

CARIB# 001991
391/134800

HISTORIC STRUCTURES REPORT
PART II (Portion)
ARCHITECTURAL DATA SECTION
ON
INDEPENDENCE HALL
REHABILITATION OF
TOWER STAIRWAY, TOWER EXTERIOR AND STEEPLE

Prepared by
Lee H. Nelson
and
Joseph Petrak
Architects

for

United States Department of the Interior, National Park Service
Eastern Office, Design and Construction
Division of Architecture

STATUS OF HISTORIC STRUCTURES REPORT

PART II (Portion)

Independence
PARK
Bell Tower Clock Ticks
STRUCTURE/BUILDING #

PROJECT: _____

CLASS _____

MASTER PLAN _____

PCP _____

PROGRAMMED _____

SECTIONS:

Admin.

Called for 10/21/64
Due 12/1/64
Rec'd _____

His.

Called for 10/21/64
Due 12/1/64
Rec'd _____

Architecture

Called for _____
Due _____
Rec'd 9/7/65

Called for _____
Due _____
Rec'd _____

Called for _____
Due _____
Rec'd _____

DISTRIBUTED

Park 9/10/65
EODC _____
Region 9/30/65
WASO 10/11/65

REVIEWED

Park 9/29/65
EODC 9/30/65
Region 10/11/65
WASO _____

APPROVED:

Region 10/27/65
WASO _____

November 1, 1965

H30-DCA

Memorandum

To: Chief, EODC

From: Chief Architect

Subject: Historic Structures Report, Part II (Portion),
Independence Hall, Rehabilitation of Tower Stairway

Assistant Director Jensen's October 27, 1965, memorandum on the above subject inadvertently failed to mention that he approved the report on October 27th, subject to the comments contained in the transmittal. This is to inform you of the date of his approval.

(Sgd) John B. Cabot

John B. Cabot

cc:
Regional Director, NE
Supt., Independence

Northeast Region		Initial and Date
NOV 3 1965		
Reg. Director		
Asst. to RD (PA)		
Asst. to RD (Dev. L)		
Resource Studies Adv.		
Asst. Reg. Dir. Adm.		
Finance & Prop.		
Personnel		
Public Affs.		
Rec. Mgmt. & Oper.		
Training		
Off. Liaison		
Asst. Reg. Dir. to Act.		
Fed. Agency Assis.		
HS Studies		
State Assistance		

②
①
Chris 11/3

L.A. 57-2

Memorandum

From: Assistant Director, Design and Construction

Subject: Historic Structures Report, Part II (Portion), studies
Independence Hall, Rehabilitation of Tower Stairway

This subject report has been reviewed by the interested divisions in the light of Regional Director Lee's comments forwarded under date of October 11. The proposal to replace certain of the original 1750 balusters with cast steel replicas is viewed as a questionable technique justifiable only if there is no alternative. Mount Vernon, which presents a comparable situation, is worth noting. There, the main staircase is contemporaneous with Independence Hall and yearly sustains the traffic of better than a million visitors. While this stair has been strengthened from beneath to meet safety requirements, the balusters and handrail remain as originally built without sign of weakness.

If reinforcement of the railing and balusters is an essential requirement in the rehabilitation at Independence, then we suggest that the eight balusters be drilled for the insertion of steel rods having a maximum diameter consistent with this treatment.

SIGNAL

J. H. N. Jensen

cc: Regional Director, NE
Supt., Independence

Northeast Region		Initial and Date
OCT 28 1965		
☒ Reg. C.		
☒ Asst. (FA)		
☒ Asst. (Dev. L)		
☒ Re. (Res. Adv.)		
☒ Asst. (adm.)		
☒ Fin. (Rep.)		
☒ Pers. (Coord.)		
☒ P. (Per.)		
☒ Ass. (Co-Act)		
☒ Fed'l Agency Assis.		
☒ Studies		
☒ Lower Stairway		

Posted
Jmf

H30-NRA
NER

OCT 11 1965

Nelly
10/8

Jo B. Lukens
10/8

Posted
gmf

Memorandum

To: Director

From: Regional Director, Northeast Region

Subject: Historic Structures Report, Part II (Portion),
Independence Hall, Rehabilitation of Tower
Stairway, Tower Exterior and Steeple,
Independence NHP

The subject report is recommended to your approval, with one exception: -- the proposal to replace 8 of the original 1750 balusters on the railing of the main staircase with cast steel replicas in order to strengthen the railing. (See pp. 23, 24, and 27; illus. #3, sheet 1).

Because the balusters in question are part of the original fabric, we recommend that this matter be given further study to: (1) present a more detailed analysis of the present condition of the balustrade; (2) alternative solutions which would accomplish the same purpose as that proposed in the report. We would be especially interested in any alternative solutions which may have been proposed by Contract Engineer Sheldon A. Kasst.

(Sgd.) Ronald F. Lee

Enclosure

cc:
Chief, SOBC
Superintendent, Independence
Programs (Att: Gene Monteleone)

MHNelligan/gmf
General
Daily
Area

HISTORIC STRUCTURES REPORT, PART II (PORTION), INDEPENDENCE HALL, REHABILITATION
OF TOWER STAIRWAY, TOWER EXTERIOR AND STEEPLE, INHP

REVIEW SHEET:

1. Mr. Lukens

Report interesting to me since I worked on the tower stairway & tower exterior in 1951. Have conferred with Joe Petrak after reading this report. I recommend approval
10/4/65 JBL

2. Mr. Golub

OK - 9 10/5

3. Mr. Barnes

B OK

4. Programs

5. Master Plans

Tower stair railing has survived for 210 years without cast steel balusters, and I see no reason to use them now. Otherwise, O.K. JAH

6. Dr. Nelligan

- Note: Further study needed on many features; will require further report, upon completion of investigation & admin. approval.
- including ext. paint color

- Balusters: One already removed w/out proper authority by surveyor
H. August - 1750 - still strong

Recommend: OK w/exception
of balusters being removed - this
action unacceptable
+ recommend
refuse to Franklin Dostie



IN REPLY REFER TO:

H30-RHA
NER

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
Independence National Historical Park
311 Walnut Street
Philadelphia, Pa. 19106

September 29, 1965

Northeast Region		Initial and Date
SEP 29 1965		
Reg. Director		
Asst. to RD (P.A.)		
Asst. to RD (Dev. L.)		
Resource Studies Adv.		
Asst. Reg. Dir. Adm.		
Finance & Prop.		
Personnel		
Planning		
Asst. Reg. Dir. Oper.		
Interp. & VS		
Land & Water		
Maintenance		
Rec. Plan Coord.		
Res. Manage. & VP		
Asst. Reg. Dir. Co-Act		
Fed'l Agency Assis.		
NPS Studies		
State Assistance		

Memorandum

To: Regional Director, Northeast Region

From: Superintendent, Independence

Subject: Historic Structures Report, Part II (Portion),
Independence Hall, Rehabilitation of Tower Stairway,
Tower Exterior and Steeple, Independence

We have reviewed this report and find it to be acceptable. Messrs. Nelson and Petrak are to be congratulated on a difficult job well done.

It is with some concern that we note their recommendation for the removal of eight balusters in the staircase and the installation of metal ones in order to provide safety to visitors. However, appreciating the importance of eliminating hazardous conditions and lacking a satisfactory alternative, we concur in this suggestion.

M. O. Anderson
M. O. Anderson

SEP 10 1965

H30-RHA
NER

Memorandum

To: Superintendent, Independence
From: ^{Acting} Regional Director, Northeast Region
Subject: Historic Structures Report, Part II (Portion),
Independence Hall, Rehabilitation of Tower Stairway,
Tower Exterior and Steeple, Independence

Enclosed for your review is a copy of the subject report.

Please let us have your comments on it as soon as possible.

