D.C. DEPARTMENT OF GENERAL SERVICES

WASHINGTON, D.C.

BUILDING ASSESSMENT

LINCOLN THEATRE
1215 U STREET, N.W.
WASHINGTON, D.C.

Contract No.: DCAM-2010-D-0006-D23
Purchase Order: PO388329
Task Order No.: T0003

(DRAFT REPORT)

ALPHATEC PC
ENGINEERS
ARCHITECTS
PLANNERS
WASHINGTON, D.C.

An ISO 9001 Certified Firm (#1368US)

MARCH 7, 2012

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CERTIFICATION

Alphatec has completed a Facility Condition Assessment (FCA) of the Lincoln Theatre, located at 1215 U Street, N.W. in Washington, District of Columbia. The FCA was performed between February 23 through February 29, 2011. It is our understanding that the primary interest of the D.C. Department of General Services is to locate and evaluate materials and identify building system defects that might significantly affect the value of the property and to determine if the present Property has conditions that will have a significant impact on its continued operations.

The conclusions and recommendations presented in this report are based on the brief review of the plans and records made available to our Project Managers during the site visit, interviews of available property management personnel familiar with the Property, and the A/E team walk-through observations during the site visit.

No testing, exploratory probing, dismantling or operating of equipment or in depth studies were performed. This assessment did not include engineering calculations to determine the adequacy of the Property's original design or existing systems. Although walk-through observations were performed, not all areas may have been observed (areas observed are delineated in this report). There may be defects in the Property, which were not observed or readily accessible, may not have been visible, or were not disclosed by management personnel when questioned. The report describes property conditions at the time that the observations and research were conducted.

This report has been prepared on behalf of and exclusively for the use of the D.C. Department of General Services for the purpose stated within of this report. The report, or any excerpt thereof, shall not be used by any other party or for any other purpose than that specifically stated in our agreement without the express written consent of Alphatec, p.c.

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I. EXECUTIVE SUMMARY

I. EXECUTIVE SUMMARY

1. SUMMARY OF FINDINGS

a. Architectural

There are several deficiencies which impact the potential health, safety, and welfare of occupants. Fall protection at roof (Deficiency A-7) and the Orchestra Pit (Deficiency A-11) need prompt attention as does relocating the roof drains from near stair wells (Deficiency A-8). Stabilizing and keeping the weather (rain) out of the building is also important, and the work associating with waterproofing should be prioritized to protect the historically significant building from further damage. Addressing the non-compliant handicapped bathroom is also a priority.

The interior repairs of finishes are desirable but not a priority. Indeed, any cosmetic or historic restoration to interior spaces should not be implemented until the structure is weathertight.

b. Life Safety

The egress capacity of the building is sufficient to meet the occupant load of the building. The fire ratings of the interior walls are sufficient for egress. The four exit enclosures have 1½ hour rated doors that appear to be in good condition. The multiple penetrations through the four stairwell exit enclosures are not up to code and will need to be fire-stopped or rerouted outside of the enclosures. The same four stairwells have fireproofing that needs to be reapplied due to deterioration. There are four required exits that have been chained shut and will need the panic hardware replaced. Exit signs are in locations with poor visibility, are missing lights, and are missing directional arrows. Evacuation diagrams will need to be provided. The door leading to the orchestra pit in the basement needs minor repairs.

c. Heating, Ventilation and Air-Conditioning (HVAC)

The Lincoln Theatre has undergone several renovations over its lifespan. The latest renovation took place in 2007 and addressed the replacement of all air handling units serving the main theatre, foyer and back of the house. The renovation partially addressed the refurbishment of the air distribution ductwork system in the main theatre and foyer. The new AHUs were connected to the existing duct distribution system and a complete air balance was not conducted to enhance the performance of the HVAC systems.

Our findings indicate that modifications and upgrades to the existing air distribution systems in the main theatre and foyer are urgently needed to enhance air circulation, moderate stratification of air and temperature at main theatre and balcony, moderate the insufficient heating experienced at the main theatre level while reducing the overheating experienced at the balcony level and, overall improve the performance of the HVAC systems.

d. Plumbing

The overall conditions of the plumbing systems in the building are fair to marginal. No backflow prevention was observed on the existing domestic water supply to the building. The existing domestic water heaters were installed in 2007 and are in good condition. The existing sanitary sewage ejector was not operational and resulted in sanitary overflow from basement floor drains upon flow testing of fixtures. The building storm, dewatering pump also was not operational and indicated a high water condition. The building contains five duplex sump pumps that were installed in 1992 and are in marginal condition due to age. Minor maintenance is required to provide adequate working condition of all plumbing fixtures. There are vertical rain leaders with in the two enclosed egress stairs located in the backstage area.

e. Fire Protection

An automatic sprinkler system was provided during the renovations that took place in 1992. The sprinkler system is fed with an 8" incoming supply from the street feeds a main system control valve, check valve and flow switch. The existing sprinkler system supply is not provided with a backflow preventer or detector check valve both of which are required by Washington DC regulations. The building is completely protected with a sprinkler system, however many of the sprinklers are missing their covers or are painted over. The spare sprinkler supply in the plumbing room needs to be replenished with an NFPA compliant stock of sprinklers. The arrangement of the sprinkler system flow alarms should be revised to eliminate redundant and confusing building alarms. Additional fire hose valves may be required at the sides of the stage if required by the AHJ. The system pressure is not high enough to comply with NFPA 14 standards. Should the AHJ enforce this requirement, the sprinkler system pressure will need to be increased through the installation of a fire pump. Current codes require the billows above the stage to be operable. Tests need to be performed to determine its condition. Current codes also prohibit the smoke layer of a potential fire to descend upon the crowd. It cannot be determined if the current RTU-1 can be set to purge to accommodate this provision. A new RTU will need to be provided if a purge cannot be performed.

f. Electrical

The power distribution system for the facility is in good shape and has been periodically serviced. There were minor code violations throughout the electrical infrastructure that are noted in the electrical deficiencies. The lighting system is comprised of a mixture of incandescent and fluorescent fixtures. The system has not been maintained and a number of fixtures are equipped with burned out lamps and/or ballasts. Wall mounted emergency lighting is provided throughout the spaces. The wall

mounted emergency lighting does not appear to provide adequate lighting throughout the seating areas and aisles. The exits appear to be adequately marked. The telephone data system is functioning and is made up of several different types of cables. In several places abandoned cables have been left in place and new cables are not properly supported. The fire alarm system appears to be functioning properly and has been periodically maintained. The notification system is comprised of bells and strobes. The coverage appears to be adequate for the requirements at the time of installation, but do not meet current requirements.

2. DEFICIENCY LIST

PRIORITY ONE

Architectural

A-7: Add fall protection at the main roof. $2,865.81

A-11: Add fall protection at Orchestra Pit. $8,597.44

A-8: Relocate roof drains. $14,329.06

A-1: Repair damaged downspouts. $3,152.39

A-2: Remove non-complaint restroom. Option 1: $955.27 / Option 2: $17,194.87

A-3: Replacing leaking ornamental metal. $28,896.94

A-4: Repair brick / mortar. $109,282.98

A-5: Replace glass / repair windows. $15,933.92

A-6: Replace eave / gutters. $26,747.58

Life Safety

LS-2: Properly fire-stop penetrations or reroute penetrations outside of stairwells. Reapply fire-stopping as necessary. $99,348.16

LS-3: Remove chained locks and replace panic hardware. $38,210.83

LS-1: Replace and relocate exit signs. $17,194.87

LS-5: Provide railings where required. $3,821.08

LS-4: Provide evacuations diagrams. $2,865.81

LS-6: Replace orchestra pit door coordination device and seal. $2,197.12

Mechanical – HVAC

H-1: Theatre air distribution. Step 1: $226,112.60 / Step 2: $985,839.47

H-2: Vestibule heating. $57,316.25

H-3: Commission / air balance foyer AHU. Step 1: $68,015.28 / Step 2: $98,583.95

H-4: Repair or replace exhaust fan serving main electrical room. $3,572.71

Plumbing

P-1: Remove and replace existing duplex sewage ejector pump, valves, controls and basin cover. $18,302.99

P-7: Remove and replace existing duplex dewatering sump pump, valves, controls and basin cover. $16,201.39

Fire Protection

FP-6: Replace painted sprinklers. $3,821.08

FP-4: Replace spare sprinklers and cabinet in plumbing room. $955.27

FP-2: Determine operability of stage roof vents. Repair if necessary. $124,185.20

FP-3: Determine if RTU-1 can purge auditorium air. Provide new RTU if necessary. $191,054.16

Electrical

E-3: Remove appliance cords. $10,507.98

E-5: Test emergency lighting and rectify deficiencies. $32,000.00 to $68,626.65.

E-7: Test the fire alarm system and rectify deficiencies. $26,747.00 to $76,421.66.

PRIORITY TWO

Architectural

A-9: Historic plaster and paint. $326,702.61

A-10: Patch / repair “back-of-house”. $24,837.04

A-12: Historic ceiling repair. $412,676.99

A-13: Clean upper stage. $4,776.35

Mechanical – HVAC

H-5: Replace exhaust fan serving gas room. $2,712.97

H-6: Replace exhaust fan serving dressing room. $7,451.11

H-7: Replace exhaust fan serving stage. $7,565.74

H-8: Replace exhaust fan serving projector room: $4,852.78

H-9: Install new section of supply air duct, volume damper, and register. $1,375.59

H-10: Install exhaust wall cap on west hall. $95.53

H-11: Vacuum clean air ducts and terminals. $7,164.53

Plumbing

P-2: Remove and replace existing duplex sump pump, valves, controls and basin cover. $16,201.39

P-3: Remove and replace existing duplex sump pump, valves, controls and basin cover. $17,156.66

P-4: Remove and replace existing duplex sump pump, valves, controls and basin cover. $16,201.39

P-5: Remove and replace existing duplex sump pump, valves, controls and basin cover. $16,201.39

P-6: Remove and replace existing duplex sump pump, valves, controls and basin cover. $16,201.39

P-8: Remove and replace existing showerheads and lavatory faucet aerators. $7,546.64

Fire Protection

FP-1: Install backflow preventer and detector check valve. $39,548.21

FP-5: Replace sprinkler head cover plates. $5,731.62

Electrical

E-1: Verify cause of voltage fluctuations and rectify. $80,624.86

E-2: Provide and install junction box covers. $2,292.65

E-4: Replace burned out lamps and ballasts. $11,004.72

E-6: Remove all abandoned cabling and support all existing cabling. $11,081.14

E-8: Minor electrical repairs. $20,442.30

II. INTRODUCTION

1. PURPOSE (SCOPE OF WORK)

SCOPE OF WORK
BUILDING ASSESSMENT OF LINCOLN THEATRE

Date: 11/30/2011

General

The A/E shall perform a thorough assessment/evaluation of the Lincoln Theater, located at 1215 U Street NW, Washington DC, as described in the Scope of Work (SOW) provided herein with the attached Task Order. The A/E will also perform a constructability review of existing drawings dated October 9, 2009 for HVAC upgrade at the Lincoln Theater. The purpose of these tasks is to provide the Department of General Services ("DGS") personnel with sufficiently documented data to define and determine the short and long term level of capital reinvestment needed to maintain the theater as safe, reliable, functional, and more energy efficient. The evaluation will provide an independent and documented overview of infrastructure conditions in a simple and concise manner.

Scope for Services

A. Pre-Investigation Meeting

Within five (5) working days after receipt of the Notice-to-Proceed (NTP), the A/E shall request an on-site meeting to review the Scope of Work (SOW) with the DGS Project Manager. The meeting shall be attended by key members of the A/E's personnel performing the assessment/evaluation.

