

Exhibit X



The John F. Kennedy Center for the Performing Arts
Washington, DC

2022 Comprehensive Building Plan

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Introduction

The 2022 Comprehensive Building Plan (CBP) is an update of the Kennedy Center's 2021 capital plan. A complete survey of the facility and its systems was conducted in 2020/2021 by outside consultants to assess progress against previous capital plans and identify efforts that are needed to maintain or renew the building. In addition, the facility was scrutinized against current codes and standards to ensure that project planning keeps pace with any ongoing revisions to applicable codes and standards.

Based on the data gathered in 2020/2021, this document provides updated information concerning the existing condition of the Kennedy Center facility and the capital renovation projects projected through the year 2027. The CBP, with annual updates, was mandated by the John F. Kennedy Act Amendments of 1994, and the first CBP was issued in 1995.

The information provided in this plan reflects the latest available information on projected funding allocations, construction market conditions, project status, and facility conditions.

Building conditions were not evaluated and the deficiencies were not addressed in a coordinated manner during the Kennedy Center's first 24 years. As a result, by the early 1990s, there was severe deterioration in several areas. The current program of periodically surveying and annually updating the Kennedy Center Comprehensive Building Plan is intended to safeguard against a recurrence of the severe deterioration, and ultimately over the long term, reduce the public costs of operating and maintaining the monument.

In the initial Kennedy Center Comprehensive Building Plan, and in the subsequent updates, the Center's facilities were subdivided into major building components in order to group related features for assessment. These subdivisions are also used as budget categories for capital projects, with an additional budget line, Comprehensive Planning and Project Management, added for planning and project management costs related to the capital projects.

The 2022 Plan subdivisions are:

1. Exterior Building Envelope
2. Life Safety and Security
3. Interior Repair and Accessibility
4. Building Systems and Infrastructure
5. Memorial Interpretation and Visitor Services
6. Parking and Site Circulation
7. Comprehensive Planning and Project Management

Project prioritization is based on the condition and remaining useful life of the system or space and the impact its failure would have on the Kennedy Center's ability to complete its mission critical objectives. The initial project list proposed by the consultant based on the data gathered through facility surveys and staff interviews is reviewed by the relevant Kennedy Center

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staff, including members of the Project Management Office, Facilities Management Office, Operations and Maintenance, Production Office, and Office of the President, to concur or adjust the project list and priorities based on institutional and programmatic knowledge. With input from the consultant, the initial project list is reduced down to a shortlist of recommended projects. The final recommended projects are reconciled with anticipated funding to develop the proposed implementation plan. The implementation plan along with a report of the facility conditions are presented to the Kennedy Center Buildings and Grounds Committee for review and approval prior to being presented to the Board of Trustees for approval.

For each building component, the Comprehensive Building Plan contains a description of existing conditions and recommendations for corrective action. The goals of these corrective actions are to address ADA, life safety, and other code deficiencies; repair, update, or replace worn-out, obsolete, or inefficient building systems and/or other components; and provide improved visitor services and memorial interpretation.

The recommendations for corrective action have been grouped into projects, and the projects have been assigned to a budget category. An implementation plan for scheduling the work by budget category has been identified. In instances where there is not a logical project and the proposed work is not extensive, the recommended corrective action has been assigned to the Kennedy Center Minor Repair Program.

Cost estimation was performed by a professional cost estimating firm with escalation factors and considerations to allow for estimates of annual capital costs through 2027. All cost information provided is identified within one of the following categories: Estimate of Probable Cost, Preliminary Project Budget, or Project Budget. A detailed description of this terminology is provided in the Project Implementation section.

Ongoing constraints on project scope and schedule include not only the availability of funds, but also the need to continue facility operations and public programming without interruption. The 2022 Implementation Plan may be adjusted during the planning period for these reasons. Postponement may increase the cost of a project when it is ultimately pursued.

2022 CBP Focus: Building Infrastructure

For the initial decades of the CBP, project efforts focused on life safety and accessibility upgrades. During the preparation of the 2006/2007 CBP, with life safety and accessibility projects nearing completion, the primary focus shifted to systems infrastructure improvements. The focus of the 2015 CBP was the Memorial Interpretation; the primary focus of the 2022 CBP continues to be the Building Infrastructure including the architectural and structural fabric of the building exterior (including paved surfaces and waterproofing needs), major building infrastructure systems related to the mechanical, electrical, and plumbing systems, fire protection systems, and conveyance equipment.

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Additional projects include the Memorial Interpretation projects, office space improvements, interior and exterior art assessment and conservation, wayfinding, and comprehensive life safety analysis. These efforts, required to maintain and upgrade the condition of the Center, will be sequenced to be implemented with an increase in annual appropriations from FY23 through FY27.

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The 2022 CBP was updated internally by the PMO staff with input from other departments. The next consultant lead CBP will be completed in 2027.

Original Project Team

The 2021 Comprehensive Building Plan was developed by the following project team.

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Facility Overview

The John F. Kennedy Center for the Performing Arts is a national presidential monument and living memorial that hosts some 3 million patrons and visitors each year.

Sited on 17 acres, the facility includes 1.5 million square feet of usable space, including four major theaters (Eisenhower Theater, Opera House, Concert Hall, and Terrace Theater), several smaller theaters and educational facilities (including the Family Theater, Theater Lab, and the twin Millennium Stages), rehearsal spaces, and meeting rooms, and a 1,971 - space parking garage. The combined capacity of all the theater spaces totals over 7,200 seats. There are two public restaurants, one staff cafeteria, nine special event rooms, and five public halls or galleries. Three of the largest public halls or galleries contain interpretive exhibits, and the Grand Foyer—measuring six hundred feet long and sixty feet high—also contains a large bust of John F. Kennedy. The original design of the structure did not adequately anticipate the amount of office space that would be required, and most of the more than 83,000 square feet of office space has been carved out of backstage, storage, and support areas as the Center’s requirements have increased.



The construction of the John F. Kennedy Center for the Performing Arts was authorized by the National Cultural Center Act of September 2, 1958. Created as an independently administered bureau of the Smithsonian Institution, the Center was named as a living memorial to the late President John F. Kennedy in January 1964, and is the sole monument to President Kennedy in the Washington, D.C. area. The building was constructed between 1966 and 1971, and was funded by a combination of private contributions (\$34.5 million), matching federal grants (\$23.0 million), and federal loans (\$20.4 million).

The REACH opened September 7, 2019 and was envisioned as a complement to, and extension of, the Kennedy Center’s mission. The REACH is an open stage for differing ideas and divergent cultures, delivering on a vision for what a 21st century arts center should be – inclusive, interactive, and accessible. It consists of three above-ground pavilions linked underground by a series of studios, classrooms, meeting rooms, a small auditorium, a covered passenger drop-off area and support spaces. The REACH is not included in this CBP because of its recent completion but will be included in future CBP updates.

It provides an urban greenspace of for families and audiences to visit and attend performances. Included in the new facility is a pedestrian access bridge, linking the Center’s new landscape to the Rock Creek Trail and enabling patrons and visitors to connect with Georgetown and the National

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Mall. The REACH encompasses 4.6 acres of the overall Kennedy site with approximately 72,000 square feet of interior space on three levels, 9,000 square feet of subgrade parking, 33,000 square feet of garage access roads, and 130,000 square feet of landscaping.

In 1972, Congress authorized funds through the National Park Service (NPS) to provide the Kennedy Center Board of Trustees assistance with maintenance, security, and other services. From 1972 until 1994, the NPS received direct appropriations for operation and maintenance of the Presidential monument. In 1994, Congress transferred all responsibilities for the Center from the NPS to the Board of Trustees (PL 103-279). The Board is now responsible for all operations of the Kennedy Center including capital repairs.

Current Capital Project Activity

The Comprehensive Building Plan includes a number of projects in a variety of different categories. In the past year, several activities have occurred in planning, design, and construction. The following is a list of major accomplishments since the publication of the 2021 CBP:

- Hydronic System Optimization – Phase 2 Construction Complete.
- Parking Level B and C Wayfinding Project Design and Construction Complete
- Memorial Interpretation – Atrium Renovations (JFK Gallery) Construction is substantially complete
- Memorial Interpretation – Plaza Level Improvements Design Complete
- REACH Connection-Level A South Offices Design Complete, bidding in process
- Life Safety Deficiencies – Fire Pump Auxiliary Power Connections
- MEP Phase 3 – AC5R Replacement – Design Complete-Construction bidding in process
- Concert Hall Minor Seat Replacement
- Hydronic System Optimization - Condenser Water System Investigation Study
- Parking Garage Emergency Structural Shoring
- Theater AHU Filter Upgrade Study
- HVAC Duct Cleaning
- Family Theater Temperature Improvement
- Existing Sanitary and Domestic Water Upgrade Study – Substantially complete
- KC Office Refresh
- Parking Garage Structural Evaluation & Repairs - Awarded

In the past several of years, the Project Management Office (PMO) has experienced a turnover and shortage in staffing including the Director position. With this shortage it was a challenge to maintain the project output of the PMO without the necessary resources. Since January of 2022, the PMO is considered fully staffed with the addition of a fourth project manager. This staffing is required to increase in project activity to be able to implement the projects included in this CBP.

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Capital Planning Considerations

The most recent update to the Comprehensive Plan is the 2021 CBP. During the past year, as with every year, some changes to the planned project budgets have occurred. There are a number of factors that contribute to these changes, some of which will be detailed on a project-specific basis. However, some discussion is warranted related to the complexities associated with project budgeting as it unfolds over time.

The development of a project budget is an evolving process. The nature of public projects is such that the funding cycle is often created over a long planning horizon, sometimes as much as five to ten years. This situation makes exact budgeting difficult at the time when the project funding is requested.

For example, it is typical that all funding for a project, including preliminary design, construction documents, construction, and project closeout, be requested at the beginning of the capital planning period. In some cases, a request can be made as much as five years prior to the beginning of design. This approach is inherently difficult in that the construction budget in many cases cannot be correctly estimated until the preliminary design and investigation is complete. Therefore, the initial presentation of costs is termed the “Estimate of Probable Cost.” These costs are further refined during the final design work. Thus, the final project budgets are developed through an iterative process.

Beyond the basic nature of the development of project costs, other outside factors may also affect project costs, such as construction market conditions or availability of materials. The past decade has seen wide swings in construction escalation. In 2004 and 2005, steep increases of over 15% were experienced during a worldwide steel shortage. In 2008 and 2009, due to the economic downturn, construction escalation essentially flattened. From approximately 2010 to 2015 construction prices rose at moderate escalation rates. In recent years, due to a strong construction market in D.C., construction escalation has continued to rise even further, with the exception of a dip for part of 2020 for Covid related increased competition that led to reduced pricing over the summer last year, only to be eclipsed by material shortages and an increased work capacity that has since fueled higher pricing particularly in the steel and lumber work scopes. These year-to-year changes in the market lead to uncertainty in the assumptions that must be made for long term planning. In the current CBP, an annual construction escalation rate of 5% has been assumed. Escalation conditions will be monitored closely as project designs evolve, cost estimates are refined, and the CBP is updated on an annual basis.

The majority of projects implemented at the Kennedy Center are renovations or refurbishments. These types of projects are particularly susceptible to cost increases due to unforeseen conditions, errors in the existing facility blueprints, or acceleration due to issues encountered during construction.

In some cases, the Kennedy Center cannot extend project completion dates for obvious reasons associated with the scheduling of theater performances.

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In addition, the facility is operational virtually at all times. There are costs associated with these factors that must be anticipated in the project budgets. The project cost estimates therefore include consideration of the associated hours of construction, temporary access, barriers, protection, and project contingency that the Kennedy Center requires for the implementation of each individual project. Cost related to the programming impact of these projects are not included in funding related to these projects.

If, due to market conditions or other extenuating factors, the Project Budget exceeds the Estimate of Probable Cost, adjustments will need to be made. In some cases, the Kennedy Center is able to “work to a budget” as is narrated for several projects. In those cases, the work is planned to be accomplished in accordance with the original project funding requests, with steps taken to conserve costs wherever possible in order to meet budget. These steps include value engineering or scope reduction. In cases where these steps cannot achieve an acceptable reduction in the project cost, a commensurate adjustment in other project budgets is required, including reprioritization of other projects and potential adjustment of their schedule and scope.

The current plan for capital projects as delineated in this document, including scope and schedule of projects, is based on receiving appropriations at the levels that are outlined in the Implementation Plan section. If actual appropriations are less than the assumed levels, the plan will be modified.

Conclusion

Information provided in the Comprehensive Building Plan related to funding, estimates, and budgets may change over time. Changes may be due to any of a number of uncertainties. In the event of an increase in the costs of a single project, there is a ripple effect throughout the capital program in that other projects must often be delayed or deferred. In addition, if annual appropriations are less than those anticipated in the Comprehensive Building Plan, projects will need to be delayed or deferred. Once a project is delayed, its costs will increase due to escalation, which in turn will exacerbate the shortage of funds and cause further ripple effects.

These challenges are typical of a large capital program for Federal or other publicly funded projects. Considering the capital planning issues alongside the challenges related to implementing projects in a facility that is fully operational every day of the year, unforeseen conditions associated with renovations, immutable construction schedules, and other miscellaneous issues, we do expect that the Estimates of Probable Cost and Preliminary Project Budgets for most projects will change as the projects evolve, until the point at which the Final Project Budget is established. Thus, the financial information presented herein represents the current year snapshot of current project estimates in various stages of planning, design, and construction, including many projects scheduled to occur in the future. The budgets will continue to be updated in a responsible manner so as to provide the maximum construction value for all appropriated **funds**.

History and General Description

President Dwight D. Eisenhower signed bipartisan legislation on September 2, 1958, authorizing the construction of a National Cultural Center and providing the 17-acre site. The John F. Kennedy Center Act of 1964 granted \$2.5 million for additional land acquisition. The National Cultural Center, which was created as an independently administered bureau of the Smithsonian Institution, was named as a living memorial to the late President John F. Kennedy in January 1964.

The John F. Kennedy Center for the Performing Arts was designed by noted architect Edward Durell Stone (1902-1978). Prior to the Kennedy Center, Stone's works included the U.S. Embassy in New Delhi, India, the Museum of Modern Art and the Gallery of Modern Art (2 Columbus Circle), both in New York City. Groundbreaking for the Kennedy Center occurred in December 1964, and construction began in 1966. The construction documents for the building are dated May 16, 1966. The Kennedy Center opened on September 8, 1971. The gala



performance featured the premiere of a requiem mass honoring President Kennedy, composed and conducted by Leonard Bernstein. In 1979 the Terrace Theater, a gift from Japan, was officially opened. The Terrace Theater was designed by Philip Johnson and John Burgee Architects. The Theater Lab at the Terrace Level was converted in 1977 from space originally designed for convention gatherings. In 2005, the Family Theater was created utilizing space previously occupied by the American Film Institute.

The John F. Kennedy Center for the Performing Arts is located on a site opposite the Theodore Roosevelt Island Bird Sanctuary, bordered by the Rock Creek Parkway and the Potomac River on the west. The Center contains approximately 1.5 million square feet of usable floor space, measuring approximately 630 feet by 300 feet in plan above grade, and nearly 100 feet in height from the main at-grade Plaza Level to the floor of the top mechanical Penthouse level. There are six stories above the Plaza (grade) entrance level and three levels below grade. The three parking levels are partially below grade, with the east side fully below grade and the west facing Rock Creek Parkway above grade.

The building contains six theaters, two public restaurants, nine function/special event rooms, five public assembly areas (including galleries, halls, and foyers), and more than 83,000 square feet of office space. The sub-grade floors of the building contain administrative offices, support spaces, and parking.

The primary public levels of the Kennedy Center include the Plaza and Roof Terrace Levels. The Plaza Level (at the 40' elevation) is the major public

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entrance at grade for pedestrians and vehicular drop-off. The Roof Terrace Level is located at the top floor (109' elevation). From the Roof Terrace, patrons may experience views of the Potomac River and Virginia to the west and the city of Washington, DC to the east.

The Plaza level of the Kennedy Center serves as the major public entrance to the Center's three multi-level principal theaters including the 2,454 seat Concert Hall, the 2,294 seat Opera House (excluding up to 160 additional seats if the orchestra pit is not in use), and, the 1,122 seat Eisenhower Theater (excluding up to 46 additional seats if the orchestra pit is not in use). The Family Theater, operational as of December 2005, provides a 320-seat venue. Two grand corridors, the Hall of Nations and the Hall of States, lead to the Grand Foyer that extends along the length of the Center to the west. The 60-foot tall Grand Foyer contains the John F. Kennedy Exhibit and provides access to the principal theaters and the River Terrace. Most visitor amenities are accessed from the Hall of States and Hall of Nations at the Plaza Level and from the Level A Visitor Center on the floor below. These amenities include a visitor service desk, tour desk, gift shops, box offices, coatroom, stair/escalator lobbies, and entrances to public elevator banks. Entrances to the Kennedy Center office areas and stage entrances are generally accessed from the Hall of States and Hall of Nations. The stage door entrance to the Eisenhower and Terrace Theaters is on the building exterior at the Plaza Level along the north wall of the building.



The Roof Terrace level houses the Terrace Theater, which has 475 seats, and the Theater Lab, which seats approximately 398. The Roof Terrace level also houses the Roof Terrace Restaurant and the KC Café at the southern end of the floor. The States Gallery and Nations Gallery, located directly above the Hall of States and Hall of Nations, are the primary public circulation spaces at the Roof Terrace level, providing access from the public elevator lobbies to major spaces and the exterior roof terrace beyond.