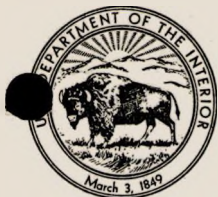
George A. Palmer

Enclosure

cc:
Chief, EODC
Mr. Whitcraft

GMFraneys
General ✓
Daily
Area

W. L. H. J.
9/8
Postel
Inf



IN REPLY REFER TO:

H30-H

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Eastern Office, Design and Construction
Philadelphia, Pa. - 19106

September 3, 1965

Memorandum

To: Regional Director, Northeast Region

From: Chief Architect, EODC

Subject: Historic Structures Report, Part II (Portion), ~~Independence~~
Hall, Rehabilitation of Tower Stairway, Tower Exterior and
Steeple, Independence

Enclosed for your review and distribution are three copies of the
subject report which was recommended for approval by Acting Chief
Robert E. Smith this date. A copy has been retained by this office.

Robert E. Smith

By:

Lawrence B. Coryell
Lawrence B. Coryell, Acting

Enclosure

cc:

Assistant Director, Design & Construction
Superintendent, Independence

Northeast Region		Initial and Date
SEP 3 1965		
Reg. Director		
Asst. to RD (PA)		
Asst. to RD (Dev. L)		
☒ ~~Reg. Studies Div.~~		9/11/65
Asst. Reg. Dir. Adm.		
Finance & Prop.		
Personnel		
Programs		
Asst. Reg. Dir. Oper.		
Interp. & VS		
Land & Water		
Maintenance		
Master Plan Coord.		
Res. Manage. & VP		
Asst. Reg. Dir. Co-Act		
Fed'l Agency Assis.		
NPS Studies		
State Assistance		

per. 9/1

*Posted
Inf*

H30-II

October 29, 1964

Memorandum

To: Superintendent, Independence
From: Regional Director, Northeast Region
Subject: Independence Hall Steeple

I was relieved to read your memorandum of October 21 to the Chief, EODC concerning the Independence Hall steeple. I completely share your strong belief that it would be inadvisable from the standpoint of public relations to make the changes that have been suggested at this time and am very glad that you have worked out with EODC a different method to meet the problem that has arisen.

(Sgd.) Ronald F. Lee

Ronald F. Lee

RFLee/edl

General
Daily
Area

Independence National Historical Park
Old Custom House, 420 Chestnut Street
Philadelphia, Pa. 19106

H30-H

October 21, 1964

Memorandum

To: Chief, EODC

From: Superintendent, Independence

Subject: Independence Hall Steeple

In response to memorandum dated October 8 from Chief Architect Robert E. Smith, and taking into account subsequent discussions held with him, this will confirm our strong belief that it would be inadvisable, in view of probable adverse public relations, to remove the glass from one or more of the clock faces and insert properly painted wood, pending restoration work in the tower and replacement of glass at some indefinite future date.

As agreed with Mr. Smith, EODC will devise another method by use of plastics to stabilize the glass clock faces for the foreseeable future, as well as investigate other methods of reducing vibration in the tower resulting from the operation of the bell ringing mechanism associated with the clock.

M. O. Anderson

cc:
Regional Director NE

Northeast Region		Initial and Date
OCT 22 1964		
Reg. Dir.	<i>[Signature]</i>	10/22
Asst. Dir.		
Adm. Serv.		
Ext. Aff.		
Files & Com.		
Gen. Inv.		
Ident.		
Intell.		
Lab.		
Legal Coun.		
Plan. & Insp.		
Rec. Mgmt.		
Tech. Serv.		
Training		
Off. Liaison		
Public Aff.		
Spec. Inv.		
Telephone Rm.		
Director's Sec'y		
Asst. Dir. (Adm.)		
Asst. Dir. (Ext. Aff.)		
Asst. Dir. (Files & Com.)		
Asst. Dir. (Gen. Inv.)		
Asst. Dir. (Ident.)		
Asst. Dir. (Intell.)		
Asst. Dir. (Lab.)		
Asst. Dir. (Legal Coun.)		
Asst. Dir. (Plan. & Insp.)		
Asst. Dir. (Rec. Mgmt.)		
Asst. Dir. (Tech. Serv.)		
Asst. Dir. (Training)		
Asst. Dir. (Off. Liaison)		
Asst. Dir. (Public Aff.)		
Asst. Dir. (Spec. Inv.)		

OCT 21 1964

H30-RMA
NKR

Memorandum

To: Superintendent, Independence

From: Acting Regional Director, Northeast Region

Subject: Preparation of Historic Structures Report, Part II,
(Portion), Bell Tower Clock Faces, Independence Hall

By copy of a memorandum from the EODC to you dated October 8, 1964, we note that office plans to produce an Historic Structures Report -- presumably the Architectural Data Section -- for replacement of the clock faces on the Bell Tower.

This is to remind you that an Historical Data and an Administrative Data Section will also be required, and in addition, an RSP. Since the memorandum cited above did not give a date as to when the Architectural Section might be ready, we would suggest December 1, 1964, as the due date of the two sections to be produced by the park staff.

Murray H. Nelligan

Murray H. Nelligan
Acting Regional Director

cc:
Chief, EODC

MHNelligan/gmf
General
Daily
Area

Northeast Region		Initial and Date
OCT 9 1964		
Asst. Dir.:		
Adm. Serv. Div.		
Asst. Dir.:		
Ident. Div.		
Intell. Div.		
Lab.		
Legal Coun.		
Off. Cong. & Public Affs.		
Rec. Mgmt. Div.		
Tech. Serv. Div.		
Training Div.		
Off. of Liaison & Int. Affs.		
Telephone Rm.		
Director's Sec'y		
Miss Gandy		

October 8, 1964

Subject: Independence Hall Steeple

However, we notice that the old cracks in the glass clock-faces have gotten worse since the steeple ball was reactivated several months ago. Because of the potential hazard to the public, we recommend that the south and east clock-faces be removed (and temporarily covered) to facilitate architectural research on that particular feature.

We also propose investigating alternative methods for ringing the steeple bell to reduce the vibration within the steeple. If you have any questions regarding these problems, please give me a call.

Robert E. Smith

CC: Regional Director, Northeast Region

APPROVAL SHEET

Recommended M. S. Anderson Date 9/29/65
Superintendent

Recommended Robert E. Smith Date 9/3/65
acting Chief, EODC

Recommended Donald F. Lee Date 10/11/65
Regional Director

Approved J. E. D. Jensen Date 10/27/65
Asst. Director, Res. & Construction

TABLE OF CONTENTS

	<u>Page</u>
I. BRIEF PHYSICAL EVOLUTION OF TOWER, STEEPLE AND MAIN STAIRWAY.....	1
II. TOWER AND STEEPLE	
A. Work Completed.....	3
B. Existing Conditions.....	4
III. STRUCTURAL REHABILITATION OF MAIN STAIRCASE.....	20
IV. RECOMMENDATIONS.....	27

I. BRIEF PHYSICAL EVOLUTION OF TOWER, STEEPLE AND MAIN STAIRWAY

This is not a documentary history of the above features, for that has been generally covered in the Historical Data Sections prepared by the Park history staff. A brief evolution is included here to serve as a frame of reference for the proposed rehabilitation work.

The masonry Tower and a wooden steeple were erected in the 1750's under the general direction of Edmund Woolley. The brick-faced stone masonry tower has survived basically intact, but the original steeple was reported in a "ruinous condition" in 1774, and was removed by Thomas Nevill in 1781. The bell was apparently lowered into the upper level of the tower, which was then capped with a pyramidal roof and spire. These, in turn, were removed when the present steeple was built in 1828 from the designs of William Strickland in a general attempt to follow the lines of the original steeple. However, the City Council ordered a clock to be installed in the new steeple to replace the wall clocks on the ends of the State House. Accordingly, four clock faces were incorporated into the steeple. These clock faces were replaced in 1852 and again (but enlarged) in 1876.

Upon completion of the Strickland steeple a new 4,600 pound bell was installed under the cupola, but this was replaced with the present 13,000 pound Centennial bell in 1876.

The steeple structure was strengthened in 1876, and in 1963 the structure was the object of an extensive structural rehabilitation.

The masonry tower retains much of its original embellishments, but further study is necessary to establish the extent and condition of these features. Numerous minor changes have been made to the steeple exterior, including changes to the fenestration, siding, balustrade, urns, etc. These changes have yet to be thoroughly understood by documentary and physical evidence, where possible, these changes will be recorded during the proposed rehabilitation, since they require scaffolding for close inspection. Some stop-gap exterior rehabilitation was performed in 1961.