B1. Condition Assessment

1. Research everything necessary to understand the nature of the project, such as building systems, grounds, utilities, support systems, other building components, building requirements, etc. Review all available documentation (drawings, reports, etc.) both at the site and at the DGS offices. The District will make available to the contractor all documentation it is able to provide in electronic format or hard copy. These may include drawings, assessment reports, and other data. The A/E shall presume that no documentation is available. Where documents are available, the A/E shall verify their accuracy before relying on the data. Otherwise data must be collected from direct measurements and observations of the facility, and must be based on contractor's own efforts. All material provided by DGS is for information only. Verify all field conditions. The contractor is responsible for the accuracy of all statements made in the submissions.

2. The A/E shall be required to conduct a field survey of the facility for the purpose of updating and validating existing architectural floor plans. The Contractor shall be required to identify facility status data (age, historical status, construction type, square footage, materials, user/tenants, and functional areas such as offices, mechanical/electrical rooms, etc.

3. The A/E shall organize and arrange a team of various disciplines to visit and inspect the facility and evaluate the building systems and equipment. The A/E's team shall consist of architects and engineers with at least 5 years experience. At least one member of the A/E's team shall be a licensed professional in the District of Columbia or chartered building surveyor. The A/E shall submit resumes of all team members with the fee proposal.

4. Provide description of the major building systems with manufacturer's name, model numbers, capacities, etc. for each major piece of equipment and the estimated age.

5. Identify the current condition of the facility and its components. Current condition shall include a description of the component, identifying the deficiency, the estimated cost to remedy the condition, and its precise location in the building or property.

6. The A/E shall recommend repair/replacement with corrective measures, and associated cost, and the remaining service life of the building component or system. Note that quantitative information on recommended work such as cost estimates shall be included and supported with pertinent data.

7. Prioritize necessary repair, renovation and or replacement actions with estimated cost forecast by the projected year in a format consistent with the requirements of the DGS.

8. Inspections made by the A/E's team, shall include, but not limited to, an evaluation of the following:

Substructure:

A. The A/E shall assess existing foundations, slabs on grade, basement excavation and walls

B. The A/E shall visually evaluate the accessible below grade components for signs of distress (cracking, displacement, water infiltration, etc.) and document findings with photos

Core and Shell

a. The A/E shall assess all existing floors, bearing walls, columns, beams and related exterior building components such as exterior walls, windows, doors and roofing.

B. The A/E shall visually evaluate the accessible shell components and ancillary elements for signs of distress and document findings with photo logs. This will include cracking, displacement, and connection adequacy, continuity of flashing and seals, and evidence of other types of distress. The A/E shall check the flashing and connections for proper drainage on walls and check the condition and proper placement of expansion joints. For

roofing, the A/E shall access the roof to visually observe the condition of the roof system and any accessories and details. The A/E shall observe flashing and penetration details for condition and conformance with accepted practice. The A/E shall document existing roofing warranties, replacement costs and remaining useful life.

Interiors

a. The A/E shall assess the condition of interior partitions, doors, and specialties such as toilet accessories, lockers, storage shelving, etc. Also assess all interior stairways with finishes and interior finishes of walls, flooring, and ceiling.

B. The A/E shall visually evaluate the condition of all interior finishes, and document findings with photo logs.

Building Equipment and Systems

Each completed report shall include equipment lists in a tabulated form indicating make, model, manufacturer's name, capacity/ rating and year installed.

a. The A/E shall assess all existing plumbing systems fixtures, domestic water distribution, sanitary waste and rain water drainage systems. Assess the existing HVAC Systems including all heat supply and return ducts, distribution and transfer systems. Assess the HVAC controls and instrumentation; and other HVAC support elements. Assess the existing Fire Detection and Suppression Systems including alarm systems, monitoring systems, sprinkler systems, standpipe and hose systems, pumps, fire protection specialties, and special fire suppression systems. Assess the existing Electrical Systems including service and distribution, feeder type (aluminum or copper), lighting and branch wiring, communications and security systems, emergency generators, UPS systems, and electrical controls and instrumentation). Include service points, meters and capacities for all utilities. The A/E shall investigate current power surges and tripping of canopy light circuit breakers, cross feed between lighting and sound boards and malfunctioning Lincoln sign.

B. The A/E shall visually evaluate the conditions of service, and document findings for plumbing, HVAC and electrical systems. The A/E shall observe the age, condition, and adequacy of capacity and status of maintenance of these systems and document their condition, and deficiencies and code violations. The A/E shall also include comments on renovations to the systems that would prove beneficial to their overall efficiency or performance, and estimate expected remaining useful service life of each major piece of equipment, with and without repairs. For fire and life-safety systems, the A/E shall list all major components and identify those areas of these systems that require upgrades. Findings shall be supported with photo logs.

Equipment and Furnishings

a. The A/E shall assess all existing fixed components of the structure, and non- movable furnishings such as fixed audio-visual equipment, parking control equipment, kitchen and

food service equipment, fixed casework and seating etc. The distinction for most equipment is whether it is attached, hard wired or plumbed directly to the building itself.

b. The A/E shall visually evaluate and note the condition of all existing fixed equipment and furnishings, and document findings with photo logs. List all fixed equipment indicating make, manufacturer, rating/capacity, year of manufacture, and location installed in a tabular form.

Accessibility

a. The A/E shall conduct a thorough site review to determine major barriers to access to and into the buildings, through the buildings, to restroom facilities, and to other service areas within the buildings. The A/E shall also review and document ADA compliance requirements per applicable building code for the facility.

Safety / Security

a. The A/E shall conduct a safety / security review to determine and document hazards and needed improvements in all areas of the building and surrounding site. Support findings with photo logs

b. Thoroughly examine the adequacy of installed Fire Protection and Prevention systems and recommend necessary upgrades and or modernization. Identify if the building is grandfathered or covered under current District of Columbia Building Codes.

LEED Analysis

A. The A/E shall analyze the building for performance relative to achievement of LEED silver certification.

B. The A/E shall provide recommendations and associated costs for achieving and maintaining the District's goals with regard to LEED and the USGBC.

Report Format

The Assessment Report shall include the following sections:

i. **Table of Contents**
Include a table of contents that clearly shows the report sections and their page numbers as well as the sub-sections and their page numbers.

ii. **Executive Summary**
Provide a concise statement of the background and the needs that necessitated the report, a general description of the facility and assessment of the overall facility condition, names and titles of all personnel involved in the preparation of the report, and names and titles of DGS and Facility Management personnel interviewed. The Executive Summary shall also include a summary of all recommended short and long term repairs and improvements in spreadsheet form, and in graphic form. Spreadsheet forms are to include title of the project, priority level, estimated costs, and recommended expected year of implementation. Graphic forms can be either line graphs or bar charts showing the expected total cost level of investment by year. The report and estimate submitted shall quantify each piece equipment and building systems recommended for replacement.

iii. **Introduction**
Include key issues to be addressed by the report and the strategy employed to achieve its objectives. Provide the basis for evaluation including DGS Facility Design Standards, IBC Codes, Americans with Disabilities Act, and other recognized building codes such as ASHRAE and the National Electric Code. Provide basis for cost estimate development.

iv. **Systems Description, Evaluation, and Recommendations**
The report shall be organized with tabbed sections to facilitate zeroing in on a particular building system or component. As a minimum, separate tabbed sections shall be provided for the following building elements:

1. Site/Grounds and Approaches
2. Building Structure
3. Exterior Elevations
4. Roofs
5. Building Interiors
6. Mechanical (HVAC, Plumbing, and Fire Protection/Suppression)
7. Electrical (Power, Lighting, Telephone, Data)
8. Conveying Systems
9. Fire Alarm and Security Systems
10. Energy Conservation (This section shall include a discussion of building operations and recommendations to improve building efficiency through better operations methods.)

Each tabbed section shall include a thorough description of each building system or component including age, type of system, and manufacturer. Recommended work items with cost estimates shall be described in detail in each tabbed section and relate to the building system or component covered.

v. **Units of Measurement**
The information on areas, sizes, and volumes of this report shall be prepared using English measurements.

vi. **Proprietary Requirements**
All materials developed as a result of this effort, including software, shall become the property of DGS.

vii. **Appendices**
Provide supporting documentation that was used in the preparation of the study, and what is essential in depicting its context. Records and data on file in the DGS archive, utilized in the preparation of the report, may be incorporated by specific reference as cited.

Deliverables

After the site visit the A/E shall submit three (3) copies of the draft Report within five (5) business days or less to the Project Manager along with an electronic copy in MS Word or other agreed upon format according to the schedule outline in the Task Order. All comments from DGS shall be discussed and resolved. All agreed upon comments shall be included in a Final assessment Report which is prepared according to the project schedule.

The final report will be in color for both electronic and hard copies and shall be completed within fourteen (14) calendar days after all DGS comments are resolved. Electronic documentation will be developed using software agreed upon with the Project Manager or directed by the customer. The A/E will provide editable and printable documentation. The A/E shall provide the District with four (4) hard copies of the entire report. The A/E shall also provide the complete electronic versions via email, on CD, DVD, or other portable media device, which must include, all back up documents, studies, reports, CAD drawings, etc. that were used as a basis to prepare the study.

Prepared By: Elvis Douglas
Project Manager DGS Construction

2. PERSONNEL INTERVIEWED

The following individuals contributed their historical knowledge of the Lincoln Theatre:

a. Mr. Lionell Thomas
   Executive Director
   D. C. Commission on the Arts and Humanities
   1371 Harvard St. N.W.
   Washington, D.C. 20009

b. Darlene “Star” Brown
   General Manager
   Historic Lincoln Theatre

c. Mr. Elvis R. Douglas
   Construction Division DGS
   Senior Architect/Project Manager
   Department of General Services
   2000 14th St. N.W.
   Washington, D.C. 20009

d. Mr. James Brown
   Staff Personnel
   Historic Lincoln Theatre

3. DOCUMENTATION REVIEWED

Contract document drawings from renovation in 2007

Contract document drawings from renovation in 1992

4. WEATHER CONDITIONS

Weather conditions during the survey varied from sunny to rainy.

5. CODE INFORMATION

- NFPA 13 – Installation of Sprinkler Systems
- NFPA 14 – Standpipe and Hose Systems
- NFPA 54 – National Fuel Gas Code

- NFPA 70 – National Electrical Code
- NFPA 72 – National Fire Alarm and Signaling Code
- NFPA 90A – Installation of Air Conditioning and Ventilation Systems
- NFPA 101 – Life Safety Code
- International Building Code
- 2010 ADA Standards for Accessible Design
- International Plumbing Code
- International Mechanical Code
- ASHRAE 62.1 2007
- ASHRAE 90.1 2007

III. SYSTEM DESCRIPTION, EVALUATION, AND RECOMMENDATIONS

1. SITE/GROUNDS AND APPROACHES

1. **SITE/GROUNDS AND APPROACHES**

a. Parking, Paving, and Sidewalks

The Theatre is a fully detached structure that has a public concrete sidewalk on the U Street side, public concrete alleyways on its sides, and a fenced, private asphalt parking lot at the rear. Concrete sidewalks and alleyways appear in good condition, as does the asphalt parking lot.

b. Drainage Systems and Erosion Control

The Theatre is completely surrounded by hardscape, therefore Sediment Erosion Control is neither existent nor required. The main roof drainage discharges via gutters and downspouts, into combination sanitary/storm boots on the alley sides. Three downspouts are damaged; either missing sections, or damaged by vehicular impacts. It was also observed, one of the boots was clogged and rain discharge was out flowing onto the alley. Main roofs, pavement, and alley surface water is sheet drained to alleyways reaching the U Street curb and gutter system.

