally sound.

Water and freeze/thaw problems are partially caused by water infiltration in the expansion cracks or deteriorated mortar joints and brick faces of the walls during the winter months. Water sources for the freeze/thaw action comes from the leaking or non-existant gutters and downspouts, compounded by rain, snow, and water vapor in the salt-laden environment.

Problems of water and freeze/thaw can be corrected if water infiltration in the walls is stopped or minimized extensively. All cracks and the porous faces of the walls should be repaired and deteriorating and non-existant gutters and downspouts should be repaired and replaced.

Moisture penetration of the porous walls in the salt laden environment is probably the most difficult and controversial problem to solve. But in light of its affects on the structural stability and longevity of the wall fabric, measures must be taken to remedy the current problems.

First, all cracks and deteriorated mortar joints should be repointed to seal them from possible water penetration. In doing so the mortar used should be compatible with the deteriorating or porous brickwork so that it will not damage the already feathered edges. Should the mortar and brickwork not be compatible in all joints throughout the wall, the existing mortar should be raked down 2½ times the joints thickness and the walls repointed with a compatible mortar. Once the walls are repointed they should be thoroughly cleaned.

Secondly, the cleaning of the walls should be performed to remove all loose mortar, dirt and other stains that blemish its appearance. Only a soft bristle brush and low pressure water are deemed necessary for this task. When washing has been completed the walls should be left so that they are thoroughly dried.

Finally when the walls have dried an attempt should be made to stabilize their porous surfaces from water penetration. Common surface treatments using water repellant or waterproofing coatings have been used to stop water infiltration in masonry walls, but no treatment has been proven totally successful and free from damaging consequences.

Studies show that clear water repellant coatings such as silicone or silane has had little success in treating water infiltration in walls, because although they keep liquid water out they allow water vapor to enter. Once the water is in the walls the water repellent coating prevent the water and dissolved salts from coming completely to the surface and then the problems began. Water trapped in the walls could cause damage to them under freeze thaw conditions and with the pressures from the salts if the wall should dry out. Such damage could result in cracking and spalling of the wall surface.

Waterproof coatings will not cause problems in the walls as long as no water is allowed to enter. However, under normal operating conditions it is almost impossible to keep the building totally dry. For example, the users and environmental control systems when installed would contribute to moisture in the walls. In addition some moisture would enter the walls over time just from the surrounding atmospheric conditions. Should the water enter the walls and is trapped behind the impervious coating it may seek the path of least resistance and return to the interiors causing water damage there. But if the water does not return to the interiors it would remain in the wall and damage it under freeze and thaw conditions.

In spite of the problems associated with the water repellant or waterproof surface coatings, a greater problem lies in the unprotected porous and deteriorating wall surfaces left exposed to the salt-laden environment. Consequently, a coating should be considered.

Evaluation of the two coatings indicate that over time the water repellent coating will be less damaging to the structure if all sources of water problems (gutters, downspouts, roofs and the waterproof coating)

are deleted. The water repellent coating should be a cement based or water thinned paint on the brick and concrete walls and a clear silicone coating on the cast stone trim and sills. These materials are alkali resistant and highly permeable and will render the building's appearance as it was when painted during the 1937 alterations. However, no coating should be applied over all the wall surfaces until its effects on the wall have been tested, studied and found suitable. The wall should also be cleaned of all salts and consolidated before a coating is applied.

When waterproofing and stabilizing the walls, columns and window sills, wall openings (doors and windows) and lintels should be repaired or replaced in an effort to make the entire building weathertight and structurally sound. All joints between the frames and openings of the doors and windows should be recaulked and the lintels should be cleaned, treated and reinstalled or replaced. Lintels replacements should be made with stainless steel lintels that would resist corrosion.

Concern has been given to several structural problems throughout the bathhouse complex.

At the Beach Pavilion there is foundation settlement between the walls of Part 2 and Parts 1 and 3. Although settlement appears to be inactive at this time it should be checked out by a structural engineer.

Walls of the East and West Wings are buckling along the piers at the point where they intersect the screen walls of the courtyard. Part of the problem is due to water erosion of the masonry walls just below the leaking gutters, and expansion of the Screen Walls in the area. However since the truss rafters of the roofs rest directly on the piers, the building's structural integrity is threatened. This area should be examined by a structural engineer.

Meter Rooms intersecting the Screen Walls and Wings at the north elevation should also be examined, due to their movement which appears to be caused by several factors (expansion, water damage).

d. Evolution and Existing Conditions Drawings and Photos

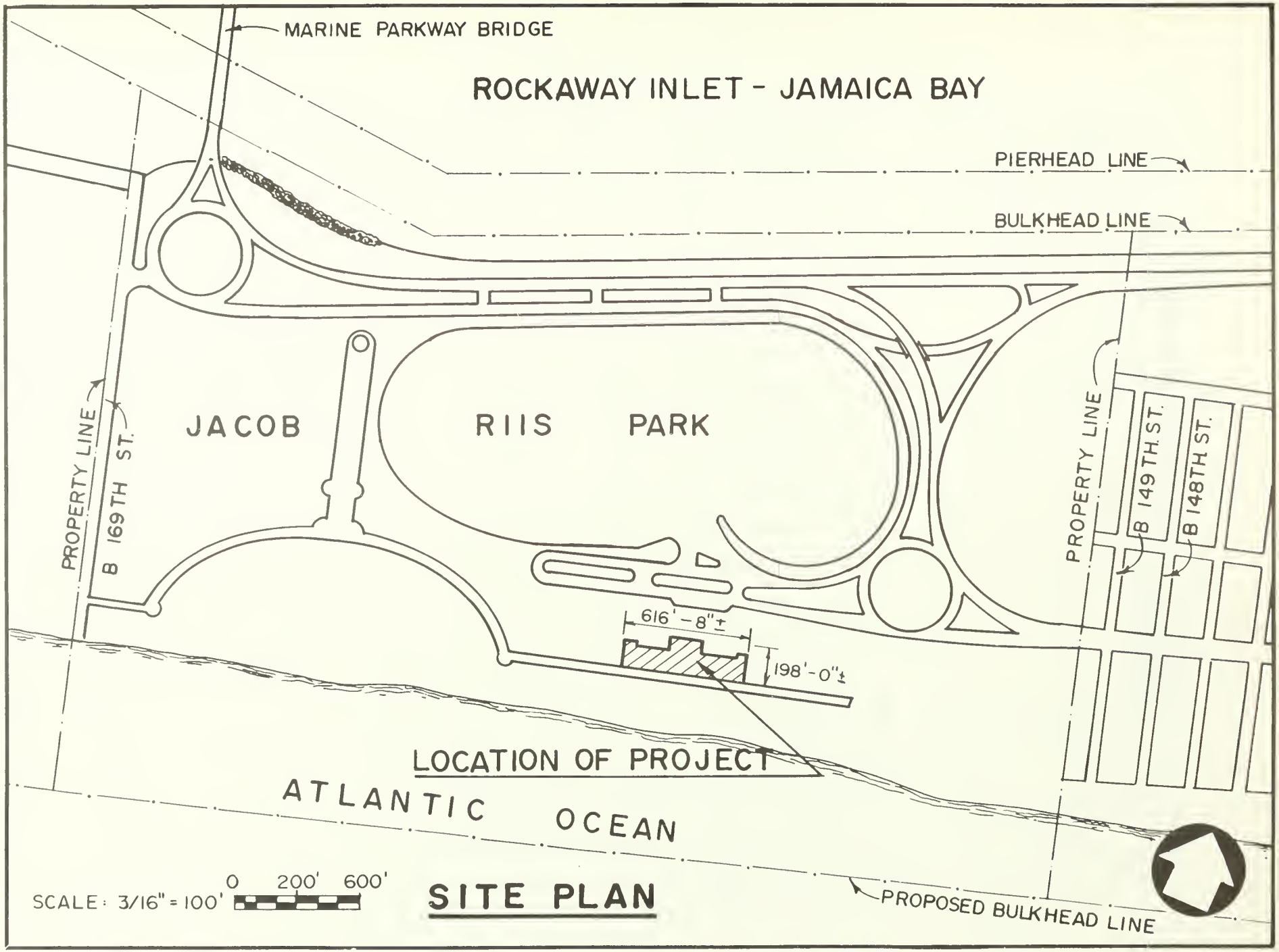

MARINE PARKWAY BRIDGE
ROCKAWAY INLET - JAMAICA BAY
PIERHEAD LINE
BULKHEAD LINE
PROPERTY LINE
B 169TH ST.
JACOB RIIS PARK
PROPERTY LINE
B 149TH ST.
B 148TH ST.
616'-8"±
198'-0"±
LOCATION OF PROJECT
ATLANTIC OCEAN
SCALE: 3/16" = 100'
0 200' 600'
SITE PLAN
PROPOSED BULKHEAD LINE

FIG. 1

11/1985

Figure 2: Beach Pavilion (Part 2) and Towers 1934.
Photo: Courtesy of N.Y.C. Department of Parks and Recreation.

Figure 3: Upper deck, stairs and tower of Beach Pavilion (Parts 2 and 3), 1934.
Photo: Courtesy of N.Y.C. Department of Parks and Recreation.

Figure 4: Beach Pavilion (Parts 1, 2, and 3), 1936. Note building is not painted at this time.
Photo: Courtesy of N.Y.C. Department of Parks and Recreation.

Figure 5: Entrance Pavilion (Part 4), and tower construction in progress, 1937.
Note Entrance Pavilion was painted at this time.
Photo: Courtesy of N.Y.C. Department of Parks and Recreation.

Figure 6: Beach Pavilion (Parts 1, 2, and 3), 1937. Building was painted at this time and upper levels of towers constructed.
Photo: Courtesy of N.Y.C. Department of Parks and Recreation.

Figure 7: Roof framing at Beach Pavilion. Note wood trusses with steel central post. Ceiling framing below.
NPS photo October 1985.

Figure 8: Ceramic veneer (terra-cotta) the roof finish at Beach Pavilion. Note missing ridge coping to left. Broken tiles lay under scaffolding.
NPS photo, October 1985.

Figure 9: Faulty counterflashing at base of West Tower. Flashing pulling out from joints in wall. Joints needs repointing.
NPS photo, October 1985.

Figure 10: Rusting drip flashing at roof edges, West Tower. Note cornice and eaves below, and faulty counterflashing at base of tower. Tar at joints of flashing is deteriorating.
NPS photo, October 1985.

Figure 11: Built-up roof of Part 2 looking east. Worn areas of roof found to have water below surface of felt. East Tower in background.
NPS photo, October 1985.

Figure 12: Built-up roof in front of Utility Penthouse.
NPS photo, October 1985.

Figure 13: Built-up roof looking west. Worn areas indicate presence of water as on east side. West Tower in background.
NPS photo, October 1985.

Figure 14: Water damaged plaster and clay tile chase in kitchen area. Problem caused by damaged roof leader. Other moisture around this area is attributed to poor venitlation and lack of temperature controls in the unconditioned space.
NPS photo, October 1985.

Figure 15: Other moisture problems in second floor area. Plaster and concrete coatings are spalling at beams and ceilings. Paint also blistering and peeling.
NPS photo, October 1985.

Figure 16: Moisture problems in kitchen area at beams, ceilings, and clay tile chase areas.
NPS photo, October 1985.

Figure 17: Sandblasted wall outside of "Shed A" (see Existing Conditions drawings). Shed walls to right.
NPS photo, October 1985

Figure 18: Unabraded brickwork at interior of "Shed A." No sandblasting occurred here and remnants of older paint remain.
NPS photo, October 1985.

Figure 19: Closeup of unabraded wall beneath "Shed A." Note paint at mortar joints and on brickwork. NPS photo, October 1985.

Figure 20: Typical oxide jacking at concrete canopies. Rust and steel bars visible. Typical rollup doors below canopy.
NPS photo, October 1985.

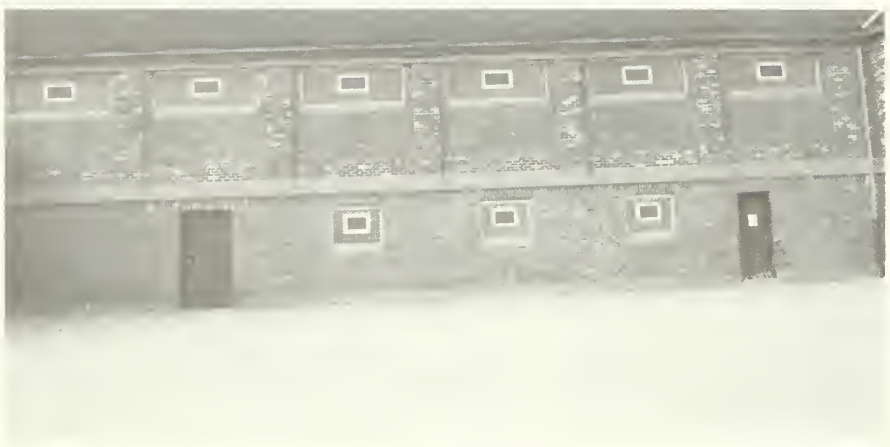


Figure 21: South Elevation--Part 3. Lintels between windows rusting and damaging walls between them. Conditions prevail at first floor of this facade.
NPS photo, October 1985.

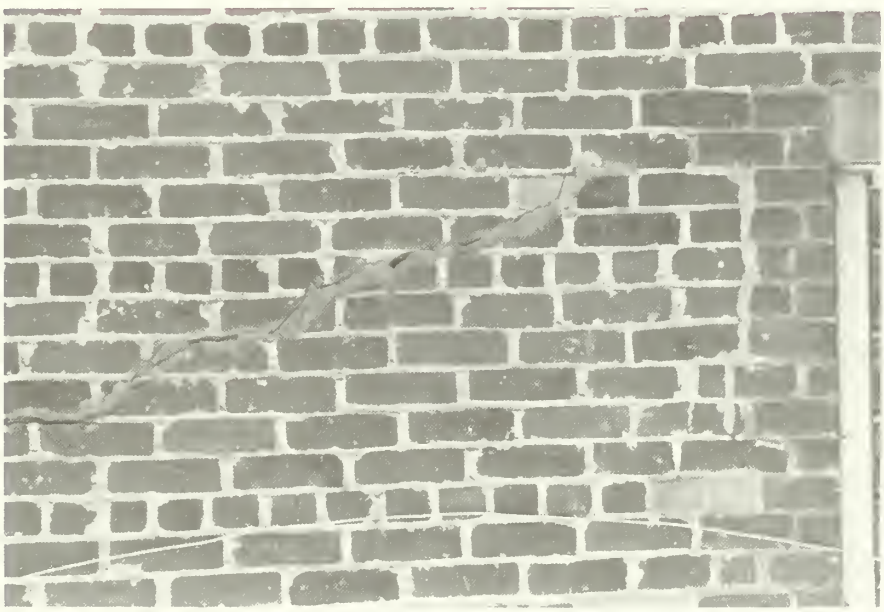


Figure 22: Typical condition of repaired cracks. Cracks are reopening.
NPS photo, October 1985.

Figure 23: North elevation--part 2. Cracks typical at corners and in line of windows due to oxide jacking of steel lintels.
NPS photo, October 1985.

Figure 24: Elevation of loggia (North Elevation--Part 2). Note typical glass block windows with vents used throughout the Beach Pavilion. Problems of concrete in beams, columns and ceiling typical.
NPS photo, 1985.

Figure 25: Typical aluminum projected window at Pavilion. Only a few remain. Note also rusting lintel above. Rusting lintels typical but worst at some windows.
NPS photo, 1985.

Figure 26: Tower roof--typical at East and West towers. Roofs leak between top of wall and roof finish, and at hatchway.
NPS photo, October 1985.

Figure 27: Tower roof framing--typical.
NPS photo, October 1985.

Figure 28: Deteriorating walls and decorative features at towers. Note also solid glass block windows.
NPS photo, October 1985.

Figure 29: Solid glass block masonry openings and damp walls in towers. Note pigeon waste at floor.
NPS photo, October 1985.

Figure 30: Flush doors at towers and penthouse. Doors typical throughout Beach Pavilion.
NPS photo, October 1985.

Figure 31: West Screen Wall: Masonry conditions typical to those of building walls (Pavilion).
NPS photo, October 1985.

Figure 32: East Screen Wall: Walls conditions similar to those of West Screen Wall.
NPS photo, October 1985.

Figure 33: Central built-up roof at Entrance Pavilion, looking southeast.
NPS photo, 1985.

Figure 34: Typical skylight at Entrance Pavilion, interior view.
NPS photo, 1985.

Figure 35: North gutter at Entrance Pavilion.
NPS photo, 1985.

Figure 36: North side of Entrance Pavilion.
NPS photo, 1982.

Figure 37: Ornate brickwork and turret at Entrance Pavilion. NPS photo, 1985.

Figure 38: Typical wall conditions, with bolts at interior of Entrance Pavilion arcade.
NPS photograph, 1985.

Figure 39: Plaster molding damage at door 410, Entrance Pavilion.
NPS photo, 1985.

Figure 40: Plaster wall deterioration at door 409, Entrance Pavilion.
NPS photo, 1985.

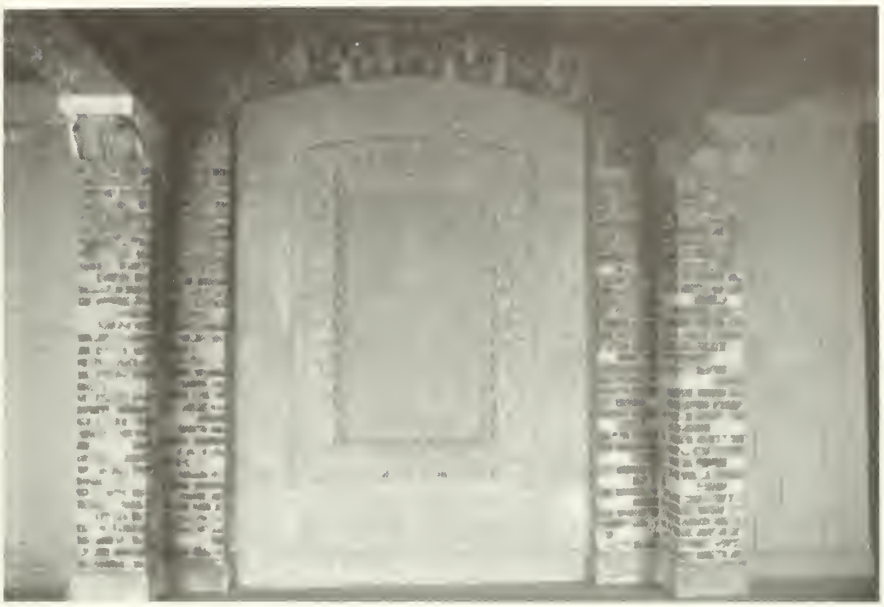


Figure 41: Cast stone wall panel at Entrance Pavilion.
NPS photo, 1985.

Figure 42: East end of Entrance Pavilion arcade, showing red brick infill at right.
NPS photo, 1985.

Figure 43: West end of Entrance Pavilion arcade. NPS photo, 1985.

Figure 44: East end of Entrance Pavilion arcade. NPS photo, 1985.

Figure 45: East side of Entrance Pavilion. NPS photo, 1985.

Figure 46: East side of Entrance Pavilion.
NPS photo, 1985.

Figure 47: West side of Entrance Pavilion.
NPS photo, 1985.

Figure 48: South wall at east side of Entrance Pavilion.
NPS photo, 1985.

Figure 49: South wall of Entrance Pavilion. NPS photo, 1985.

Figure 50: Beam D of the Entrance Pavilion. NPS photo, 1985.

Figure 51: Coffered ceiling bay KL at the Entrance Pavilion.
NPS photo, 1985.

Figure 52: Typical ticket booth windows.
NPS photo, 1985.

Figure 53: Typical cast stone columns, showing deterioration before patching.
NPS photo, 1982.

Figure 54: Typical column capital with efflorescence.
NPS photo, 1985.

Figure 55: Typical arch decoration.
NPS photo, 1985.

Figure 56: Door into meter room, West Screen Wall.
NPS photo, 1985.

Figure 57: pier at West Screen Wall.
NPS photo, 1985.

Figure 58: Pier at West Screen Wall.
NPS photo, 1985.

Figure 59: Meter room at West Screen Wall.
NPS photo, 1985.

Figure 60: South face of East Screen Wall, showing brick infill at bay 9.
NPS photo, 1985.

Figure 61: Pier at East Screen Wall.
NPS photo, 1985.

Figure 62: Pier at East Screen Wall.
NPS photo, 1985.

Figure 63: Meter Room at East Screen Wall.
NPS photo, 1985.

Figure 64: South end of West Wing.
NPS photo, 1985.

Figure 65: West Wing, West Elevation, showing spalling sills at windows 509, 510, and 511.
NPS photo, 1985.

Figure 66: Interior of women's toilet room, West Wing, looking north.
NPS photo, 1985.

Figure 67: Water damage at Windows 510 and 511, West Wing.
NPS photo, 1985.

Figure 68: Rebuilt east wall, women's toilet room, West Wing.
NPS photo, 1985.

Figure 69: East wall bulging out, Windows 517 and 518, West Wing.
NPS photo, 1985.

Figure 70: Bow in east wall, Window 518, West Wing.
NPS photo, 1985.

Figure 71: West Wing loggia, cracks in ceiling. NPS photo, 1985.

Figure 72: Drinking fountain at West Wing. NPS photo, 1985.

Figure 73: Police garage at East Wing.
NPS photo, 1985.

Figure 74: Typical eave conditions. East Wing.
NPS photo, 1985.

Figure 75: West wall of East Wing, showing typical eave and sill conditions.
NPS photo, 1985.

Figure 76: Men's toilet room, East Wing, looking north, showing bow in west wall.
NPS photo, 1985.

Figure 77: Wall bulging out under Window 631, East Wing.
NPS photo, 1985.

Figure 78: Interior of East Meter Room showing crack in west wall of East Wing.
NPS photo, 1985.

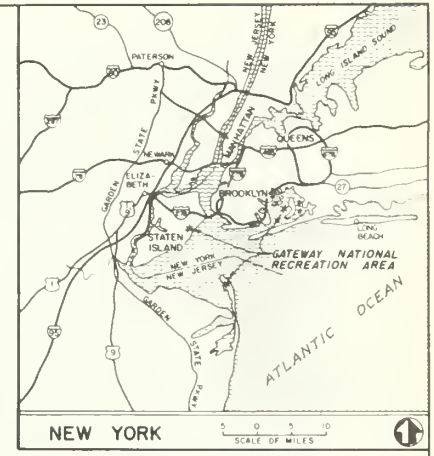
Figure 79: Wall bowing out under Window 618, East Wing.
NPS photo, 1985.

Figure 80: Dark stain and waxy efflorescence at Window 618, East Wing.
NPS photo, 1985.

Figure 81: Rotten lintel at Window 629, East Wing. NPS photo, 1985.

Figure 82: Drinking fountain at East Wing. NPS photo, 1985.