It is anticipated that some gaps in our knowledge of the tower and steeple exterior can be closed in the present work, but that some features must be maintained "as is" until further information is available.

The main Tower Stairway has fortunately survived nearly intact as built by Woolley and embellished by Samuel Harding in the 1750's. Although minor repairs and replacements have been made to the stairway wainscot and railing, the only substantial change has been in the installation of new treads and risers in modern times. The stairway structure is original and unchanged.

The extent of the proposed work is outlined in the following sections.

II. TOWER AND STEEPLE

The physical evaluation of existing conditions of exterior exterior fabric of the tower and steeple were made by a close visual inspection in areas accessible by ladder or other safe means. Areas not accessible, except by use of extensive scaffolding, were viewed through binoculars. During the course of rehabilitation additional information will become available which may alter or add to the recommendations for rehabilitation.

A. Work Completed

1. During the summer and fall of 1961 the spire (top most portion of steeple) was resingled, the weathervane assembly was repaired and new gold leaf applied.

At the same time emergency repairs were made to some woodwork, loose paint was removed and the steeple painted. Effort was not made at that time to determine original paint colors. The work accomplished was intended for preservation pending a more complete project, now anticipated.

The work accomplished is recorded in a Historic Structures Report, Part III (Portion), "Rehabilitation of Exterior Tower Woodwork," dated October 1962.

2. In the summer of 1963 a structural rehabilitation of the steeple was started based on an investigation and the recommendations of Engineer Sheldon A. Keast. (See Historic Structures Report,

Part I, Supplement II, Structural Rehabilitation of Steeple, dated December 1962).

B. Existing Conditions

Refer to Illustration No. 1 for the location of the various levels referred to in this report.

1. Level No. 1: Tower Stairhall

a. Exterior

1. Palladian Window, South Facade

The wood portions of this window appear in fair condition and some rehabilitation will be required. The flashing over the circular portion of the window, the wood cornice and the column capitals requires a careful examination and replacement if necessary.

2. Entrance Door

The tower entrance will be covered in another report after completion of the architectural investigation now underway.

b. Interior

Repairs and stabilization of the stairway is covered in another section of this report. The balance of the interior will be a portion of another report also covering the Center Hall and North and South entrances.

2. Level No. 2: Pendulum Room and Caretaker's Apartment

Level Nos. 2, 3 and 4 are contained within the brick portion of the Tower erected in circa 1755.

a. Exterior

1. Windows - The three circular wood sash, 60" in diameter, operate in two sections which are vertically pivoted from the strap hinge. The window sash appear to be in good condition and should be retained. The wood trim is in fair condition, however, some repair work may be required.

2. Cornice - Below the level of Section 2 intersecting the cornice on the main building. The woodwork appears to be in fair condition. Some repair work will be required. The wood shingles above this cornice were installed in 1963 and are in good condition.

3. Cornice and Pediment at Intersection of Level 2 and Level 3 - Woodwork is in fair condition and some repair work will be required. The copper flashing over the cornice and pediment are in poor condition and new flashing must be installed.

b. Interior

1. Plaster Walls and Ceiling - The present plaster over the masonry walls and the lathed ceiling is in good condition. A few small areas on the wall will require patching. The paint over the plaster is scaling and is in very poor condition. All

paint should be removed and the area repainted with a color determined by an analysis of the paint found on the existing painted surfaces.

2. Floor - The present floor was installed during the structural rehabilitation in 1963 and is in good condition.

3. Clock (Pendulum Enclosure) - Pendulum is housed in a wood frame and glass enclosure, installed March 1964. This enclosure is an attractive and dust-resistant unit and should be retained.

4. Wooden Stairway to Level 3 - Structurally the stairs are in fair condition. At the floor level a portion of the handrail and baluster is missing. The connecting members of the stair stringers require reinforcing and the missing portions of the handrails and balusters should be replaced matching the existing. The stairway should be reinforced as necessary.

5. Fireplaces - The brick fireplaces used during the period which this level served as caretaker's quarters have been repaired and can be retained in their present condition.

3. Level No. 3 - Clock Room

a. Exterior

1. Windows - The wood casements and double-hung windows in the east, south and west masonry walls are in questionable condition. They should be removed and carefully inspected. The windows and frames should be cleaned, paint removed and rehabilitated as necessary. The north window once double-hung is now a fixed sash

7.

eight lights over eight, with a door below and serves as access to the main roof. This unit is in very poor condition and the access door is not weather tight and will require attention. Further study is needed to determine what portions of this unit are original and what must be restored. Care should be taken to assure that the replacement unit is weather tight.

b. Interior

1. Walls - The walls appear to be in good condition. They should be thoroughly cleaned of all loose paint and whitewashed.

2. Wood Floor - The present floor is in very poor condition and beyond salvage. A new 5/4" tongue and groove floor should be installed in the entire area matching the existing widths and patterns.

3. Stairway to Level 4 - The stairway is in fair structural condition and can be retained after minor repairs.

4. Clock Enclosure - The existing wood paneled and glass enclosure housing the clock mechanism is an unsightly structure and does not provide adequate protection for the old and historic clock. This enclosure should be removed and replaced with a dust-tight enclosure designed so that the interesting movements of the clock can be viewed from three sides and with access available for necessary maintenance of the works. OK

4. Level No. 4

Level No. 4 is the first level above the original brick portion of the tower. It is the first level of the wooden steeple erected by William Strickland in 1828.

a. Exterior

1. Roof Deck - The present standing seam tin roof deck appears to be in poor condition and the wood sheathing below is questionable. A careful examination is necessary to determine if the existing wood sheathing and the old shingles can be retained before replacing the deck with lead-coated copper.

2. Urns - The existing urns resting upon the sheet metal roof deck are not original and are fabricated from sheet copper. The urns appear to be in good condition and should be retained unless further study indicates that their design is not correct. ?

3. Rail Assembly Support for Urns - The urns are centered over the brick pilasters below and connected to a base of sheet metal, probably with a wood core within. The horizontal connecting rails between the base of the urns are also sheet metal over wood. The entire assembly appears to be in very loose condition. It should be removed, repaired and reinstalled.

4. Cornice - The cornice at the junction of level 3 and level 4 appears in questionable condition. After erection of

the scaffold further inspection will be required for its replacement. From this same scaffold the carved wood Ionic capitals over the brick pilasters at level 3 should be very carefully examined and repaired as required.

5. Curtain Walls - The construction of the curtain wall at level 4 is typical of all curtain walls between level 4 and level 7. The wood wall is 2-1/2" thick, consisting of random width boards 3-1/2" to 8 inches, laid horizontally with a doubled lapped joint. Vertical joints are tongue and grooved. These heavy boards were assembled in units, varying in heights from approximately 39" to 56" and fastened together with 11/16" diameter bolts (see illustration 2). The units are spiked to interior wood posts and beams. The wood posts and beams function only as a frame for the curtain walls and support the floor joist at level 5. They are not a part of the main structural system of the steeple. To gain a complete evaluation of the conditions of the exterior surface of this curtain wall a complete removal of numerous layers of paint will be required. This can be done only from a scaffold. Most of the horizontal joints are in an open condition. These joints are no longer weather tight and seepage of water onto the interior surfaces can be detected. This condition has existed for many years as can be seen by the tell-tale water stains and decay producing fungus growth on the interior surface. From present evidence we believe that the curtain

walls can be retained after extensive rehabilitation involving treatment of the wood surfaces, removal of paint both interior and exterior, installation of dutchmen as necessary, refastening with brass screws and waterproof glue and recaulking of the horizontal joints.

6. Window - It is as yet undetermined when the small window on the south elevation was installed. It does appear in very early photographs and should probably be retained. The window appears to be in good condition but requires new flashing. The hardware must either be repaired or replaced.

b. Interior

1. Flooring - The wood flooring is in poor condition and should be replaced as indicated at level No. 3.

2. Stairway to Level 5 - The stair stringers and handrail will require additional fastening and general rehabilitation.

3. Ceiling Joists - The ceiling joists supporting level No. 5 appears to be in good condition. They should be carefully investigated after the removal of numerous layers of scaling and whitewashed and repaired as necessary.