The Terrace Gallery is a multi-purpose glass enclosed space, measuring approximately 40 feet by 70 feet, located in the eastern-most portion of the States Gallery. The Terrace Gallery, at various times, accommodates meetings, banquets, exhibitions, and educational programs. The Terrace Gallery used to also hold the 160-seat jazz club venue that is now relocated to Studio K in the REACH.

The Atrium, measuring approximately 130 feet by 40 feet, extends along the center of the Roof Terrace level, connecting the States and Nations Galleries. The Atrium, States Gallery, and Nations Gallery are utilized for educational programs, special events, meetings, receptions and exhibitions. Current plans are in place to renovate the Atrium to include a permanent exhibit dedicated to President Kennedy and his relationship to the arts while still being able to host special events and receptions.

The Garage Expansion project completed in 2003 included parking garage additions on both the north and south ends of the original garage to provide

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a total of 1,971 covered spaces within the facility (112 spots were lost at the completion of The REACH last year). The parking garage additions are topped with plaza decks that serve as extensions to the existing Plaza level terrace for public gatherings and outdoor performance and entertainment venues such as Millennium Stage.

Following the garage expansion project in 2003, the Kennedy Center completed its Site Improvements project in July 2005. The project included relocation of the entrance roadway and pedestrian walkway, replacement of deteriorated plaza paving and waterproofing systems, restoration of planter and fountain walls, new exterior lighting, signage and landscaping, and replacement of deteriorated marble panels on the west fascia.

Further expansion of the Kennedy Center resulted in the September 7, 2019 opening of the REACH which consists of above-ground pavilions, studios, classrooms, meeting rooms, a small auditorium, a covered passenger drop-off area, and a pedestrian access bridge linking the Center's new landscape to the Rock Creek Trail.

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Building Assessment and Recommendations

The Comprehensive Building Plan is based on an evaluation of the facility, including architectural systems, mechanical systems, electrical systems, plumbing and fire protection systems, and specialty systems including theater technical equipment and audio/video systems. The conditions of each system are summarized in this section. The assessment involved evaluation of the facility based on visual inspections, space surveys, and interviews with key Kennedy Center personnel. In cases where invasive investigation may be required to fully understand the condition of a specific system or building element, recommendations are noted for further testing.

The assessment report and corresponding recommendations is organized by major building system types within the facility, including:

1. Exterior Envelope
2. Life Safety and Security
3. Interior Repair and Accessibility
4. Building Systems and Infrastructure, including Theater Technical Systems
5. Memorial Interpretation and Visitor Services
6. Parking and Site Circulation
7. Comprehensive Planning and Project Management

Detailed updates of completed and in-progress work are provided in the following pages. Findings and recommendations are categorized as requirements for repair, renovation, maintenance, or monitoring. Major renovation projects classified as capital improvements are summarized in the Implementation Plan which follows.

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Exterior Envelope

The John F. Kennedy Center for the Performing Arts (The Kennedy Center) features peristyles of bronze colored metal columns that form deep overhangs at the Plaza and Terrace Levels (see Figure 1) and define the building's architectural aesthetic.

The building exterior walls are primarily clad with precast panels faced with a thin veneer of white Carrara marble (see Figure 3) and feature full floor-to-ceiling glass curtain walls at the entrances. The Plaza Level soffits, Terrace walls and soffits, and Penthouse walls are stucco (see Figure 2). The walls of the Rock Creek Parkway Overhang (Level A) include Carrara marble. The above grade lower perimeter walls at Levels A and B are precast concrete panels, and at Levels B and C the facade is comprised of exposed painted reinforced concrete walls.

The main entrance for patrons and stage loading is at the east Plaza Level. The Plaza Level features granite and concrete paved terrace spaces that extend over the lower levels; the Plaza Level also features granite-clad and precast panel planters as well as a granite-clad reflecting pool and fountains. The Terrace Level features granite pavers with marble panel clad planters.

The Plaza and Terrace Levels each feature hot-fluid applied reinforced rubberized asphalt (HRA) membrane and paver assemblies. The overhang roofs are a white mechanically-attached thermoplastic single-ply roof membrane. The Main Roof and Penthouse are capped with a gravel-surfaced coal tar pitch BUR roof membrane assembly.

Exterior Walls - Marble

The building exterior walls are primarily clad with precast panels faced with a thin veneer of white Carrara marble. Specific zones of the facade, including the interior vertical surface of the Terrace Level planters and the Terrace Level overhang fascia, are clad with marble cladding panels without precast backing². The exterior joints between the cladding panels are filled with sealant.



Figure 1. The Kennedy Center Rock Creek Parkway (lowest arrow), Plaza Level (middle arrow), and Terrace Level (uppermost arrow) overhangs (west facade shown).

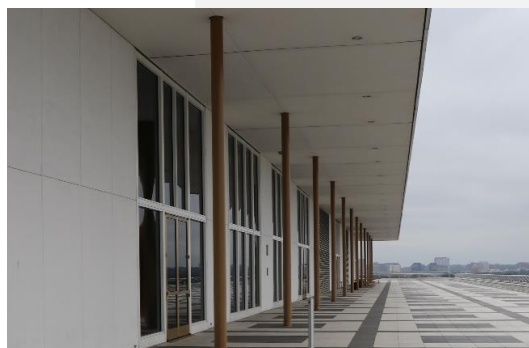


Figure 2. Terrace Level stucco walls and soffit (west facade shown).

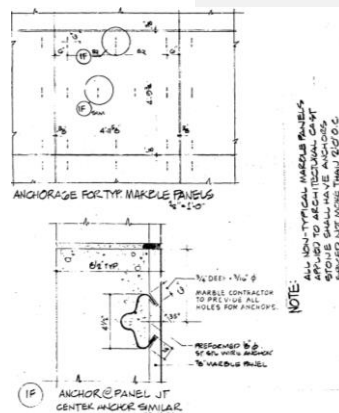


Figure 3. Original drawings detail showing the attachment system for the marble panels¹.

¹ Drawing. Edward Durrell Stone. *John F. Kennedy Center for the Performing Arts*. Drawing No. 5-5-8-A "Exterior Wall - Architectural Cast Stone Panel Dets". Revision Date 7-25-66.

² For clarity, both the precast panels faced with a thin veneer of marble and the marble cladding panels are referred to as "marble panels" within this report.

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The following existing conditions were observed at the marble panels:

- Mild degradation or bowing due to hysteresis (throughout all levels of the facade) (see Figure 4);
- Misaligned panels (concentrated at the Plaza Level overhang fascia panels (over Rock Creek Parkway) with a few locations noted at the Plaza Level walls);
- Cracks (throughout all levels of the facade) (see Figure 5, Figure 6, and Figure 7).
- Spalls and incipient spalls (primarily at the overhangs and coping units with locations also observed at the Plaza Level walls) (Figure 5, Figure 6, and Figure 7);
- Weathered veins and inclusions (throughout all levels of the facade with some locations also having discoloration along the inclusion);
- Erosion and weathered surfaces (most concentrated at the overhangs);
- Previous repairs (through all levels of the facade and most concentrated at the overhangs) (see Figure 5, Figure 6, and Figure 7); and
- Failed previous repairs (typically failed crack repairs and failed joint filler along reattached fragment and dutchman repairs) (see Figure 6).

The following previous repair types were observed³:

- Crack repairs (throughout all levels of the facade);
- Through-face pins (primarily at the overhangs with some locations at the Plaza Level walls) (see Figure 5 and Figure 7);
- Reattached fragments and dutchman (primarily at the Rock Creek Parkway overhang and Plaza Level walls with some locations at the Plaza and Terrace Level overhangs);
- Small patch repairs (primarily at the Plaza Level walls and overhang); and
- Replacement marble panels including replacement of the thin marble veneer (with through face pins), replacement or infill precast panels faced marble veneer (without through-face pins), and replacement marble cladding panels (without through-face pins) (primarily at the overhangs with some new and replacements observed at the Plaza Level).



Figure 4. Bowed Plaza Level marble panel (photo taken at the west facade).



Figure 5. Crack and potential incipient spall location at a Plaza Level overhang marble soffit panel (photo taken at the west facade). *Note: The crack aligns with a potential through-pin location; the stone section to the left of the arrow is a potential incipient spall location.*



Figure 6. Failed joint filler at a previous repair (red arrow) and cracks (yellow arrows) at a Rock Creek Parkway overhang marble panel (photo taken at the west facade). *Note: No existing through-pin visible at the repaired corner stone fragment, potential incipient spall location.*

³ Refer to the Facility Conditions Report Appendix for a summary of previous repairs and studies.

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The following marble discoloration patterns were observed:

- General soiling (atmospheric and biological) throughout the facades;
- Orange-brown and gray discoloration along panel joints;
- Orange-brown and gray discoloration along veining patterns and towards the center of the panels (see Figure 8);
- Orange-brown discoloration at the panels along the base of the Plaza Level walls (see Figure 8);
- Dark black discoloration at the Rock Creek Parkway, Plaza, and Terrace Level overhang fascia panels and coping units (see Figure 9);
- Some orange-brown corrosion staining at the Plaza Level walls (including small circular patterns and near doors);
- Some areas of light white streaking at the Plaza Level walls;
- Yellow-brown discoloration at three zones of Plaza Level panels at both the north and south walls;
- Dirt and debris at the existing bird proofing spikes at the east facade window sills;
- Some locations of red-brown discoloration at the Plaza Level overhang soffit panels; and
- Efflorescence at the Terrace Level planter and fascia panels.

The following joint filler conditions were noted:

- Adhesive and cohesive failures of all of the sealant at the Rock Creek Parkway overhang;
- Some adhesively failed sealant at the Plaza and Terrace Levels (the failed sealants are primarily concentrated along and near the expansion joints); and
- Discolored joint sealant at the Plaza Level fascia, Terrace Level planters, and Terrace Level overhang (appears to be potentially a different vintage from the white sealant of the Plaza Level walls).

Based on the material studies (1993) paired with the results of the cleaning studies (2009 and 2015) completed to date³, it does not appear that there have been successful options for removing the existing orange-brown staining at the marble panels.

Overall, the marble panels and joint sealant are in fair condition. In general, the distress including the bowing observed to date are not an immediate concern.

There is more concentrated marble and joint sealant distress, previous repairs, and discoloration at the Rock Creek Parkway, Plaza Level, and



Figure 7. Through-face pins (red arrows), crack (yellow arrow), and spall (blue arrow) at a Plaza Level overhang fascia marble panel (photo taken at the north facade).



Figure 8. Orange-brown discoloration at the panels along the base of the Plaza Level walls (red arrow) and orange-brown and gray discoloration along veining patterns (yellow arrow) (photo taken at the west facade).



Figure 9. Dark black discoloration at the Plaza Level overhang fascia and coping units (photo taken at the east facade).

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Terrace Level overhangs. Each of these overhangs include incipient spalls that are potential fall hazards.

2022 Recommendations: Exterior Walls- Marble

Establish a manual for the maintenance and repair of the exterior stone.

Establish schedule for survey and observation of exterior stone.

Conduct specialized cleaning studies of the marble and granite incorporating the findings of the previous studies.

Complete close-range survey and sounding and complete repairs at the Level A, B, and C Rock Creek Parkway Overhang.

Conduct close-range survey and sounding of 100% of the marble fascia and coping units at the Plaza and Terrace Level Overhangs.

Exterior Walls and Soffits- Stucco

The Plaza Level soffit, the Terrace Levels walls and soffit, and Main Roof and Penthouse exterior walls are stucco with a white coating and architecturally blend with the facade marble panels. Each soffit features metal control joints, open joints at expansion joints, and open joints along the soffit edges at the interfaces with the wall and fascia. The Terrace Level, Main Roof, and Penthouse walls are stucco on metal lath assemblies attached to concrete or concrete masonry unit (CMU) backup walls.

Plaza Level

The Plaza Level soffit features metal control joints and open expansion joints separating the soffit into sections of approximately 15 feet by 15 feet with larger area sections at the building corners⁴. At the underside of the Plaza Level soffit, the following existing conditions were observed:

- Cracks including map cracking and horizontally and vertically oriented cracks and coating filled cracks or potential previous crack repairs;
- Discoloration (primarily atmospheric soiling) and insect nests and webs;
- Two small access panels and ten small holes in the soffit panels (potentially from abandoned anchor or supports) at the east facade;
- Active leaks and staining at stucco panel joints around the building perimeter (see Figure 10);
- Active leaks at the light fixtures at the northwest corner; and
- Bird nests and debris above the east facade's south entrance (Note: The Kennedy Center reported issues with roosting each spring especially at the east facade of the building.).



Figure 10. Staining and active leak location at stucco panel joint at the south facade.

⁴ Per the 2015 CBP, the Plaza Level soffit was cleaned and repainted as part of the Exterior Marble Cladding project in 2010.

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Additionally, WJE was provided access to observe the topside of a section of the Plaza Level soffit on the east facade. The following existing conditions were observed:

- Surface corrosion on the metal furring and runner channels,
- Foil faced batt insulation laid on the top surface of the stucco,
- Open stucco panel perimeter joints with the insulation laid across these openings, and
- A wooden catwalk supported by metal channels which are suspended by threaded rods attached to the concrete structure above.

Terrace Level

The Terrace Level walls feature metal control and expansion joint covers that separate the wall into approximately 5 to 9 feet wide by 10-foot-high sections, and the Terrace Level soffit features metal control joints and open expansion joints separating the soffit into sections of approximately 15 feet by 12 or 6 feet with larger area sections at each corner. At Terrace Level walls and soffits, the following distress types were noted:

- Cracks typically horizontally and vertically oriented and some diagonal and map cracking (see Figure 11);
- Atmospheric soiling and insect nests and webs;
- Vertical cracks and gaps along each side the metal expansion joint covers at the walls;
- Shallow spalls at the soffit panels which were typically coated over;
- Slight soffit panel misalignments;
- Red discoloration of the joint sealant at the bottom of the window frame-to-stucco joints;
- Bird nests, debris, and staining at the open joints between the panels and at the panel-to-curtain wall interface (Note: The Kennedy Center reported issues with roosting each spring especially at the east facade of the building.); and
- Remnants of bird proofing spikes at some of the panel-to-panel joints.

Per the 1992 Survey Report, the Plaster Soffit Repairs project drawings in 1980 included repairs to the Terrace Level walls expansion joints and wall bases as well as installation of lighting at the soffits. Additionally, per the 2011 CBP and 1995 Drawings, the walls were cleaned, stucco at the columns and recessed lights were patch repaired, and new soffit control and expansion joints were installed as part Main Roof, Penthouse, & Roof Terrace Repairs project completed in 1999. Per the 2015 CBP, the walls are repainted annually, and the soffit was repainted as part of the Exterior Marble Cladding project in 2011.

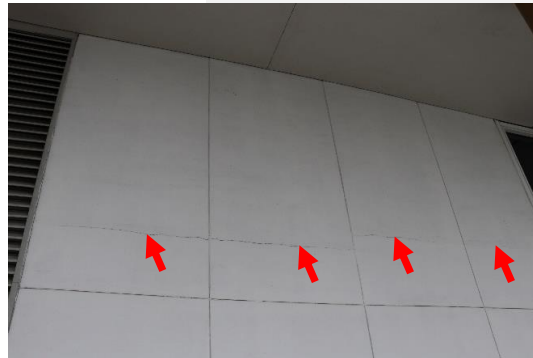


Figure 11. Horizontal cracks at the stucco walls at the Terrace Level west facade.

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Main Roof and Penthouse

The Main Roof areaways and kitchen exhaust enclosures as well as the Penthouse exterior walls and its two areaways feature exterior stucco walls with sealant filled control joints. The Main Roof and Penthouse stucco is in fair condition and the joint sealant is in poor condition; the following distress types were observed throughout the stucco:

- Cracks (map cracking, horizontally and vertically oriented, and cracking at inside corners);
- Chipping, spalls, and incipient spalls typically near corrosion along the panel edges (see Figure 12);
- Slight stucco panel misalignments;
- Corrosion staining and distress along panel edges and above louvers and doors (see Figure 12);
- Corrosion of abandoned anchors and metal components;
- Discoloration including atmospheric soiling throughout, orange-brown staining along panel edges and at ferrous elements; and dark gray and green discoloration at the Penthouse north wall;
- Peeling, flaking, and missing coating;
- Typical cohesive failures and some adhesive failures of the joint sealants and sealant at filled abandoned holes throughout the stucco; and
- One location with wider cracks in the stucco adjacent to a previous support for a satellite dish (see Figure 13).



Figure 12. Chipping and corrosion along the stucco panel bottom edge (photo taken at the Penthouse south facade).



Figure 13. Wider cracks in the stucco adjacent to a previous support for a satellite dish at a Main Roof areaway.

As part of the Main Roof, Penthouse, & Roof Terrace Repairs project completed in 1999, the full surface of the Penthouse exterior walls were to be replaced (building paper and cement board are shown in the drawings behind the metal lath); portions of the Main Roof and Penthouse areaway walls were to be replaced and patch repaired (primarily at the panel perimeters and control joints); and the current Main Roof kitchen exhausts enclosures were constructed.

2022 Recommendations: Exterior Walls and Soffits - Stucco

Review the conditions of the top surface of the Plaza Level soffit panels especially at the known leak locations in order to confirm and develop any required repairs.

Conduct investigation to understand source of red discoloration at the joint sealant at the bottom of the window frame-to-stucco joints at the Terrace Level.

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Exterior Walls - Concrete and Precast

There are cast-in-place concrete and precast concrete panel exterior walls, retaining walls, and planter walls at the Plaza Level's north plaza and the Level A, B, and C perimeter (see Figure 14). The cast-in-place concrete walls are dark gray with an exposed aggregate finish and feature vertical control or sealant filled expansion joints every approximately 5 feet to continue the marble panels' vertical grid lines. The precast concrete panels are white with gray aggregate and a smooth finish and feature an approximately 5 feet by 5 feet grid of recessed false joints and sealant filled panel joints to blend and continue the grid of the marble panels.