GATEWAY NATIONAL RECREATION AREA



LEGEND

WINDOWS

- (a) GLASS BLOCK
- (b) SINGLE OR DOUBLE VENTS
- (c) PROJECTED (2 OR 3 LIGHTS)
- (d) BOARDED WITH PLYWOOD
- (e) BRICKED
- (f) LOUVER

DOORS

- [A] ROLLING METAL
- [B] SINGLE OR DOUBLE WOOD
- [C] BRICKED
- [D] METAL
- [E] LOUVER
- [F] PLYWOOD OVER DOOR
- [G] TRANSOM BOARDED WITH PLYWOOD

INDEX TO DRAWINGS

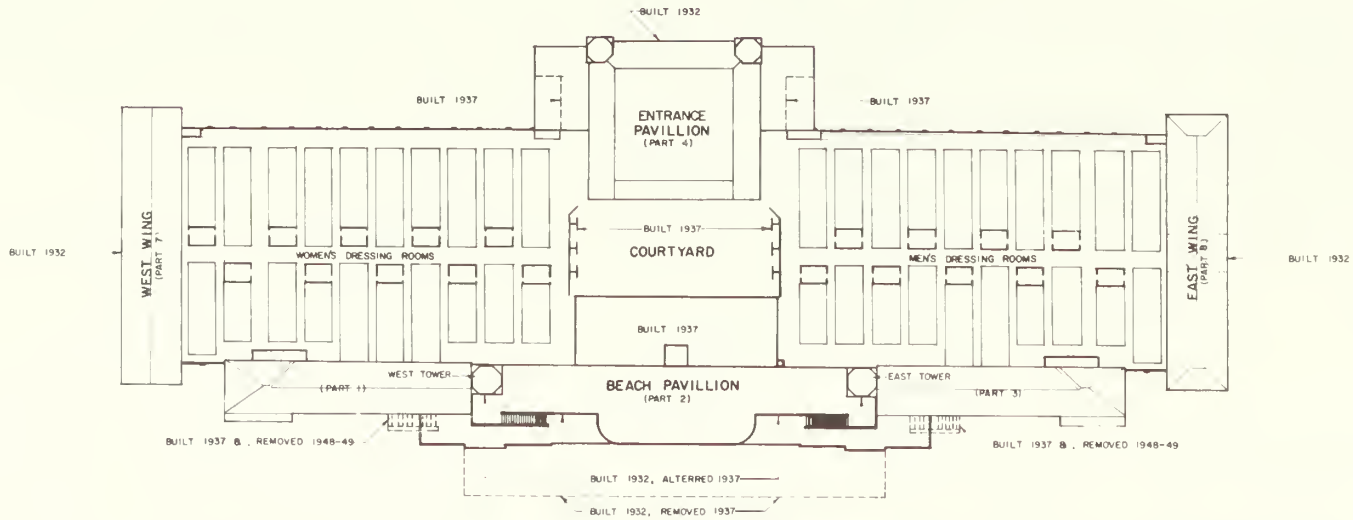
SYMBOLS

- MODERATE DETERIORATION
- SEVERE DETERIORATION
- CRACKS
- CRACKS, PATCHED & REOPENED
- BROKEN OR MISSING GLASS
- STONE

SCALE OF MILES
SCALE OF KILOMETERS

EXISTING CONDITIONS	DESIGNED VARIOUS	TITLE OF DRAWING: JACOB RIIS BATHHOUSE EXTERIOR H.S.R. DRAWINGS	DRAWING NO. 646 25,010
UNITED STATES DEPARTMENT OF THE INTERIOR	DRAWN DRAFTING BR	LOCATION WITHIN PARK: JACOB RIIS PARK	PKG NO. 0514 SHEET 1
NATIONAL PARK SERVICE DENVER SERVICE CENTER	TECH REVIEW LAFLEUR	NAME OF PARK: GATEWAY NATIONAL RECREATION AREA	OF 11
	DATE 11/85	REGION NORTH ATLANTIC · COUNTY QUEENS · STATE N.Y., N.J.	

BASIC DATA DSC 4572/80,001, COVER REVISED AND REDRAWN 10/84



PLAN BATHHOUSE COMPLEX

SCALE 1/32"= 1'-0" 0 4 8 16 32 FT

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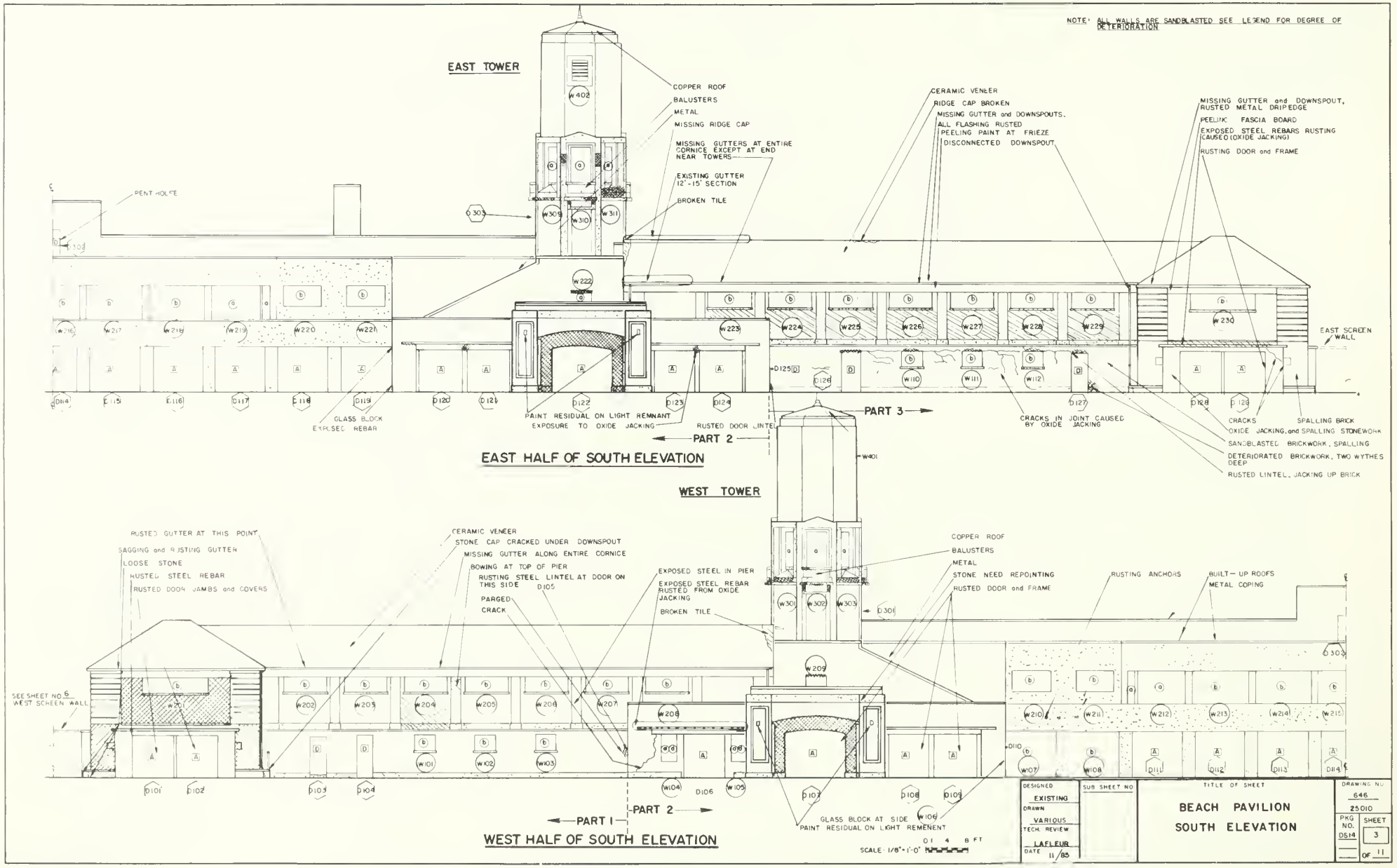
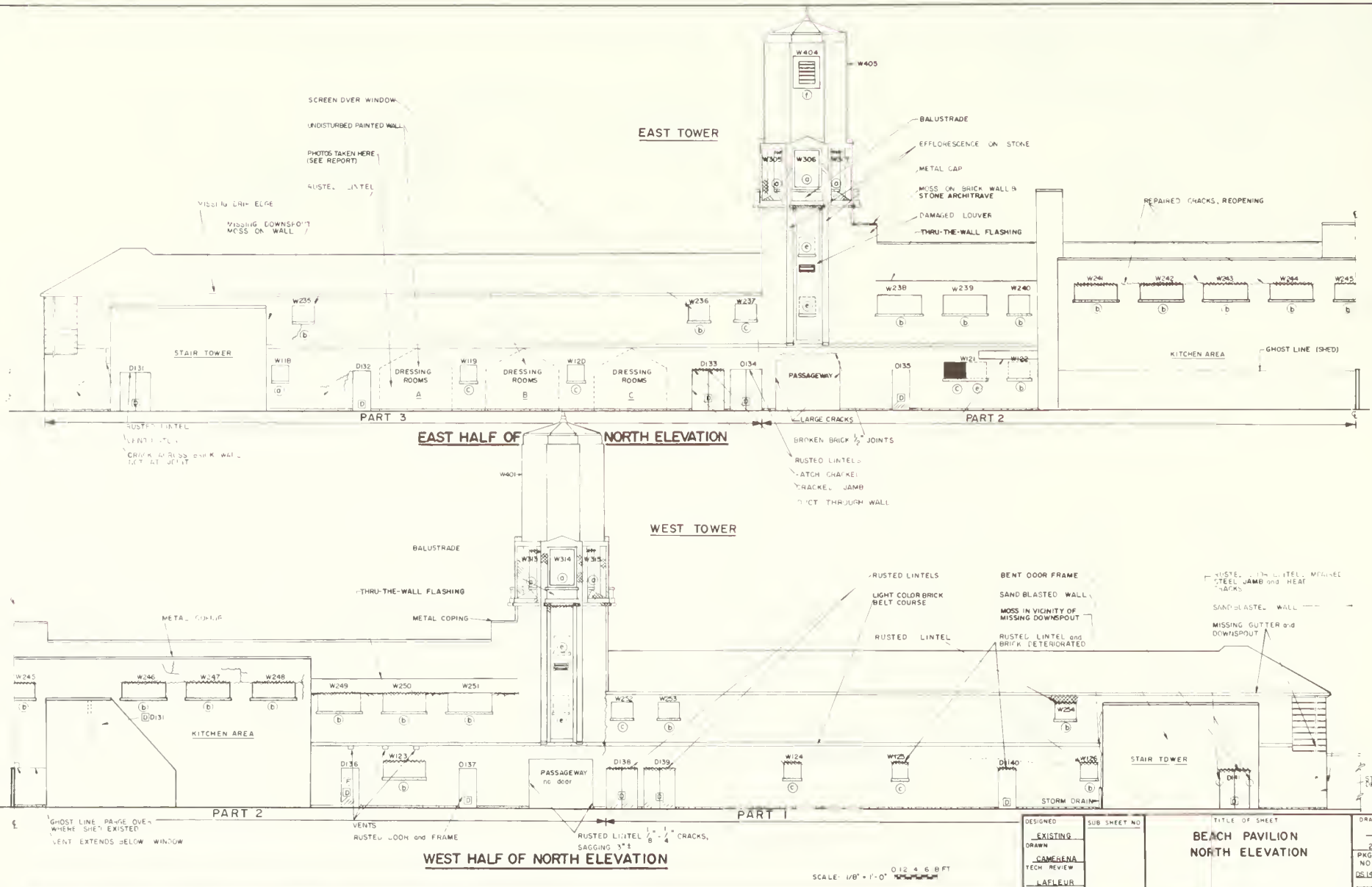
DESIGNED EXISTING	SUB SHEET NO	TITLE OF SHEET: EVOLUTION / EXISTING CONDITION PLAN	DRAWING NO 696 25010
DRAWN CAMERENA			PKG NO DS14
TECH REVIEW LAFLEUR			SHEET 2 OF 11
DATE 11/85			


NOTE: ALL WALLS ARE SANDBLASTED SEE LEGEND FOR DEGREE OF DETERIORATION
EAST TOWER
COPPER ROOF
BALUSTERS
METAL
MISSING RIDGE CAP
MISSING GUTTERS AT ENTIRE CORNICE EXCEPT AT END NEAR TOWERS
EXISTING GUTTER 12'-15' SECTION
BROKEN TILE
PENT HOUSE
CERAMIC VENEER
RIDGE CAP BROKEN
MISSING GUTTER and DOWNSPOUTS.
ALL FLASHING RUSTED
PEELING PAINT AT FRIEZE
DISCONNECTED DOWNSPOUT
MISSING GUTTER and DOWNSPOUT, RUSTED METAL DRIPEDGE
PEELING FASCIA BOARD
EXPOSED STEEL REBARS RUSTING (CAUSED (OXIDE JACKING)
RUSTING DOOR and FRAME
EAST SCREEN WALL
GLASS BLOCK EXPOSED REBAR
PAINT RESIDUAL ON LIGHT REMNANT EXPOSURE TO OXIDE JACKING
RUSTED DOOR LINTEL
CRACKS IN JOINT CAUSED BY OXIDE JACKING
CRACKS
SPALLING BRICK
OXIDE JACKING, and SPALLING STONEWORK
SANDBLASTED BRICKWORK, SPALLING
DETERIORATED BRICKWORK, TWO WYTHES DEEP
RUSTED LINTEL, JACKING UP BRICK
PART 3
PART 2
EAST HALF OF SOUTH ELEVATION
WEST TOWER
RUSTED GUTTER AT THIS POINT
SAGGING and RUSTING GUTTER
LOOSE STONE
RUSTED STEEL REBAR
RUSTED DOOR JAMBS and COVERS
CERAMIC VENEER
STONE CAP CRACKED UNDER DOWNSPOUT
MISSING GUTTER ALONG ENTIRE CORNICE
BOWING AT TOP OF PIER
RUSTING STEEL LINTEL AT DOOR ON THIS SIDE
PARGED CRACK
EXPOSED STEEL IN PIER
EXPOSED STEEL REBAR RUSTED FROM OXIDE JACKING
BROKEN TILE
COPPER ROOF
BALUSTERS
METAL
STONE NEED REPOINTING
RUSTED DOOR and FRAME
RUSTING ANCHORS
BUILT-UP ROOFS
METAL COPING
SEE SHEET NO. 6 WEST SCREEN WALL
GLASS BLOCK AT SIDE
PAINT RESIDUAL ON LIGHT REMENENT
PART 1
PART 2
WEST HALF OF SOUTH ELEVATION
SCALE: 1/8"=1'-0"
0 1 4 8 FT
DESIGNED EXISTING
DRAWN VARIOUS
TECH. REVIEW LAFLEUR
DATE 11/85
SUB SHEET NO
TITLE OF SHEET
BEACH PAVILION
SOUTH ELEVATION
DRAWING NO. 646
25010
PKG NO. 0514
SHEET 3
OF 11



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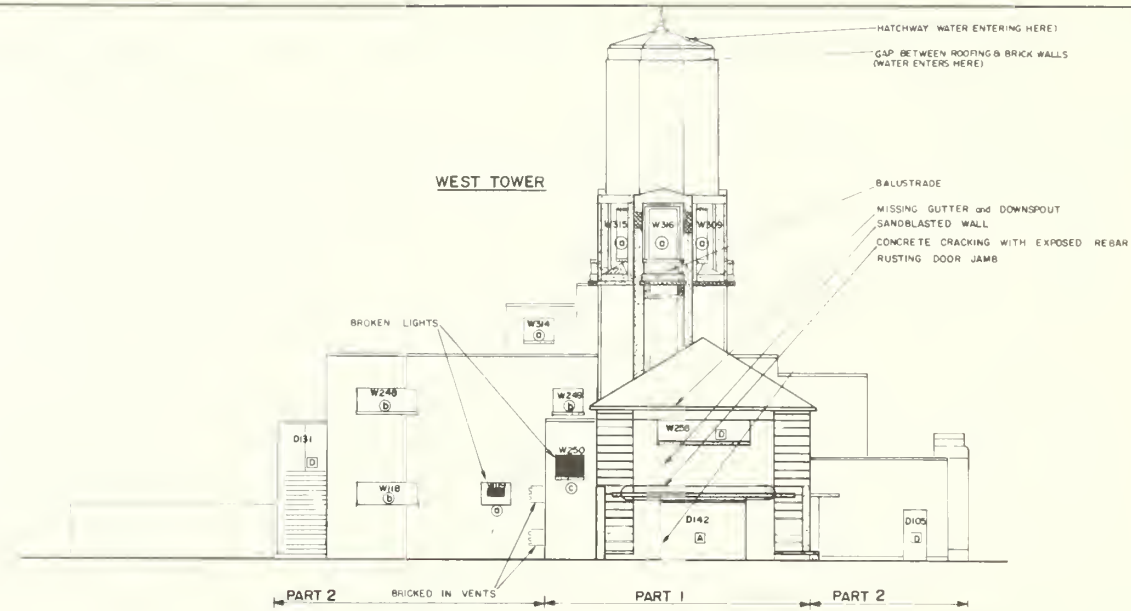
DRAWN CAMERENA		BEACH PAVILION NORTH ELEVATION	PKG NO DS19
TECH REVIEW LAFLEUR			SHEET 4 OF 11
DATE 11/85			



WEST ELEVATION

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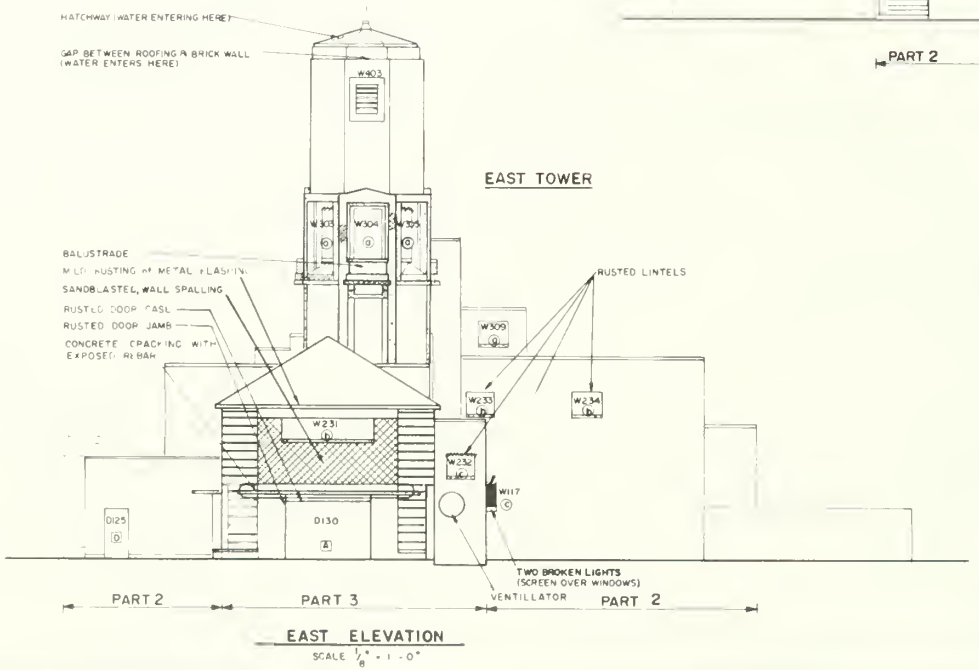
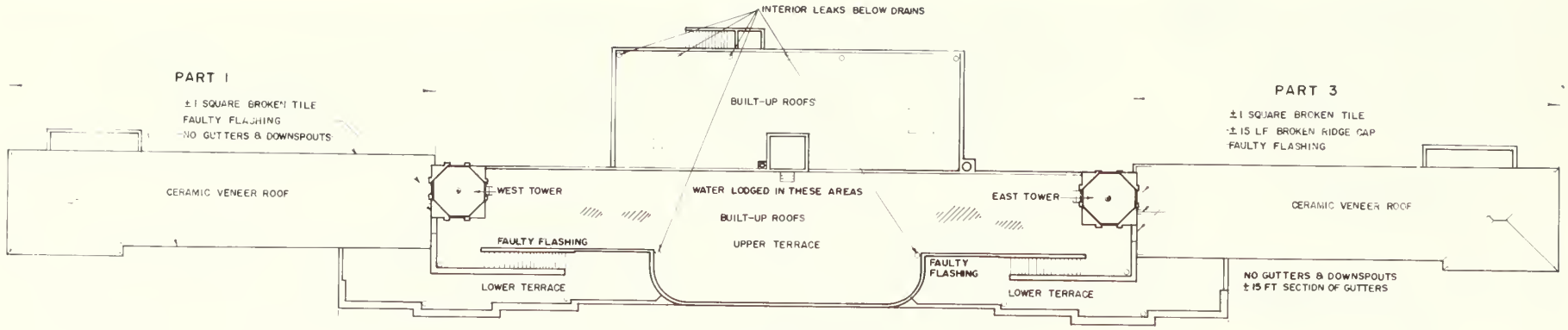


EAST ELEVATION

SCALE 1/8" = 1'-0"

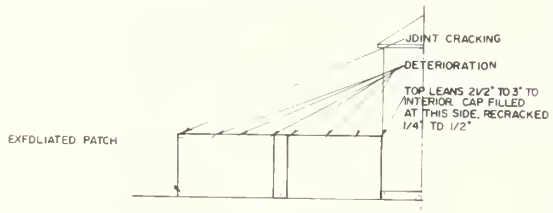
SCALE 1/8" = 1'-0" 0 1 2 4 6 8 FT

DESIGNED EXISTING DRAWN CAMERENA TECH REVIEW LAFLEUR DATE 11/85	SUB SHEET NO	TITLE OF SHEET BEACH PAVILION EAST & WEST ELEVATIONS	DRAWING NO 641 25010 PKG NO DS14 SHEET 5 OF 11	