5. Level No. 5 - Dial Room

a. Exterior

1. Pilasters - Visual inspection of the wooden pilasters indicate they are in a very deteriorated condition and

their removal necessary for two reasons: 1) to repair and replace pilaster members, and 2) to expose the condition of the wood curtain walls behind the pilasters. It is at these corners that serious water seepage exists. The capitals appear to be in good condition, however, they must be thoroughly inspected from a scaffold and repaired as necessary.

2. Carved Wood Wreaths - The carvings that embellish the clock dials will require some repair work. To reveal the condition of these wood carvings a complete removal of the numerous layers of paint is necessary. Where the carvings are split, checked or deteriorated wood inserts should be installed and the areas recarved to blend with the original. To prevent further water penetration between the back of the carving and the face of the curtain wall a bead of sealant should be applied over the top portion of the carvings.

3. Wood Curtain Wall - The wood curtain walls are in a deteriorated condition but can probably be retained after a general rehabilitation. These curtain walls were drastically altered by the installation of new clock faces in 1876. Before that time the openings to receive the clock dials were 7 feet in diameter. In 1876 they were increased to 9 feet to receive the present dials. The assembly of the curtain wall is similar to that described for level No. 4 and the method of rehabilitation would be the same.

4. Cornice Above Clock Dials - The condition of the wooden cornice above the clock dials appear to be in a questionable condition and should be thoroughly inspected after a scaffold is erected. From this same scaffold a careful investigation of the capitals and pilasters should be made.

5. Access Panel - A wooden access panel 19" x 29" x 2-1/2" thick located in the south curtain wall is held loosely in place by beveled edges up against a beveled opening in the curtain wall and secured in position by a wood turn button. This appears to be neither weather tight nor practical, and from the safety standpoint it is a hazard, as it could slip from a person's hand and fall to the pavement below. New methods to secure and weatherstrip this panel are required.

6. Clock Dials - The existing clock dial design was first installed in 1876 along with the existing clock works and bell, preceeding the Centennial celebration. This dial was preceeded by at least two earlier dials 7 feet in diameter, the first consisting of a wooden sash with glass was replaced in the 1850's with a single glass dial 7 feet in diameter. To restore either of these earlier dials would necessitate the replacement of the original existing curtain walls. The condition of the clock dials on the south and east is now critical. The glass is cracked and deterioration is progressing. A replacement of at least these two clock faces will

be required. The clock letters and hands must be cleaned and re-finished. A study is required to determine the most appropriate material for the clock dials to reduce maintenance, increase safety and yet retain their original appearance.

b. Interior

1. Wood Flooring - The present wood flooring is in fair condition and can probably be retained with some repair work and minor replacements.

2. Stairway to Level 6 - The condition of this stairway is good and can be retained as it now is.

3. Exposed Ceiling Joists - The ceiling joists appear to be in good condition. After removal of numerous layers of scaling whitewash they should be carefully inspected to determine what work, if any, is required.

6. Level No. 6 - Observation Landing

a. Observation Deck

1. Roof Deck - The sheet copper deck is now in very poor condition. Over a period of years it has developed many leaks and has been maintained only by constant patching and repairing. The entire deck should now be replaced to make the deck weather tight. The existing boardwalk is in good condition and can be retained.

2. Balustrade - The existing wood balustrade was rehabilitated by the National Park Service in 1952 and now appears

to be in good condition and can be retained.

3. Urns - The sheet copper urns over the four corner posts of the balustrade are not original, however, they should be retained unless further research indicates a need for correcting the design. The corner urns are not installed over the center of the posts as they were originally and the urns for the four intermediate posts have been omitted. These urns on the intermediate posts are shown in the sketch of the State House that appeared in the "Casket" April 14, 1829 and in a Talbotype photograph of June 1850. They do not appear in any photographs taken within the twentieth century. Further study is needed to determine when the urns were removed and whether or not they should be reinstalled. The urns over the four corner posts should be reset and centered over the posts.

4. Wood Curtain Walls - The present drop siding covering the existing curtain walls is not original. The siding over the east and west curtain walls was completely removed in December 1964 to evaluate the condition of the exterior sides of the original surface which was found to be in good condition. However, it contains numerous carved names and initials of visitors from 1829 until the mid-nineteenth century. The north and south walls are assumed to be in equally good condition. The architrave on the north wall is also in good condition. To prevent water seepage

behind the architrave a sealant can be applied around the trim.

5. Windows - Four 21-1/2" diameter wood sash, horizontally pivoted are set into the curtain wall, one to each elevation. The sash frame is covered with lead flashing apparently installed at the same time as the drop siding. The windows and frames are in fair condition and after some repair work can be retained. It is still undetermined when the sash was first installed, however, they appear in the earliest photographs available to us at this time.

6. Sliding Door - The sliding access door to the observation deck on the south side is hung on the interior of the curtain wall on an overhead iron track with rollers. The door and hardware is in good operating condition, but not completely weather tight. Some means of effective weatherstripping should be designed.

7. Cornice - The cornice and urns above the curtain wall and the narrow sheet metal deck is in good condition and can be retained.

b. Interior

1. Wood Flooring - The present wood flooring is in fair condition. With some repair work and minor replacements it can be retained.

2. Stair - The handrails on both sides of the stairwell are loose and require additional fastening and with minor

rehabilitation, the stairway can be retained.

3. Wood Ladder to Level No. 7 - The ladder and handrails are in good condition and can be retained.

4. Ceiling Joists - The ceiling joists appear to be in good condition but should be further studied after removal of the numerous layers of scaling whitewash.

7. Level No. 7 - Cupola

The woodwork between level No. 7 and 8 appears to be in poor condition on the exterior of the cupola and in fair condition on the interior. A complete removal of many layers of paint will be required before a complete evaluation of the conditions can be determined.

a. Exterior

1. Pilasters - The wood pilasters have checked and split at the base quite severely. The corners have been patched with small metal flashings and the base of the pilasters are in very poor condition. It will be necessary to remove the pilasters to inspect the condition of the woodwork behind them. This area conceals the main structural members which support the 13,000 pound bell.

2. Arched Opening and Bar Guards - The eight arched openings forming the octagonal shaped cupola have seven horizontal iron guard rails placed between the wood jambs in each opening. The rails are $3/4$ " in diameter and are held in place by $2-1/2$ " x $5-1/2$ "

iron plates recessed and fastened on each side of the jamb. Some of these guard rails are now loose and some are bent. Two are missing. The condition of the wood jambs are fair, but the condition of the structural members behind is unknown. After erection of a scaffold, further study of this area will be required.

3. Cupola Floor - The floor and the trap door of the cupola were redecked with lead-coated copper over a plywood sheathing in the rehabilitation work of 1963. This installation is in good condition and should be retained.

4. Ceiling - The wood plank ceiling appears to be in good condition and can be retained.

5. Ladder - The iron ladder used for access to the inside of the cupola appears to be in good condition.

6. Bell - The strengthening of the structural members upon which the bell hangs was made in the structural work conducted in 1963. Ringing of the bell is now through a hammer located on the north side striking it on the exterior surface. It is activated through a cable and lever system from the clock works at level No. 3. The torque introduced by this system causes a reverberation throughout the structure at each striking of the bell. As a result the length of the blow is now reduced resulting in less volume from the bell. A further study of the bell is required to determine a new means of ringing the bell, possibly a electrically

activated selinoid could be used.

7. Cornice - A full evaluation of the cornice between Level 7 and 8 can only be determined from a scaffold.

8. Level No. 8 - Roof of Cupola

a. Cupola Roof Framing

1. The Structural System - The structure and curved rafters of the cupola appear to be in good condition.

2. Wood Sheathing - The wood sheathing over the curved rafters appears to be in questionable condition. This sheathing should be carefully studied after the shingles have been removed and replaced as necessary. A careful study of the sheathing and nail holes should be made to determine the shingle coursing at the various dates.