The cast-in-place concrete and precast walls, retaining walls, and planter walls are in fair to good condition with some cracking observed throughout. There is general soiling (atmospheric and biological) with areas concentrated soiling near plants, roads, and at skyward surfaces. The joint sealants are typically cohesive failed with some adhesive failures which are primarily at expansion joints and transitions.

- At the north plaza planter units, there are vertical cracks in the precast units both at and away from the lights. These cracks are fairly regular and not very wide; there is no staining along the cracks or other visual indications of moisture migration from plantings or corrosion of the precast unit reinforcement.
- At the north and west facades' precast panels, there are cracks, incipient spalls, and spalls coincident with ferrous elements that are potential fall hazards (see Figure 15).

Per the 2020 CBP, the exterior cast-in-place concrete and precast concrete panels to the north, south, and along the east side of the building were installed as part of the Garage Expansion project completed in 2003. The south plaza and garage perimeter walls were modified or removed as part of the REACH expansion completed in September of 2019.

2022 Recommendations: Exterior Walls - Concrete and Precast

Complete close-range survey and sounding and complete repairs at the Level A, B, and C Rock Creek Parkway Overhang.

Complete regular cycle of inspection and sounding of the concrete soffit due to risk of spalls hitting vehicles below.



Figure 14. Cast-in-place concrete (yellow arrow) and precast concrete panel (red arrow) exterior walls at the north facade.



Figure 15. Incipient spall (upper arrow) and spall (lower arrow) coincident with ferrous elements.

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Exterior Windows

Plaza and Terrace Levels

The Plaza and Terrace Levels feature floor-to-soffit height white-colored aluminum framed curtain wall assemblies. The Plaza Level curtain walls are approximately 60 feet high by 20 to 40 feet wide, and the Terrace Level curtain walls are approximately 20 feet high by 20 to 22 feet wide⁶. The original drawings show extruded aluminum clad steel tube curtain wall framing with hermetically sealed glazing units consisting of

- a 1/4-inch outer pane of tinted, tempered glass
- a 4-18-inch air space; and
- a 1/2-inch inner pane of clear, plate glass.

The exterior glazing seals are shown as (from exterior to interior) “silicone glazing compound or Type I sealant” over “vulcanized butyl-tape” over silicone glazing compound; the interior glazing seals are shown as “vulcanized butyl-tape” over “silicone glazing compound or Type I sealant”⁵ (see Figure 16). Per the 2011 CBP, during the preliminary investigation for the 2010 curtain wall replacement, it was determined that the existing curtain wall framing did not reflect the construction shown in the original drawings. The 2011 CBP report also noted that the existing caulk and sealants contained polychlorinated biphenyl (PCB) and the existing steel structure was coated with lead paint.

Overall, the 2010 curtain walls are in good condition. At the Plaza Level, there is some light surface corrosion present on the cable components and one broken IGU on the west facade (see Figure 17). The three Terrace Level bays of curtain wall that were not replaced in 2010 are experiencing deterioration and bleeding of the exterior black glazing seal material as well as migration and streaking of the black glazing seals that appears to be on the interior face of both the exterior and interior pane of glass (see Figure 18)⁷.

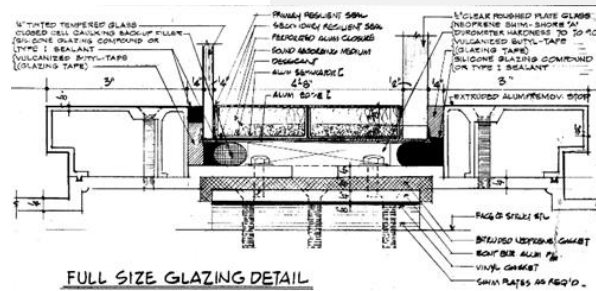


Figure 16. Original drawings glazing detail⁵.



Figure 17. Broken IGU at the Plaza Level west facade.



Figure 18. Migration and streaking of the black glazing seals that appears to be on the interior face of both the exterior and interior pane of glass at the Terrace Level (photo taken at the south facade).

⁵ Drawing. Edward Durrell Stone. *John F. Kennedy Center for the Performing Arts*. Drawing No. 5-5-10-B "Exterior Window Wall Details - El. 40'-0". Revision Date 6-10-68.

6 The curtain wall assemblies at the Plaza Level and the majority of the Terrace Level were installed as part of the 2010 Curtain Wall Replacements project and feature insulated glass units (IGUs) with multiple layers of glass and deep air spaces between layers which provide for improved thermal and acoustic performance. There are three bays of curtain wall at the Terrace Level that were not replaced in 2010; these include the east and west bays at the States Gallery and the central bay at the south facade.

⁷ WJE measured glass thicknesses and air space at the Terrace Level central south facade bay; the two panes of glass and air space match the original drawing dimensions.

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First Tier and Second Tier/House Ceiling

At the east facade, there are thirty-six pairs of narrow aluminum framed windows at punched openings in the marble facade that provide natural light to the First Tier, Second Tier, and House Ceiling Levels. The majority of the windows at the First Tier Level and House Ceiling (Rehearsal Room 7) are inswing casement windows; the Second Tier Level windows are fixed. The original drawings “slit”, and “slot” windows are shown as aluminum with a single pane of 3/8 inch thick tinted laminated glass with the same interior and exterior glazing seal materials as shown for the curtain wall assemblies. The original drawings also reflect the aforementioned existing fixed and operable windows at each level (see Figure 19).

During the interior review, WJE measured glass thicknesses in two locations (Second Tier MER 6 and House Ceiling Rehearsal Room 7); the glass pane thickness matches the original drawing dimensions⁸. At the single-pane windows, the following existing conditions were noted at the exterior and interior:

- Deterioration and bleeding of the black glazing seal material with some red-brown staining on the adjacent glass panes (see Figure 20);
- Cracked paint at the exterior of the windows;
- Discoloration and cracking of what appears to be joint sealant around the perimeter of the casement window sashes;
- Bird proofing spikes and dirt and debris at the exterior marble sills of the Second Tier and House Ceiling windows;
- Lighter dirt and debris at the exterior marble sills of the First-Tier windows;
- Cracks at the paint, joint filler, and interior finishes (typically concrete masonry units or plaster/drywall) at the interior perimeter of the window frames;
- Light streaking and staining at the base of the glass panes and sills of the north Second Tier (fixed) and south First Tier windows (casement);
- Dust and debris on the interior windowsills; and
- One scratched glass pane at a south First Tier window.

The existing single-pane windows are in fair to good condition; the deterioration of the black glazing seals and the light streaking and staining observed at the base of some windows are indications that the original glazing seals are past their service lives. Based on the measurements recorded; these windows are likely original.

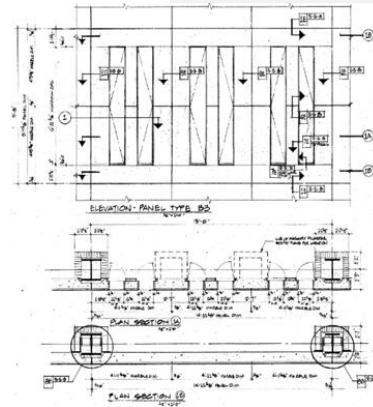


Figure 19. Original drawings “Slit Windows” elevation and plan section⁸.



Figure 20. Light bleeding of the exterior black glazing seal material with red-brown staining on the adjacent glass panes.

⁸ Drawing. Edward Durrell Stone. *John F. Kennedy Center for the Performing Arts*. Drawing No. 5-13-A “Arch’l Cast Stone Panel Dets, Slit Window & Truck Access Paving Dets”. Date 7-25-66.

⁹ WJE was able to access the interior all of the single-pane windows except the north First Tier windows (at the President’s offices).

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2022 Recommendations: Exterior Windows

No work recommended during the planning period.

Exterior Doors**Automatic Sliding and Bronze Hinged Double Doors**

The automatic sliding and bronze hinged double doors are functional and are in good condition with the exception of their weatherstripping and the alignment of the double doors which effects their weathertightness. At the automatic sliding and bronze hinged double doors, the following distress types were noted throughout the building:

- Gaps and missing weatherstripping resulting in visible daylight at the intersection of the operable door panels (see Figure 22 and Figure 23);
- Loose gaskets around the perimeter of the lites;
- Misaligned and ajar doors;
- Loose, damaged, and missing components (primarily thresholds and sliding door bronze cladding pieces);
- Discolored bronze surfaces (white-gray and brown-black discoloration including atmospheric soiling, grime, and light corrosion product) (see Figure 23); and
- Tape and tape residue on the exterior of the west elevation Plaza Level doors.

Additionally, during the on-site survey, a States Gallery west facade sliding door swung open due to a wind gust.

The original drawings show all of the exterior curtain wall assembly doors as being double doors with bronze clad stainless steel tube reinforced leaves with 3/4-inch tinted laminated glass (see Figure 21). The drawings show the leaves set within extruded aluminum frames with exterior hinges or pivots at most doors and center pivots at the Plaza Level interior and west exterior doors. As of the 1992 WJE survey report, all of the doors were double doors with the exception one pair of double doors at the Terrace and Plaza Levels that were replaced with bronze-colored anodized aluminum automatic sliding doors.

Based on the 2020 CBP, the Plaza Level sliding doors were installed in the 2010 Curtain Wall Replacement project, and it was reported that the bronze hinged doors at the entrance curtain walls were replaced in the 2011 Door Hardware Upgrade project. At the Terrace Level, two sets of bronze hinged doors and one set of sliding doors were replaced with sliding doors in 2006. It was also reported that cold drafts can be felt at the interior within a zone of more than 20 feet away from the doors.

The reported draftiness and the daylight visible around the perimeter of several doors throughout the building indicates that the doors are not well sealed are allowing unconditioned air and potentially water movement around the doors. The air and water tightness of the doors could be improved with replacement of damaged and supplemental weatherstripping as well as realignment of the doors.

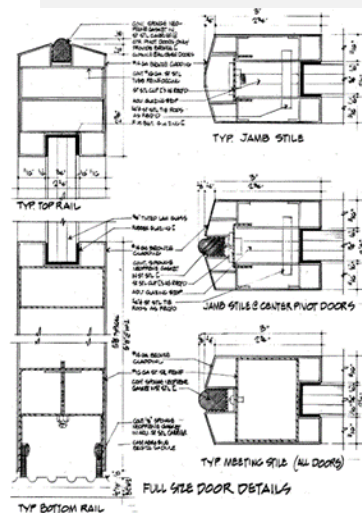


Figure 21. Original drawings bronze clad doors details¹⁰.

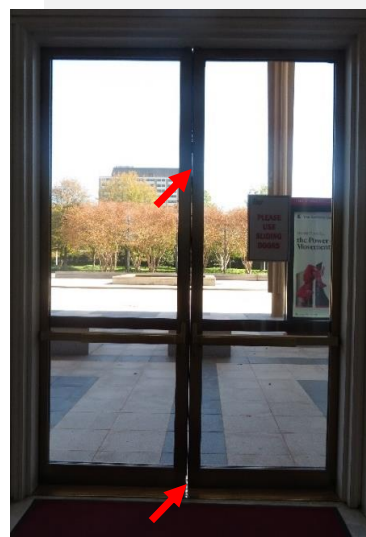


Figure 22. Daylight visible at the intersection of the operable door panels.

¹⁰ Drawing. Edward Durrell Stone. *John F. Kennedy Center for the Performing Arts*. Drawing No. 5-5-10-B "Exterior Window Wall Details - El. 40'-0". Revision Date 6-10-68.

Hollow Metal Doors

The hollow metal doors at the exterior of the building include garage and support space doors at Levels A and B, large backstage load-in doors at the Plaza Level east facade (see Figure 24), support space and stairwell exit doors at the Terrace and Plaza Levels, and support space and stairwell exit doors at the Main Roof and Penthouse. The exterior metal doors are functional and in good condition with the exception of weatherstripping, missing components, and some surface corrosion. The following typical distress types were noted at the hollow metal doors:

- Gaps and missing weatherstripping;
- Misaligned and ajar doors;
- Loose, damaged, and missing components (primarily thresholds pieces);
- Corrosion especially at the door bases; and
- Cracked, chipped, and missing paint.

2022 Recommendations: Exterior Doors

At the automatic sliding and bronze hinged double doors, review door preservation as well as thermal efficiency and air/water infiltration goals in coordination with HVAC design and performance.

At the automatic sliding and bronze hinged double doors, investigate options for restoration and addressing gaskets and air leakage of the doors and entryways throughout the building as part of any overall HVAC improvement projects. Complete mockups and testing of the preferred options during this phase.

Exterior Metal Louvers

There are metal louvers at Levels A, B, and C, Terrace, Main Roof, and Penthouse. The louvers are each coated to match the adjacent wall assembly finish and provide exhaust or ventilation for equipment or mechanical chases (see Figure 25). Overall, the metal louvers are in good condition; all of the louvers throughout the campus have debris and soiling.

There are metal louvers at the Level A northeast corner, Level B north facade, and Level B/C west facade (along Rock Creek Parkway). Cracking and cohesive failures at the exterior joint sealant is typical at these Levels. The Level A and Level B louvers were first installed as part garage expansion included in the Garage Expansion project completed in 2003. Per the 2020 CBP, the louvers along Rock Creek Parkway were replaced as part of the 2005 Site Improvements project and were repainted in 2017.

The Terrace Level has louvers on each facade. There is peeling and missing paint at the west and south facade



Figure 23. Missing weatherstripping (red arrow) and white-gray discoloration of the bronze surface (yellow arrow).



Figure 24. Plaza Level east facade load-in doors with faux marble finish.



Figure 25. Chalked and missing paint (red arrows) as well as bent blades (yellow arrow) at a Main Roof areaway louver.

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louvers, four mechanically damage louver frame locations, and one missing louver blade. At the louvers throughout the facades, there is some cracked paint and some adhesive failures at the perimeter sealant.

There is chalking paint and missing paint throughout the Main Roof and Penthouse louvers. There are some bent and displaced blades (see Figure 25). There is typical cohesive and some adhesive failures at the exterior joint sealant at these Levels.

2022 Recommendations: Exterior Metal Louvers

No work recommended during the planning period.

Exterior Columns**Plaza Level**

At the Plaza Level, there are sixty-six circular structural steel columns coated with bronze colored paint that form the peristyle around the building perimeter and support the overhang. The columns feature four tapered aluminum ornamental fins, at the quarter points, that extend up the height of the columns. The original drawings show the columns were originally intended to be circular structural steel columns with bronze cladding and fins (see Figure 26). The historic architectural drawings indicate an alternative option of "ornamental column covers" in lieu of the bronze cladding. Mild surface corrosion and flaking paint were visible at the base of approximately 50 percent of the columns (see Figure 27). In addition to the surface corrosion, the following existing conditions were observed:

- Chipped, scratched, and missing paint;
- Chalking of the paint, discoloration, and markings;
- Cracked paint and open joints along fin joints;
- Some bent, separated, and corroded metal fin bases;
- Joint sealant cohesive and adhesive failures at the column bases;
- Black cable hanging down from the stucco panel joints at the tops of four columns on the east facade;
- Bird droppings at the top of the columns; and
- Bird proofing at the tops of the column fins.

Per the 2020 CBP, these columns were repainted, and a new bird proofing system was installed at the tops of the fins in 2008.

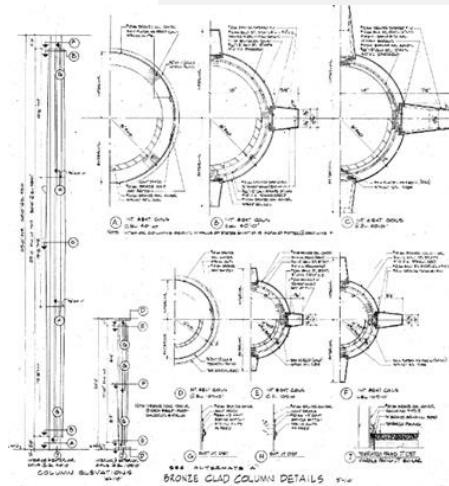


Figure 26. Original drawing details showing "bronze-clad" circular structural steel columns¹¹.



Figure 27. Typical mild corrosion and flaking paint at the base of the Plaza Level columns.

¹¹ Drawing. Edward Durrell Stone. *John F. Kennedy Center for the Performing Arts*. Drawing No. 5-5-12-A "Window Wall Dets El. 109'-0" Sunscreen & Bronze Col Dets". Date 7-25-66.

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Terrace Level

At the Terrace Level, there are fifty-four circular structural steel columns coated with bronze colored paint that form the peristyle around the building and support the overhang. The original drawings show the columns were originally intended to match the Plaza Level bronze cladding and fins. The columns were repainted in 2011. The following existing conditions were observed:

- Some chipped, scratched, and missing paint with associated surface corrosion at column bases;
- Streaking, discoloration, and markings; and
- Joint sealant cohesive and adhesive failures at the column bases.

2022 Recommendations: Exterior Columns

No work recommended during the planning period.

Roofing and Waterproofing**Sub-Grade Spaces**

Based on the Kennedy Center records and on-site observations, the project team is aware of potential leaks at the following sub-grade spaces:

- Level B/A Service Corridor & Support Spaces (see Figure 28),
- Level B Garage Northeast Corner,
- Below Plaza Level Expansion Joints,
- Below Plaza Level Fountains, and
- Discrete Locations on Levels A & B.