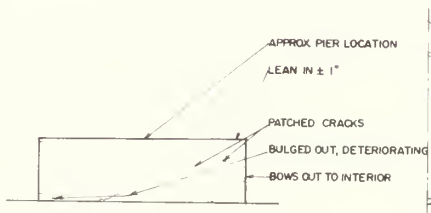


ROOF PLAN

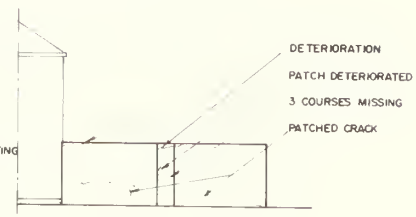
SCALE 1/16"=1'-0" 0 4 8 FT



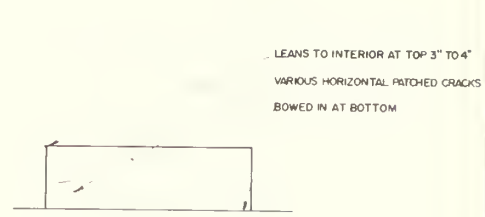
WEST SCREEN WALL
SOUTH ELEVATION



WEST SCREEN WALL
NORTH ELEVATION



EAST SCREEN WALL
SOUTH ELEVATION

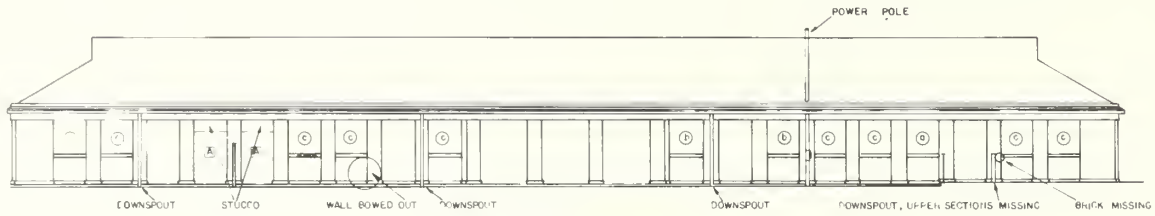


EAST SCREEN WALL
NORTH ELEVATION

SCREEN WALLS

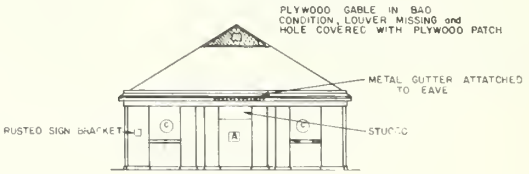
SCALE 1/8"=1'-0" 0 1 2 4 6 8 FT

DESIGNED EXISTING	SUB SHEET NO	TITLE OF SHEET: BEACH PAVILION ROOF PLAN SCREEN WALLS	DRAWING NO 646 25010
DRAWN VARIOUS			PKG NO 0514 SHEET 6
TECH. REVIEW LAFLEUR			OF 11
DATE 11/85			



WEST ELEVATION

SCALE 1/8" = 1'-0"



SOUTH ELEVATION

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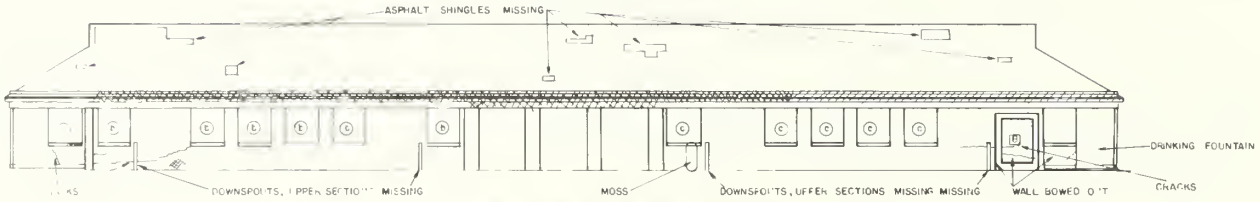

EAST ELEVATION

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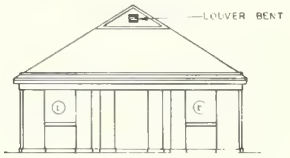

NORTH ELEVATION

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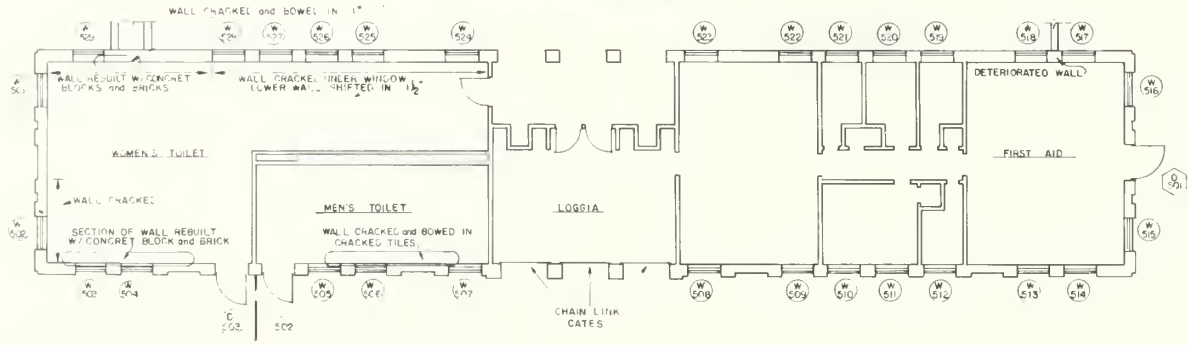
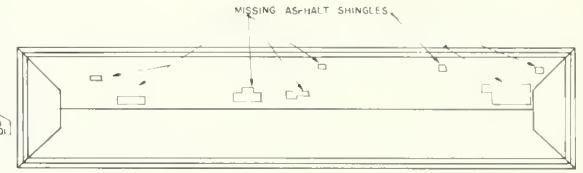


FLOOR PLAN

SCALE 1/8" = 1'-0"



ROOF PLAN

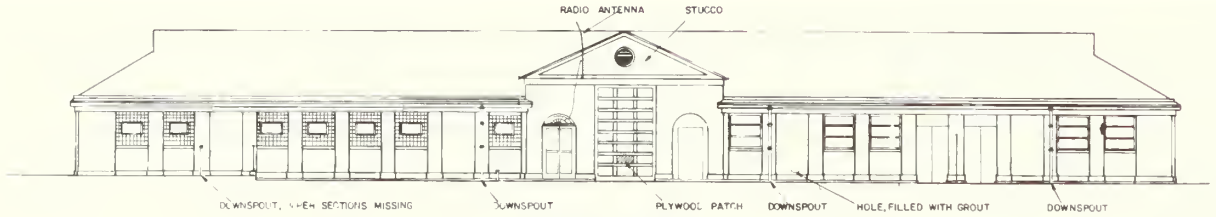
SCALE 1/8" = 1'-0"

LEGEND

- MODERATE DETERIORATION
- SEVERE DETERIORATION
- CRACKS
- CRACKS, PATCHED
- BROKEN GLASS

SCALE: 1/8" = 1'-0" 0 1 2 4 6 8 FT

DESIGNED EXISTING	SUB SHEET NO	TITLE OF SHEET: WEST WING ELEVATIONS, ROOF PLAN, FLOOR PLAN	DRAWING NO 646 / 25010
DRAWN CAMERENA			PKG NO. 0514
TECH. REVIEW LAFLEUR			SHEET 7 OF 11
DATE 11/85			

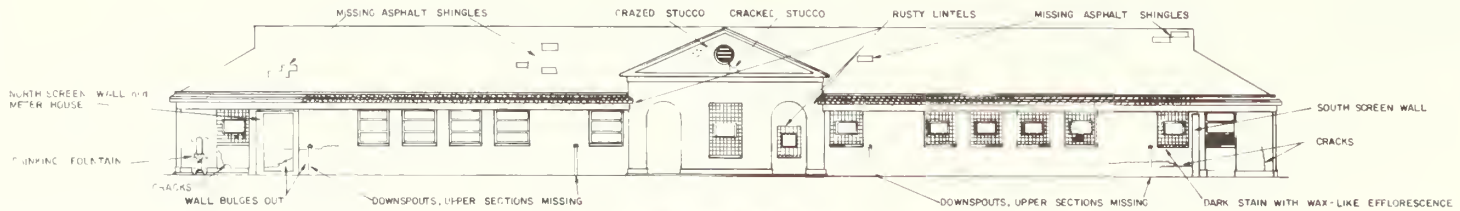


EAST ELEVATION

SCALE 1/8" = 1'-0"

SOUTH ELEVATION

SCALE 1/8" = 1'-0"



WEST ELEVATION

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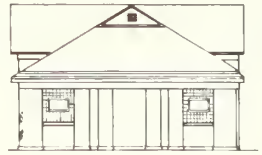
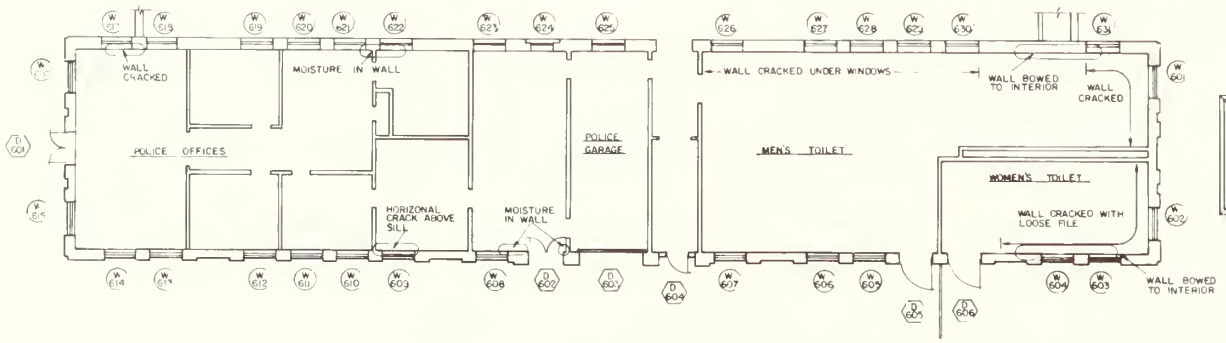


NORTH ELEVATION

SCALE 1/8" = 1'-0"



FLOOR PLAN

SCALE 1/8" = 1'-0"

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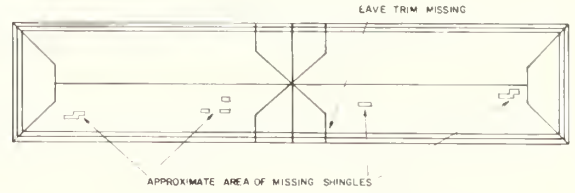


ROOF PLAN

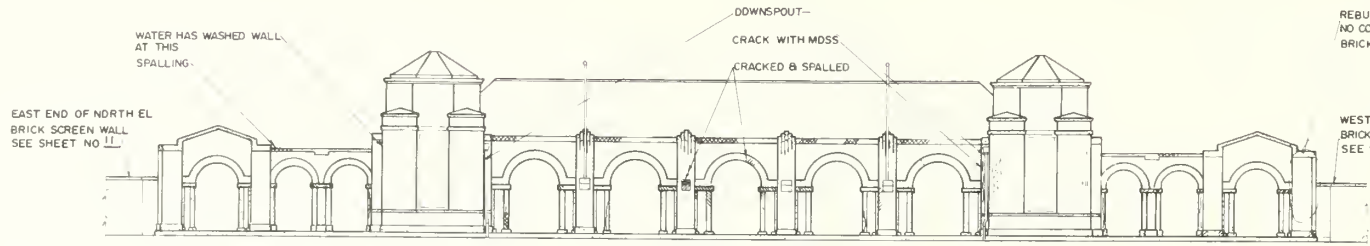
SCALE 1/16" = 1'-0"

N

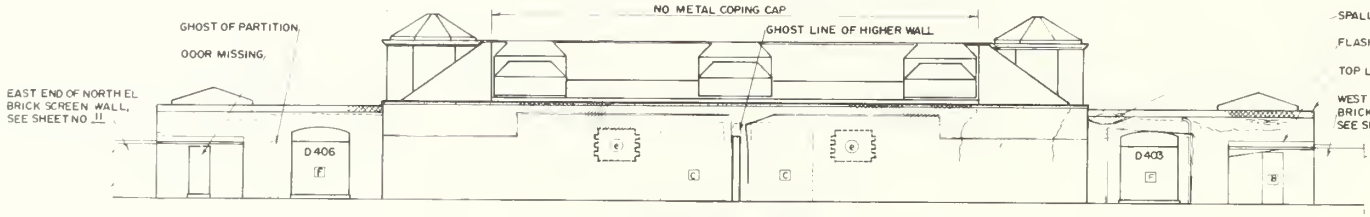
SCALE 1/16" = 1'-0" 0 8FT

SCALE 1/8" = 1'-0" 0 2 4 6 8FT

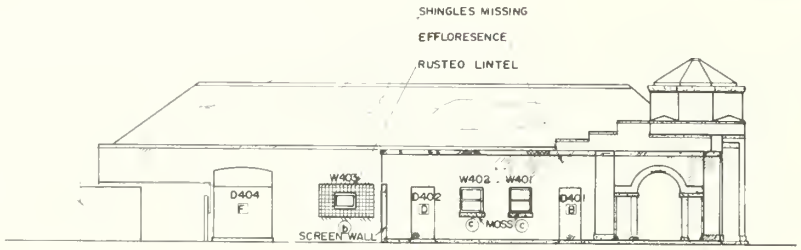
DESIGNED EXISTING	SUB SHEET NO	TITLE OF SHEET: EAST WING ELEVATIONS ROOF PLAN FLOOR PLAN	DRAWING 25010
DRAWN CAMERENA			PKG NO SHEET 8
TECH. REVIEW LAFLEUR			OF 11
DATE 11/85			



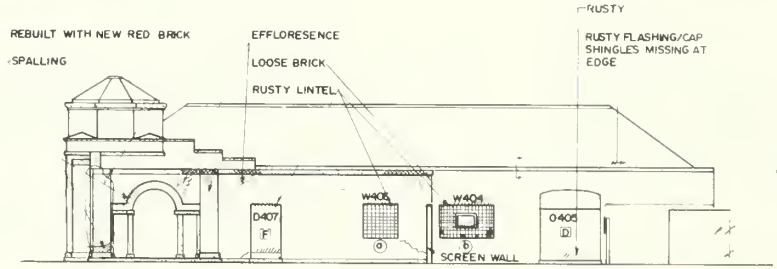
NORTH ELEVATION



SOUTH ELEVATION



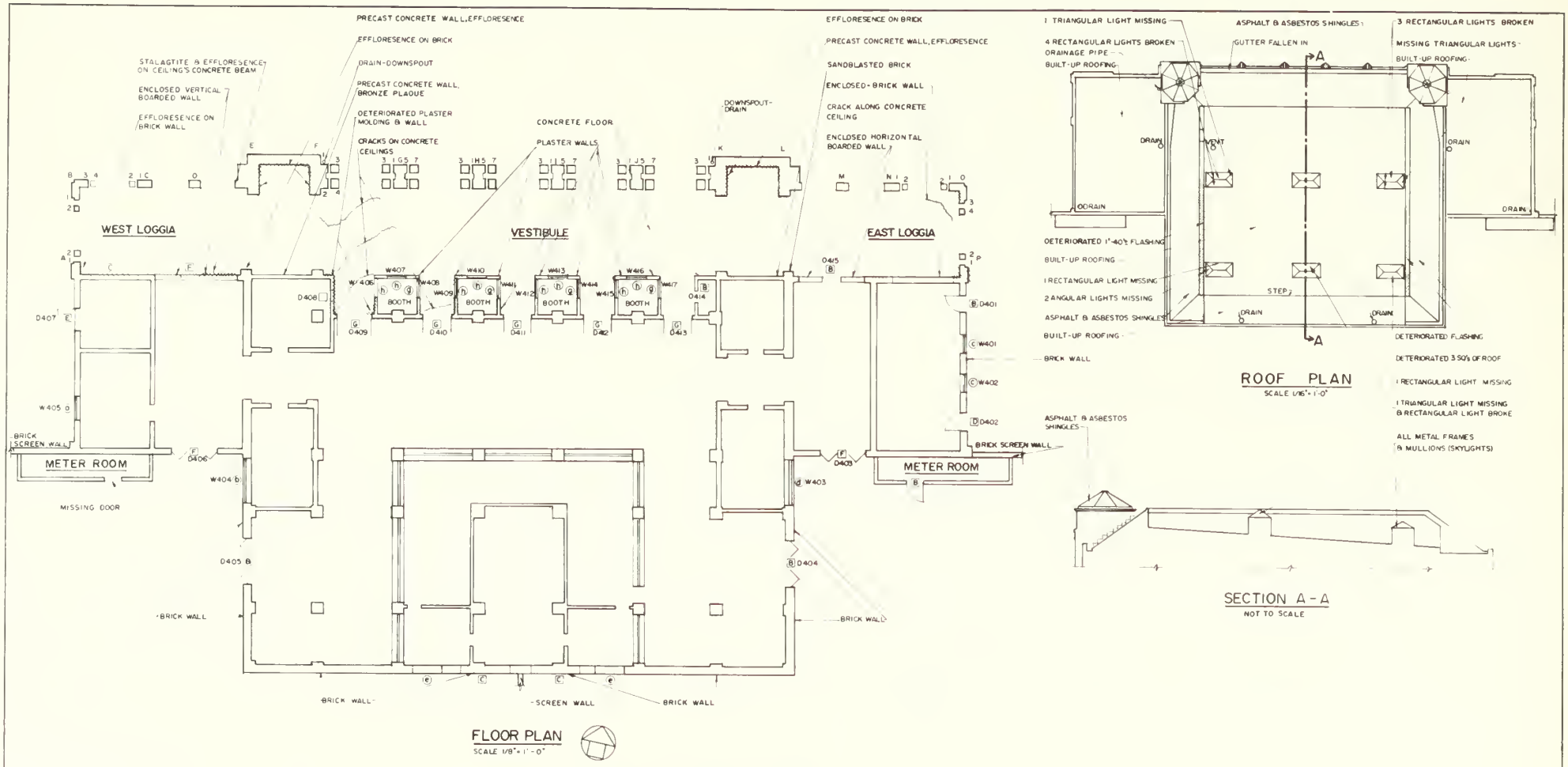
EAST ELEVATION



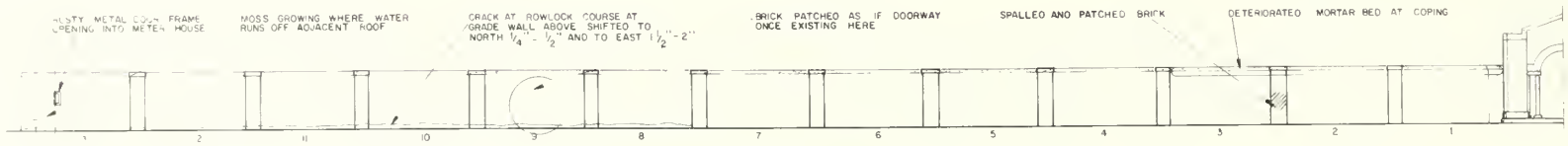
WEST ELEVATION

SCALE 1/8" = 1'-0" 0 1 2 4 8 FT

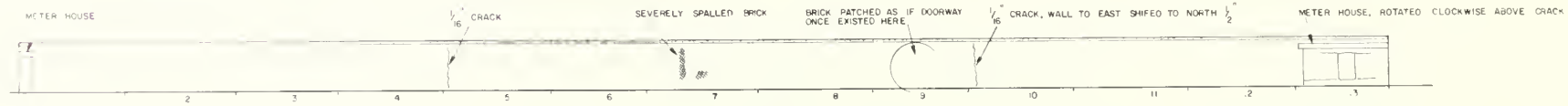
DESIGNED EXISTING DRAWN CAMARENA TECH REVIEW LAFLEUR DATE 11/85	SUB SHEET NO	TITLE OF SHEET ENTRANCE PAVILION ELEVATIONS	DRAWING NO 646 25010 PKG NO 0514 SHEET 9 OF 11



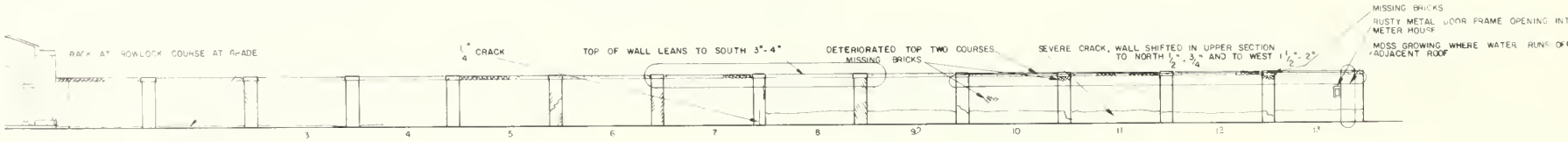
DESIGNED: EXISTING DRAWN: CAMARENA TECH. REVIEW: LAFLEUR DATE: 11/85	SUB SHEET NO	TITLE OF SHEET: ENTRANCE PAVILION FLOOR PLAN ROOF PLAN SECTION	DRAWING NO: 646 25010 PKG NO: 3514 SHEET: 10 OF 11



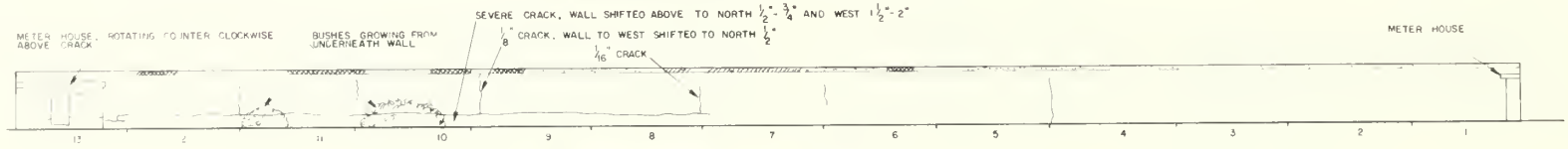
NORTH ELEVATION - EAST WALL



SOUTH ELEVATION - EAST WALL



NORTH ELEVATION - WEST WALL



SOUTH ELEVATION - WEST WALL

SCALE 1/8"=1'-0" 0 1 2 4 6 8 FT

DESIGNED EXISTING	SUB SHEET NO	TITLE OF SHEET NORTH SCREEN WALLS	DRAWING NO 646 25010	
DRAWN CAMARENA			PKG NO 0514	SHEET 11
TECH REVIEW LAFLEUR				OF 11
DATE 11/85				

B. Compliance

In accordance with a programmatic memorandum of agreement executed in December 1979 between the National Park Service, the Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers, a memorandum of agreement regarding implementation of the Gateway GMP was signed in February 1981 by the Advisory Council on Historic Preservation, the New York State Historic Preservation Officer, and the National Park Service. Under this agreement, it is understood that Riis will continue to be used as a recreational facility. Any modernization undertaken to support present or future recreational styles is to be in keeping with its historic origins and character. Thus, individual actions that affect this structure or that might affect archeological resources will be subject to in-house review by cultural resource management professionals in the North Atlantic Regional Office, through use of the "Assessment of Effect" format (XXX form).

C. Recommendations

Recommendations contained in this report are consistent with the management approach of stabilization as an interim preservation treatment for Jacob Riis Bathhouse. The specific interim stabilization recommendations are primarily of a replacement-in-kind nature.

Concurrently, management is pursuing a public/private partnership to rehabilitate and adaptively use the building. Should more than interim stabilization be proposed as part of the rehabilitation and adaptive use of the Jacob Riis Bathhouse, replacement-in-kind may not be appropriate. Especially sensitive areas where in-kind replacement may not be desirable include the windows, exterior doors, nonhorizontal roof surfaces, etc. Work relating to rehabilitation must meet all ten of the Secretary of the Interior's Standards for Rehabilitation as well as be evaluated to the standard of the 1937 alterations and development of Jacob Riis Bathhouse.