3. Shingles - The condition of the existing wood shingles is very poor. Many loose shingles were renailed as an emergency measure during the erection of the scaffold for the restoration of the Spire in 1961. A new shingle roof is now required. At the termination of the roof curvature just above the cornice new flashing should be installed to assure a weather tight joint.

9. Level No. 9 - Lantern

The general condition of the lantern appears to be fair. A complete removal of the many layers of paint will be required in

order to fully evaluate the condition of all woodwork and the copper decking of the lantern floor. It now appears that only minor replacement will be required. The copper covered dome roof was inspected during erection of the scaffolding for the restoration of the Spire in 1961. It was found to be in good condition at that time. A further examination should be made at this time to assure that the copper sheathing is weather tight.

Work is not now required above this level.

III. STRUCTURAL REHABILITATION OF MAIN STAIRCASE

It is not the purpose of this section to provide a documented physical evolution of the stairway. The applicable documents have already been published in the Historical Data Sections, Historic Structures Reports, on Independence Hall, prepared by the History Staff of the Independence National Historical Park. There is little doubt that the staircase was erected by master builder Edmund Woolley as a part of the overall construction of the Tower and Steeple in the 1750's. It is further evident that certain embellishments such as the carved step-ends and other stairway carvings were furnished by Samuel Harding also in the 1750's. The physical evidence reveals that the stairway structure has survived almost intact including much of its embellishment. However, since the proposed work is almost entirely of a structural nature, this section is limited to a description of the stairway structure (and the proposed structural changes) with mention of the embellishment only as they are affected by the proposed work.

The first flight of steps is a short run commencing at the Tower Stairhall floor level, and running east to the first landing in the northeast corner of the Tower Stairhall. This initial flight is supported by six original wooden stair stringers which measure about 2" x 12" and are supported at the lower end by

a shallow brick footing. These six stringers abutt a landing beam which measures about $2\frac{1}{2}$ " x 12". Like all the stringers in this stairway, these are vertical sawn. They are merely toe-nailed into the landing header with rose headed hand-wrought nails. No structural changes are contemplated in this initial flight of steps.

The first landing is supported by a pair of heavy timbers framed into a cross pattern, with the two timbers intersecting at the mid point of the landing. The timbers are arranged so that they are at 45° angles to the wall surfaces, and the timbers are notched around each other so that their top surfaces are flush. One of these timbers measures about $5\frac{1}{2}$ " x $11\frac{1}{2}$ " and the other timber measures about $7\frac{1}{2}$ " x $11\frac{1}{2}$ ". Three of the four ends of these timbers are supported by beam pockets in the masonry walls. Since the tower was a three-sided addition to the existing building, this portion of the stairway was built against the original exterior wall. Therefore pockets were cut into the original exterior brick masonry to provide bearing for two of these timbers. Underneath this landing are vestiges of the original exterior brick masonry including portions of the original water-table bricks and grapevine jointing. The Tower however was built as a load bearing wall of stone masonry with a brick veneer. A beam pocket was provided in the stonework of the tower for one

of these cross beams. The fourth end of these crossed beams is merely supported by the newel post where the railing turns the corner and continues up the next flight of steps. At some unknown time this newel post apparently rotted away and the lower end was cut off and replaced with a short length of wooden post, thus creating a structural patchwork for this critical corner, especially since the post merely rests on a dirt fill. It is proposed to reinforce this corner by installing a north-south steel grillage beam on top of an original brick footing wall. From this new steel grillage beam a steel pipe column will then support this corner of the landing. OK

The next flight of steps extends to the south and terminates on the south landing. This long flight of steps is supported by five original stringers, the middle stringer measuring about 4" x 7" and the other stringers measuring about 2" x 16". At the lower landing these stringers are notched into a 2-1/2" x 12" header, and at the upper south landing the stringers merely abutt a header adjacent to the large wooden girder which extends the entire length of the south landing. These stringers have a considerable span and at some unknown time this span has been reduced by installing a wooden cross-beam underneath the stringers. The structural repairs to this run of steps consist of 1) installing a new cross-beam under the stringers at mid span and supporting the

new beam with a steel grillage and post, 2) strengthening one of stringers by splicing a new 3" x 10" timber to the side of the old stringer, 3) installing clip angles at the juncture of the stringers with the landing headers, 4) strengthening the long hand-rail by removing two of the original carved balusters and replacing them with cast steel replicas, anchored to the rail and stair stringers.

The main south landing extends across the full width of the Tower Stairhall and is supported by an original wooden girder measuring about 11" x 12" which spans the entire 28 foot width of the tower and is supported at each end by pockets in the stone masonry walls. A series of short floor joists extending from the south tower wall to the floor girder provide the necessary framing for the flooring on this landing. The structural changes to this landing consist of reducing the span of the original wooden girder by installing two concrete footings and steel pipe columns, one to be placed just inside the doorway which gives access to the space under the stairway and the other to be placed in the northeast corner of the so-called Guard's Room. The concrete footings will be installed sufficiently below the present floor to allow for future restoration of the Tower Stairhall floor level. It is also proposed that the hand railing be strengthened by removal of two of the original balusters and replacing them with cast steel using

No

the original balusters as patterns and anchored to the rail and stair stringers.

The west flight of steps extends to the north along the west wall of the Tower Stairhall. This run is supported by six original stringers which measure about 2-1/2" x 14". At the lower end of these stringers are mortised and tenoned to the previously mentioned girder which supports the south landing. The upper end of these stringers are merely toe-nailed to a header at the landing in the northwest corner of the Tower Stairhall.

It is proposed to strengthen this flight of steps by installing 3 steel channels to reinforce the existing stringers and to strengthen the hand-rail by removal of two of the original balusters and substituting them with cast steel balusters, anchored to the rail and stair stringers. The stringers are also to be reinforced with clip angles at each end.

The upper small landing at the northwest corner of the Tower is similar to the lower landing in the northeast corner, and consists of two timbers arranged in a crosswise pattern and notched into each other so that their upper surfaces are flush. Three of the ends are supported by pockets in the masonry walls and the fourth end cantilevers to support the outer stair stringers. This landing is particularly in need of reinforcing

because of the cantilever action and the weak joint where the timbers are notched. It is proposed to strengthen these timbers by installing steel plates and steel angles to develop a rigid connection at the juncture of the two timbers and to increase the load carrying capability of the cantilevered timber.

A short flight of steps continues from this landing up to the second floor level. This short flight is carried by six original stringers which measure about 2-1/2" x 12". They are notched into headers at both landings. No reinforcement is contemplated for this short flight of steps.

The second floor landing extends from the west side of the doorway leading into the "Lobbie" and continues to the east wall of the Tower Stairhall. This landing is framed (at the leading edge) with an existing original wooden beam which measures about 9" x 11" and which is supported at the east end by a beam pocket in the stone masonry wall. At the west end, this beam is supported by original cantilevered wooden beams and joists which extend from the southernmost cross-beam of the Central Hall ceiling. It is proposed to strengthen this cantilevered landing by installing a new steel beam which similarly ties into the Central Hall cross-beam and rests on the brick wall underneath the second floor doorway and which connects to the original 9" x 11" landing beam. The long

hand railing at this second floor landing is to be strengthened by removing two of the original balusters and replacing them with cast steel balusters which will be connected to the rail and the original 9" x 11" landing girder.

IV. RECOMMENDATIONS

Illustration No. 1 graphically illustrates the general work required on the Tower and the Steeple. These recommendations are summarized below:

A. Level No. 1 Tower Stairway

We recommend the previously described structural repairs to the original stairway structure. These repairs have been designed to adequately strengthen the stairway to meet the load requirements of the visiting public and to keep the damage to the original fabric to a minimum. Eight of the original balusters will thus require removal and replacement with cast steel. Each baluster so removed will serve as the pattern for its cast steel counterpart and it is planned to preserve these balusters by accessioning them to the Park Museum collection.

All of the repairs will be carried out from "above" the stairway by removing the treads, risers and balusters, rather than removing the soffit paneling underneath the landings and stairway runs. None of the treads and risers are original, all of them appear to date from the late nineteenth century based on saw marks and nails. All of the balusters on the east flight and west flight will require removal but they have been previously removed when the present treads and risers were installed. On the

south landing and second floor landing only those balusters actually being replaced will be removed.