Damaged downspouts spill uncontrolled water onto the Theatre exterior walls and where the building meets the alleyways. This causes water infiltration due to continuous water flow onto the exterior building face, which finds its way into the building. See Deficiency A-1.

c. Topography and Landscaping

The Theatre's site high point is located in the rear of the building parking lot and has a gradual outward slope to alleys discharging to U Street, which is the site low point. The subject building has no landscaping.

d. General Site Improvements

Site improvements are limited to the rear of the building. Improvements include a fenced parking lot with an automatic gate opening system. Bollards protect the gate opener. A handicapped ramp has been installed

to accommodate handicapped accesses; staff entrance for staff and visiting performance crews. A site drain appears in front of the doorway.

e. ADA Accessibility

1. Ramps / Lifts – A ramp currently exists at the rear entrance of the building for handicapped access of performers and staff to the dressing rooms located behind the stage. Visitors and patrons of the Theatre enter on the U Street main entrance. From the lobby, the Theatre is accessible via an electric lift located directly off the main lobby. The 1 stop lift rises to the Theatre level for access to the same. Reserved wheelchair spaces are at approximately the midpoint of main Theatre seating.

2. Restrooms

   There presently are a gang of men's and women's bathrooms marked accessible just off the main lobby, and appear handicapped accessible. There is also a unisex bathroom marked handicapped on the Theatre level between the lift and main auditoriums, however, the layout of the bathroom is not accessible. This bathroom will either need to be redesigned to accommodate proper access per code or the placard needs to be removed, and be a non-handicapped accessible bathroom, as there is reasonable bathroom access/accommodate off the lower lobby. See Deficiency A-2.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
WASHINGTON, DC
PO388329

DEFICIENCY TITLE: Damaged Downspouts

DEFICIENCY NUMBER: A-1	**ESTIMATED COST: $3,200** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Damaged downspouts / clogged drain

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :

1. Repair three (3) damaged downspouts.
2. Replace missing downspout.
3. Unclog drain boot.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
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PO388329

DEFICIENCY TITLE: Non-Compliant Restroom

DEFICIENCY NUMBER: A-2	**ESTIMATED COST:** **OPTION 1: $1,000** **OPTION 2: $17,200** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Remove non-compliant restroom

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :
Option 1: Remove signage and fixtures. Convert to storage.
Option 2: Reconfigure for handicapped clearances (if possible).

2. BUILDING STRUCTURE

2. BUILDING STRUCTURE

On March 2, 2012, Brandes & Cassagnol Engineers, PC (BCE), the structural engineering consultant visited the site of The Lincoln Theater to conduct a visual assessment of the facility's structural elements. The original structure was constructed in 1922 and an addition and a full renovation was completed in 1994. The following are our findings:

a. Evaluation

1. Foundations

BCE visually inspected the lower level of the facility for signs of foundation failure or settlement. Minor settlement has occurred during the life of the building specially on the west side wall foundations. The joint of the slab on grade along the walls and other surfaces adjacent to foundations did not reflect substantial signs of movement. But usually a small settlement at the foundation level becomes evident as the crack enlarges as it travels upward to the roof line. The recent seismic event does not seemed to have caused damage to the foundations.

2. Slabs on Grade

The lower level slabs on grade were surveyed at all locations. The slabs did not reflect signs of major distress at any locations. The observed cracks were minor and are very common in slabs on grade. The sloping corridor slab on the east site of the Basement has several cracks where it changes direction. These cracks seem to extend for the full depth of the slab.

The slab on grade of the storage areas, the orchestra pit and the electrical vault and other spaces in the Basement are in good condition.

3. Walls

   i. Exterior (Photos 1 through 9)

   The exterior masonry walls were observed by binoculars on the outside and visually on the inside where not covered by architectural finishes. The wall exhibits sign of water damage at several locations.

   Grout damage was observed at some locations along the alleys that go full length of the building on both the east and west sides. Three to four courses of the brick veneer located above the alley slab, are eroded. The loss of grout in some cases extends to half the depth of the brick. See Photo 1.

   Wetness and water infiltration was observed at several locations along the exterior walls. In the electrical room in the basement on the west side of the building, water infiltrates through the wall. The water travels down the inside face of the wall and drain into a trough that has a sump pump. At several other locations, the interior paint of the wall shows sign of powdering from moisture traveling through the wall.

   A stepped crack was discovered in the west wall. See photo 5 and Photo 6. The crack extends from the base of the wall at the alley level up to the corner of an in-fill window opening. Another crack was discovered at the corner of the cornice at the southwest corner of the building.

   The cause of these cracks is due to minor settlement in the footing along the west side and could have been made worse by the seismic event of August 2011.

ii. Interior (Photos 10 through 17)

The interior partitions in many cases are clay tile with a plaster finish. At several locations the plaster has deteriorated leaving the terra cotta tiles grooved face exposed. Unusual cracking that would indicate structural distress was not observed.

In the stairwell on the west side, at the location of a former doorway to outside (shown on obtained documents), the drywall finish has a crack. The crack travels in the finish at the corner of the in-filled doorway. This crack is typical of a crack cause by seismic activity. These usually cracks occur in stairwells where the wall braced length are longer than between floors.

The 1994 renovation of facility included a 20' wide Addition located at the back of the original stage loft. The new construction was a steel framed with a composite floor system with a masonry exterior walls. No significant signs of distress were observed. Sprayed fireproofing delamination will be addressed under a separate section of the report.

b. <u>Recommendations</u>

1. Foundations

No substantial foundation repairs would be required. But since cracks and water infiltration were observed at several locations, we recommend that a program of periodic observations be established.

2. Slabs on Grade

The slab on grade work will require repair to approximately 200 Sf. Part of the Basement corridor slab will need to be cut, removed and replaced. Other control and contraction joints will need to be maintained. We estimate a cost of $12,000.00.

3. Walls

   The distress noticed in the exterior wall of the original building will require a detailed structural investigation. This investigation will require inspection by temporary scaffolding or drops using swing stages.

   Repointing of eroding mortar joints and grouting of existing cracks should proceed immediately to stem any further deterioration of the wall. On the interior, the repairs are more architectural than structural. See Architectural Deficiency A-4 for estimated costs.

BRANDES & CASSAGNOL ENGINEERS

RICHARD P. CASSAGNOL, P.E.
NICHOLAS BRANDES, P.E.

Consulting Structural Engineers

8(a) Certified

Photo P-1

Deteriorating brick veneer and loss of grout along alley slab. Occurs on west and east alleys.

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Photo P-2

Close-up of deteriorating brick veneer and loss of grout along alley slab. Occurs on west and east alleys.

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Photo P-3

In-fill of original window. Note recess of new veneer and dark staining where water drains from the recess.

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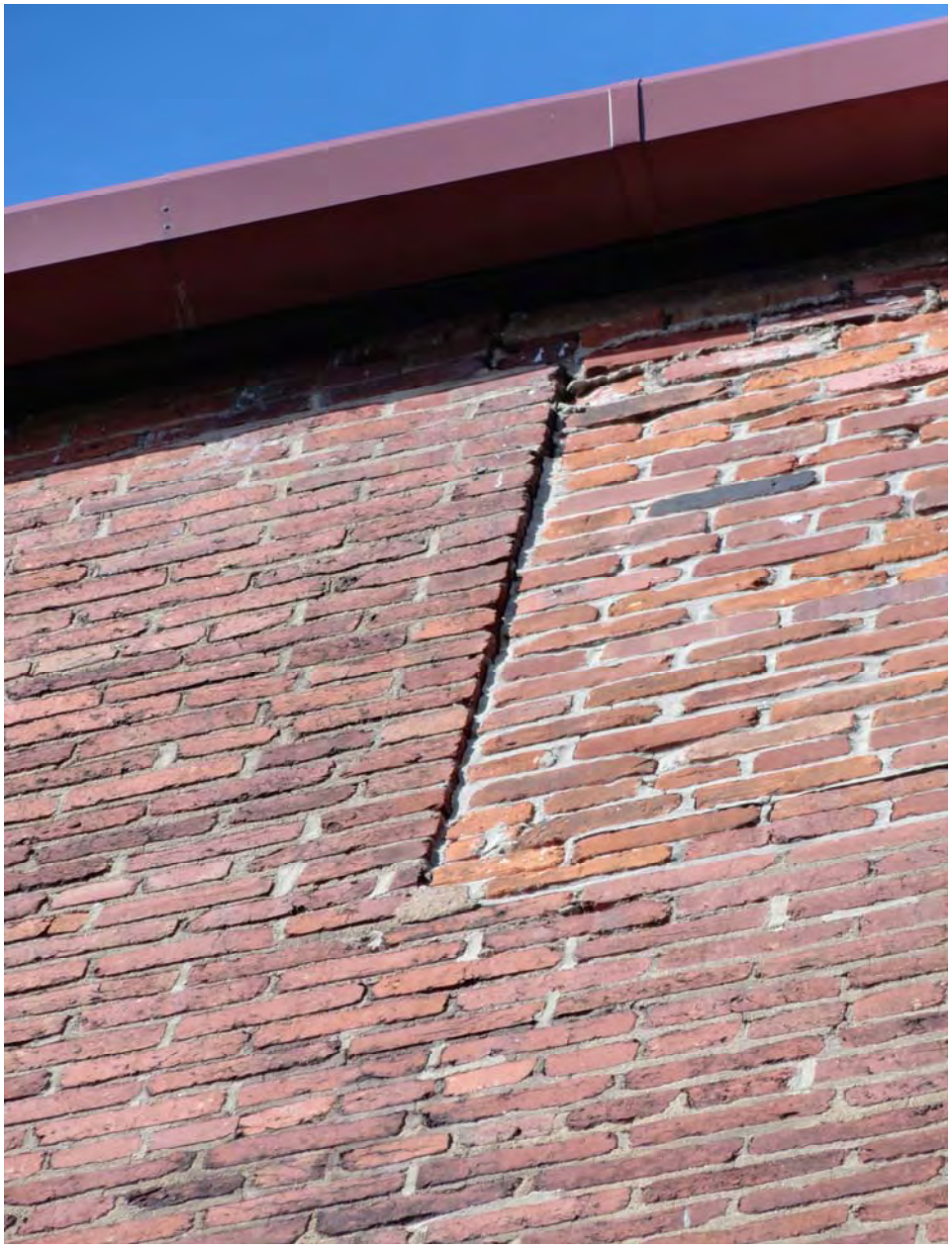

Photo P-4

Top of in-filled opening showing mortar deterioration.

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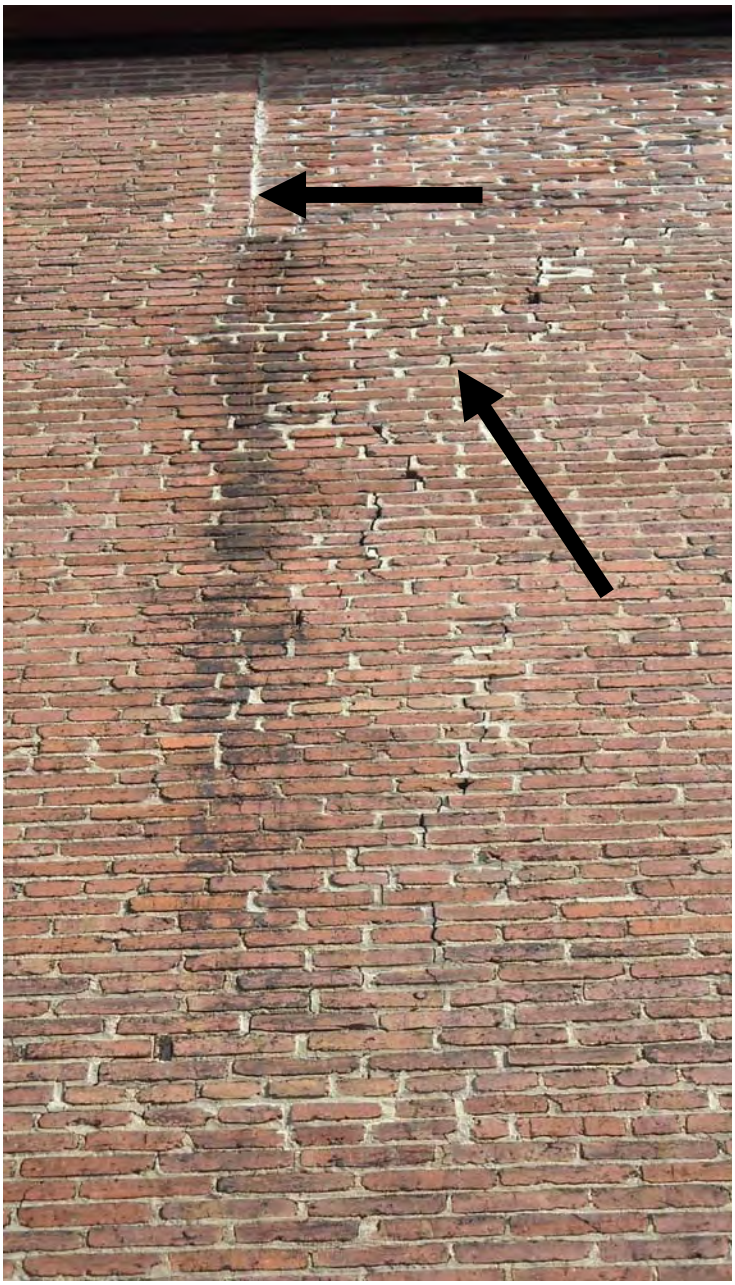

Photo P-5

Stepped crack in the west side exterior brick wall.