The specific interim stabilization recommendations listed below meet the requirements outlined in Cultural Resource Management Guideline (NPS-28) and the Secretary of the Interior's Standards for Rehabilitation.

1. Beach Pavilion (Parts 1, 2, and 3), and Screen Walls
   a. Roofs
      (1) Repair ceramic veneer (terra-cotta) roofs and ridges with like materials
      (2) Install LCC new drip flashing at all roof edges
      (3) Repaint cornices, fascias and eaves to match existing paint
      (4) Install new LCC gutters at all gable/hip roof edges
      (5) Install new LCC downspouts at gable/hip roof gutters
      (6) Repair step flashing at base of both towers
      (7) Replace built-up roofs
      (8) Clean drains of built-up roofs
      (9) Replace leaders of built-up roofs
      (10) Replace concrete roof decks
   b. Walls
      (1) Replace all deteriorated brick and stone in building and screen walls (sills, quoins, etc.) with like material
      (2) Repair all deteriorating steel bars in walls

(3) Remove, clean, and reinstall deteriorating steel lintels in windows and doors
(4) Replace deteriorated steel lintels in windows and doors
(5) Repoint deteriorated mortar joints and cracks in building and screen walls
(6) Remove metal coping and replace all deteriorated cast stone coping with a more durable cast stone coping at building and screen walls
(7) Clean all walls with soft bristle brush and low pressure water
(8) At loggia
(a) Repair rusted steel bars in concrete columns, beams, and ceilings
(b) Patch concrete in columns, beams, and ceiling
(c) Repair concrete floor
(9) Install heating system (temporary or permanent) at interior of building for temperature control during winter months

Note: Foundation and interior structural study recommended for this structure

c. Windows
(1) Replaces windows to 1937 appearance
d. Doors
(1) Replace doors and frames to 1937 appearance

2. Towers and Utility Penthouse
a. Roofs
(1) Repair leak in tower roof
(a) Repair gap between roof and wall
(b) Repair roof hatches
b. Walls
(1) Repair brickwork (repoint cracks, etc.) at walls of tower and penthouse
(2) Replace in-kind deteriorated stonework (decorative features) at towers
(3) Replace window lintels at towers
(4) Clean all brick and stone at towers and penthouse with soft bristle brush and low pressure water
(5) Install mechanical ventilation system (fan) at interior of towers and vent through tower louvers to help keep towers properly ventilated so that the walls can stay dry
(6) Clean out interiors of towers and penthouse
(7) Replace doors and frames in-kind at towers and penthouse

3. West Wing (Part 7)
a. Roofs
(1) Replace missing asphalt shingles in-kind
(2) Rebuild portions of wood eave to match existing

(3) Replace north and south gables with louvers that match 1937 appearance detailing
(4) Rebuild built-in gutters
(5) Install new downspouts

b. Walls
(1) Rebuild brick walls and replace individual brick
(2) Replace cast stone window sills
(3) Replace wood window lintels
(4) Rebuild interior glazed structural tile wall to match existing
(5) Repoint masonry joints in glazed structural tile wall
(6) Repoint brick masonry walls
(7) Repair cracked plaster ceiling
(8) Repair interior plaster
(9) Refurbish chain link gates
(10) Clean all masonry exterior walls with bristle brush and low pressure water
(11) Paint all exterior wood and metal trim

c. Windows
(1) Replace windows to 1937 appearance

d. Doors
(1) Replace doors to 1937 appearance

4. West Screen Wall and Meter Room
a. Rebuild brick piers and replace individual brick
b. Replace cast stone coping
c. Rebuild meter house (brick)
(1) New concrete roof slab
(2) New built-up roof and flashing
d. Repoint all masonry
e. Remove 2 bushes
f. Clean masonry walls with bristle brush and low pressure water

Note: An engineering analysis is recommended for this wall

5. East Screen Wall and Meter Room
a. Rebuild brick pier and replace individual brick
b. Rebuild meter room (brick)
(1) New concrete roof slab
(2) New built-up roofing and flashing
c. Repoint masonry wall
d. Clean masonry walls with bristle brush and low pressure water

Note: An engineering analysis is recommended for this wall

6. East Wing (Part 8)
a. Roof
(1) Replace missing asphalt shingles in kind
(2) Replace wood eaves in kind
(3) Repair stucco

(4) Install new built-in gutters
(5) Replace north and south gables with louvers to match 1937 appearance
(6) Install new downspouts

b. Walls
(1) Replace cast stone window sills in kind
(2) Replace wood window lintels
(3) Rebuild brick walls and replace individual bricks
(4) Replace deteriorated window lintels
(5) Repoint brick walls
(6) Repair interior plaster walls
(7) Clean all masonry with bristle brush and low pressure water
(8) Rebuild interior glazed structural tile wall in-kind
(9) Paint all wood and metal surfaces at exterior

c. Windows
(1) Replace windows to 1937 appearance

d. Doors
(1) Replace doors to 1937 appearance
(2) Repair 1 wood panel over door
(3) Repair screen at screen doors

7. Entrance Pavilion (Part 4)

a. Roofs
(1) Replace built-up roofs in kind at east and west loggias and at south end of entry pavillion
(2) Replace 1'-2" glazing at skylights
(3) Replace metal flashing at false hips and turrets
(4) Replace gutters in kind at east and west loggias and rebuild gutter between turrets

b. Walls and Ceilings at Loggia
(1) Replace coping stone at walls in kind
(2) Repair deteriorated brick in walls with like materials
(3) Patch cracks in walls and arcade ceiling with compatible materials
(4) Repair spalling and cracking cast stone at arches, brackets, column lintels, column bases and shafts, watertable and stone arch
(5) Remove, clean, and reset rusting lintels at doors and windows
(6) Repair plaster with compatible walls at loggia
(7) Repair and replace in kind plaster molding at loggis
(8) Replace in kind west coffered ceiling
(9) Replace in kind east coffered ceiling
(10) Clean all brick walls with bristle brush and low pressure water
(11) Clean and repaint plaster and wood walls

c. Windows
(1) Replace windows to 1937 appearance

d. Doors
   (1) Restore fanlight over doors
   (2) Replace doors to 1937 appearance

8. Test and study effects of coatings (paints, etc.) on all wall surfaces

Work recommended for the Jacob Riis Bathhouse complex should be performed as management determines. But, due to the severity of its problems and the current use of the complex, the East Wing and West Wing should be given first priority for interim stabilization. Should more than interim stabilization be proposed, the above recommendations will need to be evaluated with respect to management's treatment requirements for a rehabilitated and adaptively used Jacob Riis Bathhouse.

D. Analysis of Impact of Proposed Actions

The recommendations above are based on the need to make weathertight and structurally sound the exterior fabric or envelope of the Jacob Riis Bathhouse, Jacob Riis Park Historic District. In keeping with these needs, consideration has been given to the adaptive use and treatment for the rehabilitation of the facility.

Treatment will comply with Cultural Resource Management Guidelines (NPS-28) and the Secretary of the Interior "Standards for Rehabilitating Historic Structures."

The facility's use is spelled out in the Administrative Data section of this report and does not affect the effort to preserve the structure. Although it encourages development, which makes provisions for human health, safety and welfare, this will be done in keeping with the current or prospective character of the facility as determined by management.

Treatment based on NPS-28 reflect standards for protection, general treatment, and use of historic and prehistoric structures. Consequently, the recommendations for the Main Bathhouse are in accord with this philosophy. Care has been taken to preserve the structure and reduce the impact of foreign or new materials upon the original or historic fabric, and architectural or historic character. The structural integrity of the structure will also be preserved.

In accordance with the Secretary of the Interiors Standards and professional judgement, specific treatments such as the following are recommended: (1) Roof repairs and replacements, (2) Wall repairs, cleaning, painting and waterproofing, (3) window and door repairs and replacements, (4) Material and Structural studies deemed necessary to preserve the facility under current environmental conditions. As outlined in the summary of the existing conditions, care has been taken to ascertain that the recommendation with the least impact was made. This section should be consulted for reference.

DSC-HFC
Form 802

E. Package Estimate

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PACKAGE ESTIMATING DETAIL

REGION	PARK
NORTH ATLANTIC	GATEWAY NATIONAL RECREATION AREA
PACKAGE NUMBER	**PACKAGE TITLE**
DS 14	Jacob Riis Bathhouse Exterior Historic Structures Report

(If more space is needed, use plain paper and attach)

ITEM	QUANTITY	COST
1. Beach Pavilion (Parts 1, 2, and 3), and Screen Walls		
a. Roofs		
(1) Repair ceramic veneer (terra-cotta) roofs and ridges with like materials	2 squares	$ 2,400
(2) Install LCC new drip flashing at all roof edges	744 LF	46,128
(3) Repaint cornices, fascias and eaves to match existing paint	744 LF	1,488
(4) Install new LCC gutters at all gable/hip roof edges	744 LF	6,696
(5) Install new LCC downspouts at gable/hip roof gutters	252 LF	2,016
(6) Repair step flashing at base of both towers	68 LF	272
(7) Replace built-up roofs	16,200 Ft^2	40,500
(8) Clean drains of built-up roofs	16 ea.	160
(9) Replce leaders of built-up roofs	496 LF	10,912
(10) Replace concrete roof deck	7,000 Ft^2	49,000
b. Walls		
(1) Replace all deteriorated brick and stone in building and screen walls (sills, quoins, etc.) with like material	1,600 Ft^2	43,000
(2) Repair all deteriorating steel bars in walls	60 LF	600
(3) Remove, clean, and reinstall deteriorating steel lintels in windows and doors	3,832 LF	65,144

NOTE: ESTIMATE BASED ON "EXISTING CONDITIONS" DRAWINGS

SUMMARY OF CONSTRUCTION ESTIMATES

CLASS OF ESTIMATE: ☐ A Working Drawings ☐ B Preliminary Plans ☐ Similar Facilities

Proj. Type		Totals from Above B & U	R & T
52	Museum Exhibits		XXXXX
55	Wayside Exhibits		XXXXX
62	Audio-Visual		XXXXX
89	Ruins Stabilization		XXXXX
91	Construction		
92	Utility Contracts		XXXXX

ESTIMATES APPROVED (Signature) | (title) Eng Tech-Estimate | (date) 11-22-85

POST PROFESSIONAL SERVICES ESTIMATES AND SCHEDULING ON BACK OF FORM

PACKAGE ESTIMATING DETAIL

CONTINUATION SHEET

Region	Park
NORTH ATLANTIC	GATEWAY NATIONAL RECREATION AREA
Package Number	**Package Title**
DS 14	Jacob Riis Bathhouse Exterior Historic Structures Report

ITEM	QUANTITY	COST
(4) Replace deteriorated steel lintels in windows and doors	2,299 LF	$39,086
(5) Repoint deteriorated mortar joints and cracks in building and screen walls	640 Ft^2	3,200
(6) Remove metal coping and replace all deteriorated cast stone coping with a more durable cast stone coping at building and screen walls	1,376 LF	27,520
(7) Clean all walls with soft bristle brush and low pressure water	32,000 Ft^2	64,000
(8) At loggia		
(a) Repair rusted steel bars in concrete columns, beams, and ceilings	50 LF	850
(b) Patch concrete in columns, beams, and ceiling	20 LF	300
(c) Repair concrete floor	100 Ft^2	200
(9) Install heating system (temporary at interior of building for temperature control during winter months	ALLOW	125,000
Note: Foundation and interior structural study recommended for this structure	ALLOW	100,000
c. Windows		
(1) Replace windows to 1937 appearance	144 ea.	72,000
d. Doors		
(1) Replace doors and frames to 1937 appearance	98 ea.	49,000
		$729,472*
2. Towers and Utility Penthouse		
a. Roofs		
(1) Repair leak in tower roof	30 LF	600
(a) Repair gap between roof and wall	80 LF	800
(b) Repair roof hatches	16 LF	160

PACKAGE ESTIMATING DETAIL

CONTINUATION SHEET

Region	Park
NORTH ATLANTIC	GATEWAY NATIONAL RECREATION AREA
Package Number	**Package Title**
DS 14	Jacob Riis Bathhouse Exterior Historic Structures Report

ITEM	QUANTITY	COST
b. Walls		
(1) Repair brickwork (repoint cracks, etc.) at walls of tower and penthouse	350 Ft^2	$ 9,450
(2) Replace deteriorated stonework (decorative features) at towers	700 Ft^2	21,000
(3) Replace window lintels at towers	40 LF	680
(4) Clean all brick and stone at towers and penthouse with soft bristle brush and low pressure water	7,000 Ft^2	14,000
(5) Install mechanical ventilation system (fan) at interior of towers and vent through tower louvers to help keep tower properly ventilated so that the walls can stay dry	ALLOW	8,000
(6) Clean out interiors of towers and penthouse	2,916 Ft^2	14,580
(7) Replace doors and frames at towers and penthouse	3 ea.	1,500
		$70,770*
3. West Wing (Part 7)		
a. Roofs		
(1) Replace missing asphalt shingles in kind	25 SF	50
(2) Rebuild portions of wood eave to match existing	140 LF	420
(3) Replace north and south gables with louvers	40 SF	240
(4) Rebuild built-in gutters	368 LF	3,312
(5) Install new downspouts	30 LF	210
b. Walls		
(1) Rebuild brick walls and replace individual brick	650 SF	13,000
(2) Replace cast stone window sills	9 sills	720
(3) Replace wood window lintels	8 lintels	320
(4) Rebuild interior glazed structural tile wall	600 SF	9,000
(5) Repoint masonry joints in glazed structural tile wall	35 SF	210
(6) Repoint brick masonry walls	100 SF	500
(7) Repair cracked plaster ceiling	1,000 SF	2,000

PACKAGE ESTIMATING DETAIL

CONTINUATION SHEET

Region	Park
NORTH ATLANTIC	GATEWAY NATIONAL RECREATION AREA
Package Number	**Package Title**
DS 14	Jacob Riis Bathhouse Exterior Historic Structures Report

ITEM	QUANTITY	COST
(8) Repair interior plaster	75 SF	$ 225
(9) Refurbish chain link gates	120 SF	1,800
(10) Clean all masonry exterior walls with bristle brush and low pressure water	3,380 SF	6,760
(11) Paint all exterior wood and metal trim	900 LF	1,800
c. Windows		
(1) Replace windows to 1937 appearance	29 ea.	14,500
d. Doors		
(1) Replace doors to 1937 appearance	6 ea.	3,000
		$58,067*
4. West Screen Wall and Meter Room		
a. Rebuild brick piers and replace individual brick	500 SF	10,000
b. Replace cast stone coping	48 LF	960
c. Rebuild meter house (brick)	140 SF	2,100
(1) New concrete roof slab	65 SF	455
(2) New built-up roof and flashing	75 SF	300
d. Repoint all masonry	3,215 SF	6,430
e. Remove 2 bushes	2 ea.	150
f. Clean masonry walls with bristle brush and low pressure water	1,500 SF	1,200
Note: An engineering analysis is recommended for this wall	ALLOW	10,000
		$31,595*
5. East Screen Wall and Meter Room		
a. Rebuild brick pier and replace individual brick	500 SF	10,000
b. Rebuild meter room (brick)	140 SF	2,100
(1) New concrete roof slab	65 SF	455
(2) New built-up roofing and flashing	75 SF	300
c. Repoint masonry wall	500 SF	2,500
d. Clean masonry walls with bristle brush and low pressure water	3,215 SF	6,430

PACKAGE ESTIMATING DETAIL

CONTINUATION SHEET

Region	Park
NORTH ATLANTIC	GATEWAY NATIONAL RECREATION AREA
Package Number	**Package Title**
DS 14	Jacob Riis Bathhouse Exterior Historic Structures Report

ITEM	QUANTITY	COST
Note: An engineering analysis is recommended for this wall	ALLOW	$10,000 $31,785*
6. East Wing (Part 8)		
a. Roof		
(1) Replace missing asphalt shingles in kind	15 SF	30
(2) Replace wood eaves in kind	126 LF	378
(3) Repair stucco	50 SF	400
(4) Install new built-in gutters	368 LF	3,312
(5) Replace north and south gables with louvers	40 SF	240
(6) Install new downspouts	30 LF	210
b. Walls		
(1) Replace cast stone window sills in kind	8 sills	640
(2) Replace wood window lintels	7 lintels	280
(3) Rebuild brick walls and replace individual bricks	650 SF	13,000
(4) Replace deteriorated window lintels	1 lintel	40
(5) Repoint brick walls	100 SF	200
(6) Repair interior plaster walls	50 SF	150
(7) Clean all masonry with bristle brush and low pressure water	3,380 SF	6,760
(8) Rebuild interior glazed structural tile wall	200 SF	3,600
(9) Paint all wood and metal surfaces at exterior	1,000 LF	2,000
c. Windows		
(1) Replace windows to 1937 appearance	31 ea.	15,500
d. Doors		
(1) Replace doors to 1937 appearance	6 ea.	3,000
(2) Repair 1 wood panel at overhead door	8 SF	80
(3) Repair screen at screen doors	25 SF	25
		$49,845*

PACKAGE ESTIMATING DETAIL

CONTINUATION SHEET

Region	Park
NORTH ATLANTIC	GATEWAY NATIONAL RECREATION AREA
Package Number	**Package Title**
DS 14	Jacob Riis Bathhouse Exterior Historic Structures Report

ITEM	QUANTITY	COST
7. Entrance Pavilion (Part 4)		
a. Roofs		
(1) Replace built-up roofs in kind at East and West loggias and at south end of Entrance Pavilion	2,250 SF^2	$ 900
(2) Replace 1'-2" glazing at skylights	78 Ft^2	702
(3) Replace metal flashing at false hips and turrets	185 LF	740
(4) Replace gutters in kind at East and West loggias and rebuild gutter between turrets	221 LF	1,989
b. Walls and Ceilings at Loggia		
(1) Replace coping stone at walls in kind	92 LF	1,840
(2) Repair deteriorated brick in walls with like materials	891 Ft^2	17,820
(3) Patch cracks in walls and arcade ceiling with compatible materials	70 LF	735
(4) Repair spalling and cracking cast stone at arches, brackets, column lintels, column bases and shafts, watertable and stone arch	50 Ft^2	510
(5) Remove, clean, and reset rusting lintels at doors and windows	30 LF	1,697
(6) Repair plaster with compatible walls at loggia	75 Ft^2	225
(7) Repair and replace in kind plaster molding at loggia	20 LF	198
(8) Replace in kind west coffered ceiling	475 Ft^2	3,800
(9) Replace in kind east coffered ceiling	15 Ft^2	120
(10) Clean all brick walls with bristle brush and low pressure water	13,258 Ft^2	26,516
(11) Clean and repaint plaster and wood walls	5,484 Ft^2	10,484
c. Windows		
(1) Replace windows to 1937 appearance	9 ea.	9,500
d. Doors		
(1) Restore fanlight over doors	7 ea.	1,050
(2) Replace doors to 1937 appearance	17 ea.	8,500
		$87,326*
8. Test and study the affects of coatings (paints, etc.) on all wall surfaces	ALLOW	$100,000*
	TOTAL	$1,158,860

F. Recommendations for Further Study

Further study is needed to resolve several issues that were not totally explored during the architectural investigation at the Bathhouse. As a result the recommendations for further study are as follows:

1. Building Interiors and Courtyard

   The building interiors and courtyards should be investigated and the data compiled into an Historic Structures Report to complement the data in this document (HSR - Jacob Riis Bathhouse Exterior, Jacob Riis Park Historic District). The reports should be incorporated into a single study or Historic Structures Report.

2. Foundations and Structural System

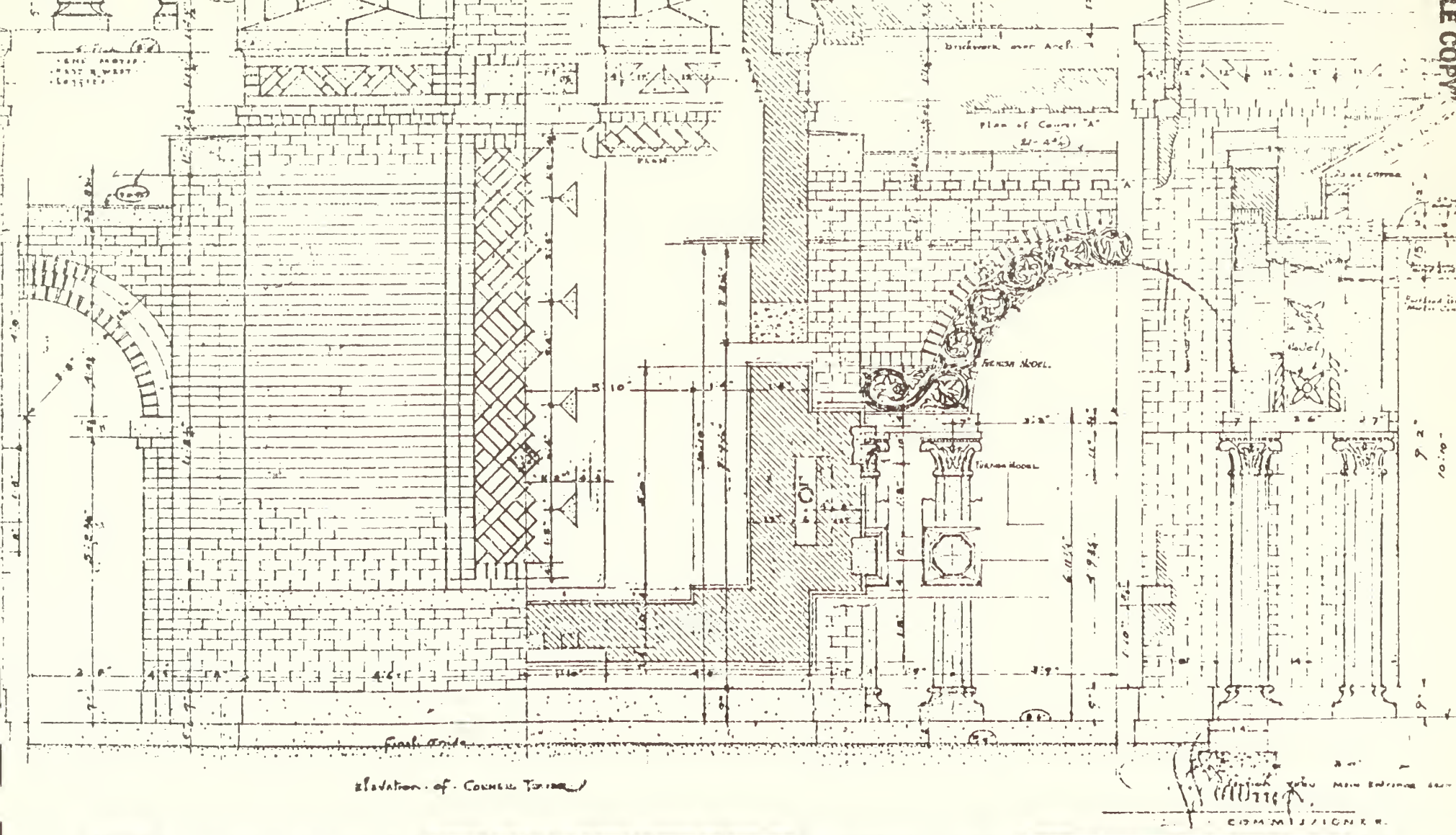
   All building foundations and structural systems should be studied prior to any rehabilitation work. Areas of the foundations and structural systems mentioned in this document should receive special attention.