For further details of the recommended structural reinforcement of the stairway, see the accompanying Working Drawings (Illustration No. 3).

B. Level No. 2

1. Exterior

a. The windows appear to be in good condition and after minor rehabilitation they can be retained.

b. A careful study of the woodwork in the cornice at level between 1 and 2 should be made and the cornice repaired as necessary. The wood shingle above this cornice should be inspected for leaks and flaws and repaired as necessary.

c. The cornice above pediment and circular window may be retained after minor repair work and installation of new flashing. New flashing should be of lead or of lead-coated copper.

2. Interior

a. All loose paint should be removed, the walls and ceiling patched as necessary and the area repainted in a color to match original.

b. Missing portions of the hand rail and baluster in stairway to level 3 should be replaced and the stairway strengthened and rehabilitated as necessary.

c. Discontinued or obsolete utilities should be removed.

C. Level No. 3

1. Exterior

a. Windows in the east, south and west walls are in poor condition. They should be removed and carefully inspected and repaired as necessary before reinstalling. The north window, originally double hung, and now a fixed sash over a hinged door is in poor condition and should be rebuilt. A careful study of the evidence after removal of later alterations should be made to determine original conditions. A carved wood key block is missing on the window of the north facade and replacement is required.

b. The carved Ionic capitals capping the brick pilasters appear to be in poor condition. After erection of necessary scaffold they should be carefully repaired and retained.

2. Interior

a. Interior walls should be carefully cleaned and repainted to match the original. The wood flooring should be replaced with a new 5/4 tongue and groove floor matching the existing in width and pattern. The areas of floor removed in 1876 to permit installation of the existing bell should be reinstalled as they now exist with new materials.

b. A general rehabilitation and strengthening of the existing stair should be made.

c. Following removal of numerous layers of scaling whitewash a careful study of the ceiling joists should be made and their repair or replacement made as necessary.

d. The present clock enclosure should be removed and a new enclosure designed to permit viewing of the clock, to provide a dust-proof protection, and to provide necessary access for the maintenance of the mechanism.

D. Level No. 4

1. Exterior

a. The wood cornice between level 3 and 4 is in questionable condition and should be carefully inspected after erection of scaffolding and the cornice should be repaired as necessary.

b. The present tin roof deck should be removed and replaced with lead-coated copper. Existing sheathing and shingles under roof deck should be retained if possible. If they cannot be retained they should be recorded before removal.

c. The present urns should be retained unless a careful study indicates their design is not correct. The urn rail assembly is now in very loose condition. Sheet metal covering should be repaired or replaced and the unit reinstalled securely on the roof.

d. Extensive rehabilitation of the wood curtain walls is required as outlined below:

1. Remove paint completely on exterior and interior surfaces recording layering for future reference. If possible a small area of complete paint layering should be retained.

2. After inspection of the wood surfaces remove any portions of wood that show signs of deterioration and replace with wood inserts using waterproof glue and brass screws or bolts as conditions may dictate before fastening. The wood wall is secured to the interior posts and beams by large iron spikes. Conditions of these iron spikes and the wood surrounding them will determine whether additional or a new type of fastening will be required.

3. The present condition of the horizontal joint on the exterior sides is a principal reason for water seepage. This condition can be corrected by cutting a groove into the present joints with a router or power saw with cutting edge varying from $1/8$ " to $1/4$ " in thickness depending upon the width of the existing joint and cutting approximately $5/8$ " deep thus creating a groove for an adhesive joint sealant (see Illustration No. 2). The sealant selected for this type of caulking should be a type that would provide a strong initial bond to the wood surface and without adhesive or cohesive failure after curing has been completed. It is recommended that a one part acrylic terpolymer sealant

be used, such as "MONO-LASTO-MERIC" as manufactured by the Tremco Manufacturing Co., Cleveland, Ohio.

4. A pentachlorophenol wood preservation treatment should be considered over the bare wood. Almost any organic material is a potential food source for mold and mildew. For this reason mold and mildew already on a surface which is to be painted must be destroyed to prevent infection of the fresh paint and new growth. A two-coat application for deep penetration is recommended on both exterior and interior surfaces before painting. The exterior surfaces should be given one prime coat over bare wood and two finish coats of paint. The color can be determined from the original paint remaining on the curtain wall.

e. The present small south casement window can be retained. The hardware is in poor condition and the window will require new brass butt hinges and a new sash catch.

2. Interior

a. The wood flooring is in poor condition and should be replaced. (See flooring as outlined in previous level).

b. The existing stairway can be retained after general rehabilitation and strengthening.

c. The numerous layers of scaling whitewash and paint should be removed from the interior. The conditions studied and repairs made as necessary.

E. Level No. 5

1. Exterior

a. The pilasters are in poor condition and should be removed and conditions behind them corrected. It may be necessary to install completely new pilasters. The capitals, however, appear to be in good condition and should be retained if possible.

b. General rehabilitation of the wood carving embellishing the clock face is required to prevent further water penetration between the back of the carving and the face of the curtain wall. A bead of sealant compound should be applied over the top portion of the carving leaving the bottom free for seepage. Any cracks or voids should be filled with dutchmen blended into the original carvings.

c. Curtain walls should be rehabilitated as outlined in recommendations for curtain wall at level 4.

d. Further study of the cornice above clock dials is necessary. Rehabilitate as necessary.

e. A means of weatherstripping the access panel is required. It is also recommended that the panel be secured with a chain or other device to prevent it from falling to the exterior should it slip from someone's hand during removal. A barrel bolt should be used to secure the panel at the top of the opening.

f. The east and south clock dials will require replacement. Further study is needed to determine what materials should be used to keep future maintenance at a minimum and to avoid cracking as has occurred with the present dials. The hands and numerals of all clock dials will require refinishing.

2. Interior

a. The present wood flooring can be retained after minor repairs.

b. All interior surface should have the numerous layers of scaling whitewash removed.

F. Level No. 6

1. Exterior

a. The roof decking should be replaced with lead-coated copper.

b. The sheet copper urns should be retained unless research indicates the design to be incorrect. They should be reset to center with the center line of the corner posts. Four new urns should be made and installed over the intermediate posts.

c. The present drop siding should be removed from the wood curtain walls, original surfaces cleaned and repaired as necessary. Treatment for these walls is as recommended for the curtain walls at level No. 4.

d. After removal of the recent drop siding new methods are required to make the window frames weather tight. It is recommended that a bead of sealant compound be placed around the outside edge of the frame for that purpose.

e. Weatherstripping should be provided for the sliding door.

2. Interior

a. The present wood floor can be retained with minor repairs.

b. The handrails on the stairway will require additional fastening. Ladder to Level No. 7 will not require further work.

c. The scaling whitewash and paint should be removed from all interior surfaces and the area generally cleaned.

G. Level No. 7

1. Exterior

a. Pilasters should be removed and replaced. Before replacement the woodwork now concealed by these pilasters should be carefully examined and repaired as necessary.

b. The bar guards at the arched openings need to be checked and resecured where necessary. The bent bars should be straightened and the missing bars replaced. It is recommended that

the jambs be removed to spot check conditions concealed behind them and where viewing of these members is not possible by removal of the pilasters.

c. A new method of ringing the bell should be studied in an effort to reduce torque and resulting vibration within the structure. A selenoid striker as manufactured by ESNA is being investigated. This striker was designed for bells not exceeding 1000 pounds and it may not work on the existing bell of 13,000 pounds. Possibly the existing hammer system could be activated by an electric motor at the hammer thereby eliminating the cable and lever connection to the clock.

H. Level No. 8

A new wood shingle roof is required. After removal of the existing shingles the sheathing should be studied for evidence of earlier shingle coursing. Because of the numerous roofs installed over this area, the existing sheathing is now in questionable condition and may not securely hold further nails. If this condition is found new sheathing will be required. New flashing is required at the termination of the shingle roof and the cornice between Level 7 and 8.