The crack is below the in-fill of a former fire escape stair doorway.

Arrow indicated the in-fill line of the former door opening.

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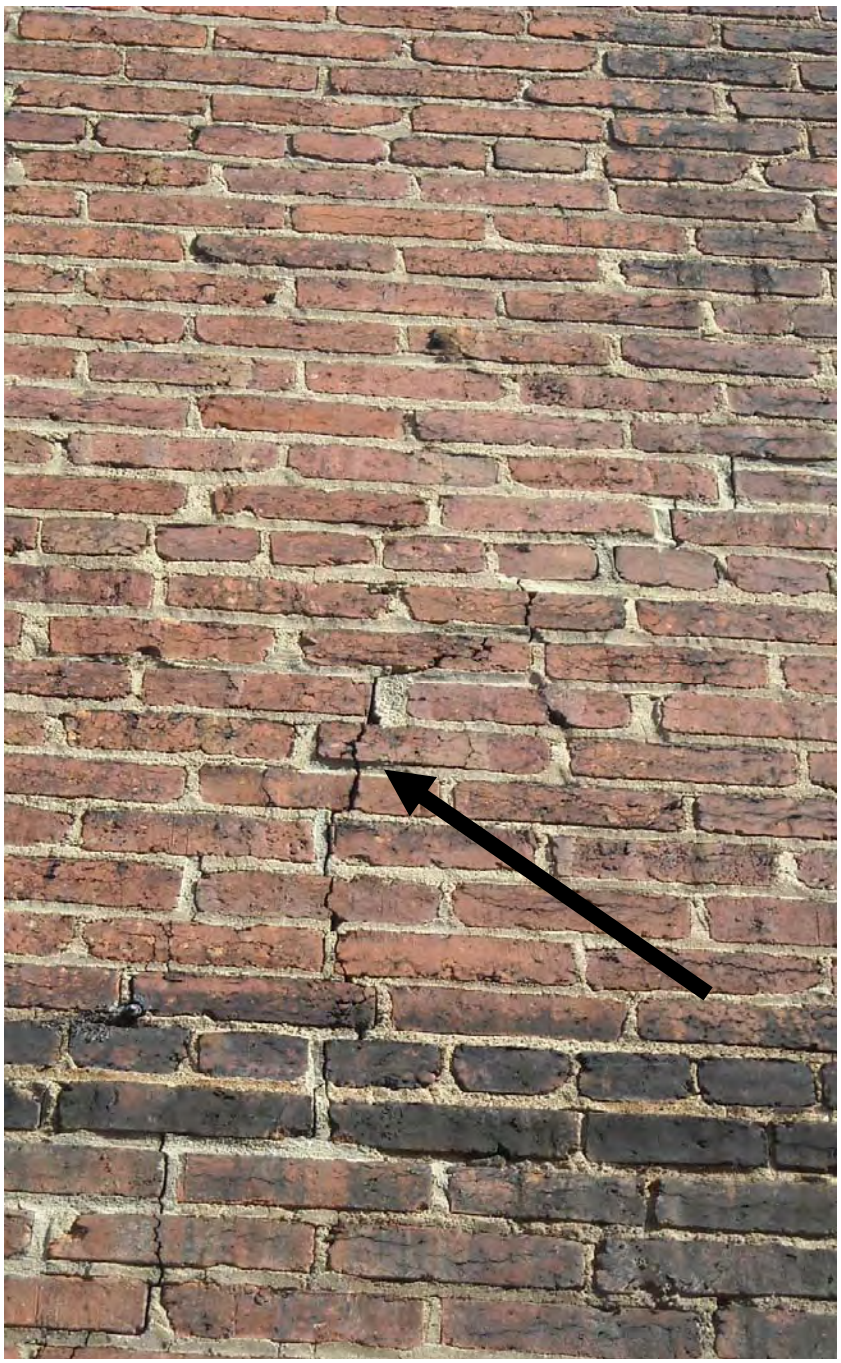

Photo P-6

Stepped crack in the west side exterior brick wall.

Arrow indicated where the crack goes thru mortar and brick.

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Photo P-7

Deteriorating brick veneer and loss of grout at missing damaged downspout..

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Photo P-8

Deterioration and cracking veneer at top of west wall. Note the vertical crack below gutter.

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Photo P-9

Rear wall of addition at rear of property. Note the spread pates and through bolts.

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Photo P-10

Crack in slab on grade of corridor at Basement level.

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Photo P-11

Crack in slab on grade of corridor at Basement level.

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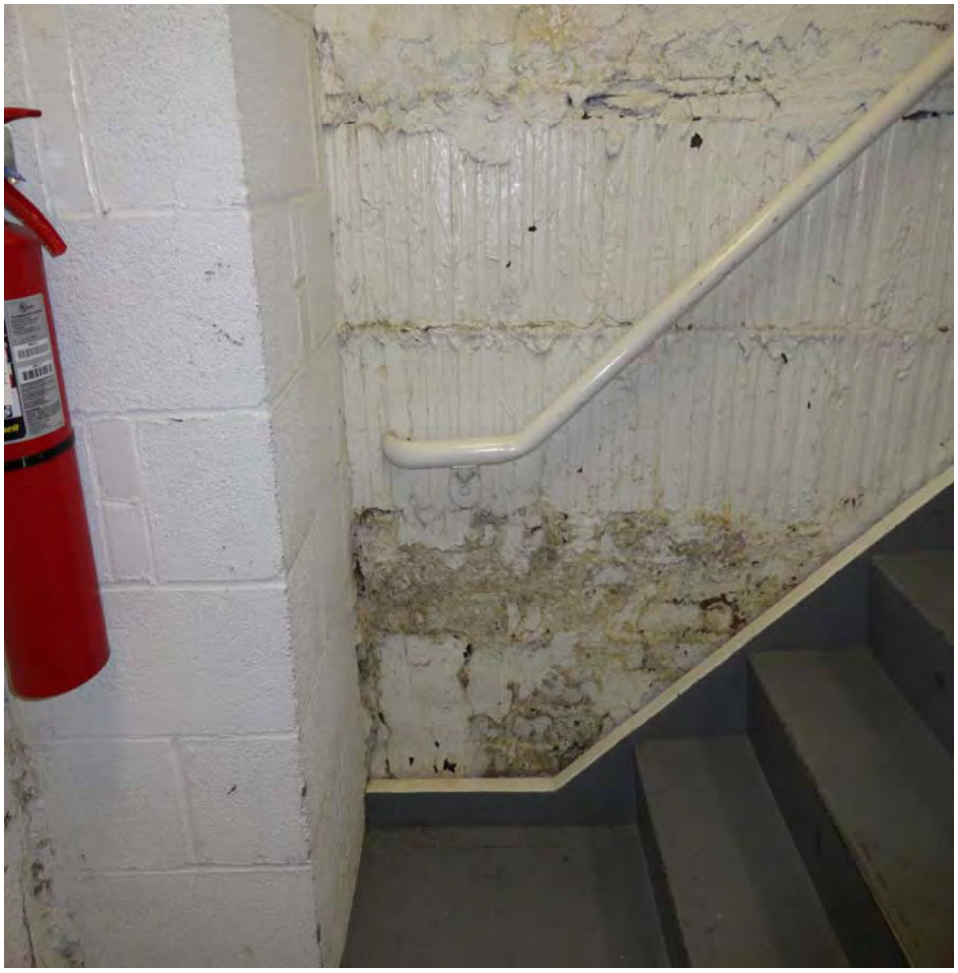

Photo P-12

Peeling paint on interior face of Basement wall in the stairwell.

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Photo P-13

Evidence of water infiltration in the Basement Electrical Room.

Pipe is to a sump pump at the floor line.

Water enters from the Alley on the west side of facility.

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Photo P-14

Peeling paint on interior face of Basement wall.

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Photo P-15

Peeling paint on interior face of Basement wall. Note the "alligatoring of the finish below the exposed brick.

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Photo P-16

Crack through the plaster finish at the in-fill doorway of the west side stairwell.

This crack occurs is reflected in the exterior face of the west side wall.

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Photo P-17

Detail of Crack through the plaster finish at the in-fill doorway of the west side stairwell.

This crack is reflected in the exterior face of the west side wall.

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3. EXTERIOR ELEVATIONS

3. EXTERIOR ELEVATIONS

a. Exterior Walls

U Street façade is the primary façade and is of historical significance. It is classically organized with traditional classical archetypes appearing, including pediment; stone bas relief panels and rosettes; ashlar stone street façade with glass and wood doors and windows. A roof projecting over the public sidewalk consisting of glass and tin relief protects visitors and patrons from inclement weather. The upper portion of the façade is constructed with a buff colored brick with a deep raked mortar joint, supporting a Lincoln Theatre sign and the canopy. The façade is in good condition, with the exception of the ornamental metal that shapes the pediment and cornice with dentils. This ornamental metal is deteriorated and is allowing water to enter the building, causing interior water damage. There is also no avian protection on the ornamental metal work allowing pigeons to further damage the horizontal surface with guano. See Deficiency A-3.

The North and South façades on the alleyways are common red clay brick. These façades have previously been tuck pointed and struck flush.

Some original openings have been infilled with common brick, attempting to match the original clay brick where original fans, windows, doors, etc. have been removed. Some infills are set back from the original face of brick and allow water to rest on the wall and infiltrate the exterior envelope; and for birds to deposit guano.

The exterior walls are multi withed and load bearing with terra cotta infill. There are cracks in the mortar and bricks, which allow water to enter the building. There is no cavity in these walls and therefore the assembly relies on its mass for water to stop by shear mass before traveling to the terra cotta infill, where finish plaster is applied for interior finished walls. The bottom two mortar joints at alley level are particularly deteriorated and

is a primary cause of water infiltration that appears in the basement. See Deficiency A-4.

b. Doors and Windows

Front entrance doors are oak doors with glazing, and do not appear to be original. They are in good condition. Side/exit doors are hollow metal, fire-rated, and are not original. They are, however, in fair condition. There has been added hardware to fire exits which should be removed. Please refer to the Fire/Life Safety portion of this report for details. The large stage access door off stage left is original and appears to be in fair condition.