3. Testing of Materials at Exterior

   To derive at the 1937 Exterior paint color and scheme, and to determine the mixes used in the cast stone on the building laboratory test are needed. Samples for paint may be taken in undisturbed areas as noted in existing conditions drawings. Testing for the effects of Painting and Silicone Coverings on building walls should also be made before applying these to the entire structure. This study is anticipated to be lengthy.

APPENDIX 1

Existing Conditions Report - Jacob Riis Bathhouse,
Beyer, Blinder, Belle, Architects and Planners,
April 1984



Existing Conditions Report

JACOB RIIS BATHHOUSE

EXISTING CONDITIONS STUDY

JACOB RIIS BATHHOUSE
GATEWAY NATIONAL RECREATION AREA

FOR:
U.S. DEPARTMENT OF INTERIOR
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

A/E CONTRACT NO. CX-2000-3-0027

BEYER BLINDER BELLE, ARCHITECTS & PLANNERS

APRIL 15, 1984

TABLE OF CONTENTS

Introduction

This Existing Conditions Study is based on field analyses made during the months of October and November, 1983, by the A/E team. In addition to the field work which examined the structure as it exists today, considerable time has been spent in reviewing existing plans and documents relating to history of the building. The general purpose of this Study is to provide base information and the general parameters for future preservation planning and design work,some of which appears in the design phase of this study.

For purposes of identification, the Jacob Riis Bathhouse, located in Gateway National Recreation Area, will be considered as a complex of six principal structures.

1. Beach Pavilion: A two story building facing the ocean to the south with the longitudinal axis parallel to the shore line. The east and west ends, each about a third of the long axis, have a gable roof. The center third has a flat roof.

2. East Wing: A one story building with a gable roof east of and set back inland from the Beach Pavilion. The plan is rectangular with the longitudinal axis extending in a north-south direction perpendicular to the shore line.

3. West Wing: Same as the East Wing but situated west of the Beach Pavilion

4. Entrance Pavilion: A one story building situated directly inland, to the north of the Beach Pavilion and Pavilion separated by a walled court.

5. Court: An area consisting of one story structures, with and without roofs, located throughout a large central enclosure formed by the Beach Pavilion to the south, Wing buildings to at the east and West, the Entrance Pavilion to the north and freestanding walls between the buildings.

6. Walls: Free-standing walls connecting the buildings which form the Court.

Fall 1930 - Commissioner Benninger urges construction of a large $425,000 bathing pavilion similar to one at Jones Beach.

Nov 1930 - Designs for proposed bathing pavilion were prepared by John L. Plock, an architect with the firm of Stoughton & Stoughton in Manhattan.

Feb 1931 - Approval of the plans and specifications from the Commissioner and the Mayor's office was obtained.

Aug 1931 - Foundation work completed.

Sept 1931 - Contracts were let for completion of superstructure, plumbing, heating and lighting of Bathhouse. Actual cost: $530,000.

Aug 1932 - After a series of delays the Beach Pavilion opened. There was no landscaping around the Pavilion. One refreshment stand and cafeteria was in operation.

May 1933 - Remainder of Pavilion completed. Men's and women's lockers, restaurant and grills, and a $30,000 solarium on the roof was installed.

Jan 1934 - Robert Moses becomes Commissioner of the New York City Department of Parks. During the next seven years major achievements, through Moses' leadership, took place. Extensive development of Riis Park and Bathhouse would be one of his accomplishments.

1934 - Alterations and improvements to Bathhouse and its environs take place through WPA funding.

April 1934 - Work commenced with use of WPA Labor. Various structural, brick and stonework alterations to the Bathhouse included: (1) south entrances to the east and west End Pavilions; (2) towers of the Beach Pavilion; (3) south terrace parapet walls and lighting units; (4) arches on the east, west and north sides of the

main entrance; (5) upper part of the central section of the north wall of the Beach Pavilion. Additional landscaping improvements also were initiated.

Aug 1934 - Robert Moses unveils grandiose plans of creating "an inner-city metropolitan replica of Jones Beach State Park." The major element of the plan that would later affect the Bathhouse was the proposal to widen the beach front by removing a large portion of ocean front facade.

Fall 1934 - Scheduled start up date for proposed park improvements does not take place because of local Rockaway civic group opposition fearing competition to existing private bathing facilities.

1936-37 - Under the administration of Commissioner Moses and The Marine Parkway Authority, plans for full development of Jacob Riis Park came about. Alteration plans for the Bathhouse were developed under the direction of Clinton Loyd, Chief of Architectural Design, with Aymar Embury II, Architectural Consultant.

Alteration and restoration of the interior and exterior of the Bathhouse included the following:

1. Modernized equipment.
2. Enlarged concessionaire s space.
3. Increase of the locker room areas to accommodate some 11,500 bathers.
4. Changes to the private dining rooms and dance areas.
5. Cafeteria paneled with mediterranean blue tiles.
6. A sundeck on the Beach Pavilion.
7. Raising the tower heights.
8. A long two-story addition on the south side of the structure, providing new police accomodations.
9. Increasing the wall heights around the open air dressing rooms.

June 1937		The reconditioned Jacob Riis Park is opened to the public.
1938-73	-	During this period various repairs and modifications were made to the existing structures in Jacob Riis Park.
Aug 1939	-	A "ships rail" was extended around the refreshment areas.
1941-42	-	Minor improvements to men's and women's toilet areas.
1943	-	Major buildings at Riis Park were waterproofed.
Winter 1948-49	-	New roofs were added and water handling systems were repaired or replaced.
1951 & 1953	-	Various changes to doors.
1953	-	New sewer connections installed in the central mall buildings.
Mar 4, 1974	-	City of New York turned over Riis Park and adjacent properties to the federal government for administration by the National Park Service.
Mar-May 1974	-	General refurbishing of the building including: 1) New roofs 2) Repaired Bathhouse interiors 3) Cleaning of masonry and application of a silicone compound against salt air and graffiti 4) Repair of electrical and plumbing systems 5) Replacement of certain windows and doors.

Credit: This Summary History is largely based on information contained within Historic Structure Report: Historical Data; Gateway: Jacob Riis Park Historic District; by Harlan Unrau, April 1981.

Graphic Photographic Record

Drawings of record of the Riis Bathhouse were made which indicate the general appearance of the structure as of October, 1983. Part of this survey effort involved reviewing a quantity of existing drawings relating to construction efforts at the site.

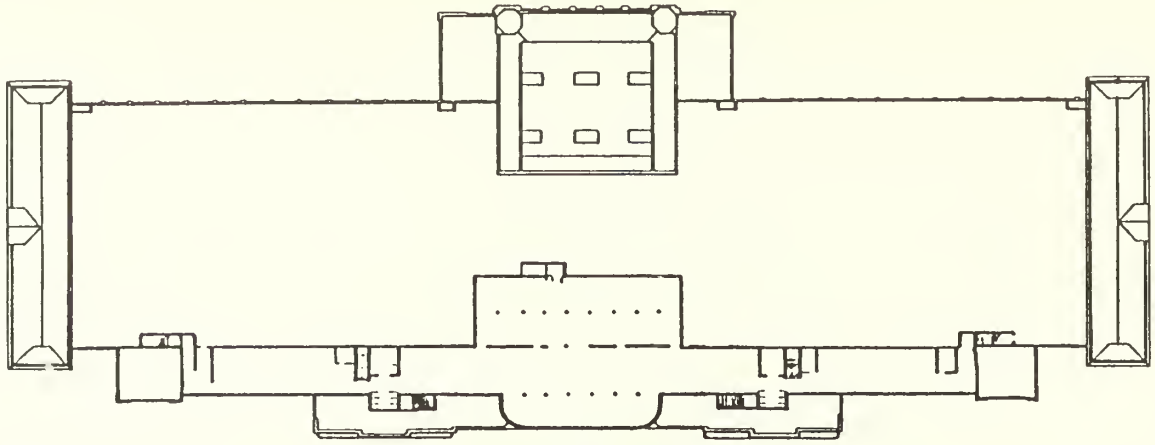
The most comprehensive plans date from 1931, 1937, 1964, and 1978. From these plans and other documents, a morphological growth study of the complex was developed. While this was not specifically required by the terms of the A/E contract, it was felt that this analysis would be necessary as a reference during the adaptive use design process.

Photographs of site conditions were made for the purpose of making a general inventory of the existing condition of various aspects of the structure. Recent photographs serve the purpose of providing:

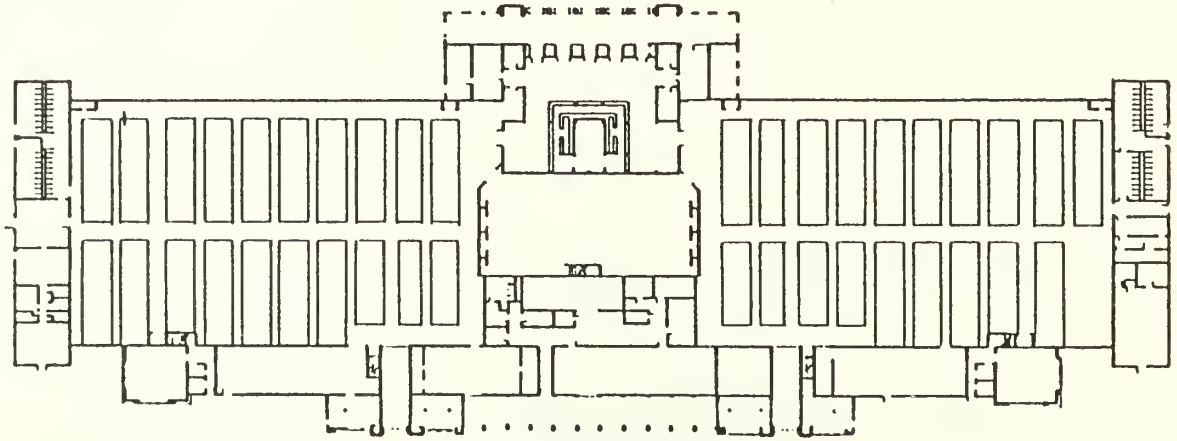
1) A general description of the project

2) A record of all structural problems

3) A record of various materials conservation issues including water drainage, roof condition, cast stone and masonry failures and other problems relating to building materials.



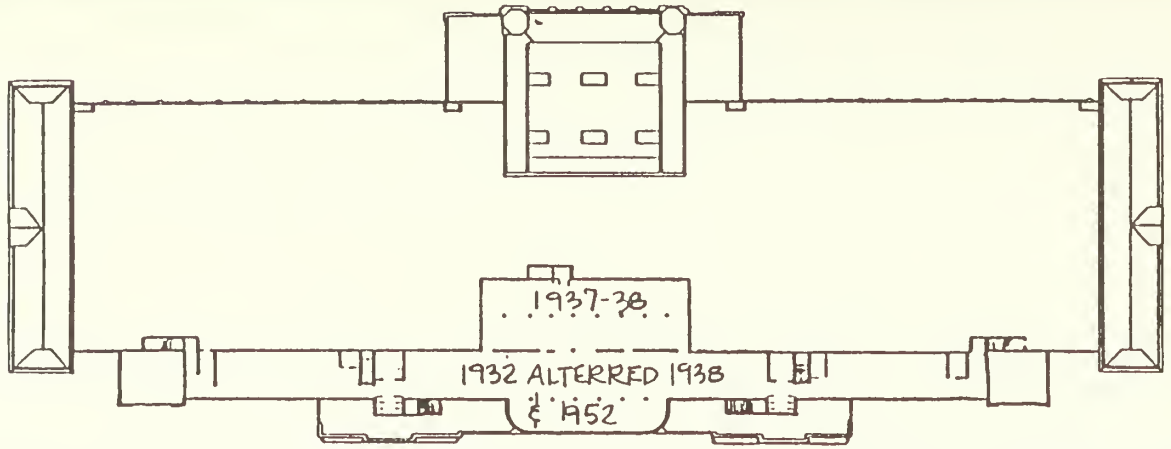
SECOND FLOOR PLAN



FIRST FLOOR PLAN

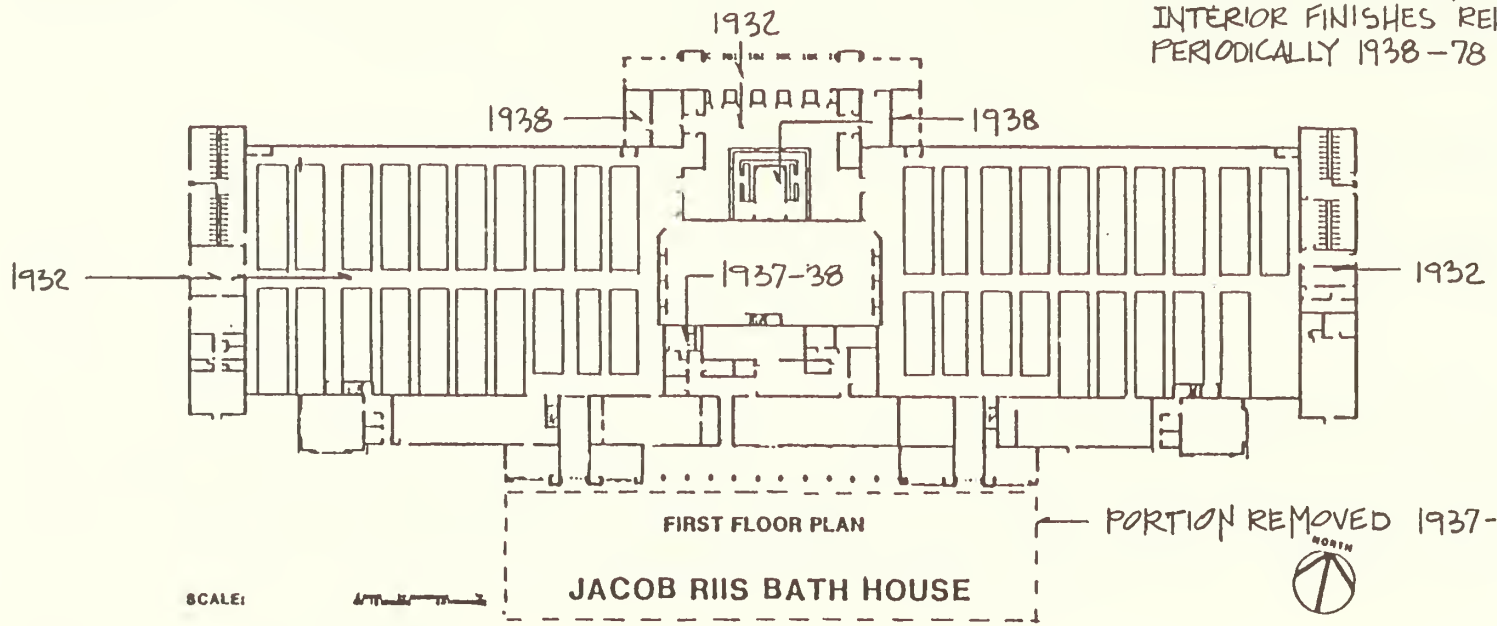
SCALE: 1" = 32'

JACOB RIIS BATH HOUSE



SECOND FLOOR PLAN

NOTES: - CHANGING FACILITIES AND SHOWERS RENOVATED AFTER 1938. INTERIOR FINISHES REHABILITATED PERIODICALLY 1938-78



Archival Drawings

Part of this Architectural/Engineering contract requires the determination of the load capacities of various structural components of the bathhouse. Two possible methods of doing this were available to the Architectural/Engineer: physical probing or using calculations based on information provided in the original structural drawings. These drawings had been missing for a number of years. Their recent recovery eliminated the need for physical probing and its damaging effects. The original 1931 drawings of the bathhouse by Stoughton & Plock provided the following new information:

1. The type, size and load capacity of structural members.

2. Structural detailing at key points in the building: i.e. windows, eaves, foundations, etc.

3. The original design, use and layout of the Entry Pavilion, East and West Wings and Beach Pavilion.

4. Early pencil sketches showing subsequent 1937 alterations.

The recovery of these drawings is an important event in the history of the structure and offers important additional information relative to the Historic Structure Report done in April, 1981.

General Materials Condition

CAST STONE

The use of cast stone as a modern imitative masonry material has a long craft tradition. Since the 1870's, when Portland cement was first manufactured in the United States, American masons have had the ability to make stone-like composites of superior durability and great variety. The cast stone work at the Jacob Riis Bathhouse is representative of this craft tradition as it was practiced in America in the early decades of the 20th Century.

Basically a mixture of white Portland cement, graded aggregates and colorants, the Jacob Riis Bathhouse cast stone was manufactured as an ornamental imitation of yellow sandstone. The intricate patterns employed in the capitals and tower, for example, point to its selection over natural stone as a less expensive substitute. The cast stone detailing at Jacob Riis Bathhouse exhibits the usual deterioration observed for most cast stone of similar age. Jacking, a result of the disruptive internal pressures of iron anchor and reinforcment corrosion has led to disfigurement and structural failure. A considerable amount of the cast stonework used here did not have sufficient concrete covering over steel reinforcing. Open areas have allowed further water penetration resulting in freeze-thaw damage and advanced reinforcing bar corrosion. This situation is most extreme for the tower balconies which now represents a serious safety hazard. Spalling and efflorescence have similarly resulted in surface loss and disfigurement and can be attributed to the salt laden atmosphere of the Bathhouse's marine environment as well as poor or defective water removal systems (i.e., roof and parapet). Less severe surface conditions such as localized color and texture changes are the result of differential weathering from wind and rain exposure. Composite repair patching and element replacement (from moulds of sound elements) are suggested as the two most viable conservation solutions. Selection of these methods will depend on the degree of deterioration for each unit and their location on the building.

BRICKWORK

A harsh maritime environment and deferred maintenance of the brick joints, parapet and roofing have resulted in localized areas of brick deterioration characterized by cracking, spalling and efflorescence. These conditions have been exacerbated by the previous abrasive cleaning of the brick which left a highly friable unprotected surface.

It would probably be difficult and impractical to turn the existing brick or replace them to create a sound masonry wall, therefore the areas of efflorescence and spalling should be washed or poulticed to remove all damaging salts.

The lack of expansion joints throughout the building has caused some cracking of brickwork at the beach pavilion, parapets and courtyard walls. In some instances (i.e. parapets, and courtyard walls) saw cut expansion joints should be introduced.

Paint was removed from most, if not all, of the building during the abrasive cleaning efforts in 1974. Although it is not known from which period this painting dates, the precendent is there for possibly re-painting the structure in a effort to seal the now friable masonry. Painting, however, will probably require considerable maintenance.

Successful consolidation of similarly damaged brickwork has proven successful for a similar situation using silane impregnation.

Time and cost will be the determinant factors. All joints and flashing will require inspection and attention to keep water and salts out of the wall. Given the friable condition of the brickwork, all repointing should be executed with a soft porous mortar mix matched in color and joint profile to the original.

RAINWATER DRAINAGE AND ROOFING

The central portion of the Beach Pavilion has a flat built-up roof which has undergone several repairs (some extensive) in the past 15 years. The roof in this area slopes in two directions from a central dividing wall in the line of the towers. Both roof areas slope to several drains inside at the north and south parapets. Water collected at the roof level in these areas is transmitted downward to storm drainage lines by cast iron rain leaders buried in pilasters located inside the exterior walls. Water damage to interior finishes is often extensive in these areas due to rain leader breaks. Past failures in roof flashing have resulted in water migration through parapets at the north and south exterior elevations. This area of roofing has recently undergone repairs to correct several leaks which have occurred in the last year.

Lead-coated copper roofing at the top of the towers was apparently relocated to this higher location when the towers were heightened by 16'-0" in 1938. An inspection of the towers has indicated that the roofing systems are apparently functioning properly, however, extensive water intrusion is apparent at the tower bases and first landings where rainwater falling on spalled exterior cast stone ornament drains inward.

Elongated hip roofs which pitch to the north and south are at both ends of the Beach Pavilion. Water in these areas is collected in gutter systems and drained by wall mounted rain leaders. It appears that roof repairs in the past have altered the original rain leaders by relocation or complete removal which has probably resulted in inadequate rainwater drainage for these areas. The scored terracotta roof tiles, green in color, are of the celadon type manufactured by the Ludovici Company. A sizeable portion of these tiles are cracked or are missing. Flashing is failing in places, as well.

Roofing assemblies elsewhere are similar in both type and condition. Pitched roofs are wood frame and flat roofs are concrete decks. The roof at the south half of the Entrance Pavilion is an unusual combination of the two, done probably for effect. The roof in this area has false end hip roofs with their blind sides open to the elements except for wire mesh which prevents bird intrusion. The pitched roof areas of the Entrance Pavilion are clad in asphalt shingles and appear to be in reasonably good condition. Water damage, as it affects the building structure, is further discussed in the structural analysis section of this report.

The maze of changing facilities located in both the east and west courtyards are wood frame construction with cement asbestos board sheathing at the walls and roofs. Removal or handling of these materials is not considered a health hazard according to EPA Asbestos Guidance Document 1 (page 3), unless these materials are sawn, or otherwise machined, which would result in asbestos fibers becoming airborne.

WINDOWS AND DOORS

Doors

There are essentially two types of doors in the bathhouse complex: painted galvanized roll-up doors for various concession spaces at the Beach Pavilion and painted hollow metal doors elsewhere. All the metal doors have rusted severely due to the salt laden air. Existing roll-up and hollow metal doors at the East and West Wings have recently been replaced and painted and appear to be in good condition. Salt deposits presently collecting on the metal door surfaces, will cause continued deterioration. Doors which have not been replaced recently (at the north side of the Bathhouse Pavilion, the Entry Pavilion, and various metal doors on the free standing storage rooms in the East and West Courtyards) are completely rusted through at their bases and require replacement.

Windows

The windows at the bathhouse are primarily glass block with occasional pivot window inserts for ventilation. Steel lintels in most cases have rusted causing a 'jacking' effect at the exterior walls allowing for water intrusion in the window areas. Broken glass blocks have been replaced with a different type of block showing the extent of either block failure or vandalism. Some pivot windows still have stones lodged in them, illustrating the reality of a vandalism problem.

GENERAL OBSERVATIONS

The following structural report on the Jacob Riis Bathhouse consists of a written and photographic description of the complex showing its current condition. There will also be a discussion of causes of various structurally related problems and a description of live load capacities of the existing structural systems.