Staining, concrete distress, corroded steel, and efflorescence indicating past and potentially ongoing water infiltration were observed at each of these potential leak locations. Additionally, there are metal pans and gutters installed to help redirect water at active leak locations.

During the on-site survey, active leaks were observed at the following locations:

- North pump rooms,
- East transformer vaults rooms (see Figure 29),
- Garage northeast corner (Level B),
- Mechanical ducts/shafts,
- Pipes and pipe penetrations, and
- Expansion joints.



Figure 28. Water collected at the service corridor roadway.

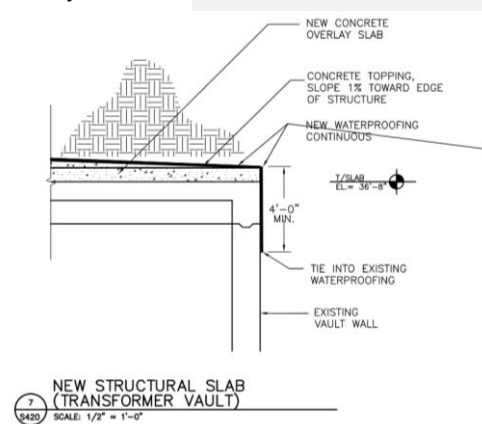


Figure 29. Transformer vault section showing the new waterproofing to tie in with the existing waterproofing at the exterior wall¹².

¹² Drawing. Wiss, Janney, Elstner Associates, Inc. *John F. Kennedy Center for the Performing Arts Washington, D.C. Garage Expansion and Site Improvement*. Sheet No. 420 "Structural Details - East Plaza". Revised As-Built Date 6-3-2006.

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Plaza Level - Waterproofing, Fountains, Planters

The Plaza Level hot-fluid-applied reinforced rubberized asphalt (HRA) membrane and paver assembly, fountains waterproofing, and planter waterproofing were installed as part of the 2005 Site Improvements project.

Waterproofing

The Plaza Level waterproofing is a hot-fluid-applied reinforced rubberized asphalt (HRA) membrane and paver assembly. The following conditions were observed:

- A few pavers at the drainage trenches were temporarily removed to observe the waterproofing membrane and paver assembly (see Figure 30). The paver joints along the drains were very tight (less than 1/8 inch) along the trench drains. Debris was observed within the trenches and around the drains.
- There are multiple types of expansion joint covers and filler throughout the Plaza Level (see Figure 31).
- The joint covers are typically in poor condition.
- The concealed joint seals at the waterproofing membrane could not be assessed visually.
- During a rain event, ponding water was observed at a drain near the northwest fountain.

The granite pavers are typically set in a mortar bed except along trench drains. The following distress types were noted at the granite pavers:

- Broken and cracked pavers; chips and spalls along paver edges; misaligned pavers;
- Orange-brown discoloration; and black and gray discoloration.
- At the joint filler along the pavers, there is cracked and missing joint mortar as well as adhesive and cohesive failures of the joint sealant with discrete holes and missing sealant.

Fountains

There are four granite clad fountains and one granite clad reflecting pool at the east and west sides of the building at the Plaza Level (see Figure 32 and Figure 33). The fountain basin liner coatings are in poor condition. Based on review of the Garage Expansion and Site Improvement project drawings, the fountain basin liner coating is a fountain containment with the primary waterproofing (shown as a hot rubberized asphalt waterproofing) applied to the structural deck below the fountain basin topping slab. Water leakage from the



Figure 30. Plaza Level hot-fluid-applied reinforced rubberized asphalt (HRA) membrane and paver assembly at removed paver location.



Figure 31. Plaza Level metal expansion joint cover at the west side of the plaza. Note active leaks were observed along this expansion joint at the Level A parking area below.



Figure 32. Rectangular reflecting pool basin at the east side of the Plaza Level. Note the crack in the concrete topping that extends through the liner coating.

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fountains must pass through failures at both waterproofing layers. Per the 2020 CBP, the fountains are potentially being reconsidered as part of the Memorial Interpretation Master Plan finalization.

The fountain basin liner coatings are in poor condition at all five basins with varying extents of adhesive failure, blistering, splitting, and pinholing evident. The east fountains liner coatings are typically in worse condition. The ferrous pipes throughout the fountains exhibit expansive material corrosion, which creates a failure in the waterproofing flashings. At the granite units of the fountains, there is orange-brown, black, and green discoloration; efflorescence; discrete stone distress; and adhesively and cohesively failed joint sealants.

At the rectangular east reflecting pool, cracks are present in the concrete topping and extend through the liner coating (see Figure 32). At the west square-shaped fountains, active leaks were observed below pipe penetrations and along the structural deck expansion joints immediately adjacent to the fountains (see Figure 31 and Figure 33).

Planters

There are granite clad planters around the perimeter of the building at the Plaza Level. The planters often align with expansion joints in the Plaza Level structure (see Figure 34). Within the planters, the drainage board, which is not sufficiently ultraviolet (UV) resistant, is exposed at the walls of the planters. At the granite units, cracks, spalls, efflorescence, orange-brown, black, and green discoloration, and failed joint sealant were observed. Adhesive and cohesive failures were observed at the planter joint sealant.

Plaza and Terrace Levels - White-Single Ply Overhang Roofs

The Plaza and Terrace Level overhang roofs are mechanically-attached thermoplastic single-ply membrane assemblies which were installed as part of the Roof Replacement project completed in 1999¹³ (see Figure 35). The membrane is in fair to poor condition and near the end of its expected useful lifespan; each overhang roof has several urgent maintenance repairs. The overhang roofs service lives can likely be extended for up to five more years with higher annual maintenance expenditures and maintenance inspections per year until replacement.



Figure 33. Square fountain at the west side of the Plaza Level with active leaks observed below the pipe penetrations at the Level A parking area below.



Figure 34. Granite clad planter at the north side of the Plaza Level. Note the expansion joint running through the planter.



Figure 35. Plaza Level overhang mechanically-attached thermoplastic single-ply membrane roof assembly (west facade shown).

¹³ Drawings. *Main Roof, Penthouse & Roof Terrace Repairs*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 31 July 1995.

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Discrete sections of the overhang roofs were accessed for close-range observation; note that not all drain locations were inspected as part of this study. The following limited and localized distress was observed:

- Failed and holed flashings at multiple drains,
- Seam failures and holes along membrane seams,
- Membrane cracking at fastener plates, and
- Cohesive and adhesive failures of the joint sealant along the sheet metal expansion joint covers and flashings.

Additionally, at the limited Plaza Level overhang roof drains observed at close-range, it was noted that the northernmost drain flashing at the west facade is failed and the westernmost drain flashing at south facade is holed (see Figure 36). Notable ponding water occurs at the northwest expansion joint curb.



Figure 36. Failed drain flashing at the northmost drain on the west facade.

Terrace Level - Roofing and Planters

The Terrace Level roof is a hot-fluid-applied reinforced rubberized asphalt (HRA) membrane and paver assembly which was installed as part of the 1999 Roof Replacement project¹³ (see Figure 37). The Terrace Level roof is in fair to good condition and with targeted maintenance and repairs should last another ten years.

During the on-site survey, a few pavers were temporarily removed to observe the condition of the waterproofing and the drains.

- Leaves and other debris were observed below the pavers, restricting drainage at the flush-grate drain inspected.
- It was noted that the drain locations below the pavers are not easily identifiable for regular cleaning and maintenance.
- The metal expansion joint covers are mechanically attached and flush with the pavers. The concealed expansion joint seals at the waterproofing membrane could not be visually assessed.
- The pavers are set on pedestals and have open joints. Adhesive and cohesive failures of the joint filler at the paver-to-planter and paver-to-wall joints were observed.

Based on the Kennedy Center records, the project team is aware of potential past or ongoing leaks at the Concert Hall Plenum Space.

At the Terrace Level planter marble panels and coping units, the following was noted:

- Bowing, cracks, spalls, abandoned anchors, orange-brown and black discoloration, and efflorescence (see Figure 37).
- The joint sealant at the marble-to-marble joints is in fair condition with bulging and adhesive failure near the expansion joints.
- Adhesive and cohesive failures of the joint filler at the paver-to-planter and paver-to-wall joints were observed.



Figure 37. Terrace Level hot-fluid-applied reinforced rubberized asphalt (HRA) membrane and paver assembly roof and marble clad planter. Note the black discoloration on the planter marble coping units (red arrow).

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Per the 1999 Roof Replacement project drawings (drawings dated 1995), the Terrace Level planter waterproofing was replaced, and existing marble panels were modified and reinstalled.

Main Roof - Roofing

The Main Roof and Penthouse roofs are gravel-surfaced coal tar pitch BUR roof membrane assemblies with stainless steel coping and counterflashing's which were installed as part of the 1999 Roof Replacement project¹³ (see Figure 38). Per the 2015 CBP, annual inspections and minor repairs including flashing and coping repairs are completed as part of regular maintenance efforts.

- During the on-site survey, fifteen to twenty isolated locations requiring near term maintenance were noted; these locations included: failed lead pipe boots, cracked/split membrane penetration and base flashings, and field of membrane blisters/brittle "soft spots".
- The joint sealants at the sheet metal expansion joint covers and perimeter flashings are cohesively failed. At the Penthouse Kitchen Exhaust (MER 11, Room 7501), active water infiltration and staining were observed below the exhaust penetrations after a rain event.
- Plastic sheeting has been placed on the floor and over equipment in this area due to the water infiltration. Water stains are visible on the floor slab, roof slab and beams and there is spalled concrete. The water infiltration pattern suggests a base flashing issue or water traveling below the membrane.



Figure 38. Main Roof gravel-surfaced coal tar pitch BUR roof membrane assembly with stainless steel coping and counterflashing's.

The Main Roof and Penthouse roofs are in fair to good condition with several urgent maintenance needs. The roof assembly can likely be maintained for another ten years with some targeted repairs and maintenance focused on known leaks, penetrations, and expansion joints. Following the targeted repairs, a structural assessment of the framing at the opening should be undertaken in conjunction with cleaning and coating any corroded steel and patching any cracked or spalled concrete.

2022 Recommendations: Roofing and Waterproofing

Investigate active and potentially ongoing leaks at the sub-grade spaces. Starting points for the investigation include: 1) developing an active leak log and 2) confirming the active versus dormant leak locations that have already been addressed by previous repair campaigns.

Engage a qualified consultant to design and contractor to complete the following scope waterproofing repair scope:

- Implement appropriate water infiltration mitigation strategies to address ongoing leakage Level B/Level A service corridor and support spaces based upon consultant investigation. Sound full extents of vault ceiling concrete slab. Remove loose concrete and patch spalls and cracks. Clean and paint ends of encased steel beams where corrosion has occurred and patch encasement.

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- Implement waterproofing repairs, as developed by consultant investigation, to address ongoing water infiltration at the northeast corner of parking garage Level B.
- Replace failed Plaza Level waterproofing expansion joint assemblies, tie-in with adjacent HRA waterproofing membrane to remain alongside the joints.
- Replace corroded in-fountain piping. Repair piping penetration flashings through HRA structural waterproofing beneath concrete fountain basins; consider full structural waterproofing replacement within the fountain footprint and tie-in with adjacent Plaza structural waterproofing to remain. Replace failed Plaza Level fountain basin waterproofing liner coating after structural waterproofing repairs and concrete topping reinstallation.
- Replace 100% sealant at all plaza fountain, planter, and paver associated joints including the facade-to-paver joint. Complete discrete stone repairs. Complete 100% granite cleaning based on findings of the cleaning studies. Complete storm system upgrade and replace copper fountain drainage piping with PVC.

Engage a qualified consultant to design and contractor to complete the following scope roofing survey, investigation, and repair scope:

- Conduct annual maintenance inspections and repairs to extend service life of the white single ply roofs at the Plaza and Terrace Level overhangs. Repair drain flashings at white single ply overhang roofs at multiple drains (inspect all and repair as needed).
- Remove joint covers and investigate condition of expansion joint seals at the Terrace Level expansion joints.
- Conduct comprehensive maintenance survey of in-situ coal tar pitch BUR roof membrane assemblies at the Main Roof and Penthouse Roofs to identify all lead pipe boots, penetration flashings, and membrane blisters that require maintenance repair/replacement. Complete necessary repairs to BUR assembly in-kind and replace all exposed joint sealants at sheet metal expansion joint covers and perimeter flashing conditions.
- Investigate active water infiltration at kitchen exhaust penetrations at the Main Roof. Implement roofing repairs, as developed by consultant investigation, to address ongoing water infiltration. Patch edge of concrete slab at rough opening. Repair existing steel beams framing opening where corrosion has occurred.
- Investigate source(s) of reported ceiling/duct condensation within the Concert Hall plenum space and develop mitigation strategies. Implement appropriate water infiltration mitigation strategies to address any confirmed active leakage determined during the investigation of the Concert Hall Plenum Space.

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Life Safety

The Kennedy Center was designed and constructed in the late 1960s based on the building and fire protection codes of the era. Since that time, codes and knowledge of life safety and fire protection features have advanced. The evaluation of the Life Safety Code (LSC) created the need for significant capital improvements to the facility in order to modernize the building. The Fire Protection and Life Safety Master Plan of November 1996 first outlined a roadmap for improvements. Subsequently, the 2006 and 2015 Comprehensive Building Plan provided an updated grouping of projects to be implemented in order to fully comply with life safety codes. Those projects were completed over the ensuing years.

Through the capital projects completed to date, the Kennedy Center has significantly improved compliance with the LSC. Completed work includes several projects dedicated to sprinkler installation, fire door upgrades, and a fire alarm system replacement. Other projects include new exit signs, new fire alarm devices, new fireproofing, new smoke relief doors and associated controls, and automatic door releases in the event of a fire alarm.

In November 2020, a site survey and document review were conducted to assess the existing conditions of the fire protection and life safety systems for the building and to evaluate compliance with applicable codes and standard as outlined in Kennedy Center Building Code Policy.

The major life safety categories assessed are fire suppression and fire alarm and means of egress.

Fire Suppression and Fire Alarm

Through the completion of over a dozen projects in the past two decades, the Kennedy Center has installed fire suppression and detection systems in most necessary areas of the building.

The current fire alarm system is point-addressable-type system with audible and visual indicating appliances in compliance with the Americans with Disabilities Act. The fire alarm system is at the end of its life span and the Kennedy Center is currently in the design phase for replacement of the fire alarm system, that will include replacement of all notification appliances.

Fire sprinkler systems have been installed in most required areas of the facility. The fire suppression systems are primarily wet-pipe sprinkler systems, with dry-pipe systems provided in the parking garages due to the possibility of freezing. Standpipe systems are provided throughout the building, including in exit stairs and in the theater and stage areas. The Center's sprinkler systems are in good condition, but in some areas, there is evidence of interior pipe corrosion, especially in the parking garage. The Kennedy center is currently replacing sections of damaged sprinkler pipe as issues arise. To determine cause of the damage, an internal pipe investigation is recommended.

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Previously completed Performance based timed egress and modeling analysis has determined that certain areas of the facility do not require prescriptive code solutions for fire suppression systems. A timed egress study was initially completed in 2003, peer reviewed by two different experts in 2005-06 and most recently updated in 2010. As a result, the Grand Foyer, Hall of States, Hall of Nations, and the Millennium Stages are not equipped with fire sprinkler or smoke evacuation system since each of these spaces will remain safe long enough for all occupants to evacuate the building safely.

During the 2020 survey, some limited areas were identified that require installation of sprinklers in areas that were either not provided with sprinkler protection during other projects or where minor changes made to the building over time have necessitated a change in coverage. Some examples of areas that require sprinkler installation are sections under ductwork that exceeds four feet in width located in the A level Parking Garage, the paint spray booth, and rack storage in the Production storage Room.

2022 Recommendations: Fire Suppression and Fire Alarm

Replace fire alarm system.

Install sprinkler protection in areas that are currently not protected.

Conduct internal pipe investigation.

Replace damaged portions of sprinkler system.

Fireproofing of Structure

The Kennedy Center's main building superstructure is built of steel framing. Concrete encasement was used as part of the original design as fireproofing for the steel beams and masonry block was typically used as encasement and fireproofing for the steel columns. Local areas of more modern spray-on fireproofing are visible, particularly at prior renovations.

During site investigation, spray applied fireproofing and concrete fireproofing was found to be in deteriorating condition during site investigation. An assessment of the condition and application of the existing spray applied fireproofing throughout the building, particularly mechanical spaces and the garage is recommended.

Throughout the building, local areas of fireproofing have been removed to install piping, ductwork, or other attached components. Additionally, the trusses that support the atrium floor and the adjacent spaces above the Opera House at the Roof Terrace level have varying degrees of fireproofing. Original documentation indicates that the trusses were intended to be encased within shaft wall construction of masonry block and the hangers encased in masonry block, but based on field observations, the masonry encasement is no longer in place in many areas. One of the trusses, the truss directly west of the atrium and adjacent to the Theater Lab, has been fireproofed with spray-applied fireproofing, which appears to have been completed as part of a more recent renovation.

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Within the parking garage at the A-level, there are additional local areas of missing fireproofing. The ceiling of the A-level at the west side of the building is made up of a system of large steel plate girders, which cantilever beyond the lower levels' footprint to form the overhang at Rock Creek Parkway. Steel hangers support the A-level floor from these girders above. The steel girders and hangers are encased in spray-applied fireproofing, which has become patchy and is missing in local areas. The fireproofing is in notably worse condition at the two girders that are aligned with the building expansion joints, due to water infiltration at the joints. The smaller steel beams, running perpendicular to the cantilevered girders, are typically encased in concrete. The concrete encasement is in good condition at typical girders but is cracked and spalled near the expansion joints above. At these locations, patches of the encasement have come loose and are missing.