Windows are on the U Street façade and the wood frames appear original. There was some rotting observed, as well as broken lights. See Deficiency A-5. Operation of the double hung windows were not checked, however, they are assumed “painted shut”.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
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DEFICIENCY TITLE: Leaking Ornamental Metal

DEFICIENCY NUMBER: A-3	**ESTIMATED COST: $28,900** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Replace leaking ornamental metal

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :
Perform leak test. Test existing metal for adequate thickness. Remove rusted sections and replace in-kind. Install avian deterrent – repaint.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
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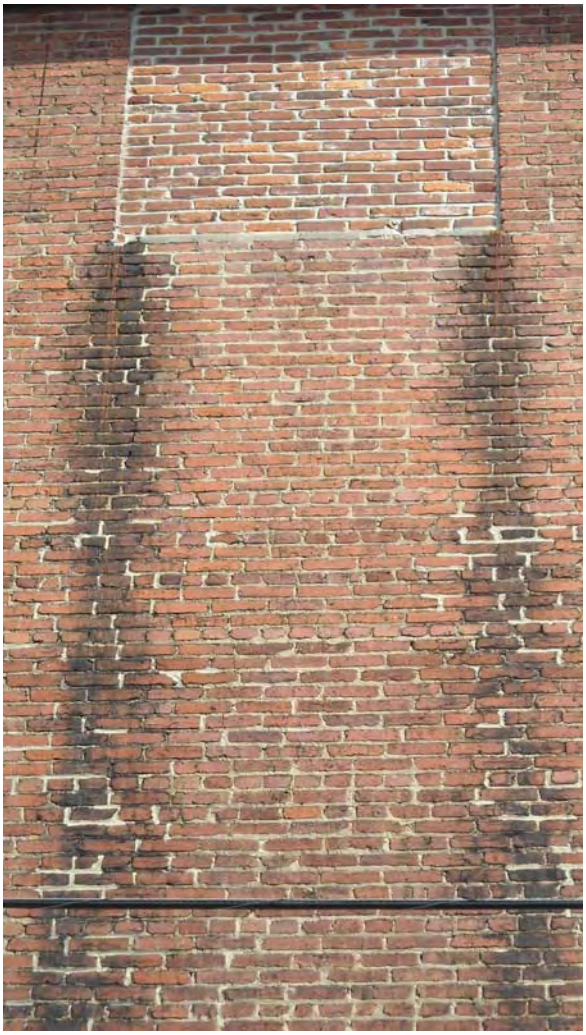
DEFICIENCY TITLE: Exterior Brick Deficiencies

DEFICIENCY NUMBER: A-4

ESTIMATED COST: $109,300
SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Open joints and cracked bricks throughout exterior

PHOTOGRAPHIC DOCUMENTATION :



SUGGESTED SOLUTION :

- Provide leak/water infiltration flood testing
- Replace sealant between alley and wall
- Tuck-point all mortar joints
- Repair cracked bricks
- Install sheet metal flashing with reglets and drips at brick infills not flush with façade
- Seal all façades with clear masonry sealant / water repellant

DEFICIENCY

LINCOLN THEATRE
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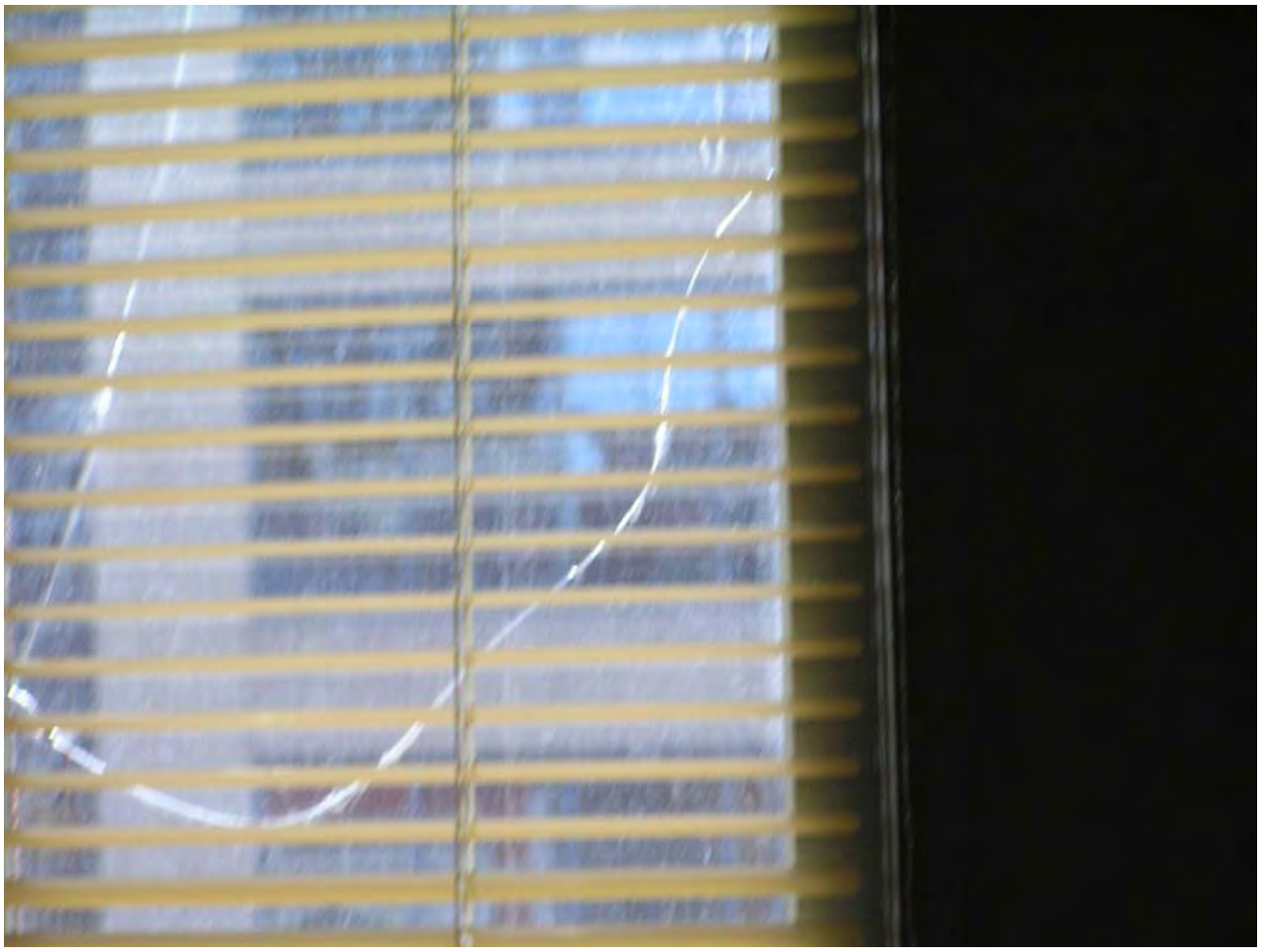
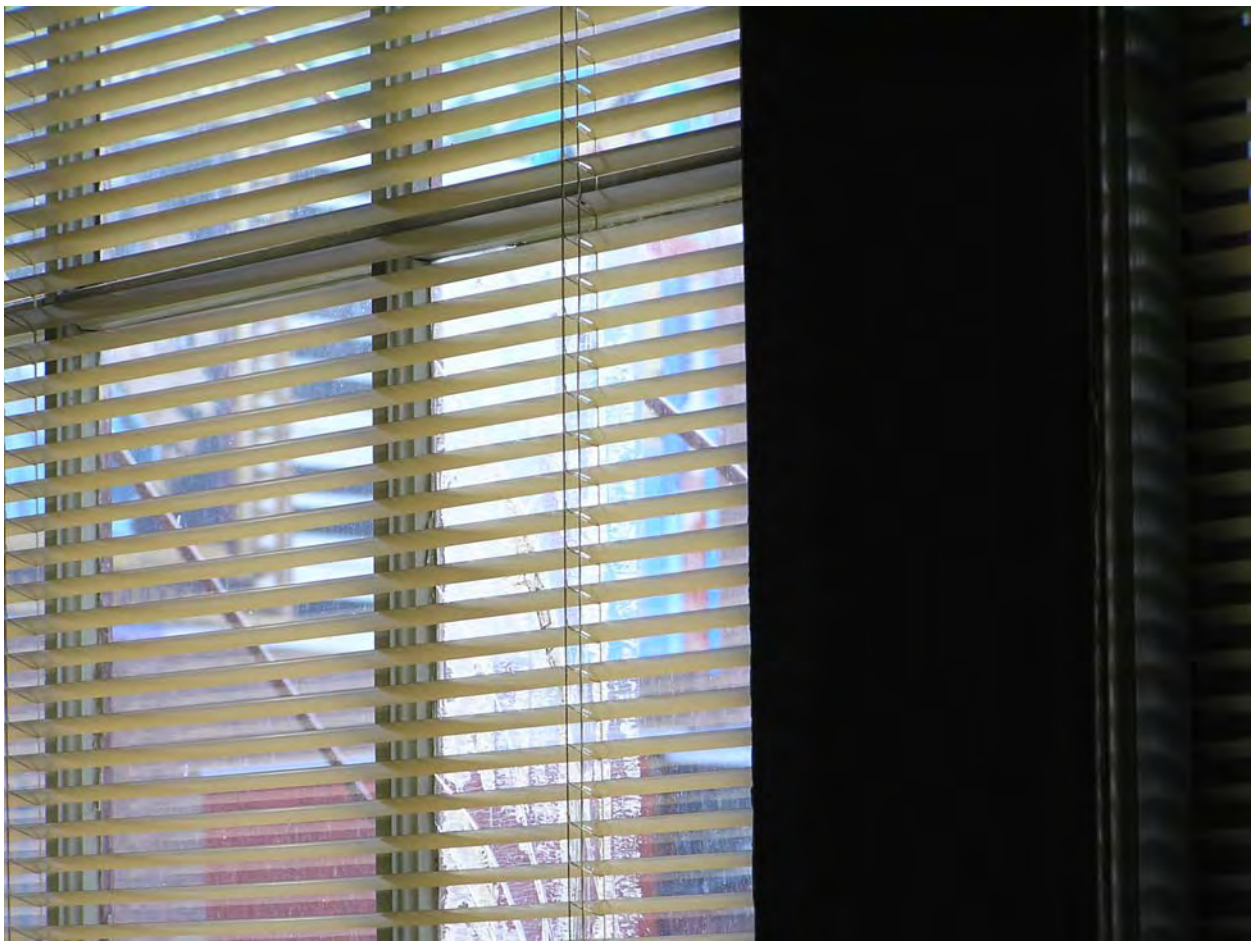
DEFICIENCY TITLE: Broken Glass and Rotted Wood at Windows

DEFICIENCY NUMBER: A-5	**ESTIMATED COST: $16,000** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Replace broken glass – repaint/consolidate rotted wood window frames.

PHOTOGRAPHIC DOCUMENTATION :





SUGGESTED SOLUTION :
Strip paint, restore rotted wood – consolidate/shape with epoxy wood filler – shape to match sound molding. Replace broken window panes – repaint exterior side of windows.

4. ROOFS

4. ROOFS

a. Roofing

There are three primary roof areas. These roofs were replaced in the last 10 years. The largest roof area is directly over the Theatre seating. This roof area is a low slope, double pitched roof that has been recently re-roofed with an APP direct-touch down roof system with granular cap sheet, and appears in fair condition (flood test and warranty information was not confirmed). Roof area drains to a gutter and downspout system. The downspouts are attached to the building with roof nails to rafters/trusses(assumed) and a small eave with facia board. The eave is in poor condition. It appears to be original wood, which has rotted, causing both uncontrolled water entry and areas for birds to nest. See Deficiency A-6.

The main roof area is accessed via a roof hatch next to the rear exit of the Theatre's balcony. Hatch is in fair condition. The location of the hatch and lack of guard rail makes roof access hazardous. Code requires guard rails for all access and equipment within 3 feet of a roof's edge. See Deficiency A-7.

The main roof has two flat roofs at the end of the building at differing elevations. Both flat roofs house major mechanical equipment and are drained with internal roof drains. These drains are piped into the fire stairs and need to be relocated. There exists standing/high water markings (stains) on the roofs. There are overflow scuppers should the water level exceed roof high points. See Deficiency A-8.

DEFICIENCY

LINCOLN THEATRE
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DEFICIENCY TITLE: Eave and Gutter Repair and Replacement

DEFICIENCY NUMBER: A-6	**ESTIMATED COST: $26,800** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Replace eave / repair gutters

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :
Remove gutter facia and eave. Reinstall gutter, replace facia and eave.