Structural Design

None of the structures has acted unfavorably due to a structural design deficiency. In the toilet area at the northwest corner of the East Wing the exterior masonry wall has rotated inward significantly from excessive water accumulation caused by a faulty roof drainage leader. This wall must be replaced.

All structures added to the Main Bathouse Pavilion and the Entrance Pavilion since 1937, including the kitchen wing, extended towers, cafeteria extension, stairs, minor structures resulting from mechanical system changes and east and west tunnels and access structures, and offices added to the Entrance Pavilion, are supported on spread footings with a minimum bearing capacity of 1-1/2 tons per square foot. The original Beach Pavilion, Entrance Pavilion and the East and West Wings are supported on piles. There has been differential movement as a result of this foundation mix but no significant structural damage has resulted.

Thermal Damage

The exterior masonry walls of all the buildings and court enclosure walls have few vertical control or expansion joints to relieve forces from thermal influences. As a result, thermal forces have caused uncontrolled cracking especially at corners and in parapets - usually the most vulnerable elements. Previous repairs are in evidence, such as repointing, caulking and replacement of some bricks and cast stone.

Some repaired areas are cracking again indicating that the thermal forces are not relieved. Cracks can be diminished in number and size in two ways: (1) introduction of new vertical relief joints, and (2) heating of the building in the winter to prevent the exterior walls adjacent to

heated spaces from becoming excessively cold, minimizing contraction. Heat penetration of the exterior wall would also greatly diminish the effect of freeze-thaw cycles discussed later in this report.

Cracking at the Beach Pavilion is extensive, moderate at the Entrance Pavilion, and almost negligible at the East and West Wings and court enclosure walls.

Water Damage

Water damage varies and is prevalent throughout all the buildings, the Beach Pavilion being the worst. Maintenance has been inadequate.

Thermal movement has contributed heavily to the extent of the water damage. Cracks in walls caused by temperature fluctuations have allowed water to penetrate. The problem is further exacerbated in the winter months by freeze-thaw cycles. Water penetrates thermal cracks and is trapped in voids in the masonry. Before the water evaporates, it can freeze and expand the size of a crack. With each freeze-thaw cycle cracks gets larger and receive more water.

It appears that the hip roofs at the east and west ends of the Beach Pavilion originally had openings between the masonry piers above the second floor. Because of poor construction and inadequate maintenance, the second floor roof leaked allowing water to intrude into the exterior walls and interior structure. The flat roof and parapet coping for the center section of the Beach Pavilion has leaked also.

In general, water damage at the exterior masonry walls is evidenced by cracked and spalled brick, cracked and spalled cast stone with exposed rusted reinforcing bars, cracked interior glazed tile, and rusted masonry pier anchors and lintels. Water has damaged the Beach Pavilion concrete canopies causing cracking and spalling and exposure of some of the reinforcing bars. Roof gutters at the East and West Wings are leaking causing sections of the wooden eaves to rot.

The interiors of the Beach Pavilion and Entrance Pavilion have been subjected to leaking water but, in general, have only superficial damage, such as the spalling of concrete encasements and peeling paint. There is some rusting of steel members but the damage is insignificant except at the first floor of the east tower of the Beach Pavilion.

Atmospheric Damage

Salt laden air from the ocean accelerates the rusting of the exterior steel lintels, steel pier anchors used in masonry, and reinforcing bars in the cast stone and concrete canopies. It has also caused deterioration of the exterior masonry, cast stone and concrete. Salt is damaging to all these materials and because it is soluble in water it travels to wherever water flows. It is imperative that water infiltration be stopped or, at the least, significantly diminished.

SPECIFIC OBSERVATIONS

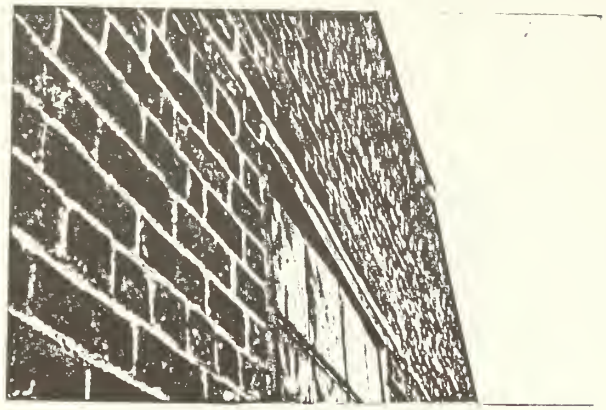
Beach Pavilion

1. Steel window lintels and masonry pier reinforcing in the exterior walls have rusted and expanded. The extent of deterioration and the extent of repairs or replacement is extensive in most cases.

   Rusting of the steel lintels and masonry pier reinforcing in the exterior wall has caused significant cracking of the face brick and masonry back-up block. (See photographs #1 through #4.)

   If a sufficient amount of base metal remains, the lintels and pier reinforcing can be scraped free of rust scale and retained. If the remaining base material is structurally inadequate, then the units must be replaced. Without the benefit of numerous probes, it is estimated that most of the lintels will require replacement. New steel should be galvanized and reconditioned steel painted.

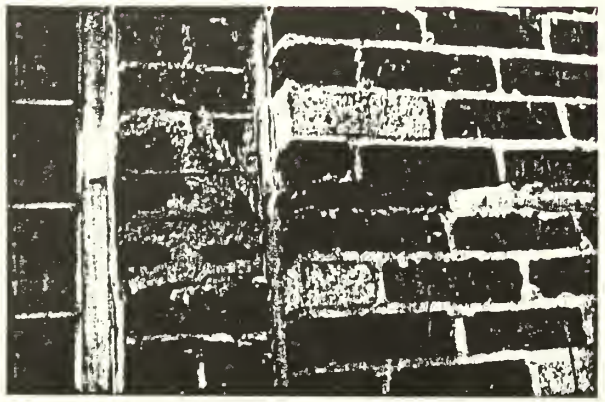
2. The face brick of the exterior wall is cracked and face-spalled. (See photo #5.) The cast stone is also cracked, spalled, and in some areas the reinforcing bars are exposed and rusted. Mortar joints are generally satisfactory.



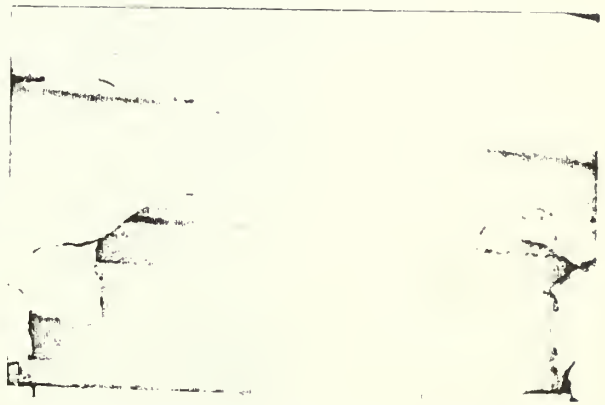
1. Typical 'jacking' effect of deteriorating steel lintel at Beach Pavilion.

2. Rusted reinforcing in masonry pier, typical at Beach Pavilion.

(Beach Pavilion cont'd.)



3. Detail of steel reinforcing at masonry pier, Beach Pavilion.



4. Interior view of deteriorated steel lintel, Beach Pavilion.

(Beach Pavilion cont'd.)

To prevent further deterioration after individual damaged units are repaired or replaced, the wall can either be parged, painted, or treated periodically, perhaps with transparent sealants.

5. Typical cracked and spalled brick at Beach Pavilion.

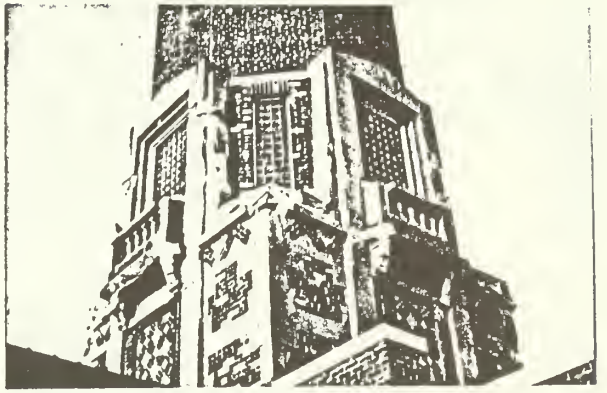
6. Typical cast stone deterioration at Beach Pavilion.

(Beach Pavilion cont'd.)

3. Ornamental cast stone at the east and west towers is badly spalled and cracked, with exposed reinforcing. (See photos #7, #8,#9, and #10.) This stone can be patched and reconstructed to recreate its original architectural form.

   The adjacent brick of this first section above the main roof is also severely cracked and is generally in poor condition as are the window and door lintels. Extensive repairs or complete rebuilding of this section is required.

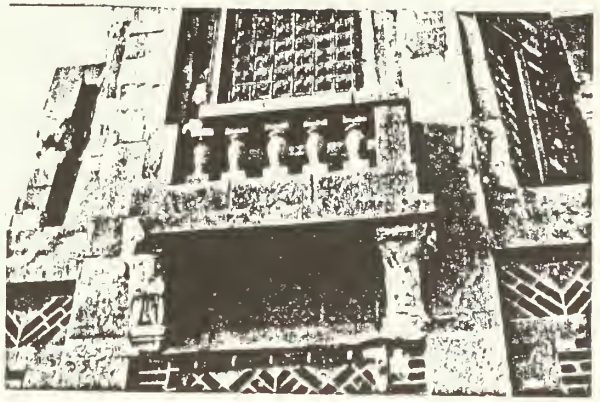
4. The first floor structure above the main roof level of the east tower is in poor condition. (See photo #11.) It does not require replacement but repairs will be extensive.



7. East tower - Cast Stone and Brick Deterioration.

8. East tower - detail of exposed reinforcing.

9. Detail of spalled cast stone quoins at west tower.



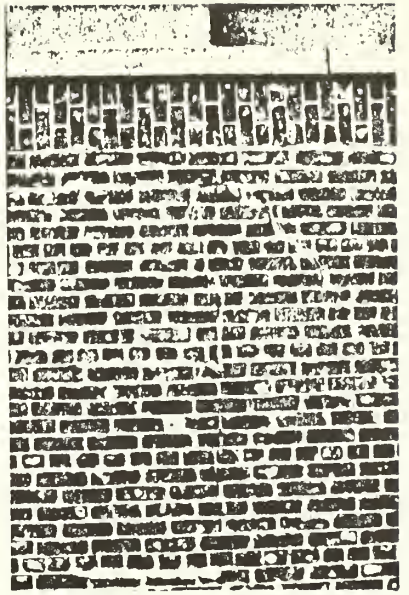
10. West tower cast stone deterioration at balcony.

11. View of interior water damage at west tower.

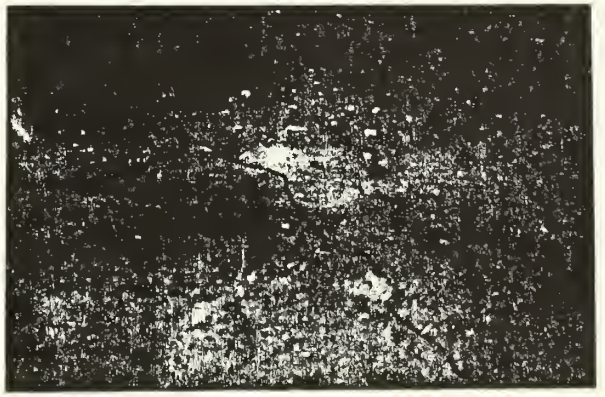
(Beach Pavilion cont'd.)

5. As a result of the foundation being a combination of piles and spread footings, cracks have occurred in the exterior walls and the interior structure. (See photo #12.) Some are controlled and others are not. These joints and cracks must now be treated as expansion joints using appropriate details and materials.

   A crack has developed in the floor at the second level between the original structure and the added kitchen wing. (See photo #13.) Since the kitchen wing is supported on spread footings and the original building on piles, this joint shall be assumed to be kinetic and should be modified to become an expansion joint.



12. Typical crack in brick masonry wall at Beach Pavilion.



13. Crack at second floor between original structure and 1937 addition.

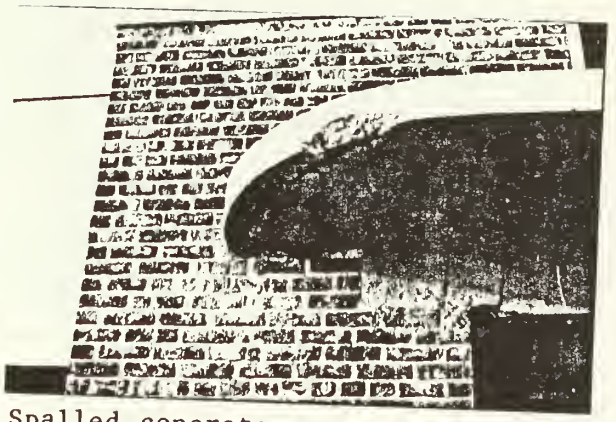
(Beach Pavilion cont'd.)

6. Exterior concrete canopies are spalled, have minor cracks and some reinforcing bars are exposed and rusting. (See photo #14.)

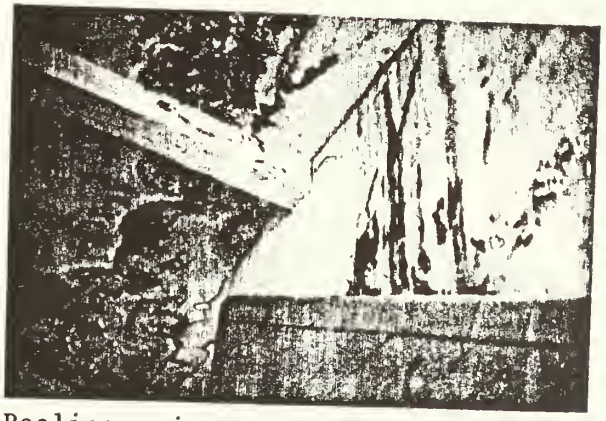
   Where reinforcing bars are badly rusted they can be spliced with new bars and grouted-in with epoxy grouts. Epoxy grouts can be used for the repair of cracks and spalled areas as well if the surfaces are to be repainted.

7. There is peeling paint, spalling plaster, some spalling concrete and minor rusting at the interior structure, especially in the stair areas, none of which seems to have significantly affected the structure (see photo #15). Probes are required in the worst of these areas to verify these findings.

8. The hip roof structure consists of wooden trusses, with round steel center posts, bearing on exterior masonry piers. The roof structure is dry and in good condition.



14. Spalled concrete canopy at Beach Pavilion.



15. Peeling paint, spalling plaster, spalling concrete, and minor rusting of reinforcing.

East and West Wings

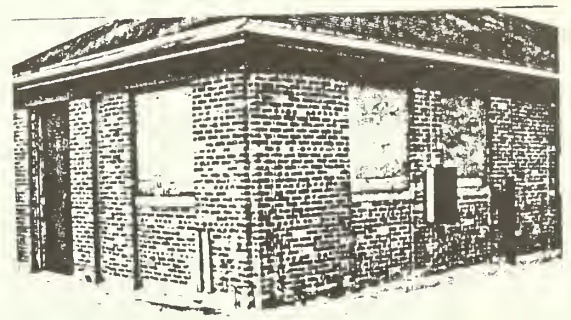
In general, the East and West Wing buildings are in the best condition of the enclosed buildings.

1. Except at the window lintels, there is minor cracking of the exterior masonry walls. There is minor surface spalling on the face brick elsewhere. (See photo #16.)

   To diminish deterioration the exterior surface may be treated as described for the Beach Pavilion.

2. About 40% of the cast stone window sills are severely spalled and cracked and reinforcing bars are exposed and rusted. (See photo #17.) Deteriorated sills have allowed water to intrude into the wall center below. The water seal between window frames and sills is solely dependent on caulked fillet joints.

   Cast stone sills warrant selected replacement. Joints between window frames and sills should be redetailed.



16. East wing showing typical spalling and cracking of brick walls.

17. Cast stone window sill at West Wing showing typical condition.

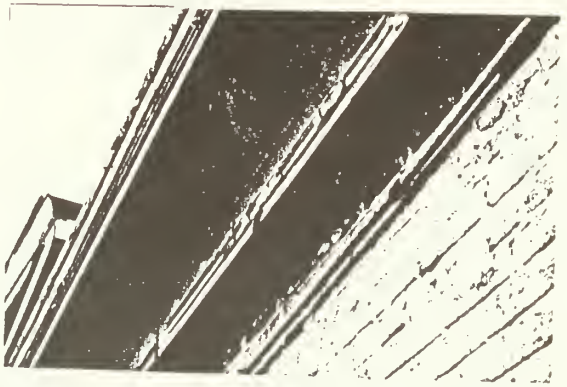
(East and West Wings, cont'd.)

3. As a result of water infiltration at the window sills, there is cracking of some interior glazed block.

4. Wooden eaves are generally in good condition There are some cracks and peeling paint. (See photo #18.) At eaves adjacent to the court area, it appears that the original roof drainage system leaked to the inside of the eaves causing rotting in a section approximately 40'-0" long. (See photo #19.)

   This condition is present in both wings and eave replacement is required.

18. View of typical wooden eave condition at Wings.



19. Court-side eave condition at West Wing.

(East and West Wings, cont'd.)

5. Most of the interior partitions which intersect with the exterior wall have settled at their intersection points. Interior walls bear on the slab-on-grade and the exterior walls on piles. Differential settlement and water infiltration have combined to cause the problem. (See photos 20 & 21.)

   Once water infiltration is arrested, settlement should cease, at which time repairs can be made.

6. The hip roof structures consist of wooden trusses, with a round steel center post bearing on exterior masonry piers. Wooden roof sheathing and ceiling joists span between the trusses. The roof structure is dry and in good condition.

20. Settlement of partition wall at east exterior wall of West Wing.

21. Settlement of east exterior wall of West Wing.

Entrance Pavilion

1. Exterior masonry walls are in fair to good condition. Some minor cracks are present which can be repaired.

2. Cast stone entrance columns and arches are badly damaged. (See photo #22.) Concrete has spalled and cracked, and in some areas reinforcing bars are rusted and exposed.

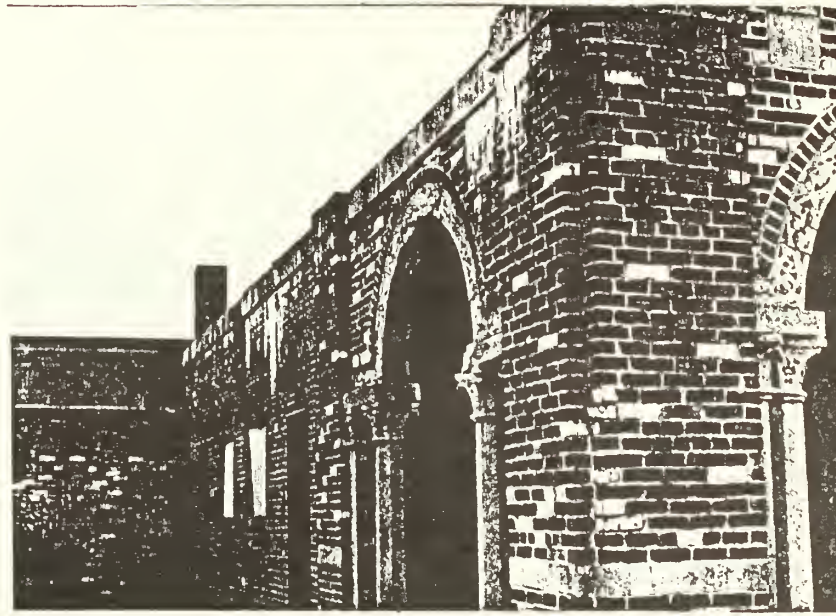
   Required repairs will be extensive but can be accomplished to reproduce the original architectural expression.

3. The cast stone coping is spalled and cracked in some areas and should be patched or replaced as warranted.

4. The east parapet is rotated outward slightly and is unstable. (See photo #23.) Repairs are required but more importantly the condition causing the rotation must be corrected.

5. The roof structure shows evidence of water leakage, but no significant structural damage has occured. The roof structure can be retained for re-use.

22. Detail of spalled cast stone at Entry Pavilion.



23. View of east parapet of Entry Pavilion. Note efflorescence and slight bowing of parapet wall.

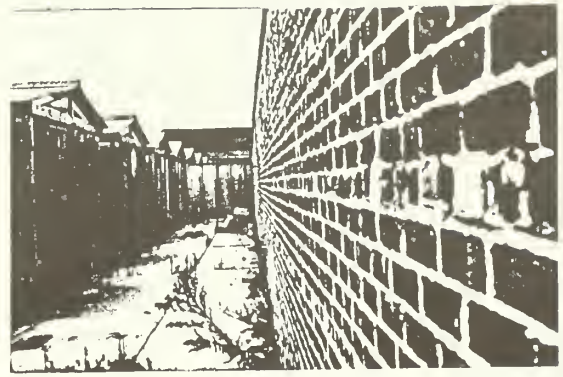
Court and Court Enclosure Walls

1. Free-standing brick walls enclosing the north side of the court have suprisingly few cracks considering their length and the absence of any vertical relief joints.

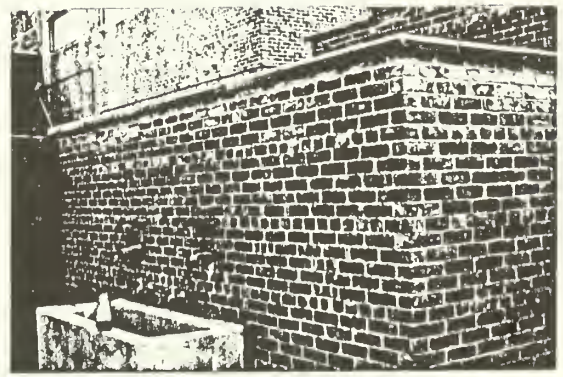
   These walls are rotated inward but appear to be stable. (See photo #24.) The amount of movement should be verified by measurement and a probe made to examine foundation and subgrade bearing material. The wall bowing is possibly due to a variety of reasons: 1) frost heave below a shallow grade beam, 2) the piles are eccentric to the applied load, 3) root growth at the north side of the wall, 4) the lack of expansion joints, or 5) a combination of the above.

2. Free-standing masonry dressing room walls within the court are in fair condition requiring only minor repairs. (See photo #25.) Some of the glazed coping tiles are damaged and require repair or replacement as warranted.

3. Several structures in the court constructed with concrete roof slabs on masonry bearing walls have been damaged by water. The damage is not significant but be repair is necessary so that water infiltration can be stopped.



24. View of West Court enclosure wall. Note slight bow inward.



25. Typical free standing masonry wall at courtyard.

4. Pump houses at the northeast and northwest corners of the court are in poor condition and should be demolished and replaced, if needed. (See photo #26.)

5. Wood trimmed transite walls are serviceable but are in great need of repair.

6. Slabs-on-grade within the court have settled, cracked, spalled, heaved and are in generally poor condition. Regardless of the final surface treatment, these slabs should either be removed or broken up and the subgrade compacted. The new surface, if exposed to the weather, should be well drained and water infiltration to the subgrade material minimized.