Figure 39. Missing fireproofing at A-level structural support

2022 Recommendations: Fireproofing of Structure

Investigate fireproofing in Atrium and Garage Levels.

Repair structural steel members at Rock Creek Park overhang; remove loose concrete, clean and paint exposed corroded steel, re-encase existing beams, and repair missing patches of spray-applied fireproofing at large steel girders.

Means of Egress

The Kennedy Center's physical configuration essentially consists of three buildings within one larger building. Consequently, the means of egress from various spaces have been carefully studied with respect to the prescriptive requirements of the LSC. From a non-prescriptive code perspective, the Egress and Fire Modeling Study of the Grand Foyer, Hall of States, and Hall of Nations that was previously performed found that these spaces would maintain safe long enough for all occupants to evacuate the building during a fire.

A garage study was also completed that evaluated travel distances and visibility. This study completed in 2010, concluded the egress travel distances from the interior of the garage are acceptable.

In the means of egress instances of door hardware deficiencies, egress configuration issues, unsealed penetrations, and exit sign deficiencies were observed.

2022 Recommendations: Means of Egress

Seal unprotected penetrations in rated walls.

Alleviate door hardware issues.

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Conduct NFPA 80 mandated fire door assembly inspection.

Security

Over the last fifteen years, a number of security studies and risk assessments have been performed at the Kennedy Center. This includes an upgrade and expansion of the Center's electronic security system (ESS), installation of a new guard booth and mechanical bollards at the service tunnel entrance, rekeying all doors, and reconstruction of the Security Operations Center. These upgrades are successfully operational, are meeting their security purposes as designed, and are in functional condition.

The video surveillance system (VSS) does not exhibit a consistent strategy of camera placement or camera type per application. Piecemeal components increase the difficulty of system upgrades during renovations due to potential compatibility issues. The access control system (ACS) similarly is comprised of piecemeal components. The intrusion detection system (IDS) is severely limited in capability as the majority of perimeter doors are not monitored for position status. Therefore, an exterior door may be propped open and the security operations center (SOC) would not be alerted.

The Kennedy Center exterior security components are limited in their ability to control access and monitor the building perimeter. The main drive does not possess any vehicular deterrents to prevent unauthorized vehicles from gaining access to the building perimeter. Vehicle borne threats are currently not screened for when admitting vehicles to the parking garage. VIP attended events present a higher risk level than normal operation. Vehicle screening should be implemented to screen for the appropriate threat level.

System performance is dictated by the condition of the individual components. System replacement and maintenance is performed on an as-needed basis. This should be supported by a defined schedule to ensure new vulnerabilities do not develop with system age.

2022 Recommendations: Security

Provide vehicle wedge barriers.

Replace existing Network Video Recorders with higher storage capacity.

Hazardous Materials

The original construction and early renovations of the Kennedy Center predate prohibition of asbestos-containing materials (ACM) in public buildings. The facility, therefore, houses an assortment of such materials that vary in type, location, age, and level of potential health risk.

In 2001 a comprehensive asbestos conditions survey of the Kennedy Center was performed by Parsons Engineering Science, Inc. to identify asbestos-containing materials at the facility.

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A comprehensive ongoing Asbestos Operations and Maintenance Program (O&M Program), developed by Parsons Engineering Science, Inc. and Kennedy Center Facilities staff, minimizes the risk of exposure to these materials in connection with operations and maintenance and capital project construction activities. The plan is a guideline for working with ACM, with the basic goal to monitor and minimize disturbance of all existing ACM.

The Asbestos O&M Program is operating well. Signs have been placed to identify locations of remaining asbestos-containing materials. Regular inspections are conducted and repair of any damaged materials is performed as appropriate. The control measures set forth in the O&M Program are followed each time ACM is to be disturbed or has the potential to be disturbed (i.e., work activities in the vicinity of ACM). The O&M Program requires that an asbestos abatement contractor or specially trained employee remove all affected ACM prior to any construction work at the Center.

The bulk of all abatement is accomplished as materials are encountered in capital projects. For example, the Theater Lab & Access Corridor project included a large amount of abatement in the mechanical room that serves the space in order to remove and replace the existing air handling unit. Abatement contractors also removed and disposed of hazardous materials as part of several other projects, including the Systems Modernization projects, the Eisenhower Theater renovation, the Family Theater renovation, the Roof Terrace Life Safety project, the MEP Systems Modernization Project, and the Terrace Theater Renovations project.

2022 Recommendations: Hazardous Materials

Continue current program.

Egress Stairs

There are 21 primary and 23 secondary egress stairs throughout the building. These stair towers are typically constructed with CMU walls, concrete-filled metal pan stair treads and metal pipe handrails. Some stair towers have unpainted exposed concrete treads; others have textured vinyl applied treads. Wall surfaces are painted.

Few of the stair towers egress directly to the exterior; most provide egress into the Hall of States or Nations. A 2003 timed egress and fire modeling study determined that the egress loads could be effectively evacuated through the Grand Foyer or the Hall of States or Hall of Nations to the exterior due to the size of these spaces. Therefore, there is no need to provide direct egress to the exterior of the building.

Egress stair deficiencies that were identified in the 2006/2007 CBP were addressed through a comprehensive capital project completed in 2010. Upgrades included handrail modifications, lighting improvements, additional signage, luminescent strip application, and other minor improvements. Finishes were upgraded in the most heavily worn stairwells, providing new treads and paint. As a result of the project, the stair towers are in very good condition.

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During the 2012 Door hardware Upgrade project, non-complaint hardware was addressed. During site observations in 2020, instances of door latching issues, non-compliant wall penetrations in stairs, and the need for a fire door assembly inspection were observed. These deficiencies will be addressed as part of the 2022 CBP under Life Safety.

2022 Recommendations: Egress Stairs

Work anticipated for the egress stairs is included under Life Safety.

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Interior Repair and Accessibility

The interior spaces in the Kennedy Center consist of performance spaces, support spaces, public areas, and special event spaces. The sections that follow include assessment reports of the current condition of each space (or suite of spaces) and recommendations or observations related to deficiencies. This includes architectural systems and finishes, mechanical, electrical and plumbing systems, and theatrical or performance related systems.

Much of the Kennedy Center has been renovated in the last twenty five years, providing great improvements in accessibility, life safety, and interior finishes. The Concert Hall, Opera House, Eisenhower Theater, Family Theater, Theater Lab, and Terrace Theater have been fully renovated, and aspects of the public spaces have been upgraded. The installation of fire sprinkler and other life safety improvements was completed as part of the renovations of the Galleries, Terrace Atrium, and a variety of miscellaneous spaces.

Thus, most of the major accessibility and code related improvements have been accomplished to the extent feasible. These improvements are based on current accessibility guidelines and practice. Changes in building technology, trends in equipment and ongoing changes to building codes may require future modifications to spaces.

Theaters and Performance Venues

The Kennedy Center has an extraordinary number of theaters and performance venues under one roof. The three major theaters on the Plaza Level are the Concert Hall, Opera House, and Eisenhower Theater. The Plaza Level also houses the Family Theater and the Millennium Stages at either end of the Grand Foyer. On the Terrace Level, the theaters consist of the Terrace Theater and the Theater Lab, as well as the Terrace Gallery, which has been utilized as a performance space for much of the year. The Terrace Atrium is also used occasionally for performances.

Concert Hall

The Concert Hall was designed and built for live acoustic musical performances. With a seating capacity of 2,454, it is the largest performance space in the building. Programming includes a broad variety of offerings including symphony orchestras, recitals, gospel music, popular music, stand-up comedy, and private events such as memorial services.

The Concert Hall is located in the south block of the facility. It is bounded by the Hall of Nations to the north, the Grand Foyer to the west, and the exterior walls of the building to the south and east. Doors along the south face of the building provide direct access for production equipment and materials to the backstage area of the Concert Hall from trucks parked on the Plaza level along the east face of the building. The volume of the Concert Hall begins at

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the 27-foot elevation (Level A) and rises to the underside of the 109-foot elevation (Roof Terrace Level).

A major renovation project was completed in 1998 in the Concert Hall that addressed many performance issues in the space as well as accessibility and life safety improvements. The project included modification to the seating systems and configuration to provide compliance with accessibility guidelines, including dispersed locations for wheelchairs, barrier free access, and installation of other appointments such as infrastructure and systems for listening enhancement devices. The project also included modifications to address acoustical issues within the space. Some backstage support areas were also partially renovated during the project, primarily the backstage areas on the Orchestra Level.



Figure 40. Concert Hall

A number of theater doors, including the front of house doors into the lobbies, were modified in 2010 to include automatic door closers that will close doors in fire separation walls in the event of a fire alarm.

The Concert Hall includes a large pipe organ installed behind the back wall of the stage. This is a new organ that was installed in 2012 with the assistance of a private donation.

Concert Hall Finishes

The first phase of a two-phase Concert Hall Improvements project, which provided updates to finishes throughout the space, was completed in 2013. Phase 1 of the project included repainting of the auditorium, including walls, ceilings, balcony fronts, doors, and the majority of all visible painted surfaces. The project also included replacement of aged gold leaf surfaces with gold and aluminum leaf to provide a silver and gold palette.

In the past few years there have been continuing problems with an increasing number of seats in the auditorium, particularly with the seat bottom assemblies. The company that manufactured the seats is no longer in business, and repair parts are no longer available.

The issues with the seating were identified in the 2006/2007 CBP but were not deemed urgent enough to include in the implementation plan at that time. However, at present, the seating is continuing to deteriorate and is recommended to be replaced during the current planning period. In addition, aisle lights are aged and failing. A current project will replace a small portion of seats. Parts will be salvaged and used to maintain seats until a full seat replacement can be completed.

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The carpet throughout the auditorium shows signs of wear and will be replaced concurrent with the seating replacement. Wood railings at cross aisles will be repaired and refinished to remove scratches and dents.

There was some seating available for patrons in the lobby area; however, the amount was insufficient for a large audience. Additional general and occasional seating has been provided in the lobbies of each level of the Concert Hall.

The wood floor of the main stage has been sanded and refinished many times and is in need of replacement. Further sanding and refinishing is no longer feasible.

Recent maintenance challenges concerning the stage riser lift equipment have necessitated inclusion of replacement lift equipment. In addition, the existing configuration of risers and stage walls (both rear and side walls) and ceiling make it difficult for musicians to hear each other, and for the audience to hear the full range of the orchestra. Consequently, the shapes of both the risers and walls should be modified coincident with the installation of a new stage floor and lift equipment. Improvements to the suspended canopy over the stage may also be included in acoustic improvement work.

Improvements to the stage floor, risers, and stage walls to address acoustical concerns and wear of stage finishes were documented at conceptual level in 2019. Due to the significant operational impact due to the extended closure of the venue required to implement these improvements, implementation was not included in this planning period.

Concert Hall Support Spaces

Most of the support spaces for the Concert Hall are located on Level A directly below the venue. These spaces were recently renovated to provide accessible dressing rooms, locker rooms, restrooms, instrument storage, wardrobe storage, a musicians' lounge, and practice rooms as part of the South Block Renovations project completed in 2010. All issues that were identified in the 2006/07 CBP have been remediated, including the temperature and humidity control problems in the piano storage.

The patron restrooms on the orchestra level were renovated during the 1998 construction, and restrooms on other levels were renovated in 2008 as part of the Toilet Room Renovations project. All restrooms are compliant with current accessibility guidelines. The orchestra level restrooms are in fair condition. Having been renovated over 15 years ago, frequent maintenance is now required to replace fixtures, valves, and piping as they fail. All restrooms above the orchestra level are in good condition. As part of the Phase 1 of Restroom Upgrades project, all manually operated faucets, flush valves, soap dispensers and paper towel dispensers in all restrooms will be replaced with automatic fixtures and accessories.

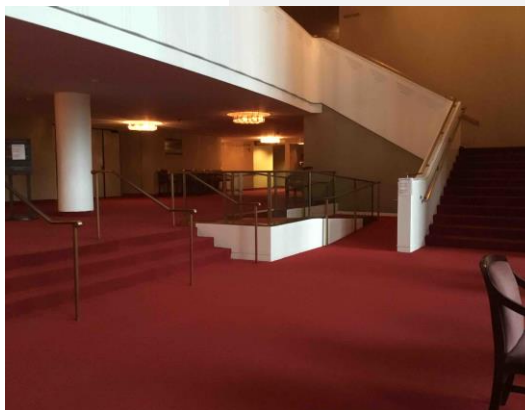


Figure 41. Concert Hall Entrance from Grand Foyer

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The theater lobbies are in good condition, with a variety of artwork on display. Two patron lounges, the Israeli Lounge and the Bird Room located on the second and third tiers, respectively, are situated off the lobbies. Areas under the monumental stairs that communicate between lobby levels are often used for storage. When materials are stored in these locations, pipe and drape are utilized to mask the presence of stored materials. It is recommended that permanent storage areas be built in or proximate to these locations.

There are handicap lifts located in the north and south lobby hallways of the upper tier that allow wheelchairs to traverse stairs in order to reach seating areas along the sides of the hall. These lifts are problematic; they are slow, require usher assistance, and have frequent maintenance issues. Due to the length and slope of the halls, there is no clear way to eliminate the lifts and stairs in favor of ramps without structural modification to the hallways. It may be possible to install different type of lifts. Replacement is recommended in the current planning period. Refer to Building Systems section for additional information.

Concert Hall HVAC

The Concert Hall's HVAC systems received significant attention as part of the South Block Renovations project. The project included a retro-commissioning effort to study the control sequences and operation of the HVAC and humidification systems to ensure that the equipment was operating as intended. This effort was necessary due to ongoing problems: wide fluctuations in humidity, excessive air movement, and high temperatures in the upper tiers.

The retro-commissioning process was completed in 2010 and included identification of minor work to refine operations, such as repairing broken dampers, sealing leaking ductwork, and correcting programming issues in the building automation system. In addition, a new humidification system was installed for the backstage areas to help stabilize the humidification levels in the Concert Hall. To ensure ongoing optimal control, the current Mechanical Systems Modernization project will upgrade the building automation controls as part of the building-wide update of the system.

Concert Hall Audiovisual and Technical Systems

The Concert Hall's sound systems were upgraded in 2009, when audio upgrades and the purchase and installation of new center, left, and right vertical line array self-powered speaker clusters. The project included the installation of a digital signal and control system. While the loudspeakers remain operational, they are approaching their end of life, where it will become difficult to receive support from the manufacturer. Mixing console systems and wireless microphone systems are upgraded on a continuous basis.

The loudspeaker array locations are located very near the side walls (L/R) or shaded from the balcony by the chandelier (C), resulting in a combination of excess reflections, while simultaneously a lack of direct coverage. This has

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led to aural intelligibility issues during events utilizing the sound system, particularly when stage monitors are used. Future loudspeaker upgrades must take into account acoustic considerations when the system is being designed.

Video Systems in the Concert Hall are utilized primarily for video show relay to front and back of house monitoring. Video recording (Broadcast, stream, or archive) currently require individual setup of person-operated cameras. Future projects can include investigating the addition of high-resolution pant-tilt-zoom cameras for internal use (archive, marketing and streaming.)

Production Communications systems have been upgraded recently; however, they are not connected to a centralized communications hub.

The stage and house lighting dimming system has been well maintained and is in good condition. In a project initiated in 2006/2007, the Ethernet infrastructure for the lighting control network in the Concert Hall was updated, including two new comprehensive theatrical lighting control consoles.

The motorized rigging system functions well. The rigging control console was recently replaced. Some rigging lift lines abrade steps and sprinkler pipes. These lines should be properly diverted around obstructions.

The existing hardwood stage floor is at the end of its repairable life. Any further refinishing is not recommended. A full replacement of the existing hardwood stage floor is recommended.

The Concert Hall was designed for symphonic music and as such is excessively reverberant for effective amplified use. The hall currently has limited adjustable acoustic elements. Adjustable acoustic drapery in reverberation chambers has not been used in some time, and as documented in previous studies this has been found to provide limited benefit. The existing acoustical reflector array above the stage can be adjusted to an extent but has limited range and is bulky and time consuming to move. Adding additional variable acoustic elements to the hall at both house and stage end would benefit speech intelligibility and amplified music clarity as well as sound power control on stage for amplified events. This work would best be done as a part of a larger future renovation that includes other acoustical upgrades including modifications of the stage surround, side wall reshaping and acoustic canopy upgrades.

Other acoustical issues noted include door hardware noise and HVAC noise issues which are expected to be addressed with ongoing HVAC balancing work.

2022 Recommendations: Concert Hall

Replace the seating and carpet throughout the Concert Hall auditorium. Refinish wood railings at cross aisles, repaint perimeter walls.

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Opera House

The Opera House consists of stage and auditorium, theater-related public spaces, and backstage and support areas. The Opera House is a traditional proscenium-type theater with 2,294 seats. Programming includes opera, ballet, and musical theater productions, and the Kennedy Center Honors. The theater is large and very grand in appearance with red upholstered seating, red carpeting with a subtle pattern, and red fabric panels framed with carved wood trim on the walls. The ceilings are also finished in red fabric with elaborate chandeliers and light fixtures that are original to the theater.



Figure 42. Opera House

Located in the center block of the Kennedy Center, the Opera House is bounded by the Hall of States to the north, Hall of Nations to the south, Grand Foyer to the west and exterior wall to the east. Doors along the east face of the building provide direct access for production equipment and materials to the backstage area of the Opera House from trucks parked on the Plaza level along the east face of the building. The current load-in process presents a safety concern. Recommendations for this planning period include implementation of a new recessed hydraulic lift in the pavement on the Plaza level near the loading door.