DEFICIENCY

LINCOLN THEATRE
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DEFICIENCY TITLE: Guardrails at Main Roof Hatch

DEFICIENCY NUMBER: A-7	**ESTIMATED COST: $2,900** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Main roof hatch – no guard rails.

PHOTOGRAPHIC DOCUMENTATION :
No photo

SUGGESTED SOLUTION :
Install guard railing.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
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PO388329

DEFICIENCY TITLE: Slow Draining Flat Roofs

DEFICIENCY NUMBER: A-8	**ESTIMATED COST: $14,400** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Relocate roof drains.

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :
Relocate roof drains. Reslope and reroof flat roof.

5. BUILDING INTERIORS

5. BUILDING INTERIORS

a. Interior Finishes

The following table identifies the interior areas and generally describes the finishes in each area.

Common Area	Floors	Walls	Ceilings
Theatre Vestibule	Terrazzo	Marques board	Ornamental & smooth plaster
Ticket Counter	Terrazzo	Glass / wood	Wood slats
Theatre Lobby	Terrazzo	Ornamental & smooth plaster; stone	Ornamental plaster
Grand Staircases	Carpet	Ornamental & smooth plaster	Ornamental & smooth plaster
Theatre / Balconies	Carpet / Concrete	Ornamental & smooth plaster	Ornamental & smooth plaster
Stage	Wood	Painted brick & terra cotta	Exposed
Bathrooms	Tile	Tile & plaster and / or GWB	Plaster or GWB
Offices	Carpet	Plaster	Plaster / exposed
Storage Rooms	Carpet / VCT	Plaster	Plaster / exposed
Exit Stairs	Concrete / VCT	Plaster / painted brick & terra cotta	Exposed
Dressing Rooms	Carpet / VCT / wood	GWB	Exposed
Light / Sound Booths	VCT	GWB	Exposed
Orchestra Pit	Concrete	Brick / terra cotta	Exposed
Basement Corridors	Concrete	GWB; exposed brick & terra cotta	Exposed
Electrical Vault	Concrete	Exposed brick / terra cotta	Exposed

b. Floors

The majority of the original building floors are cast in place concrete, including the stepped and sloping Theatre floor. The vestibule and lobby

area have original cast and ground in place terrazzo floors which appear to be in good condition. A diagonal crack between the Lobby proper and the alcove serving the public bathrooms is apparent, however, it seems stable, and due to the dimly lit area, almost unnoticeable. The crack should be periodically checked, and if no additional displacement or enlargement occurs, it should be left alone, as patching the floor will adversely affect the appearance and historical significance of the floor.

Carpeted areas consist of the grand staircase; upper lobbies and bar area; offices and some dressing rooms. Carpeting appears in fair condition, with the exception of stairs at the noses. These corners are moderately worn, and should be “nosed over” with a contrasting metal nosing. This benefit will be twofold – carpeting at edge will be protected and the change in plane of the stair will be subtly highlight.

Ceramic tiled and VCT floors appear predominately in wet areas, including public and private bathrooms and showers. The ceramic tiled areas appear good. VCT appears in several areas, including storage areas and other “back-of-house” spaces. VCT floors appear good.

c. Walls

Significant historic spaces such as the vestibule, the lobby, and the Theatre have both smooth and ornamental plaster. Cracking and bubbling was noticed in the vestibule, grand stair case, upper bar, and the Theatre. The bubbling and cracking is consistent with water damage. However, there is some cracking due to structural weakening (see Structural). The majority of cracking appears on smooth plaster, however ornamental plaster, wall and ceiling molding is also affected. Numerous spot painting was observed and the likelihood of exact matching of original colors cannot be confirmed, however, it is highly unlikely. These historically significant finishes should be repaired and repainted, matching original munsell numbers, if available. See Deficiency A-9.

Ceramic wall finishes in the non historic areas, including bathroom walls, appear to be in good condition. Walls in offices and dressing rooms are plaster and/or gypsum wall board and are in fair condition. Some water damage has occurred and spot patching/painting is recommended.

Exposed wall surfaces are either not painted or painted and consist of brick and terra cotta. Interior perimeter walls display water damage that has either been painted over or left exposed, with degraded mortar. See Deficiency A-10.

The orchestra pit requires full protection (railing). See Deficiency A-11.

d. Ceilings

Ceilings in historically significant areas consist of smooth plaster, ornamental plaster, coffers, and vaulted configurations. The ornamental vaulted ceiling in the lobby is in fair condition, slight cracking and water damage was observed. Smooth plaster and ceiling molding at the grand staircase and the upper bar area is damaged by water infiltration and highly visible. The main Theatre ceiling has a coffer ceiling over the main seating area, and is stepped above the main balcony. Side balconies also have smooth and decorative plaster. Upon completion of all roof and wall leaks, a comprehensive patching and restoration effort is recommended. See Deficiency A-12.

There is a large piece of plastic that spans across the stage's forward area. This plastic is draped and taped to lighting rods and other metal features in a past attempt to channel water off the stage. This was installed and was useful prior to the major roof replacement several years ago. Now that the area appears to be leak free, the debris caught in the plastic has dried out and with vibrations, becomes dislodged and falls downward during performances. It appears as "pixie dust" being sprinkled from above. This plastic should be removed and a thorough cleaning be

performed on all horizontal surfaces above the stage. See Deficiency A-13.

DEFICIENCY

LINCOLN THEATRE
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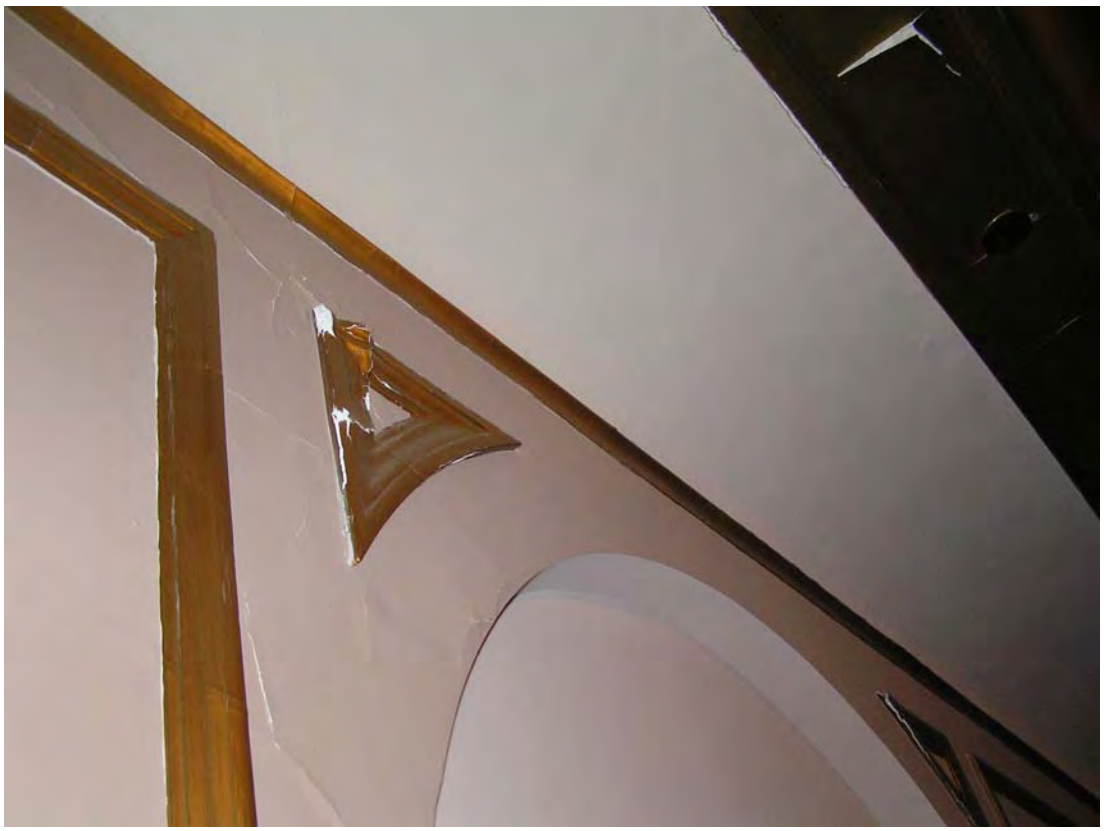
DEFICIENCY TITLE: Repair Smooth and Ornamental Plaster

DEFICIENCY NUMBER: A-9	**ESTIMATED COST: $326,800** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Repair smooth and ornamental plaster – historic areas – walls.

PHOTOGRAPHIC DOCUMENTATION :



SUGGESTED SOLUTION :
Prepare walls – remove loose / spalling paint and plaster. Patch and restore. Repaint with original theatre color palette.

DEFICIENCY

LINCOLN THEATRE
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DEFICIENCY TITLE: Water Damaged GWB and Plaster

DEFICIENCY NUMBER: A-10	**ESTIMATED COST: $24,900** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Patch repair “back-of-house” water damaged GWB and plaster.

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :
Scrape / prepare surfaces – repaint.

DEFICIENCY

LINCOLN THEATRE
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DEFICIENCY TITLE: Fall Hazard at Orchestra Pit

DEFICIENCY NUMBER: A-11	**ESTIMATED COST: $8,600** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Fall hazard at Orchestra Pit

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :
Install removable steel railing across pit.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
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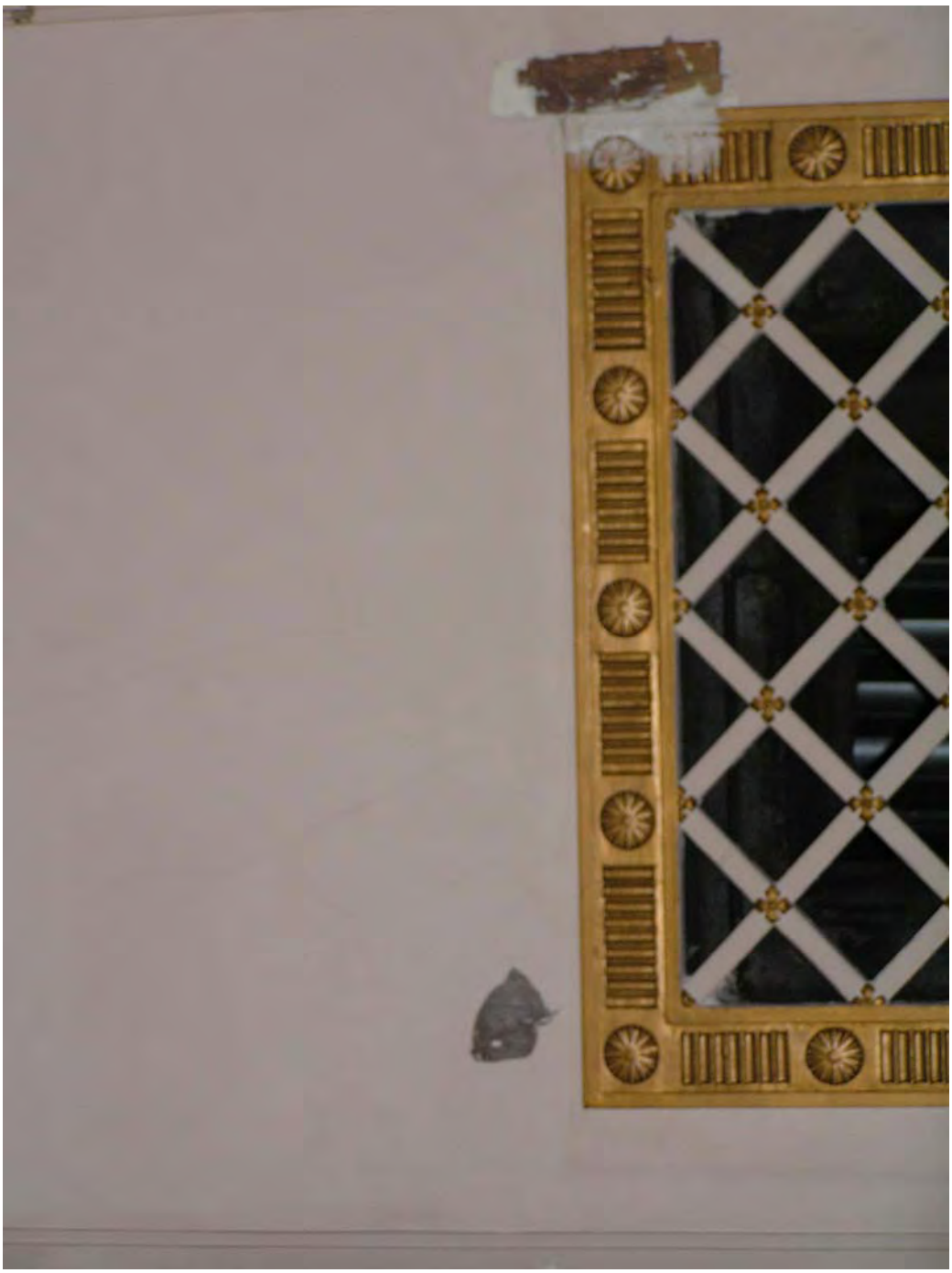
PO388329

DEFICIENCY TITLE: Repair Historically Significant Ceilings

DEFICIENCY NUMBER: A-12	**ESTIMATED COST: $412,700** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Repair historically significant ceilings.