26. Northwest pump house. Note severely cracked brick walls.

Structural Engineering

CAPACITY OF EXISTING STRUCTURE

Other than the Beach Pavilion all buildings in the complex are one story. The first floor is a non-supported concrete slab-on-grade. The Entrance Pavilion flat roof structure has reinforced concrete slabs spanning between concrete encased steel or reinforced concrete beams. At the east and west ends there are wooden shed roofs. East and west wing hip roof structures are comprised of wooden trusses and wooden roof and ceiling joists. Both the Entrance Pavilion and wings have exterior masonry bearing walls and piers and concrete encased steel columns at the interior. All three buildings are supported on piles.

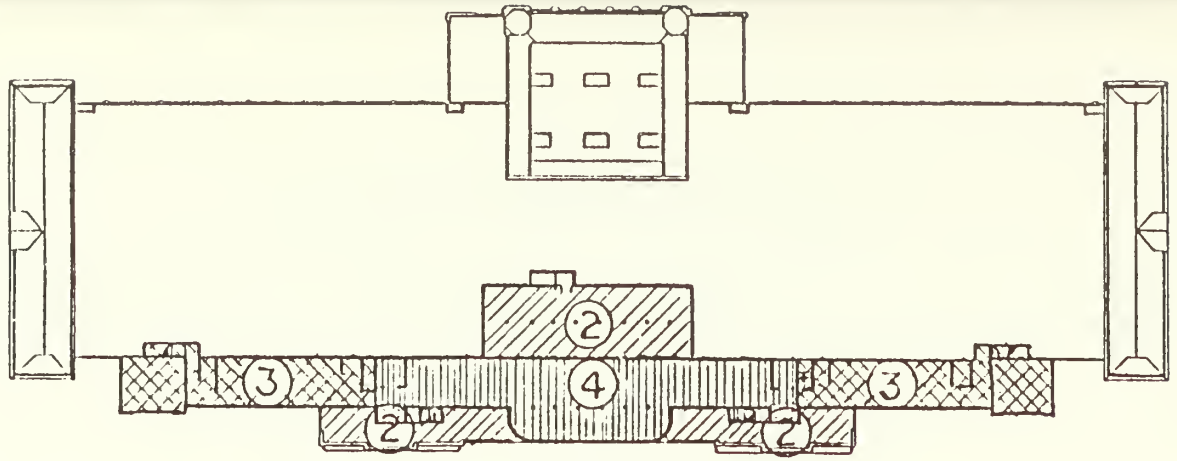
East and West Wings and Entrance Pavilion

The first floor concrete slab-on-grade is in relatively good condition and can accommodate live loads up to 200 pounds per square foot.

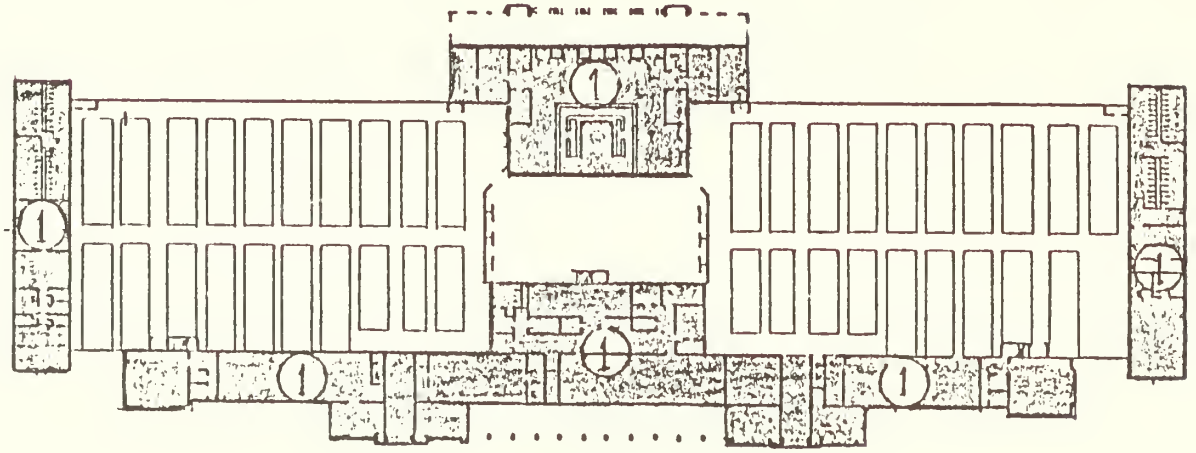
There has been no attempt to analyze the roof structures because of the absence of details on the original drawings. If roof loadings are being considered in excess of the present snow and wind loads as established by code, then sizes of the existing structural members must be determined at the site with probes and measurements before any structural analysis can be made.

Beach Pavilion

The Beach Pavilion is a two story building. First floor is at grade and the floor structure is an unsupported concrete slab-on-grade. The second floor structure is a supported frame consisting primarily of reinforced concrete slabs spanning between concrete encased steel beams and girders. Second floor structures added since 1937 have reinforced concrete slabs, beams and girders. The hip roof structural system at the end thirds of the building consist of wooden trusses and wooden roof and ceiling joists. At the center third of the building, the roof is flat and has concrete slabs spanning between either reinforced concrete or concrete-encased steel beams and girders as at the second floor. Columns are either reinforced concrete or concrete encased steel members dependent on the date of construction. Original columns are concrete encased steel members and those added since 1937 are reinforced concrete. The exterior masonry walls and piers function as bearing walls. The building is supported on piles.



SECOND FLOOR PLAN

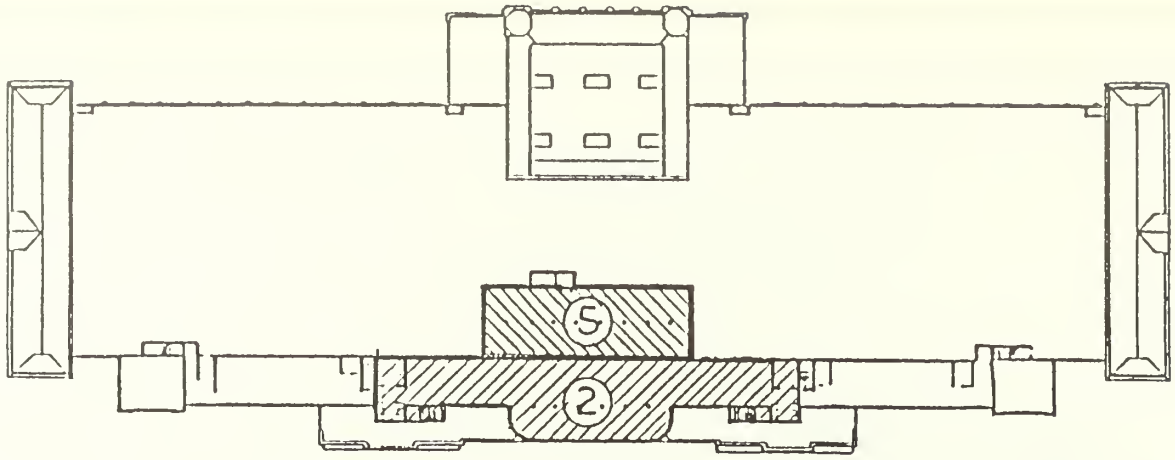


FIRST FLOOR PLAN

SCALE:

JACOB RIIS BATH HOUSE

LIVE LOAD CAPACITY



ROOF PLAN

LIVE LOAD CAPACITY	
NUMBER	LIVE LOAD (POUNDS PER SQUARE FOOT)
(1)	200 P.S.F.
(2)	100 PSF.
(3)	125 PSF.
(4)	75 PSF.
(5)	40 PSF.

SCALE: 1"= 32'

JACOB RIIS BATH HOUSE

LIVE LOAD CAPACITY

Based on observation, the first floor concrete slab-on-grade is in relatively good condition and can accommodate live loads up to 200 pounds per square foot. Live load capacities for all buildings of the complex, based on the original drawings by Stoughton and Plock and City of New York, Department of Parks, drawings of the existing structure are as follows:

Seismic

Based on observations and existing drawings, it can be assumed that there was no consideration given to seismic forces in the original design. The New York City Code, past and present, is not definitive in regard to seismic requirements. Current practice in New York City is to satisy forces as for a Zone I magnitude. Generally, the wind design forces are considered to be greater than the Zone I seismic forces and the attitude is that if the structure is satisfactory to resist the wind forces, it is satisfactory to resist Zone I seismic forces. Many of the existing structural elements stabilizing the buildings cannot be used to resist more severe seismic forces, because of inappropriate detailing. As an example: The piles are not interconnected horizontally in two directions to allow for uniform movement. Consequently, the foundations cannot be considered as a viable seismic resisting system.

Electrical Engineering

1. If the existing system has not been vandalized, it is antiquated, broken, unusable and in extreme need of replacement.

2. Except for a few isolated cases the panelboards are switch and cartridge fuse type. In many cases panelboards have been completely stripped of both branch circuitry and feeders.

3. The main service enters the building underground from Rockaway Beach and is terminated at various fused disconnect switches. Disconnect switches are rusted and in some cases, itis questionable whether the operating mechanisms would work if necessary. Fuses are not of the current limiting type.

4. Incoming service conductors are copper rubber insulated with outer lead sheath. Incoming service is 500 MCM/service lateral to MDP 400A/250V, 400A mains, according to a recent study made by the Center for Architectural Conservation of Georgia Institute of Technology. Service is 120/208 Volts, 3 phase, 4 wire with a single meter and C/T cabinet.

5. The main distribution panel is a dead front built-up switchboard section of ebony panels with a wire gate enclosure. Branch feeder protective devices are circuit breakers.

6. In general the existing branch circuit conductors are #14.

7. In many cases, the exposed branch circuit conduit has rusted through and presently hangs on the exposed conductor.

8. In general all lighting is of the incandescent type. In many cases the globes or diffusers have been removed and only bare bulbs exist. The 2nd floor toilet and locker room fixtures are surface mounted incandescent drums with cast guards.

9. With the exception of the conduit buried in concrete, the entire electrical system should be replaced.

Mechanical Engineering

1. The existing domestic water system is supplied through four independent metered mains. The mains are connected to a street service in Rockaway Beach Boulevard. All meters and domestic cold water piping are in good condition. Maintenance is performed on a regular basis and piping shows no sign of disrepair. All piping is brass.

2. Domestic hot water is produced by coils in the existing hot-water heaters. Two existing 2000 gallon storage tanks adjacent to the hot-water heaters store water for peak periods of use. Some piping insulation at tanks needs replacement. All piping is brass. The present hotwater heating system is a viable way of heating a large quantity of hot water for such loading demands as this facility once had. However, if the basic bathing function is removed from this building a new rehabilitation scheme, building heating and domestic hot-water heating should be separated into two new systems.

3. Mixing valves in the boiler room serve to temper the water temperature to approximately 110 .

4. An existing 4" gas service and meter rig exists in the boiler room area and is piped to the existing boilers. Long Island Lighting Company is the service utility.

5. Toilet fixtures are separated into two groupings in the Beach Pavilion and in both End Wing buildings, with shower facilities only in the Bathhouse areas. Water closets are floor outlet flushometer type. Lavatories are wall hung with self-closing faucets. Urinals are floor outlet flushometer type. Men's and women's toilet have one lavatory missing in each. All flushometers are in good condition. Several toilet seats are in need of replacement. Shower facilities in the Bathhouse are provided with water closet type flushometers as supply fittings and are in good condition. According to maintenance personnel all domestic water supplies to the outside showers are drained during the cold months. Shower drains are in fair condition but some need to be replaced. Some area drains in the outdoor shower area also require replacement. Toilet fixtures and shower stalls on the second floor are in good condition and several toilet seats need replacement.

6. Gravity roof drainage systems consist of cast iron drains, gutters and leader piping connected to an underground system with several exit points from the building. Storm house sewers convey the storm drainage to an existing 27" interceptor sewer near Beach Channel Drive. Several drywells also receive building roof drainage. All systems appear at present to be in good condition. Any roof repair work will require adjustment to existing roof drains except at the north wall of the kitchen wing of the Beach Pavilion.

7. Gravity sanitary drainage system consists of cast iron soil and vent piping. All observable piping appears to be in good condition. Toilet drainage exits to the north of the building. These were once piped to leaching fields, but are now apparently piped solid into 27" interceptor sewer.

8. No thermal insulation has been found in this seasonal facility.

9. A chimney flue for the hot-water heater and ventilation for the kitchen wing exists in the location of these spaces. Access to the kitchen ventilation system has thus far precluded determination of their condition and precise size.

Code Analysis

The Jacob Riis Bathhouse is composed of four separate structures joined only by a freestanding masonry wall enclosure forming a large court area. The structures are a combination of exterior masonry bearing walls and steel posts and beams fire-proofed with concrete, plaster and tile. The roof trusses in the East and West Wings and the Entrance Pavilion are wood frame above a plaster ceiling. Decks in the Beach Pavilion are concrete. All buildings were designed to be fire-resistant.

Approximate gross floor areas in various parts of the building and courtyard area are:

Enclosed area

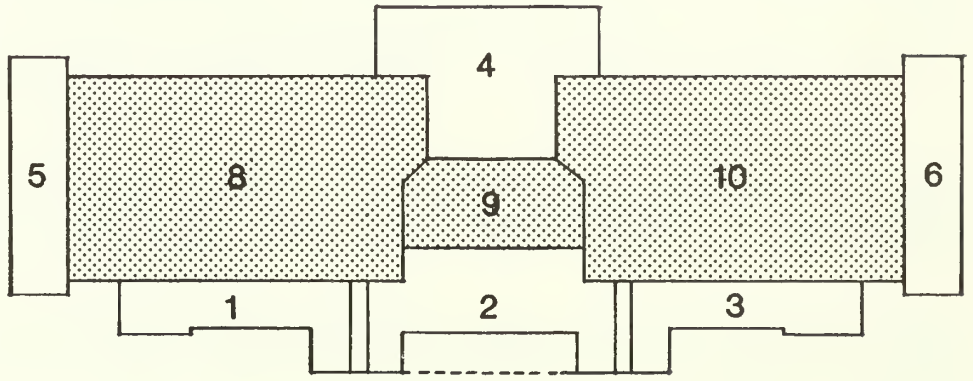
Area	1	=	3,590 sq. ft.	
	2	=	9,561	
	3	=	3,590	
	4	=	7,680	
	5	=	3,996	
	6	=	3,996	
	7	=	17,277	
			49,690 sq. ft.	49,690

Open Courtyard area

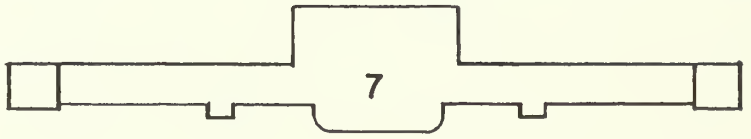
	8	=	28,500 sq. ft.	
	9	=	6,240	
	10	=	28,500	
			63,240 sq. ft.	63,240

Total Building area 112,930

First Floor



Second Floor



This analysis interprets pertinent information from the Building Code of the City of New York in order to determine at this preliminary stage an appropriate and responsible approach to life safety.

Definitive reuse programming and designs will follow in future development phases of this project. At this time, however, a number of potential uses have been suggested such as concessions (business), recreation, entertainment, etc., all of which are related to various levels of investment. With this in mind an analysis of pertinent sections of the Building Code of the City of New York (Local Law No. 76, effective December 6, 1968) have been analysed and are summarized below for use in subsequent phases of work.

Building Code of the City of New York, 1968 (plus Amendments).

103.0 Alterations above 60% building value in 12 month period, entire building must comply with code for new construction; if 30-60%, then only new work must comply. Building value = 1.25 x assessed value. Change of occupancy requires compliance for that portion changed.

103.8 Alterations involving conversions from a seasonal to a year round use must comply with minimum building insulation standards (RS 12-10). Fire, noise and other applicable codes must comply as well in a year round conversion.

301.0 Occupancy Classifications. Business (E) is assigned a fire index of 2, whereas Assembly (F) has an index of only 1. Entire building may be classified as the non-dominant occupancy if it is of a higher fire index and if it is approved by Building Department. Spaces with a higher index than the building occupancy must be separated by Fire Divisions (504.1a); those with the same or lower index must be separated by Fire Separations (504.1b).

306.0 Occupancy Group E - Business

307.0 Occupancy Group 4 - Assembly

Reference Standard RS-3

Occupancy and Construction Classifications

	Outdoor		Indoor
Amusement Parks, children's	F-2		F-3
Arenas, auditorium	F-2		F-16
Baths, steam			F-3
Billiard parlors			F-3
Bowling alleys			F-3
Clubs with outdoor swimming pool		J-1 with residence E without residence	
Restaurants			F-4
Playground	F-2		
Police Station (offices)			E
Skating rink (indoor)			F-3
Penny Arcades			F-3
Reducing Salons			F-3
Recreation Centers			F-3
Theaters			
limited capacity without scenery			F-16
unlimited capacity without scenery			F-16

314.0 Construction Group 1 - Noncombustible. Varies generally in protective requirements for major structure from 4 hrs. for Class 1-A to 9 hrs. for Class 1-E. See Table 3-4 for fire ratings and allowable wall openings.

Table 4-1 Area and height limitations without sprinklers. No limits for Business and Assembly for Class 1A or 1B. Height limit for Class 1C, height and area limits for Class 1D. Frontage access allows tabular area increase (405.3). Existing excessive area may be increased if compartmentalized (405.4).

Table 4-2 Area and height limitations with sprinklers. No limits for Business and Assembly for Classes 1A through 1D. Height and area limits for Class 1E.

502.2 Protection of structural members. Required rating (Table 3-4) for a roof system may be met with a rated ceiling.

503.0 Prevention of exterior fire spread. Opening protectives as per Table 3-4 and also for openings above 3rd floor or 40' height if less than 30' from an opening in a different plane or within 30' of a roof or roof opening rated less than 1-hr. Requirements for vertical separation of openings between floor levels of Business buildings over 40' (503.1). Required 10' separation between skylight and vertical wall with openings without protectives (503.8).

504.0 Prevention of interior fire spread. (See Sect. 201.0 for selection of fire separation or division by fire index). Table 5-1 "Fire separations" not required between Business and Assembly occupancies (1-hr. between different tenants). Table 5-2 "Fire Divisions" of 2 hrs. required between all contemplated occupancies (E.F-1b, F-3, F-4). For Business occupancy (E) buildings over 100' in height, with HVAC serving more than one floor, and unsprinklered, floors above 40' must be compartmentalized into areas not exceeding 7,500 sq. ft. with 1-hr. separations (one 2-hr. separation if floor over 10,000 sq. ft.; 15,000 sq. ft. compartments allowed if approved fire detection system. No compartmentation required if sprinklered. Larger and closer spaced openings in fire division or separation walls allowed for sprinklered areas (504.4). Interior finishes must be Class A for exits and shafts, B for corridors, C for rooms in Business occupancy, B for rooms in Assembly occupancy (except

C for F-4 rooms under 1500 sq. ft.) Table 5-4. Mechanical smoke vent or pressurized stairs required for Business occupancy over 100' ht. ((504.15).

Table 6-1 Exit and access requirements.

Travel distance:

- Business 200' (300' sprinklered)
- Assembly 150' (200)

Persons/exit unit width (Business & Assembly):

Grade level doors	100
Exit & corridor doors	80
Stairs	60
Ramps, exitways, horizontal exits	100

Minimum door width for above 44".

Deadend corridor 30' Assembly, 50' Business.

200

Table 6-2 Net floor area/occupant:

Dining	12 sq. ft.
Exhibition	10 sq. ft.
Offices	100 sq. ft.
Assembly	
Fixed seats - actual count	
Movable seats	10
Storage	100

603.1 Egress from spaces. Two or more required for Assembly occupancy above 75 persons; Business above 75.

603.3 Exit reduction. Number of persons for whom vertical egress must be provided may be reduced 50% for 1 area of refuge or to 33 1/3% for 2 areas.

604.2 Corridors. Interior corridors rated minimum 1-hr.

604.3 Exit passageways. Maximum 50% total stairs through one grade exitway. May be 75% width of combined stairs served. Street floor lobbies may serve 100% of exit stairs provided there are 2 remote lobby exits and other conditions are met.

604.5 Area of refuge. Two hour separation. At least one stair.

604.6 Horizontal exits. Door(s) to swing in direction of travel. Doors 11/2 - hr.

604.7 Supplemental vertical exits. Enclosed stair, ramp, escalator may serve as access to area of refuge closer to grade level if supplemental to required stairs.

604.8 Interior stairs. Minimum 44" width unless serving less than 25 persons. Max. height of stair run 8' for Assembly, 12' for Business. Maximum riser 7-3/4" (7-1/2" assembly); minimum tread 9-1/2"; 2R + T between 24 and 25-1/2". See article 8 for unenclosed stairs allowed in Assembly (F).

801.9 Travel distance in places of assembly. Specific regulations for measuring distance to primary and secondary exit openings from any point (or seat) in an assembly space. Table 8-1 includes allowable distances as well as exit capacities. Most numbers slightly different from more general Table 6-1.

801.10 Exit openings from assembly spaces classified by directness of exit. More direct exits to grade required as height of assembly space above or below grade increases.

801.11 Safe Areas (such as foyers or lounges) may serve as part of egress system (i.e. may be counted as being beyond required primary or secondary exit opening from assembly space and, therefore, not included in maximum allowable travel distances of Table 8-1).

1701.1 Existing buildings - fire extinguishing equipment. Minor alterations to existing standpipes and sprinklers; upgrade systems in areas where occupancy change requires additional coverage.

1702.0 Standpipes required (wet).

1703.0 Automatic sprinklers only required if total building designated Business (over 100' ht. with central HVAC serving 2 or more floors), and in certain service spaces.

1704.0 Interior fire alarm system required if Business occupancy over 100' ht.

1800.8 Elevator in readiness for Fire Department in all buildings over 100' ht.

"Fire Safety Standards for Areas of Public Assembly". Effective date April 1, 1982. Provisions call for fire protection system in all areas of public assembly.

APPENDIX 2

The Inspection Report - Riis Park Bathhouse
William W. Howell, 1982

October 22, 1982

H30 (DSC-TNE)

Memorandum

To: Superintendent, Gateway National Recreation Area

From: Assistant Manager, Mid-Atlantic/North Atlantic Team, DSC

Reference: Gateway, Pkg. No. 953, Breezy Point Unit, Jacob Riis Bathhouse Stabilization

Subject: Transmittal of Inspection Report, Riis Park Bathhouse

Pursuant to your memorandum of July 22, 1982, William W. Howell, Historical Architect, has prepared the enclosed report. We are pleased to be able to assist you in this manner and hope that we will have other opportunities to serve you in the near future.

/s/ Nan V. Rice

Gerald D. Patten

Enclosures (5)

cc:
Reg. Dir., North Atlantic, w/enc.

bcc:
DSC-TNE-PIFS, w/enc.