The lowest level of the Opera House is at the 27-foot elevation (Level A); it rises to the underside of the 109-foot elevation (Roof Terrace level). The fly tower (stage house) rises through the roof to an elevation of 122 feet. The pit lifts extend to the 17-foot elevation.

The Opera House underwent a major renovation project in 2003 to resolve issues identified in prior CBPs. Work included many upgrades to address both performance issues and life safety deficiencies in the public spaces, backstage areas, and technical systems. The project scope included renovation of the dressing rooms and surrounding spaces and the modernization of the elevators. The existing seating was modified to comply with code and accessibility standards. Also, a majority of the stage wood floor surface was replaced in 2003, with the perimeter band being replaced in 2012.

In the years following the 2003 renovation, minor repairs and updates have been implemented, including refinishing of lobby wood surfaces, resurfacing of wall fabrics, and repair of cracks in the backstage slab, due to heavy traffic.

Opera House Finishes

Overall, the finishes in the Opera House are in good condition with most finished surfaces and fixtures receiving only minor wear and tear since the 2003 renovation.

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However, the carpet throughout the hall is worn and frayed, particularly at cable pathways, and there are areas where cable runs are not concealed. Given wear and tear, the carpet should be replaced during the planning period.

The existing fixed seating is showing signs of wear. The company that manufactured the seats is no longer in business, and repair parts are no longer available. The fixed seating should be replaced concurrent with carpet replacement.

Several of the existing theater doors leading into the lobbies from the Opera House were retrofitted with automatic door closers in 2010. The fabric covered acoustical doors have received more wear and tear than other features in the space and will require recovering in the near future. The interior entry doors into the Opera House are heavy and not compliant with the code and accessibility requirement that all interior doors require a maximum force of five pounds for operation.

There are handicap lifts located in the north and south lobbies of the upper tier that allow wheelchairs to traverse stairs in order to reach seating areas along the sides of the hall. These lifts are problematic; they are slow, require usher assistance, and have frequent maintenance issues. Due to the length and slope of the halls, there is no clear way to eliminate the lifts and stairs in favor of ramps without structural modification to the hallways. It may be possible to install different type of lifts. Replacement is recommended in the current planning period.

Additional general and occasional seating for patrons has been provided in the lobbies of each level of the Opera House.

Opera House Support Spaces

The 2003 project included renovation of the dressing rooms and surrounding spaces, including modernization of elevators. All such areas are in good or excellent condition. Minor updates have been implemented over the years, such as refinishing of lobby wood surfaces and resurfacing of wall fabric on lobby expansion joints. Previously identified cracks in the backstage slab areas were addressed in 2005; due to heavy traffic in the backstage areas, crack repair is an ongoing minor maintenance task that is implemented periodically as necessary.

The patron restrooms on the orchestra level were renovated in 1998, and restrooms on other levels were renovated in 2003 as part of the Opera House Renovation project. Additionally, as part of the renovation, new unisex family restrooms were added at each lobby level. All restrooms are compliant with current accessibility guidelines. The orchestra level restrooms are in fair condition. Having been renovated more than 15 years ago, frequent maintenance is now required to replace fixtures, valves, and piping as they fail. All restrooms above the orchestra level are in good condition. As part of the Phase 1 of Restroom Upgrades project, all manually operated faucets, flush valves, soap dispensers and paper



Figure 43. Opera House Upper Tier Lobby

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towel dispensers in all restrooms will be replaced with automatic fixtures and accessories.

Opera House HVAC

The 2003 project included upgrades to the HVAC systems to more evenly distribute air conditioning and provide humidification to the orchestra pit. The HVAC systems in the Opera House are largely very reliable and provide few problems. It is noted that in order for the orchestra pit humidity levels to be maintained in the winter, the system occasionally operates at air velocities that are too great for musicians. At those times, the system must be scheduled to provide humidity only during non-performance hours so as to maintain comfort levels for the orchestra.

Opera House Audiovisual and Technical Systems

The existing double-purchase counterweight rigging system has been well maintained but will ultimately be in need of a complete maintenance overhaul. The stage rigging is augmented with a “point hoist” system comprised of motorized chain hoists. This system requires two pounds of counterweight to be manually added to arbors for each pound of scenery mounted on each rigging pipe batten over the stage. For heavily loaded line sets, the corresponding counterweight load increases proportionally and reaches levels that increase the risk of injury. The maximum for each line is 1,300 pounds, and in some cases, it is necessary to exceed this amount, which requires combining line sets with extremely heavy loads. In addition to the safety risks, this process is time consuming, creating significant labor costs, as a separate stagehand is required to operate each rigging system line set that moves simultaneously. However, a fully automated motorized rigging system does not require counterweight arbors and would be much more efficient and safer to operate. A motorized system would have greater line set weight capacities than the existing counterweight rigging system and would be equipped with safety overload sensors and slack line sensors. The system would be controlled by a computerized rigging system control console and a hand-held remote console panel. Safety would be enhanced by the installation of multiple emergency stop button stations located at stage and fly floor levels. Using the control console, a single stagehand can safely raise and lower as many line sets as a show may require.



Figure 44. Opera House Rigging

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The existing motorized orchestra pit lifts are reaching the end of their usable life, the astragal safety shear switches are unreliable, and there are no interlocks on the entry doors into the orchestra pit. It is recommended that the existing screw-jack type orchestra pit lifts be replaced with motorized pit lifts such as that installed in the Eisenhower Theater.

The loudspeaker processors used in the Opera House have now been superseded by better sounding models and should be considered for replacement with new models that include network control and adjustment capabilities. The under-balcony loudspeakers installed in the Opera House are very large custom-manufactured models that are being replaced in 2011 with smaller replacement speakers.

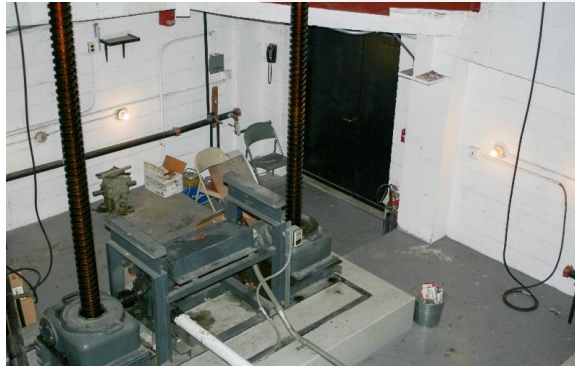


Figure 45. Opera House Pit Lift

Many events requiring large-scale audio support in the Opera House utilize brought-in systems (tours, or portable setup with KC equipment). This existing infrastructure (physical pathways and cabling) has been augmented and should continue to be upgraded to support outside systems. At the time the Opera House was renovated, optical fiber and network cable were not as commonly used as they are today for multi-channel audio transmission. Some optical fiber and network cable dry lines should be installed between the Opera House's mix position, orchestra pit and onstage to reduce the need to run audio cable "snakes" through the house.

The addition of permanent video panels at the balcony railing to show an image of the conductor for performers is a typical theatrical amenity that is also recommended.

Video Systems in the Opera House are utilized primarily for video show relay to front and back of house monitoring. Video recording (Broadcast, stream, or archive) currently require individual setup of person-operated cameras and flypacks. Future projects can include investigating the addition of high-resolution pant-tilt-zoom cameras for internal use (archive, marketing, and streaming.)

2022 Recommendations: Opera House

Replace fixed seating and carpet throughout the hall.

Conduct a study to replace existing rigging with motorized rigging system.

Provide a recessed hydraulic lift in pavement adjacent to loading door on the Plaza level to improve load-in safety.

Replace pit lift.

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Eisenhower Theater

The Eisenhower Theater, located in the North Block of the facility, is a traditional proscenium theater seating 1,122, including seating available when the orchestra pit is not in use. It is bounded by an exterior wall to the north, an exterior wall and the Family Theater to the east, the Grand Foyer to the west, and the Hall of States to the south. Doors along the east face of the building provide direct access for production equipment and materials to the backstage area of the Eisenhower Theater from trucks parked on the Plaza level along the east face of the building. The current load-in process presents a safety concern. Recommendations for this planning period include implementation of a new recessed hydraulic lift in the pavement on the Plaza level near the loading door.



Figure 46. Eisenhower Theater

The volume of the Eisenhower Theater begins at the 27-foot elevation (Level A) and rises to the underside of the 96-foot elevation. The volume of the fly tower (stage house) extends to the underside of the 122-foot elevation. The Eisenhower Theater consists of the stage and auditorium, theater-related public spaces, and backstage and support areas. Theater programming includes musicals, drama, modern dance, ballet, opera, classical music, and jazz.

The major renovation project completed in 2008 addressed many issues identified in prior CBPs. Work included many upgrades to address both performance issues and life safety deficiencies in the public spaces, backstage areas, and technical systems. The project scope included renovation of the dressing rooms and surrounding spaces and the modernization of the elevators. The existing seating was modified to comply with code and accessibility standards. Also, the excellent acoustics of the space were further enhanced by the installation of a new sound system and new acoustical finishes. The orchestra pit was upgraded with the installation of a new automatic motorized pit lift and a new stage curtain was installed. Also, a majority of the stage wood floor surface was replaced in 2008, with the remaining side stage areas being replaced in 2012. The stage floor was replaced again in early 2019.

Eisenhower Theater Finishes

Overall, the finishes in the Eisenhower Theater are in excellent condition with most finished surfaces and fixtures receiving only minor wear and tear since the 2008 renovation. The theater finishes include carpet, wood walls, and plaster ceilings. The wood wall panels are trimmed with metal plates and

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trim pieces that provide anchoring points for wall sconces and theatrical equipment. The handrails, along with the metal trim, are a combination of bronze and aluminum materials.

Additional general and occasional seating for patrons has been provided in the lobbies of each level of the Eisenhower Theater.

There was not a convenient accessible means of getting from the dressing rooms on the “A” level to the stage other than using the stagehand elevator. This problem was addressed by adding another stop on the dressing room level of the Terrace Theater elevator (2E-7), as part of the Escalator Replacement Project.

Eisenhower Theater Support Spaces

The patron restrooms on the orchestra level were renovated in 1998, and restrooms on other levels were renovated in 2008 as part of the Eisenhower Theater Renovation project. Additionally, as part of the renovation, new unisex family restrooms were added at each lobby level. All restrooms are compliant with current accessibility guidelines. The orchestra level restrooms are in fair condition, having been renovated more than 15 years ago. Frequent maintenance is now required to replace fixtures, valves, and piping as they fail. All restrooms above the orchestra level are in good condition. Back-of-house and patron restrooms will be renovated in phased approach that aligns with the sanitary piping and domestic water system upgrades. First phase will include full renovation of patron and back-of-house restrooms in the Eisenhower Theater block and will be implemented during this planning period.

The dressing rooms on A-Level were renovated to provide accessibility and modernized finishes and amenities. These spaces are in very good condition and no further work is recommended. The elevators located in the north block that serve the theater were also renovated in 2008 as part of the Elevator Modernization Program.

The Eisenhower Theater Green Room finishes and furnishings are worn and no longer appropriately represent Kennedy Center’s identity as a premier arts institution. The Green Room also lacks a prep kitchen. A kitchenette has been provided in the adjacent corridor but does not adequately serve the space. The Green Room will be renovated, and a new catering kitchen will be provided during this planning period.



Figure 47. Eisenhower Theater Green Room

Eisenhower Theater HVAC

The HVAC systems in the theater operate well. Minor upgrades were performed during the 2008 project to more evenly distribute air at the stage, where previously breezes had caused scenery to visibly move under maximum air flow.

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The Eisenhower Theater does not have humidification capability, and none is recommended for the future.

Eisenhower Theater Audiovisual and Technical Equipment

Many key improvements to the technical stage systems were provided during the 2008 renovation.

The acoustics of the theater were already excellent prior to the renovation; additional improvements were realized through the installation of a new sound system and new acoustical finishes throughout the house. A new sound booth area was created that is open to the house, improving the sound technicians' ability to hear and modify sound during performances. The new sound system includes all new speakers and cabling. Sound transmission between the Eisenhower and Terrace Theater has been almost completely eliminated. Loud programs in one theater are no longer an issue in the adjacent theater.

The stage rigging system, which consists of manually operated double purchase counterweight line sets, augmented by motorized chain hoists, was not replaced. Although the loading bridge location presents challenges when loading very full arbors, there is no solution to this issue without a full replacement with an automated motorized winch rigging system. The current rigging system requires two pounds of counterweight to be manually added to arbors for each pound of scenery mounted on each rigging pipe batten over the stage. This process is time consuming, creating significant labor costs, as a separate stagehand is required to operate each rigging system line set that moves simultaneously. However, a fully automated motorized rigging system does not require counterweight arbors and would be much more efficient and safer to operate. A motorized system would have greater line set weight capacities than the existing counterweight rigging system and would be equipped with safety overload sensors and slack line sensors. The system would be controlled by a computerized rigging system control console and a hand-held remote console panel. Safety would be enhanced by the installation of multiple emergency stop button stations located at stage level and fly floor levels. Using the control console, a single stagehand can safely raise and lower as many line sets as a show may require.

Audio Systems in the Eisenhower Theater have been continuously upgraded, specifically the loudspeaker arrays and digital mixing console systems. Additional digital pathways should be added to allow further expansion of the systems as upgrade to the components are elected.

Video Systems in the Eisenhower Theater are utilized primarily for video show relay to front and back of house monitoring. Video recording (Broadcast, stream, or archive) currently require individual setup of person-operated cameras. Future projects can include investigating the addition of high-resolution pant-tilt-zoom cameras for internal use (archive, marketing and streaming.)

2022 Recommendations: Eisenhower Theater

Renovate Green Room and implement adjacent catering kitchen.

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Renovate restrooms in phased approach that aligns with the sanitary piping and domestic water system upgrades.

Conduct a study to replace existing rigging with motorized rigging system.

Provide a recessed hydraulic lift in pavement adjacent to loading door on the Plaza level to improve load-in safety.

Family Theater

The Family Theater is located on the Plaza Level in the Eisenhower Theater block of the Kennedy Center. The theater first opened in 2005 following the renovation of the space, formerly occupied by the American Film Institute (AFI). The programming and performances in the space focus on families with school-age children and performing arts education. It is bound by exterior walls to the north and east, the Eisenhower Theater to the west, and the Eisenhower loading corridor to the south. The main volume of the Family Theater begins at the 40-foot elevation and rises to the underside of the 69-foot elevation.

The construction of the Family Theater consisted of gutting the existing AFI Theater and making a number of configuration changes to the adjacent spaces. Most notably, the lobby of the Family Theater was constructed as a second floor space above the load-in corridor to the Eisenhower Theater. In addition, a grand entrance staircase and outer lobby were constructed in the Hall of States entry area. This effectively doubled the total lobby area dedicated to the space, and the existing condition of crossing paths with the load-in corridor was eliminated.

The accessible lift that provides access to the stage for persons with disabilities does not have a level landing at the lower backstage elevation. This should be corrected when the existing lift is scheduled for replacement.

Family Theater Finishes

The Family Theater auditorium seats 324, with dispersed and integrated accessible seating at the rear and gallery areas, as well as at the cross aisle at the stage level. A two-stop elevator (2E-11) provides wheelchair access to the cross aisle.

The theater is finished in carpet and wood wall paneling with metal trim and handrails. Most finishes have remained in good condition. Currently, the Family Theater is fully compliant with code and accessibility standards; however, the ramp and stair handrails are mounted at code required adult heights. Secondary handrails at heights recommended for children should be considered in future renovation.

However, the space had many occupant comfort and temperature control issues. The temperature ranges were extreme - cold at stage level and hot at top of theater near the sound and light control box. The majority of the HVAC issues have been addressed. A new TAB is being completed to address remaining issues.

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In addition, there was no accessible means of getting to the lower “A” level dressing rooms and support spaces which were created during the 2005 renovation. This has been addressed by adding another stop on the dressing room level to the Terrace Theater elevator (2E-7).

Restrooms are installed in the space created by the slope of the auditorium seating. A family restroom is also provided near the entrance at the top of the audience seating area. All restrooms are compliant with current accessibility guidelines; however, all fixtures are installed at adult heights. Installation of fixtures at heights recommended for children should be considered in future restroom renovation.

Family Theater Support Spaces

Dressing rooms and support spaces were created for the Family Theater during the 2005 renovation on A Level below the Eisenhower Theater. These spaces do not include restroom facilities, but the countertops are fully accessible. All spaces and finishes are in excellent condition.

Family Theater HVAC

The HVAC systems for the Family Theater were newly installed in 2005 and are in excellent condition. The new direct expansion unit dedicated to the lighting control booth was relocated in early 2011; the condensing unit was installed in an area with insufficient air circulation and needed to be moved.

Family Theater Audiovisual and Technical Systems

The Family Theater has a fully automated rigging system, cable passes, conduit, and a computerized dimming system with 288 dimming circuits to create an infrastructure for lights, audio, video, and data that facilitates internet broadcasting, television, audio recording, and interactive programming.

2022 Recommendations: Family Theater

Renovate restrooms in phased approach that aligns with the sanitary piping and domestic water system upgrades.

Millennium Stages

The Millennium Stages were constructed at the north and south ends of the Grand Foyer in 1996 to provide venues for free daily performances offered to the public as part of the Kennedy Center Performing Arts for Everyone program. These stages are used primarily for dance and music performances.

Folding chairs are stored in rolling ‘drawers’ under each stage. The chairs are set up just prior to a performance in the area in front of the stage and must be stored immediately after each performance to clear lobby space in front of the main theaters.