PHOTOGRAPHIC DOCUMENTATION :



SUGGESTED SOLUTION :
Prepare ceiling – remove loose / spalling paint and plaster. Patch and restore. Repaint with original color palette.

DEFICIENCY

LINCOLN THEATRE
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PO388329

DEFICIENCY TITLE: Dust Falling on Stage

DEFICIENCY NUMBER: A-13	**ESTIMATED COST: $4,800** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Dust / debris falling on the stage.

PHOTOGRAPHIC DOCUMENTATION :
No photo

SUGGESTED SOLUTION :
Remove plastic tarp and clean upper portion of the stage.

6. LIFE SAFETY

6. LIFE SAFETY

a. Egress Capacity/Separation

The balcony contains seating for 622 people while the first floor contains seating for 624 people plus spaces for 12 wheelchair spaces. The building contains adequate egress for all occupants of the building including the employees of the theatre. Stairs 1, 2, 3, and 4 are currently provided with 1½-hour doors. The stairs were designed to provide two-hour fire rated exit enclosures. Exit enclosures 064 and 053 currently house sump pumps located under the stairs enclosed with fire rated construction with 1 ½ hour rated access doors.

b. Egress Signage

Existing egress exit signs are provided throughout the building. Modifications will be necessary.

Observations/Comments:

1. During the building inspection some of the building exits to the exterior were secured with chains and pad locks.
2. The four exit enclosures have various pipes and wires that are not serving the stairwells penetrating the enclosures. The exit enclosures stair structural supports were missing fire-stopping material.
3. Egress evacuation diagrams are not provided.
4. No fall protection railing is provided between the orchestra pit and the front row of seats as well as on the two stairs traversing from the stage to the audience area.
5. Orchestra pit door assembly is not up to code.
6. Many exit signs are non-compliant with the current codes. Many are missing directional arrows and there are locations where exit signs should be located but are not. There are also exit signs that are

difficult to see from their current location and should be relocated.

DEFICIENCY

LINCOLN THEATRE
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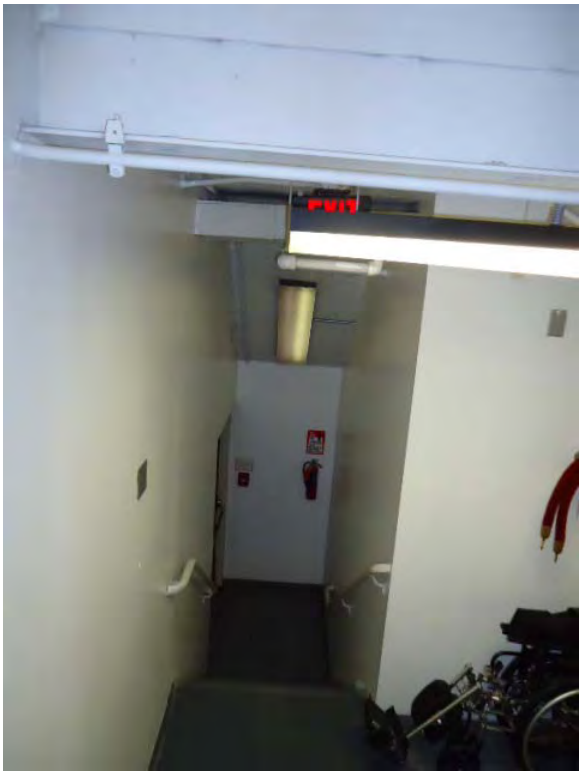
DEFICIENCY TITLE: Exit Signs

DEFICIENCY NUMBER: LS-1	**ESTIMATED COST: $17,200** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Exit signs throughout the building are non-compliant with the current codes. Many are missing directional arrows and there are locations where exit signs should be located but are not. There are also exit signs that are difficult to see from their current location and should be relocated.

PHOTOGRAPHIC DOCUMENTATION :



SUGGESTED SOLUTION :

Replace and relocate exit signs so as to comply with NFPA requirements. In some instances, arrow plates may just need to be removed from the plastic frame.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
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DEFICIENCY TITLE: Stairway Exit Enclosures

DEFICIENCY NUMBER: LS-2	**ESTIMATED COST: $99,300** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Fire-proofing in the 1 hour exit enclosures (stair #1, 2, 3, 4) is significantly deteriorated. Conduits, ducts, pipes, and wires that service areas other than the stairwell penetrate the stairwells.

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :

Properly fire-stop penetrations or reroute penetrations outside of the stairwells. Reapply fire-stopping as necessary. Replace access doors.

DEFICIENCY

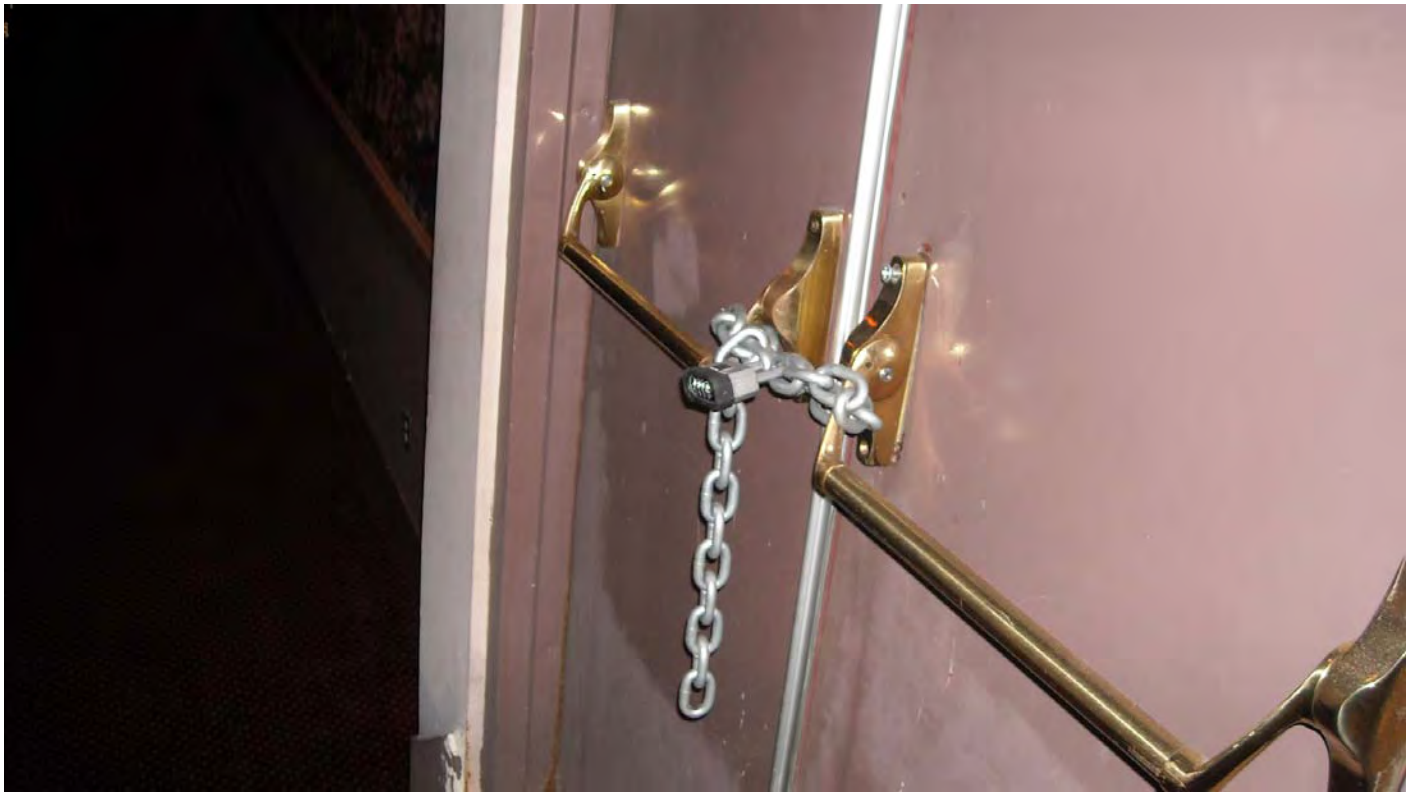
LINCOLN THEATRE
1215 U STREET, N.W.
WASHINGTON, DC
PO388329

DEFICIENCY TITLE: Chained Exit Panic Hardware

DEFICIENCY NUMBER: LS-3	**ESTIMATED COST: $38,200** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Multiple required means of egress are currently chained shut.

PHOTOGRAPHIC DOCUMENTATION :



SUGGESTED SOLUTION :

Remove chained locks and replace panic hardware with locking panic hardware.

DEFICIENCY

LINCOLN THEATRE
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DEFICIENCY TITLE: Evacuation Diagrams

DEFICIENCY NUMBER: LS-4	**ESTIMATED COST: $2,900** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
There are currently no evacuation diagrams in the building.

PHOTOGRAPHIC DOCUMENTATION :

PHOTO NOT AVAILABLE. NO PHOTO TAKEN DURING SURVEY.

SUGGESTED SOLUTION :

Provide evacuation diagrams in the building in locations acceptable to the Authority Having Jurisdiction.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
WASHINGTON, DC
PO388329

DEFICIENCY TITLE: Missing Required Railings

DEFICIENCY NUMBER: LS-5	**ESTIMATED COST: $3,800** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
There is currently no railing on the stairs that extend from the stage to the front of the assembly seating. There is currently no railing between the first row of the assembly seating and the orchestra pit.

PHOTOGRAPHIC DOCUMENTATION :

PHOTO NOT AVAILABLE. NO PHOTO TAKEN DURING SURVEY.

SUGGESTED SOLUTION :

Provide railings where required.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
WASHINGTON, DC
PO388329

DEFICIENCY TITLE: Orchestra Pit Door

DEFICIENCY NUMBER: LS-6	**ESTIMATED COST: $2,200** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
Existing coordination device is not operational. Door seal needs to be replaced.

PHOTOGRAPHIC DOCUMENTATION :

SUGGESTED SOLUTION :

Replace existing coordination device and door seal.

7. MECHANICAL – HVAC

7. MECHANICAL – HVAC

The facility has undergone several renovations over its lifespan. The latest was in 2007, where all the HVAC air handling units (AHU) and other major equipment were replaced.

Heating and cooling is provided by three direct expansion, gas fired packaged rooftop AHUs. One unit serves the house, another serves the foyer/mezzanine/2nd floor and the third unit serves the stage and stage supported areas.