I. Level No. 9

This area was found to be in good condition during the work conducted in 1961. It should be re-examined and rehabilitated if

required. A replacement of the copper deck may be required.

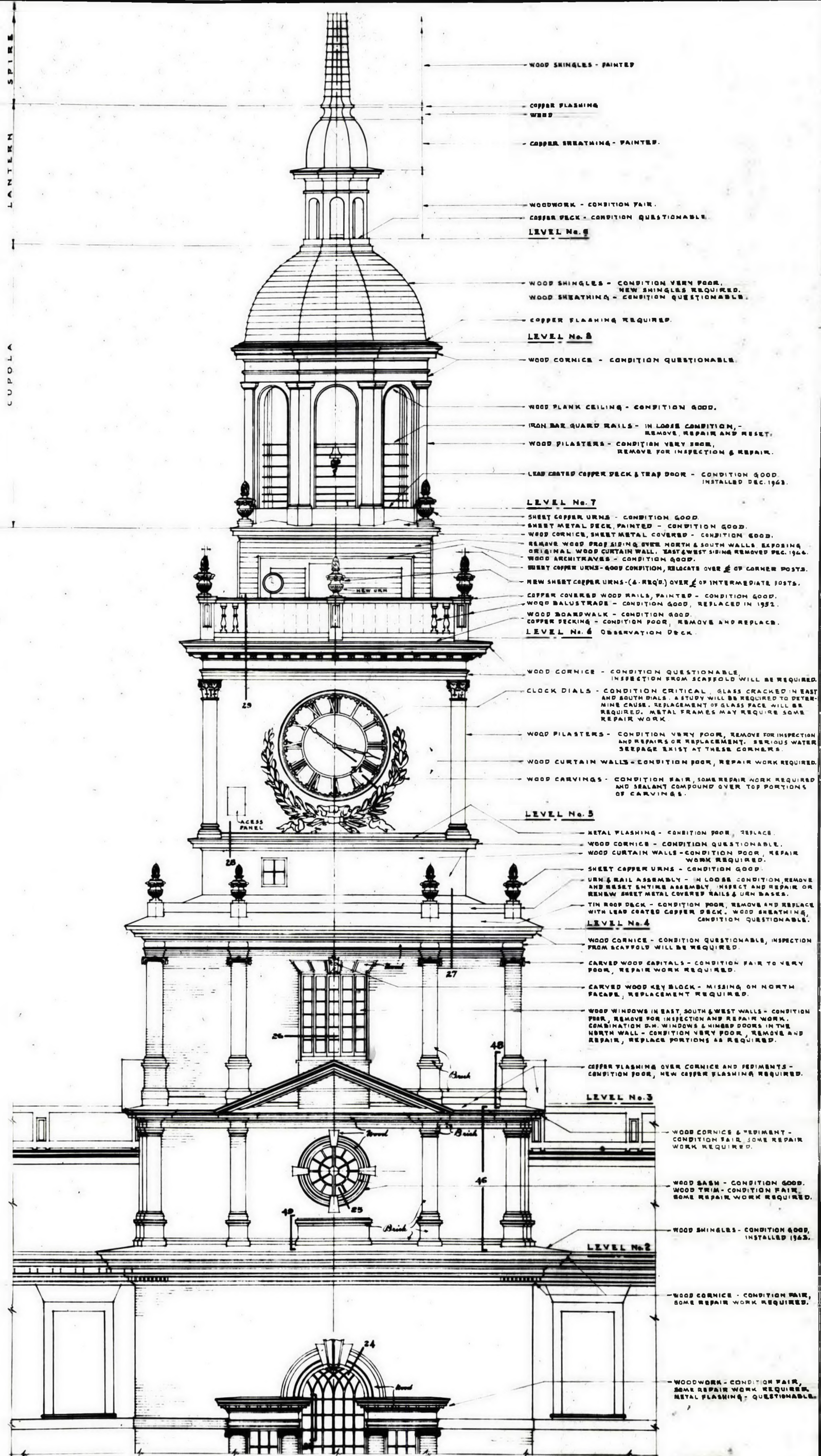
J. General

Based on a study of existing paint the steeple should be repainted in a color to match earlier paints. Masonry surfaces in the tower portion should be examined and repointed as necessary. The lightning rod system should be examined and repaired as necessary.

Because of the many unknown factors involved in the rehabilitation of the Steeple and Tower it is recommended that the Park's day labor force be assigned to this phase of the rehabilitation so that we may gain from their past experience in handling similar problems including earlier work in this same area. Certain phases of the project such as replacement of the clock dials and sheet metal work should be done by contract.

In the proposed rehabilitation many elements will require replacement. All new members should be dated and their position recorded on the drawing. Removed elements should be retained if necessary, for evidence for future work on the building. Such members can be turned over to the Museum Section of the Park for safe-keeping.

MAINTENANCE REPAIR WORK PAINTING 1961
REFER TO HISTORIC STRUCTURES REPORT PART III
ARCHITECTURAL DATA SECTION - DATED OCT. 1962.



PHYSICAL EVALUATION OF EXISTING EXTERIOR CONDITIONS
AND
RECOMMENDATIONS FOR REHABILITATION

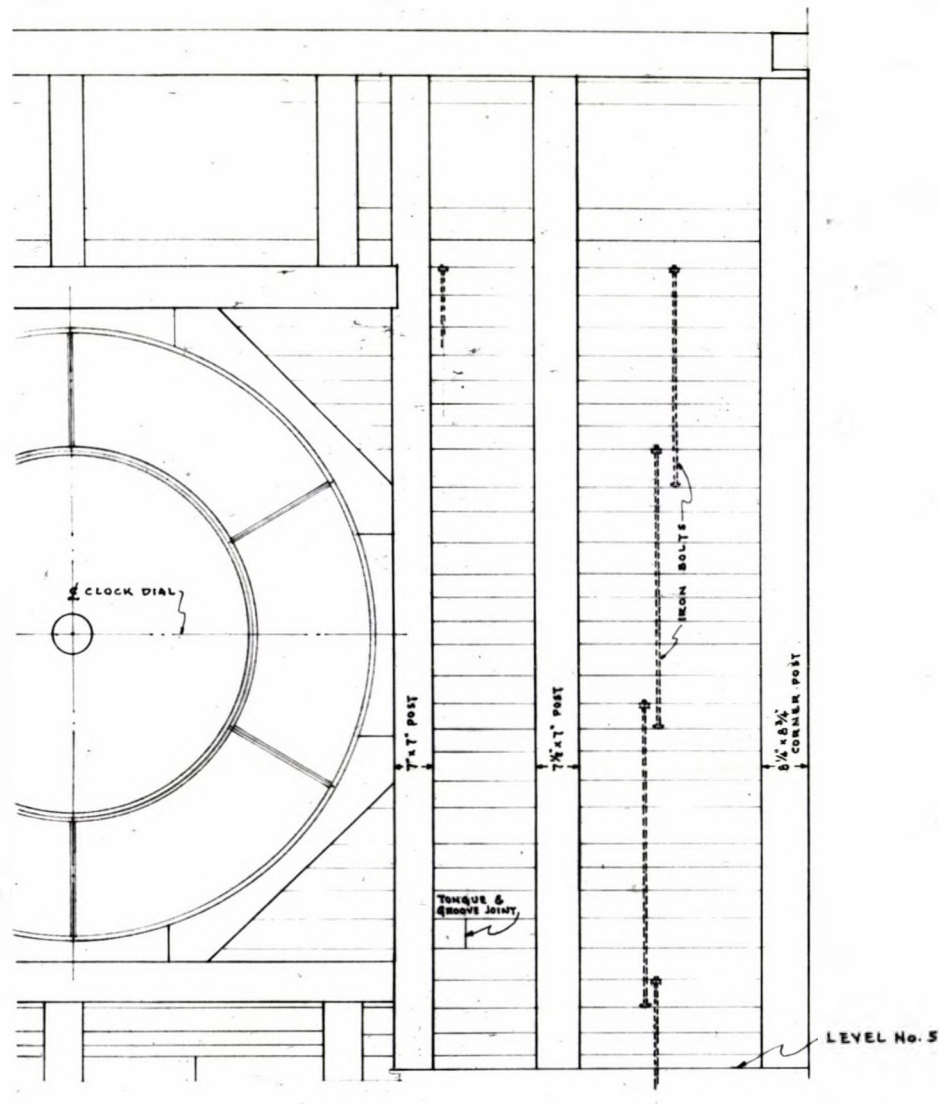
NOTE: EVALUATION OF PRESENT CONDITIONS WERE MADE BY VISUAL EXPLORATION IN ACCESSIBLE AREAS. AREAS NOT ACCESSIBLE WERE VIEWED WITH BINOCULARS. A COMPLETE EVALUATION OF THE EXISTING CONDITIONS OF THE WOODWORK AND METAL WORK BENEATH THE NUMEROUS LAYERS OF PAINT CAN BE MADE ONLY BY A COMPLETE REMOVAL OF THE EXISTING PAINT. A THROUGH EXPLORATION OF ALL MEMBERS FROM A SCAFFOLD IS RECOMMENDED.