TNE:WWHowell:hca:10/22/82:5545

INSPECTION REPORT
RIIS PARK BATHHOUSE

William W. Howell

Introduction

In a memorandum of July 22, 1982, the Superintendent, Gateway National Recreation Area requested that the Denver Service Center (DSC) conduct a survey of the Riis Park Bathhouse "to determine what further stabilization work is needed . . . to retard deterioration of the building." That request specified that the report should include:

"1. The definition of work needed on the structure including skills needed to accomplish each project.

"2. Arrangement of these projects in priority order, identifying which projects should be done first,

"3. The approximate cost of each project if done by contract, and,

"4. Whether a XXX Form would be needed for each project."

The first section of this report has been organized by discrete projects in priority order based on urgency of accomplishing the project. We must differentiate between project urgency and project scheduling. The most urgent project may require extensive preliminary preparation while a less urgent project may be accomplished immediately without causing any delay in the accomplishment of the most urgent project. Therefore, this report will include a suggested schedule in bar chart form as well as the priority listing of projects, required skills, and cost estimates. Every project listed here requires review by the North Atlantic Regional Office for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. It is strongly recommended that coordination of the work discussed here be assigned to one individual with historic preservation experience and training.

Priority Listing of Projects

Projects are listed in four levels of urgency: "Immediate," "Urgent," "Necessary," and "Desirable." Within these levels projects are listed in decreasing order of urgency. Other items of work are listed under the headings "Keep Under Observation" and "Further Studies." These items are cross-referenced to priority items whenever appropriate.

Level I. Immediate

The criterion for inclusion in this level is an imminent threat to human safety or structural integrity. The stabilization of tower masonry accomplished this summer met this criterion. No currently existing conditions at the bathhouse are of this level of urgency.

Level II. Urgent

In this level are listed items of work required to correct existing conditions which are causing rapid deterioration of the building.

1. Stabilize cast stone copings on Part No. 4. This work requires supervision by an architect or engineer, but can be executed in a manner similar to the tower stabilization work by park maintenance staff.
Estimated cost (if by contract): $10,000 to $15,000; (if by maintenance staff): $5,000 to $7,500.

2. Clean out and repair concealed downspouts. This work requires further study by an architect, architectural conservator, or engineer to determine the cause (blockage or perforation) of water damage to piers and other building components surrounding roof drains and rainwater conductors. The work can be accomplished by plumbers or masons and plumbers (depending on cause).
Estimated cost: $5,000 to $15,000.

3. Repair and replace roofing and gutters in various locations: reroof kitchen addition Part No. 2*; replace missing and broken tiles on Parts No. 1 and 3; reroof Stairs No. 100 and 301; replace roofing, box gutters, and downspouts on Part No. 7. This work requires further study to determine the historic appearance of these roof surfaces and to prepare construction documents for this work. Expect to find extensive rotting of gutter liner boards, outriggers, soffits, and cornice on Part No. 7. Skills required for this work are: for asphalt strip shingles and built-up roofing, Roofer, Composition; for tile roof, Roofer, Tile and Slate; for gutters and downspouts, sheet metal worker.
Estimated costs: Part No. 2: $10,000 to $15,000
Part No. 1: $ 2,000 to $ 4,000
Part No. 3: $ 2,000 to $ 4,000
Part No. 7: $20,000 to $30,000

Level III. Necessary

Work in this category is required to keep the building wind and watertight, and to strengthen and consolidate structural elements which have deteriorated gradually over the years.

1. Replace corroded steel lintels over windows and doors. This work requires further study by an architect, architectural conservator, or engineer to determine which lintels need to be replaced, in what sequence, and by what techniques. The work can be accomplished by a bricklayer and helper. It is expected that 50 percent of the 250± masonry openings will need lintel replacement. The estimate is based on a cost of $700 to $900 per four-foot-wide masonry opening.
Estimated cost: $87,500 to $112,500.

NOTE: The quantity of this work might justify handling it as a "rolling program" - ongoing work accomplished by park staff. Reports of corroded steel lintels in other buildings at Fort Tilden and Floyd Bennett Field suggest that there is more than enough work to justify this approach.

2. Repair "jacking" of piers on second floor, south side, of Parts No. 1, 2, and 3. Corrosion of steel anchors for window frames and repointing with portland cement

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*Part numbers refer to key plan.

mortar are probably contributing factors, but further study by an historical architect, architectural conservator, or engineer is required to verify this diagnosis and to specify remedial measures. Repairs can be accomplished by a bricklayer and helper and may be coordinated with replacement of steel lintels.
Estimated cost (if coordinated): $4,000 to $6,000.

3. Repair or replace steel doors. This work can be accomplished by maintenance staff on an as-needed basis.
Estimated cost: Single door 3'-0" opening $280 to $350
Double doors 6'-0" opening $500 to $650

4. Repair or replace metal windows. Replace broken glass. Repair frames and sash. Replacement of frames and sash should only be undertaken after an historical architect has determined the historic appearance and prepared appropriate documents for the replacement unit. This work should be coordinated with Items III-1 and III-2.
Estimated cost for replacement of 4'-0" wide by 3'-0" high unit = $125 to $175.

5. Take steps to protect bathhouse from intrusion and vandalism. The repair or replacement of doors and windows will have a deterrent effect, but patrol and enforcement are also required.

6. Reroof Parts No. 4 and 8 and repair skylights on Part No. 4. This work requires further study by an historical architect, architectural conservator, or historical engineer to determine the historic appearance of the roofs and skylights and to prepare appropriate construction documents. Required skills are those of a Roofer, Composition, and a Glazier.
Estimated cost: Part No. 4: $18,000 to $24,000
Part No. 8: $12,000 to $18,000

7. Structural repairs. Execute the repairs which may be identified as necessary by item number III. 7 under "Further Study." Cost estimate must await completion of study.

8. Repair masonry around new electrical entrance to Part No. 7 of the bathhouse. This work can be accomplished by park maintenance staff.
Estimated cost: $50.

Level IV. Desirable

Work in this category is not necessary for the preservation of the structure, but is desirable for esthetic, functional, or other reasons. Such work is beyond the scope of this report, but should be included in an historic structure report (HSR).

Keep Under Observation

In addition to the normal maintenance and security inspections of the building, the following areas should be inspected periodically:

1. The tower masonry should be kept under observation for any recurrence of the spalling which was temporarily corrected by stabilization work in the summer of 1982.

2. All cast stone decorative elements should be kept under observation for signs of accelerating deterioration. If loss of the last surviving example of an historic detail is imminent, that detail should be carefully recorded by measured drawings, photographs, or molds, as appropriate.

3. All mechanical and electrical equipment should be kept under very close observation. This report does not include inspection by mechanical and electrical engineers, but it is safe to say that all such equipment (unless recently replaced) has outlived its normal operating life and could fail dramatically at any time. High quality original equipment, attentive maintenance, and good operating practices are responsible for the long life of mechanical equipment. Many replacement materials have been salvaged from unused portions of the bathhouse. Large portions of the electrical system are not in use and many panels have been vandalized. Many areas of conduit are seriously corroded and it is safe to assume that insulation has become brittle. Great care should be taken to ensure that these circuits are not energized because dangerous shocks or fires could result. I recommend that ABC type dry chemical fire extinguishers be located throughout the bathhouse.

Further Studies

Further studies are referenced in the priority listing by Roman numerals for the level and Arabic numerals for the item number: e.g., II. 2 is "Clean out and repair concealed downspouts." The priorities of studies are the same as the priorities of the work items for which they are required. Estimated costs for studies are based on accomplishment by National Park Service staff whether in park, region, or Denver Service Center.

II. 2. Determine the cause of leakage from concealed downspouts (blockage or perforations) and devise methods for correcting the problem.
Estimated cost: $1,000.

II. 3. Determine the historic appearance of roofs on Parts No. 1, 2, 3, and 7, and prepare construction documents accordingly. This type of research is normally part of an HSR, but if time does not permit preparation of a full HSR prior to this work, this research should be presented in such a way that it can be incorporated into the HSR later.
Estimated cost: $2,500 to $3,200.

III. 1. Determine which steel lintels are in need of replacement and establish priorities. Design replacement lintels and installation techniques.
Estimated cost: $1,500 to $2,000.

III. 2. Determine cause of "jacking" of piers on south side of second floor of Parts No. 1 and 3 and develop remedial measures.
Estimated cost: $1,500 to $2,000.

III. 4. Determine the historic appearance of metal window units needing replacement and prepare construction documents. This type of research is normally part of an HSR, but if time does not permit preparation of a full HSR prior to this work, the research should be presented in such a way that it can be incorporated into the HSR later.
Estimated cost: $2,000 to $2,700.

III. 6. Determine historic appearance of roofs and skylights and prepare construction documents accordingly. This type of research is normally part of an HSR, but if time does not permit preparation of a full HSR prior to this work, the research should be presented in such a way that it can be incorporated into an HSR later.
Estimated cost: $2,000 to $2,700.

III. 7. In the course of this inspection, several problems of a structural nature were noted. None of these conditions were serious enough to warrant inclusion in the Immediate or Urgent categories, but it would be prudent to have them examined more closely by a structural engineer, preferably one with historic structures experience. The problems and locations are listed below.
Estimated cost: $3,000 to $4,000.

1. Tapering cracks between walls and ceilings in Part No. 1, second floor, around Stair No. 100, Shower No. 100, Stair No. 101, and Shower No. 101.

2. Cracks in floor between Cafeteria and Kitchen addition, second floor, Part No. 2. There appears to be some differential movement between the 1932 part and the 1937 addition.

3. Water damaged column in Cafeteria near east end of southerly projecton. (Second floor, Part No. 2).

4. Water damaged pier at corner of southerly projection of Cafeteria and south wall of east end of Cafeteria. (Second floor, Part No. 2).

5. Exposed reinforcing rods in the ceiling of the bathroom at the east end of Part No. 2 (the floor of the east tower).

6. A crack in the floor slab of the Men's Dressing Room, Part No. 3, second floor, five feet from the south wall.

7. Tapering cracks between walls and ceiling of Shower No. 301 and the surrounding Men's Dressing Room, Part No. 3, second floor.

8. Horizontal cracks at various levels in the exterior walls of Part No. 7. (Those cracks are most evident on the interior surfaces.)

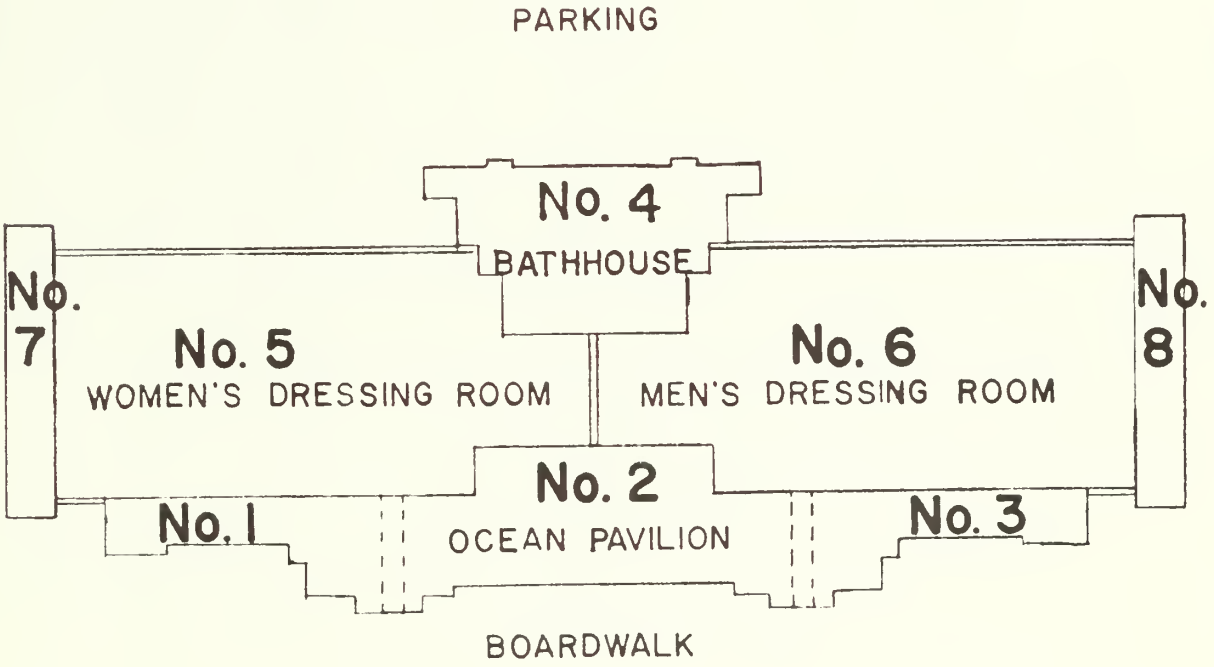
Historic Structure Report

It is recommended that an HSR for the bathhouse be undertaken as soon as possible. The "Further Studies" listed above would constitute a significant portion of an HSR, and it would be more efficient to have those studies conducted as part of a comprehensive project than piecemeal. Also, an HSR is a prerequisite to any overall preservation or adaptive use of the bathhouse.
Estimated cost: $130,203.68.

Schedule

The following suggested schedule must be considered tentative and subject to change. Important factors such as availability of funds and personnel and other priority

projects could not be considered. This schedule is based on urgency of work items as discussed above, logical grouping of work by construction crafts and trades, and estimated time spans for accomplishment of work items. Work items in the "Task Description" column are referenced by the priority numbers used above. The schedule is shown in red on the same line as the work item. An arbitrary one month gap is inserted between studies and related construction to allow for contracting procedures. The park contracting office can provide a realistic time span for this activity. The construction part of the schedule is based on the assumption that all items will be contracted except II. 1; III. 3; III. 5; and III. 8. If work is performed by park staff, it may not be possible to undertake several projects simultaneously because of a lack of personnel. The schedule for studies is based on the assumption that only one person at a time will be available for those studies. If more than one person is available, work could proceed more quickly. Project start date is left open; but, because of weather effects, the start date will have an impact on other items in the schedule.



KEY PLAN

NO SCALE

FORM No 2

PROJECT SCHEDULE

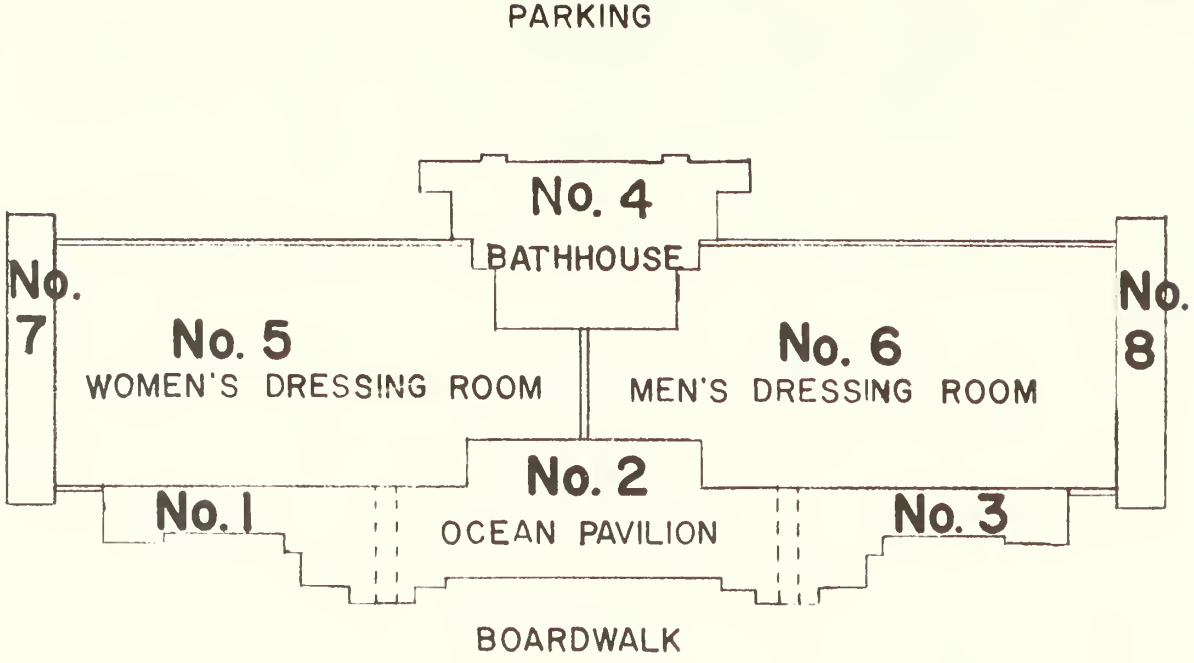
PAGE ___ OF ___

1 PERTINENT DATA	2. TITLE [illegible]
	3 DESCRIPTION [illegible]
15 TEAM CAPTAIN	16. SECTION CHIEF
17 PROJ MGR.	

4 PROJECT No	
5 SCHEDULED START	
6. SCHEDULED FINISHED	
7 REGION	
8. PARK	
9. DEV. AREA	
10 PACKAGE No.	
11. PROJECT TYPE(S)	
12 PROF. SERVICE COSTS	
13. CONST. COSTS	
14	

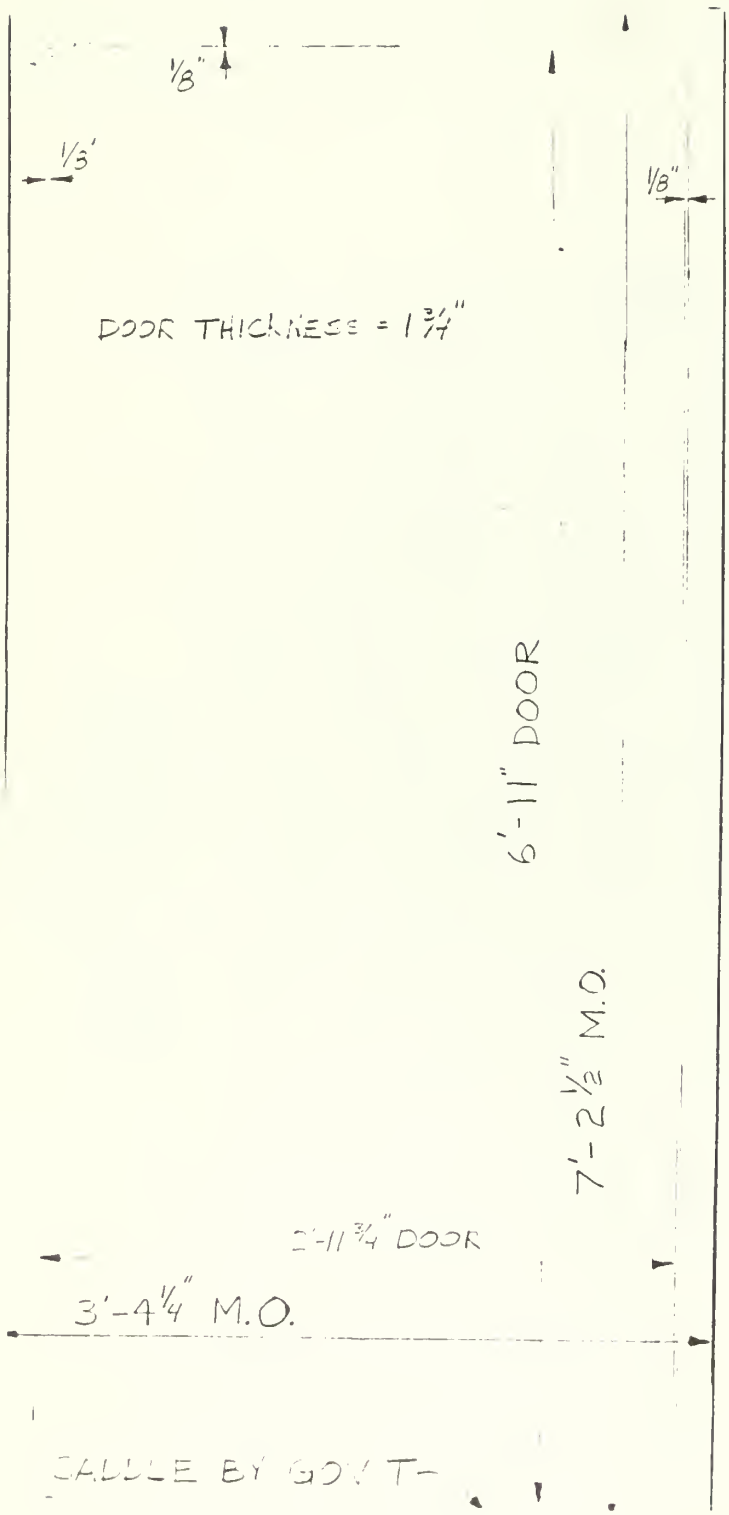
18 WBS	19 TASK DESCRIPTION	20 SCHEDULE F.Y. / F.Y. / F.Y.	21. SPAN TIME	22 DELIVERABLES	23. RESPONSIBLE PERSON	24 ACCOUNT No.
	[illegible]					
	[illegible]					
	[illegible]					
	[illegible]	… COORDINATE				
	[illegible]	[illegible]				
	[illegible]	[illegible]				
	[illegible]	COORDINATE WITH [illegible]				
	[illegible]	→ CONTINUOUS →				
	[illegible] No. 4 & 3					
	[illegible]	[illegible] FURTHER [illegible]				
	[illegible]					

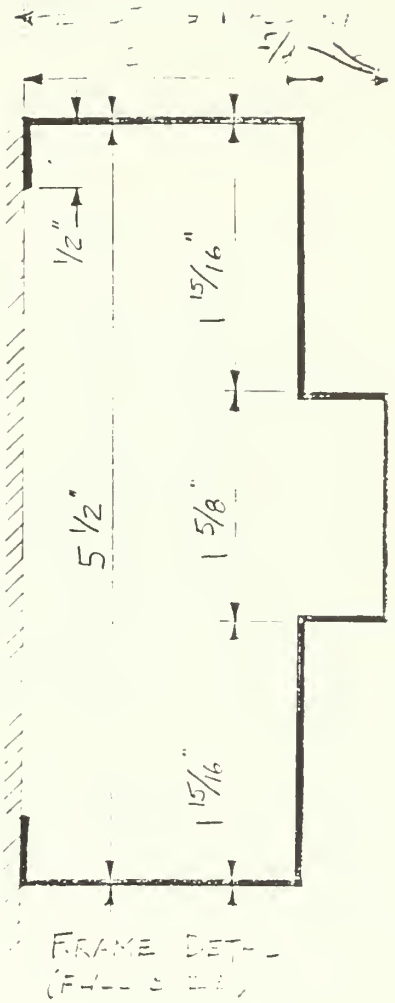
25 PROJECT SUMMARY



KEY PLAN

NO SCALE





FRAME DETAIL
(FULL SIZE)

DOOR ELEVATION
SCALE: 1 1/2" = 1'-0"

STEEL DOOR AND FRAME DETAILS

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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