In 2010 the existing draperies along the west wall of the Grand Foyer were modified to offer better control of light during early evening performances at

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the Millennium Stages and provide better acoustical sound absorption. Although an ongoing problem, a 2002 evaluation determined that the billowing of the curtains due to the flow of air from floor vents could not be corrected due to structural limitations. Considering the necessity of the curtains, it is a minor inconvenience.

The original design of the Millennium Stages did not provide accommodations for accessibility to the stage platform without the use of temporary wheelchair lifts or ramps. In 2011, accessibility limitations were addressed and permanent accessible pathways were provided to the stages. These paths also connect the stages to the Concert Hall Orchestra Lobby or the Eisenhower Theater Orchestra Lobby.

In 2011, the proscenium treatments at the Millennium Stages were replaced. Treatments included electronic screens above each stage for simulcast of performances.

The south plaza of the Center is occasionally used for outdoor performances as part of Millennium Stage. The outdoor stage is used two to three times per year between April and October. Temporary facilities for stage, sound system, and theatrical fixtures are installed for each production.

Millennium Stage Audiovisual and Technical Systems

The Millennium Stages are located in a large reverberant space not ideally conducive to reproducing spoken word or music. However, the spaces provide an excellent location within the building for the free performances that occur daily.

In 2010, the Millennium Stages received technical system upgrades as part of the Technical Stage Systems line item. New left and right vertical line array self-powered speaker clusters were purchased and installed for each stage. The clusters provide a design for the best possible coverage for the Grand Foyer, eliminating the delay speakers on tri-pods that were previously set up for larger performances and were a tripping hazard. In addition, two new digital audio control consoles were procured that improve audio system quality and functionality. New stage curtains, winch motors, stages, and understage chair storage racks were also installed on both stages.

2022 Recommendations: Millennium Stage

No work is recommended during the planning period.

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Terrace Theater

Originally constructed in 1979 in what was an empty shell, the Terrace Theater is located in the north portion of the Kennedy Center over the Eisenhower Theater. The stepped seating provided excellent sight lines, but the design was problematic for accessibility, code and life safety compliance. Its need of a full renovation was documented in the 2006/2007 Comprehensive Building Plan.

The venue originally seated 512, which included 38 seats that were removed when the orchestra pit was in use. There were two aisles from the rear entrance to the stage, each with a series of handrails running down the center of the aisle. Egress from the auditorium was provided directly to the lobby at the rear of the space and by egress corridor/stairs from the lower level that ran parallel to the house left and right side walls. The lowest level of the auditorium is several feet lower than the stage floor and adjacent support spaces.



Figure 48. Terrace Theater

Construction of renovations began in June 2016 and was substantially complete in October 2017. The project provided additional dispersed and integrated accessible seating positions and a new two-stop elevator to provide access to the front rows of the auditorium and a lower lobby. Accessibility provisions and upgrades were provided in dressing rooms, the green room and other support spaces. Seating was reduced to 475 due to space required for cross aisles.

Stage and backstage upgrades were implemented as well, including upgrades to dressing rooms, instrument storage, and theatrical lighting and equipment.

Theater and lobby finishes were renovated, and aesthetics improved, including seating, carpet, walls, and ceiling.

Improvements were made to audiovisual and lighting systems, including new audience chamber down-lighting and wall washes and performance infrastructure.

Improvements also were made to mechanical, electrical and plumbing infrastructure, including replacement of air handling units AC-3-TT-1 and AC-3-TT-2 with a single new unit, AC-3-TT-1, and to the emergency lighting system, incorporating audience chamber lights and an emergency lighting transfer system.

2022 Recommendations: Terrace Theater

No work is recommended during the planning period.

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Theater Lab

The Theater Lab is a thrust-stage performance space situated on the Roof Terrace Level. The space is accessed through a corridor that runs between the North and South Gallery along the western perimeter wall. The space seats 398 and is a less formal venue for theater and other activities such as educational programming, lectures, workshops, musical performances, and stand-up comedy.

A major renovation of the Theater Lab was completed in November 2012. The renovation addressed all findings and recommendations of previous Comprehensive Building Plans, including all life safety and accessibility recommendations.

The Theater Lab was formerly a large ballroom before it was appointed with theatrical equipment to be used as a performance venue. The original intent of the design of the interior architectural and theatrical systems was to provide a flexible performance space for a variety of activities supported by flexible seating, lighting systems and a pipe grid for hanging drapery. Accordingly, prior to the 2012 renovation, the space was sparsely appointed with bleacher-style seating, carpet and vinyl tile flooring, and an open ceiling.

The 2012 project rotated the orientation of the stage 90 degrees and created a new public corridor between the North and South Galleries. A new acoustic separation was constructed between the Theater Lab and Atrium, allowing for simultaneous events to occur, which was not possible previously. Additionally, where the old theater had no defined lobby and no sound/light locks, the new theater has both, contributing to improved acoustic separation and audience management.

The architectural finishes were replaced in 2012, with new walls, carpet, paint, handrails, and other details. The concrete that was delaminating under the old carpet was removed and replaced. A new stage floor was installed where previously a hard floor existed, now allowing for dance performances. The theater now has fixed individual theater seating. Some finishes are beginning to show signs of wear. Concrete floor should be repainted on regular basis as part of ongoing maintenance. Fabric panels at vomitories show some fraying and should be repaired.

Accessibility has been greatly improved with the construction of a mezzanine level and accompanying elevator that allows patrons in wheelchairs to access the upper level of seating. Accessible positions now exist at the front and the back space of the theater, creating dispersed and integrated locations.

The theater includes all new theatrical system infrastructure, including audio systems, lighting systems, and rigging pipes. The performance lighting system consists of all LED fixtures, eliminating the need for dimming racks and providing energy efficient and long lasting light fixtures. New dedicated locations for the sound table, lighting booth, and translation booth were constructed at the rear of the theater.

The support spaces were rebuilt, including dressing rooms, crew and cast restrooms, usher and theater manager offices, wardrobe, and green room.

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Mechanical, electrical, and plumbing systems were comprehensively updated as part of the project, partially utilizing funding from the Systems Modernization projects which were proceeding concurrently. A new air handler was installed for the theater, and all new ductwork and distribution was constructed to accommodate the revised configuration of the theater. All new electrical distribution was installed, and the new support space restrooms and wardrobe included new plumbing connections.

Prior to the completion of the Theater Lab & Access Corridor project in 2012, the primary north-south path of travel on the Roof Terrace Level was through the Terrace Atrium and Atrium Foyers. This created problems when events were held in the spaces. The new public corridor constructed as part of the Theater Lab & Access Corridor project is always open to the public and provides a permanent solution to a longstanding circulation problem. The floor grilles at the Access Corridor, though new, have been bent and damaged by wheelchair passage. They were replaced with more durable grilles under Minor Repairs during FY20.

2022 Recommendations: Theater Lab

No work is recommended during the planning period.

Terrace Gallery

The Terrace Gallery is situated on the Roof Terrace Level at the east end of the States Gallery in a space that was formerly the Performing Arts Educational Resource Library. The room has been used for a number of functions ranging from jazz music performances ("Jazz Club") to gallery exhibits and lecture series. The space is also used for catering preparation and staging during special event. Recently, the space has been used as an office space.

For performances, the Terrace Gallery's base setup for lighting and sound is augmented with audiovisual equipment brought in from the facility's stock of building-wide equipment.

The capacity of the room with tables and chairs is approximately 160. Velour curtains on traveler tracks can be pulled around the entire perimeter of the room to provide black-out from the east facing glazed curtain wall and acoustical absorption within the largely marble-walled room. An area between the curtain and the wall is used for storage of equipment and props.

The space was previously used for jazz performances and was referred to as the Jazz Club for approximately 10-20 weeks each year. This function has been relocated to Studio K in the REACH, and the space could be repurposed, either as part of the Office Improvements or Memorial Interpretation.



Figure 49. Terrace Gallery

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A portion of the room's side walls have been covered with fabric wrapped acoustical panels to provide additional absorption. The panels are 'tackable' and useful for workshops or art installations. The space is separated from the States Gallery by a full height glass curtain wall, which does not provide acoustic isolation.

When the space is used as an exhibit gallery, the platform and related equipment and tables and chairs are removed and stored. Partial height wall sections are erected in the space with integrated track lighting for artwork display.

Lighting consists of recessed down lights and wall sconces similar to the adjacent States Gallery. Additional theatrical lighting instruments are mounted on custom made brackets clamped to the structural columns in the space and on ceiling mounted pipe battens.

The floor finish is carpet tile that was installed in 2008. The carpet was selected to be "drivable" to resist damage caused by driving motorized lifts over the surface.

The existing ceiling is a continuation of the finishes of the States Gallery. The main ceiling is a dropped plaster surface with integrated lighting. This is bordered with a stepped upper ceiling surface with integrated linear air conditioning diffusers.

Similar to the Theater Lab, the Terrace Gallery is used as a flexible and convertible space for diverse activities including performance, service as a makeshift kitchen for food prep and staging for events held in the nearby Terrace Atrium and Foyers.

Terrace Gallery Audiovisual and Technical Systems

Each of the flexible uses of the Terrace Gallery requires a different set of equipment, including track lights, partitions, tables, chairs, risers, and other items. Limited storage for this equipment is available on the Terrace Level of the building.

2022 Recommendations: Terrace Gallery

No work is recommended during the planning period. **Space should be evaluated for use as future office space as part of office space study identified elsewhere in the report.** Renovation of this space is being completed as part of the larger space planning and office renovation projects.

Public Spaces

The Kennedy Center contains three building blocks under one roof. Each block houses one of the three large venues on the Plaza Level. The blocks are surrounded by the extraordinary public spaces of the Grand Foyer, the Hall of States, and the Hall of Nations. These spaces experience heavy use by patrons of all ages and abilities as the building is open to the public 365 days

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a year as both a performing arts venue and a national memorial to President John F. Kennedy.

Hall of States, Hall of Nations and the Grand Foyer**Hall of States and Hall of Nations**

The Halls of States and Nations separate the three major blocks of the building. They serve as entry passages from the main exterior drop off plaza on the east side of the building and terminate at the Grand Foyer on the west side of the building. The Hall of States separates the Opera House from the Eisenhower Theater to the north. The Hall of Nations separates the Opera House from the Concert Hall to the south. The Halls are enclosed at each end by full height off-white metal framed glass curtain walls featuring bronze entrance doors leading to the Grand Foyer at the west end, and to the East Plaza drop off at the opposite end. These curtain wall entrances are in good condition as they were replaced in 2011 (Curtain Wall Replacement project).

Public elevator banks off both Halls allow patrons access to the upper level theaters, terrace level restaurant, café, and roof terrace. Across each Hall from the elevator banks are escalators and stairs offering access to parking, restrooms, retail space, and visitor information.

Both Halls are very long and tall spaces with similar appearances. They are lined by slender bronze-painted structural columns framing the passage along the length of the Halls. The walls behind these columns enclosing the Halls are approximately 60 feet high and are clad with polished white marble panels. There are a series of dark bronze spherical sconces mounted to these walls at both sides of each Hall, which are directed upward and illuminate the flat white plaster ceiling above. Along both sides of the lengths of each Hall, flags hang from bronze wall-mounted support rods. In the Hall of States, the flags represent each State and Territory of the Union, and in the Hall of Nations, the flags represent each country with which the United States has diplomatic relations.

The floors are finished with polished white marble. A red broadloom carpet at the center of each Hall runs the full length of the spaces to meet the red carpet of the Grand Foyer. The carpet is set into a depression within the floor so that the top of the carpet is level with the adjacent polished marble floor surface. The carpet pile is cut into a pattern that is raised from the surrounding field, rather than being level as is required by current accessibility guidelines. The carpet is beginning to show wear and given its age and issues with the raised pattern, it is recommended that it be replaced during this planning period.

The freestanding sofas in the Halls were replaced in 2011 and are in good condition. However, seating is insufficient at times of peak visitor occupancy.



Figure 50. Hall of States

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The primary visitor service offered in the Hall of Nations is the coatroom, which has been the sole coatroom for the Center. It contains portable coat racks that are adequate for typical attendance. Bag and parcel storage is provided with open shelving under the transaction counter. The 2009 coatroom renovation included the installation of a new service counter with a lower-height portion that is compliant with accessibility guidelines and the installation of a new roll-down door. The entryway was reconfigured to create a new closet for wheelchair storage for the south half of the building. Other minor improvements to shelving and HVAC were implemented, and the coatroom is now well suited to serve its function. There is no memorial interpretation in this space.

Visitor services in the Hall of States include the Information Desk and the Assisted Listening Device Desk. The Information Desk and the adjacent television display to the east were completed as part of the Public Space Improvements project in 2004 and are in good condition, although the hinges and locking devices of the heavy glass-clad doors of the storage units behind the desk require frequent maintenance. The Assisted Listening Device Desk was completed as part of the same project and is also in good condition. Memorial interpretation is limited to a small television display of videos concerning Kennedy Center programming.



Figure 51. Assisted Listening Device Desk in Hall of States

Additional visitor services in the Halls include a small gift shop in the Hall of States near the Grand Foyer and box offices in each Hall. The box office areas received renovations as part of Minor Repair in early 2013. Some of the transaction counters were lowered to the correct height in compliance with ADA standards to facilitate use by all patrons. In addition, the wall containing abandoned telephone alcoves and brochure racks was renovated to update finishes and to provide improved shelving and brochure racks. The box office services are currently offered at the transaction windows only, as the facility does not yet offer mobile or self-serve points of sale, which are becoming more commonplace at large venues.

The permanently installed interior finishes within the Halls are generally in good condition; however, these spaces are cluttered with items that have been introduced into the space, over the years. The clear space between the perimeter walls and columns includes projections into the space such as information desks and kiosks, and in the case of the Hall of States, a gift shop. There is no clear level path to either side of the carpet in the Hall of States or the Hall of Nations, as that path is now obstructed with fixed-in-place signage installed perpendicular to the path of travel. In addition to these fixed in place signs, the area is also obstructed by items such as moveable and temporary signage and trash receptacles. The protruding design of the gift shop storefront into the Hall of States is also an obstruction to the clear passage within the Hall which can be problematic for exhibitions. It is also an obstruction to the air vents along the Hall perimeter as it encloses some of the airflow needed within the larger Hall space.

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Numerous exhibits and occasional performances occur in the Halls. Existing power and data connections are inadequate for these functions.

2022 Recommendations: Hall of States and Hall of Nations

Work in the Halls within the 2022-2027 CBP planning period will be undertaken as part of the Memorial Interpretation project. The planned work for FY 2023 includes replacement of the carpeting and improvements to the electrical floor boxes and floor air grills and replacement of the existing furniture.

Design and implement a new campus-wide standard for Assisted Listening Systems, centered around modern infrared technology, allowing patrons to use one single type of receiver regardless of which hall they are in.

Grand Foyer

The Grand Foyer spans the entire west side of the building. It is a large multi-story atrium space which connects the three major theaters of the Center: the Eisenhower Theater to the north, the Opera House at the center, and the Concert Hall to the south. This ceremonial space features 60-foot tall glazed curtain walls, similar to the curtain wall at the ends of the Halls, set within the exterior wall with views of the Potomac River to the west. Bronze doors within the curtain walls open to the Plaza Level River Terrace. There is a combination of heavy opaque and sheer drapes at each of these curtain wall openings. Each of the main theater lobbies open to this space, accessed from open stairs and ramps; each of the balcony tier lobbies overlook the space.

With the exception of the carpet, which is the same, finishes within the Grand Foyer are more ornate than those found in the Halls. The space includes large glass and bronze chandeliers at the ceiling, matching wall sconces, and recessed downlights. The plaster ceilings include simple plaster moldings along the perimeter as well as circling each chandelier. The walls are primarily plaster with simple plaster moldings. Walls bounding the west side of the space include full wall height surface mounted acoustical fabric wrapped panels near the Eisenhower Theater and Concert Hall entrances. The walls at either side of the Opera House entrance have full wall height mirrors.

The finishes are in fair condition, but they are showing signs of ordinary wear and tear expected for a heavily used public lobby space. The majority of these finishes were replaced as part of a multi-phase Public Space Improvements capital project in 2001. New finishes installed at that time included the carpet and drapes. The drapes are stained along the bottom and are planned to be replaced as part of the Memorial Interpretation Plaza Level projects. The carpet is also recommended to be replaced within the planning period. The



Figure 52. Grand Foyer

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replacement of carpet at the stairs to the venues should include contrasting edge strips at the stair nosing, as required by current accessibility guidelines.

The lower portions of the fabric-covered acoustical panels near the intermission service bars were replaced in 2007 due to staining and damage. The panels appear stained at the top edges. Replacement is planned as part of the Memorial Interpretation project for the plaza level improvements.

Ramps were added as part of the Public Space Improvements project in 2001. These are the accessible means of entering the three major venues. The ramps and their railings are in good condition; however, the carpeted surface is fairly worn and in need of replacement. The bottom half of the ramps are too close to the floor vents and create an obstruction to ventilation that should also be addressed in the planning period.

The lighting fixtures within the Grand Foyer currently use incandescent lamps. This area receives an abundant amount of natural light. In 2010, new dimmers were installed for the chandeliers with photocell dimming capability. The photocells dim the Grand Foyer lights to a very low level during the day when natural light is at an adequate level. Upgrading to more energy efficient lamps is recommended within the planning period.