PROPOSED REHABILITATION OF
INDEPENDENCE NATIONAL HISTORICAL PARK

1/4" = 1'-0"

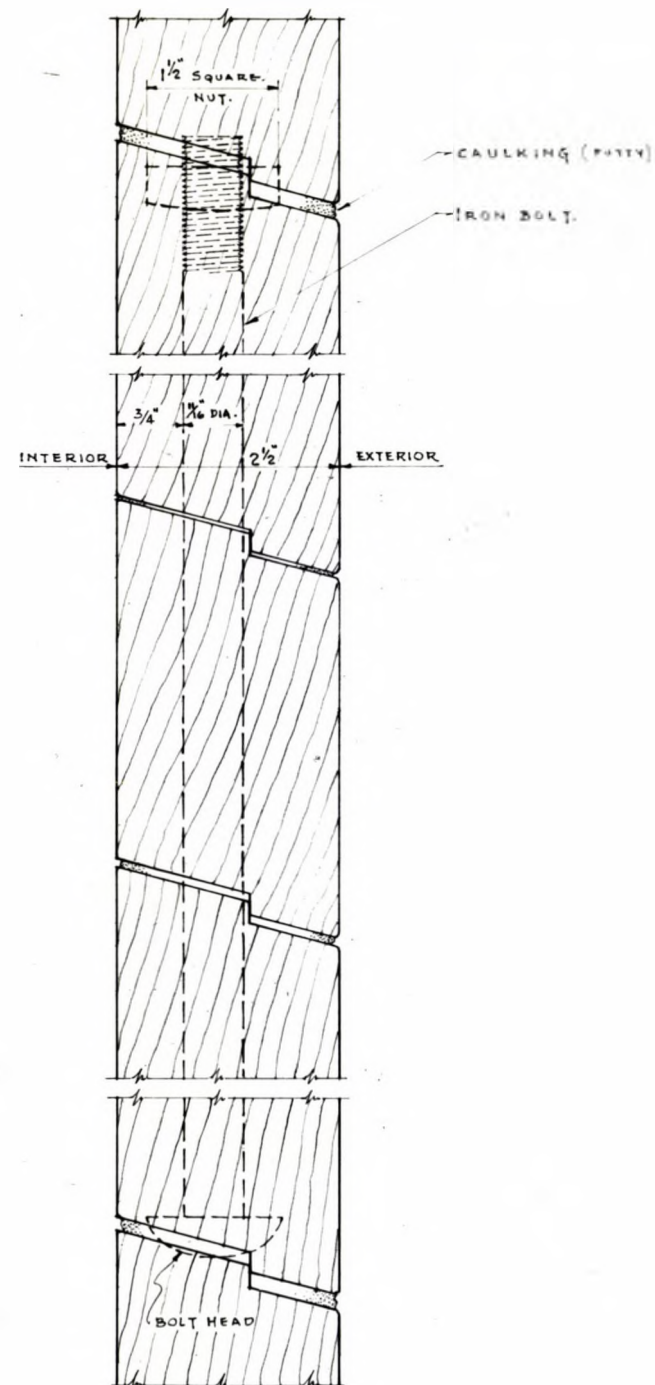
0 5 10 15
FEET

J. PETRAN, ARCHT. 1965



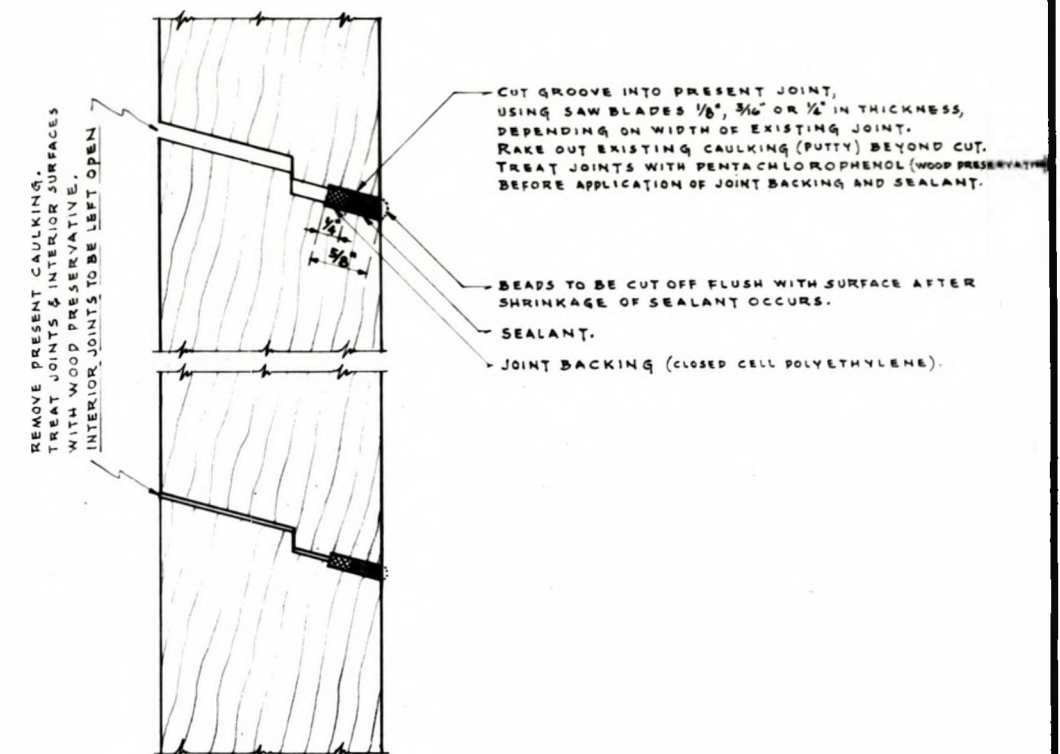
PORTION OF EAST ELEVATION OF INTERIOR OF DIAL ROOM
(LEVEL No. 5) SHOWING EXISTING WOOD CURTAIN WALL.
NORTH, SOUTH AND WEST WALLS SIMILAR.

SCALE: $\frac{3}{4}$ " = 1'-0"



SECTION THRU EXISTING WOOD CURTAIN WALL
SHOWING ASSEMBLY OF BEVELED & LAPPED
BOARDS, CLAMPED TOGETHER WITH IRON BOLTS.
TYPICAL METHOD USED BETWEEN LEVEL No. 4 & 7.

SCALE: 12" = 1'-0"



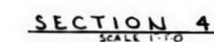
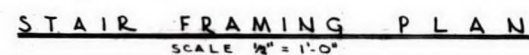
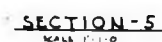
TYPICAL SECTION THRU WOOD
CURTAIN WALL SHOWING PROPOSED
METHOD FOR CAULKING HORIZONTAL JOINTS.

SCALE: 12" = 1'-0"

ILLUSTRATION No.2

PROPOSED REHABILITATION OF INDEPENDENCE HALL TOWER INDEPENDENCE NATIONAL HISTORICAL PARK





REGION
NORTHEAST
PCP NO.
B-146-1
SHEET 2 OF 2
DRAWING NO.
NWP: IND
35:12
DATE JUNE 65