Two split dX air conditioning units have been added to offset the heating load in the projection booth.

Air distribution is provided to supply air registers by ducts concealed above the ceilings. Return air is both ducted and through plenums.

Ventilation in the bathrooms and equipment room is mechanical.

Observations/Comments:

1. The property does not have a dedicated HVAC repair and maintenance contractor.
2. The HVAC equipment appear to vary in age. Although the main AHUs were replaced in 2007, the vast majority of the ductwork serving the house, the foyer/mezzanine/2nd floor and the stage has neither been replaced nor air balanced to accommodate the design air quantities.
3. The latest renovation documentation, dated 12/29/2006 and given to Alphatec as reference material, does not contain any information on the automatic temperature control utilized. Specifications and shop drawings are not included, so specific requirements that may have been developed during the design phase could not be verified.
4. There is no O & M documentation on the installed HVAC equipment available.

5. There is no documentation that the facility has undergone a thorough HVAC equipment commissioning to assure design features and control sequences are adhered to.
6. There is no documentation that the facility has undergone a thorough Testing and Balancing (TAB) process to assure that proper airflows are maintained at each terminal.
7. The AHUs replaced in 2007 appear to be in good condition, as expected. The deficiencies identified are specifically addressed in later parts of this report.

DEFICIENCY

LINCOLN THEATRE
1215 U STREET, N.W.
WASHINGTON, DC
PO388329

DEFICIENCY TITLE: Theater Air Distribution

DEFICIENCY NUMBER: H-1	**ESTIMATED COST:** **STEP 1: $226,200** **STEP 2: $985,900** SEE APPENDIX B

DEFICIENCY DESCRIPTION:
The arrangement and condition of the air distribution ductwork encountered at the main theater allows air stratification to occur, creating substantial temperature gradients throughout the room profile. The net effect tends to be more pronounced during the heating season when the theater main level feels underheated while the balcony level feels overheated.

Specifically:

A. Supply Air
   1. Theater Level
      Supply air is discharged into the main theater through six ceiling mounted decorative grilles located three deep on each side of the theater and through two supply registers in front of the stage. These decorative grilles are lacking any air distribution/dispersion features resulting in a very limited dispersion pattern which is further accentuated by the reduced air velocities necessary for sound reduction. See Pic 1.1, 1.2.

      The effect is air and thermal stratification predominately evident during the heating cycle when the warm air discharge from the supply air grilles cannot reach down to the floor level, causing underheating at the theater level while overheating the balcony above.

   2. Balcony Level
      Air temperature at the balcony level is substantially higher than the air temperature at the main theater. Causes include the stratification previously discussed as well as the eight new supply air grilles that were installed during the 2007 renovation on the bulkhead right across the projection booth. Air supplied from these grilles remains entrapped within the cavity formed by the bulkhead and the opposite wall, and serves minimal purpose as it is being discharged directly against the main return air registers causing a substantial short-cycling. See Pic 2.

B. Return Air
   1. Theater Level
      The 2007 renovation appears to have relied on the existing-to-remain return air distribution system to return air back to the respective AHU. The construction drawings issued do not show any attempt to air balance the system, so at this point the air flow from each terminal is unknown.

There appears to be four major return air inlets covered by decorative grilles matching in appearance with the supply air decorative grilles. The return air grilles are located on the walls in close proximity to the stage and about 6 feet above the finished floor. See Pic 3. Our inspection revealed that the return air grilles are placed on an unlined shaft open to building cavities. See Pic 4.1, 4.2. As direction of airflow follows the path of least resistance, an unconfined return air shaft allows the potential of extreme and uncontrolled infiltration from points closer to the connections of the main duct at the ceiling levels rather than introduction of return air closer to the floor level where the grilles are located. This enhances even further the stratification discussed previously because of not being able to "pull" the air downwards to dilute stratification and isothermals.

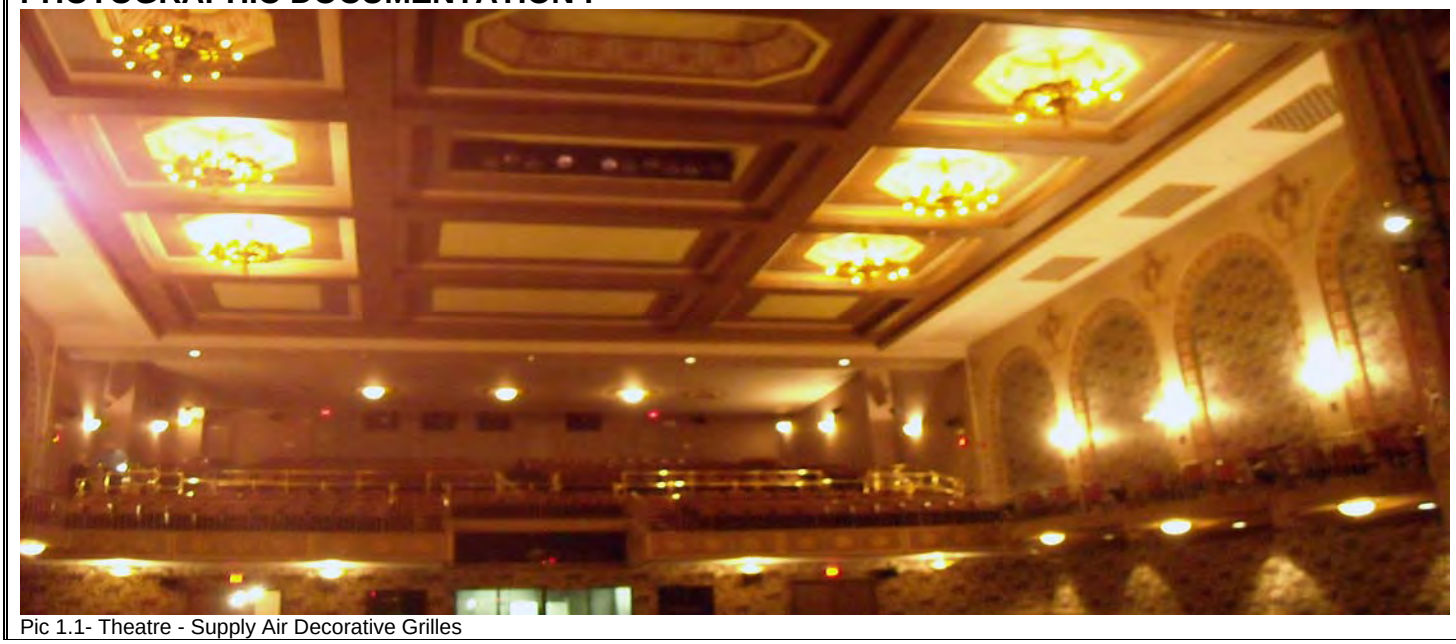
Additional return air extraction is needed towards the back of the theater to allow for proper air circulation. One of the original designs attempted to utilize the area underneath the balcony platform seating as a return air plenum, locate return air grilles on the ceiling underneath the balcony and circulate air from the back of the house.

Subsequent designs eliminated the ceiling grilles from underneath the balcony and replaced them with two wall grilles, alongside the low projector at the front of the balcony. See Pic5.

At this time, considering the temperature gradients encountered (too cold at the main level, too hot at the balcony level) it is questionable if any air is extracted from the back of the theater. It is envisioned that the warm air stratifies at the very top of the theater and then returned back to the AHU through the high ceiling return air terminals.

2. Balcony
   The return air grilles are located at the back of the house and in front of the projector booth. See Pic 2. This location is considered acceptable provided the return air system is air balanced accordingly and the close-to-floor returns are functioning.

PHOTOGRAPHIC DOCUMENTATION :

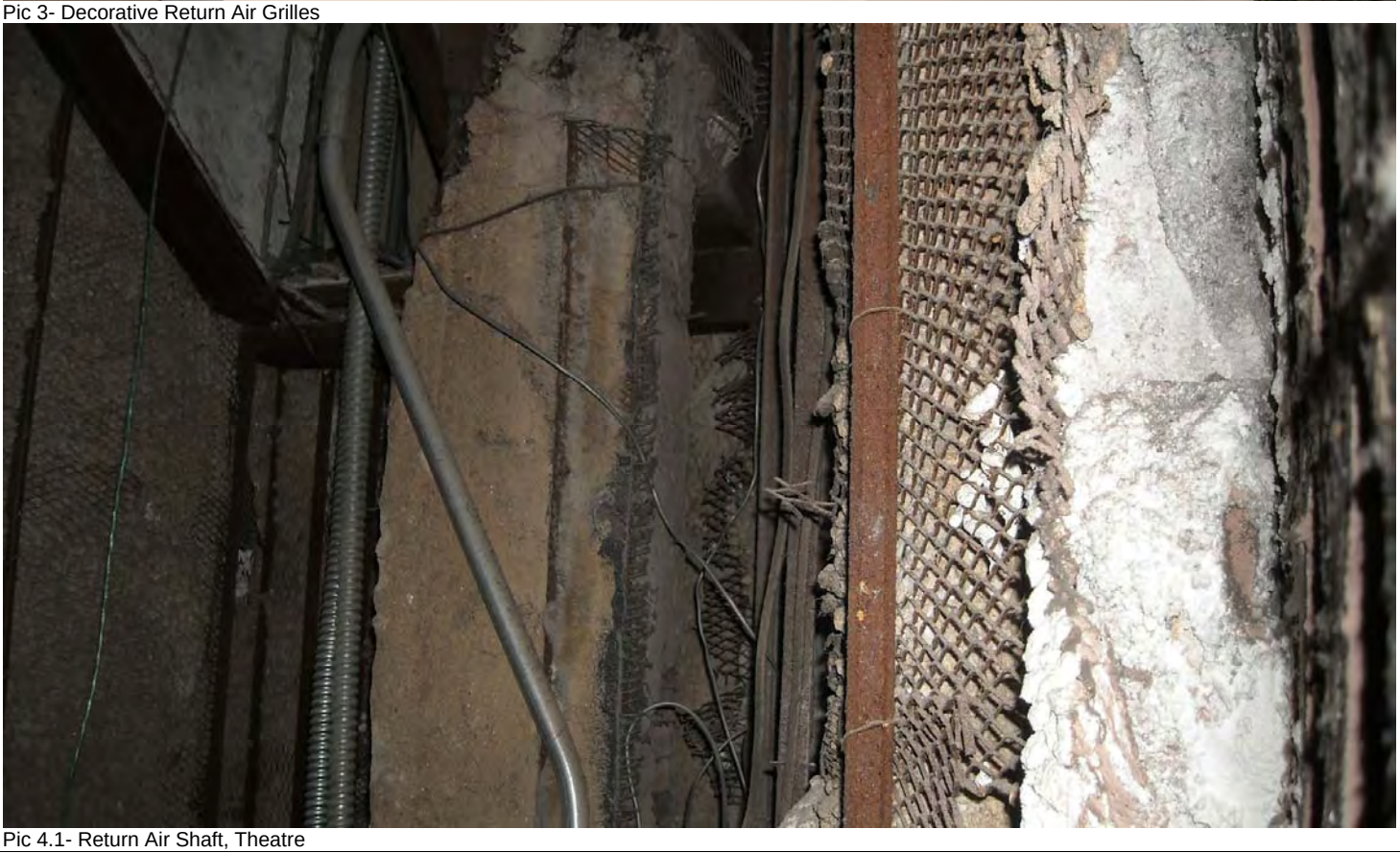


Pic 1.1- Theatre - Supply Air Decorative Grilles

Pic 1.2- Theatre - Supply Air Decorative Grilles

Pic 2- Theatre Balcony - Supply Register Against Return Grille

Pic 3- Decorative Return Air Grilles



Pic 4.1- Return Air Shaft, Theatre

Pic 4.2- Return Air Shaft, Theatre

Pic 5- Return Air Grille Below Balcony