A large bronze bust of John F. Kennedy is located in the center of the Grand Foyer. This statue is a key component of the Center's memorial function and is flanked by exhibit walls with interactive computer stations, which are designed to provide information about President Kennedy's career, accomplishments, and his most memorable speeches. The interactive portions of these stations consist of computer screens and keyboards situated in frosted glass countertops. The computer devices are outdated and should be replaced. A significant quantity of the silver ball inserts forming braille lettering on the exhibit walls have fallen out of the panel.

Freestanding white marble concessions bars are also located in the Grand Foyer; they are in fair condition. Necessary repairs are addressed through regular maintenance as they arise. The bars are generally fixed and only removed for special events. Over time, the bars have been augmented with adjacent removable tables to provide the necessary additional space required for service and venue specific retail. These items, though generally in good condition, make the window wall of the Foyer appear cluttered and are inconsistent with the overall elegance of the space. The bars will be replaced by vendor during the planning period.

Brass trash and recycling receptacles are scattered throughout the perimeters of the Halls and Grand Foyer spaces.

The Grand Foyer has similar seating to that found in the Halls. The quantity of seating has been increased to better accommodate peak venue times.

Bronze railings at the outer lobbies of the three main theater venues and the tops of the balcony walls were replaced in 2014 and meet current accessibility guidelines.

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The Millennium Stages are located at the north and south ends of the Grand Foyer. These stages are used daily for free performances. The stage prosceniums and large electronic screen arrays were installed in 2012 and are in excellent condition. Chairs are set up just before and are immediately stored after each performance. The mix and control positions for the Millennium Stages are situated near the rear of the audience area and were replaced in late 2018.

2022 Recommendations: Grand Foyer

Work in the Grand Foyer within the 2022-2027 CBP planning period will be undertaken as part of the Memorial Interpretation project. The planned work for FY 2023 includes replacement of the carpeting and improvements to the electrical floor boxes and floor air grills, permanent power to the iBars and replacement of the existing furniture.

States and Nations Galleries

The States and Nations Galleries are at the Terrace Level situated directly above the Hall of States and Hall of Nations with a similar plan configuration. The Terrace Gallery is located at the east end of the States Gallery. These galleries are used for a variety of functions, including receptions, performances, rotating art installations, dinners, and general lobby space. The spaces are accessed by the primary elevator banks on either side of the building.

The finishes in the States and Nations Galleries consist of polished marble wall panels (similar to the Halls below), vinyl floor covering with a wood pattern, and plaster ceilings. The ceilings were replaced in 2008 as part of the Roof Terrace Life Safety project, which installed fire sprinkler systems as well as new ceilings and light fixtures. Previously, the dropped ceiling elements in the Galleries were plaster coated with an asbestos-containing material; the new dropped ceilings are made of drywall. Existing ceilings along the edges of the Galleries were not replaced, as they consist of plaster in relatively good condition and no asbestos-containing coating is present.

Painted steel structural columns line the perimeter of each gallery. Both ends of each space have floor to ceiling curtain wall systems, with entrance doors to the Roof Terrace. Ramps are installed inside the doors, as the exterior surface is four inches higher than the Gallery floor. The States Gallery is divided into two spaces: the Space to the east is the Terrace Gallery, also called the Jazz Club.

The floor of both Galleries was replaced in summer 2011 and is in very good condition. On the incline of the ramps to the exterior, durable walk-off mat carpet tiles were installed. During the floor replacement project, it was found that all concrete substrate is in good condition.

The bronze handrails along the ramps to the exterior were replaced in early 2015 to match the appearance of other building railings. Due to the small elevation difference (less than 6"), there is no code requirement to upgrade the railing profiles, provide a guardrail, or provide handrail extensions.

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The freestanding concession bars located in the Galleries show signs of wear but are in fair condition. Some staining was observed on the marble panel wall cladding.

Due to the architectural characteristics of the rooms, their acoustical performance is very poor. Lack of any absorptive material in the room contributes to an 'echo' and makes it difficult to hear clearly. The Production staff uses temporary draperies, screens, or other means of providing an adequate environment for events. Wires span between the columns to provide a means to hang drapery or equipment. Lighting instruments can also be added to the columns for supplemental theatrical lighting.

In 2009, the Production Department improved the lighting, audio, communications, and video infrastructure in the Galleries. The project involved installing permanent user plug-in boxes in the ceilings and walls, running cable through conduit to mechanical rooms, and terminating the various services in patch bays and control boxes. This work improved the technical capabilities of the spaces and, given the large number and variety of functions, significantly reduced the setup and removal time for events.

The Roof Terrace Life Safety work was completed in 2008, and Technical Stage Systems improvements were completed in 2009. The floor was replaced in 2011. Therefore, the Galleries are in good condition. In 2015, new bronze handrails were installed at the ramps as part of the Handrail Replacements project.

2022 Recommendations: States and Nations Galleries

No major work is planned for these spaces within the 2022 – 2027 planning period.

JFK Gallery (Formerly Terrace Atrium and Atrium Foyers)

The former Terrace Atrium and Atrium Foyers have been renamed and renovated to create the new JFK Gallery which houses a new permanent exhibit "President John F. Kennedy: Art and Ideals." The new space was opened to the public on September 17, 2022. Final project completion is anticipated by December 2022. Located on the Roof Terrace Level in the center of the facility new gallery consists of north and south entry foyers and a main exhibit space, the total area is 7,600 s.f. The exhibit includes static exhibit content, audio visual content among numerous video screens, an approximately 300' long by 5' high video "frieze" and 3 interactive exhibits. The interactive exhibits include the Power of Words, Dynamic Portraiture and Dinner at the White House. The Gallery has been designed to continue to act as a connection between the



Figure 53. JFK Gallery

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Nations and States Galleries but, with the removal of the interactive exhibits, can also be used for special events.

The new finishes include, carpet time in the foyers, epoxy terrazzo flooring in the main exhibit, acoustical slat wall panels, acoustical ceiling systems.

Major infrastructure improvements include all new LED light fixtures, 3 new air handling units, new electrical distribution panels, new electrical lighting controls and replacement of existing sprinkler and fire alarms systems.

The public restrooms located in the JFK Gallery were renovated in 2008 to comply with current accessibility standards. The configuration of the restrooms and the adjacent Production storage rooms was altered to maximize efficiency.

Prior to the completion of the Theater Lab & Access Corridor project in 2012, the primary north-south path of travel on the Roof Terrace Level was through the Terrace Atrium and Atrium Foyers. This created problems when events were held in the spaces. The new public corridor constructed as part of the Theater Lab & Access Corridor project is always open to the public and provides a permanent solution to a longstanding circulation problem. The floor grilles at the Access Corridor, though new, were damaged by wheelchair passage and were recently replaced.

2022 Recommendations: JFK Gallery

There are no major improvements planned for this space in the 2022-2027 period.

Special Events Lounges

There are several Special Event lounges situated throughout the Kennedy Center. These lounges display gifts from other countries and are designed and appointed in styles that represent the cultures of those nations. These consist of the African Room, the Circles Members Lounge, the Bird Room, the Israeli Lounge, and the Chinese Lounge. These spaces are used primarily for small receptions and pre-event and intermission gatherings. Each lounge has a small supporting service suite consisting of a pantry and storage. Most of the lounges have a fixed concession bar.

The lounges each have distinctive architectural finish and lighting styles. In cases such as the Israeli Lounge and the African Lounge, lighting has been designed to specifically highlight artwork or architectural features. These spaces are regularly used for other purposes, including interviews, dinners, lectures and workshops.

Chinese Lounge

The Chinese Lounge, located on the Box Tier of the Eisenhower Theater, is appointed with wood veneered paneled walls, painted plaster ceiling, and carpeted floors. All finishes are generally in good condition, except for some wear of the wood paneling. The space has an open furniture arrangement – this configuration facilitates other functions or activities occurring in the

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space, including lectures, workshops, or interviews. The large entrance doors are heavy and can be difficult to open, particularly for persons with disabilities.

Adjacent to the Chinese Lounge is a small kitchenette and an equipment utility room. The kitchenette consists of a refrigerator, lockable storage cabinets, and work surfaces. The equipment room contains an ice machine, a residential grade dishwasher, a sink, and a slop/mop sink. The floor in the equipment room is ceramic tile. No provisions for food prep are provided. There is limited power in these spaces for food warming or supplemental equipment.

Renovation of the kitchenette and equipment room was performed in 2012 as part of Minor Repair. Work addressed architectural finishes, equipment, plumbing, millwork, lighting, power systems, and accessibility compliance related to countertop height, projections, and sink configuration. These spaces are therefore in good condition.

African Room

The African Room, located on the Box Tier of the Opera House, is configured for primary use as an art gallery space. The room is characterized by angular walls and ceiling planes with residual exposed construction. In 2009, the African Room was renovated to improve the lighting and replace the worn original carpet. Lighting is primarily provided by exhibit track fixtures that are concealed within the exposed structure overhead; all such lighting fixtures were replaced, augmented with additional fixtures for enhanced light level control, and a new dimmer panel was installed. The room is generally held at low light levels in order to protect the artwork on display and to maintain its ambience, but the new lighting fixtures allow for higher levels of light necessary for meetings and dinners held in the space. All finishes remain in excellent condition.



Figure 54. African Room

There is a large anteroom adjacent to the African Lounge that is accessed from either the Box Tier lobby or from the lounge through elaborately carved wood doors. This anteroom is regular in shape and is also used as an art exhibit gallery. There is additional lighting in this space, including general lighting as well as wall wash fixtures for exhibits. These fixtures were cleaned and refurbished in 2009. A low wood veneered built-in credenza spans the length of the west wall of the room. The carved wood doors were refinished as part of the 2009 renovation, and the credenza was refinished in 2013. The wood doors and the credenza are showing signs of wear. As this space is utilized primarily as a support space for the main African Room, no further upgrades are recommended.

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Circle Members Lounge

The Circle Members Lounge (formerly Russian Lounge), also located on the Opera House Box Tier, is the largest of the lounges and is in excellent condition, having been fully renovated in 2013 - 2014.

In 2011, a significant donation was provided to the Kennedy Center by a private foundation. This gift included funds for the artistic mission of the Center and also provided resources to fully renovate the Golden Circle Lounge and its anteroom. Upon completion of the renovation, the lounge was designated as the Russian Lounge for a period of ten years. In 2022 the lounge was renamed the Circle Members Lounge

Construction was completed in early 2014, implementing a modern design provided by a notable Russian architect. The design of the room centers around a large painting commissioned and provided by a Russian artist as part of the renovation process. The walls are clad with acoustical plaster panels, with the bottom course of the panels consisting of 12-foot tall pieces of cast acoustical plaster. The ceiling features a combination of new LED fixtures and refurbished original light fixtures set into coffers, including the large crystal chandelier that previously hung in the center of the room. The ceiling has been raised significantly over the main part of the lounge. The bar area has been expanded and consists of a terrazzo floor, walls, and a large bar in a solid surface material with LED accent lighting. The room has a new glass façade facing the Opera House box tier lobby. Overall, the design reflects a modern Russian design aesthetic.

With the recent completion of this project, all aspects of the room are in excellent condition. Artwork assessment and recommendations are covered in the Artwork section.

Concurrent with the renovation of the Russian Lounge in 2013 – 2014, the lounge's adjacent kitchenette was fully renovated under the Minor Repair program. Egress from the lounge through the adjacent kitchenette should be reviewed as part of comprehensive life safety analysis.

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Israeli Lounge

The Israeli Lounge, located on the Box Tier of the Concert Hall, consists of fabric-covered walls and two major art installations: a mural covering the entire ceiling, and an elaborately carved wood relief on the west wall. A large concession bar is located on the east wall. The walls consist of fabric-paneled walls with two types of dimmable sconces: linear downlights to provide adequate lighting for the various functions in the room, and one set to provide light upward to illuminate the ceiling mural. The bar is made of stone and wood and has its own post-mounted lighting. The floor is carpeted with a stone threshold at the entryway from the Concert Hall lobby.

The Israeli Lounge was renovated in 2010 with all new finishes. As a result, the space is in fair condition; however, some of the linear downlight ballasts have begun to fail and the fabric panels show signs of wear.

A large kitchenette is adjacent to this space. This space was renovated in 2012 as part of Minor Repair. Work included addressing architectural finishes, equipment, plumbing, millwork, lighting, power systems, and accessibility compliance related to countertop height, projections, and sink configuration.

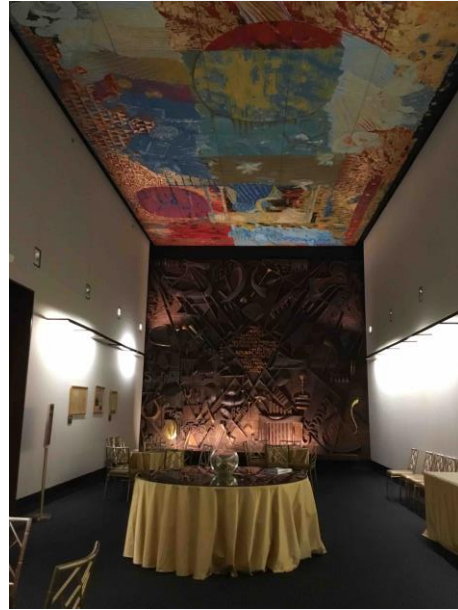


Figure 55. Israeli Lounge

Bird Room

The Bird Room, located on the Second Tier of the Concert Hall, features glass and wood display cases with statues and figures of various bird species. The finishes in the room consist of fabric wrapped wall panels, floor to ceiling mirrors, painted plaster ceiling, and carpeted floors. The carpet was replaced in early 2008 and the fabric panels and mirrors were replaced in 2011.

The room lighting consists of two large crystal chandeliers with dimmer controls. Until recently, no provision for exhibit and case lighting was provided and the various statues and figurines were poorly lit.



Figure 56. Bird Room

In 2011, museum-type exhibit lighting was installed that provided LED fixtures to properly illuminate the display cases and the contents.

A small kitchenette is adjacent to this space. This space was renovated in 2012 as part of Minor Repair. Work included addressing architectural finishes, equipment, plumbing, millwork, lighting, power systems, and accessibility compliance related to countertop height, projections, and sink configuration. The kitchenette is consequently in good condition.

2022 Recommendations: Special Event Lounges

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Israeli Lounge finishes and lighting to be refreshed as part of other interior renovations.

Motor Lobbies

The motor lobbies are the spaces on A, B, and C Level that welcome visitors to the Kennedy Center upon their arrival after parking in the garage. The spaces consist of two lobbies on each level. The B and C-Level motor lobbies are separated into two discrete areas by parking at the C-Level, and by the Information Technology offices at B-Level. The A-Level lobbies are connected by the Visitor Center.

The Visitor Center is flanked by a gift shop and features a tour desk in the center of the area that is a prominent location and highly visible to visitors.

The entire Visitor Center area was renovated in 2011-2012 to provide new “living memorial” photo exhibit, finishes, tour desk, volunteer support space, and electronic displays that provide an overview of the Center’s artistic and memorial endeavors, as well as directional information. All aspects of the space are in good condition.



Figure 57. Motor Lobby

Beyond the Visitor Center area, the Motor Lobbies were renovated in 2007, as part of the Motor Lobby Life Safety Upgrades project, to provide fire sprinkler coverage where none previously existed. The work included new ceilings, new lighting, new cabinet unit heaters, and new poster cases. All work performed during the renovation is in good condition, with the exception of the pendant lighting. These fixtures are no longer manufactured, so new fixtures were selected and installed.

The Motor Lobby restrooms were renovated to be fully accessible in 2009 as part of the Toilet Room Renovations project. The Motor Lobby restrooms will be renovated in the current planning period to improve patron experience.

All floor surfaces are terrazzo, which is a very durable material. Although the floor has several hairline cracks and stains, the condition is not sufficiently problematic to justify the resources required to replace the terrazzo. The most evident issues are at the escalator access panels, which have a thin terrazzo layer over the panel itself, which has cracked over time. Crack repair and infill was addressed as escalators were replaced.

The original bronze handrails in the Motor Lobbies required alteration in order to bring them to full code compliance. The profile of the rail itself was too wide, handrail extensions were not present, and many locations lacked the necessary guard rail in addition to the handrail. The handrails were replaced in 2014 as part of the comprehensive Handrails Replacements project.

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At A-Level, the floor surfaces on the non-public side of the doors to the staff areas do not provide a level landing at the top of the ramp, posing a challenge for a person in a wheelchair. To address this situation, new power door openers were installed in 2012 as part of the Level A Visitors Center project to assist wheelchair users when traversing this ramp.

While the Motor Lobbies are generally in good condition, their appearance does not provide an adequate welcoming first impression of the Center as a premier cultural institution. An upgrade of the Motor Lobbies to match the appearance of the Visitor Center should be considered in the next planning period.

2022 Recommendations: Motor Lobbies

Renovate Motor Lobby restrooms to improve patron experience. This project has been put on hold due to lack of funding.

Wayfinding

The Kennedy Center is a complex building with multiple theatrical venues, gift shops, restaurants, event spaces, and other areas. Detailed wayfinding signage, posted throughout the building's public spaces, orients visitors, employees and performers to the major circulation routes as well as to specific destinations throughout the building. The Center's current wayfinding system was installed in 2001 and consists of both freestanding and mounted signs, most of which are located within the motor lobbies, Hall of States, Hall of Nations, Terrace Galleries and the Grand Foyer. A significant component of the wayfinding system is a collection of kiosks and floor-mounted signs with maps and brochure racks that are located in the Motor Lobbies, Halls of States, and Hall of Nations.

A separate system of garage and site signage was installed in 2005 as part of the Site Improvements project. A number of exterior signs include electronic variable messaging that is controlled from the Parking Office. Although maintenance has occasionally been needed to address functionality issues with the electronic components, the site signage is in good condition.

The general signage construction consists primarily of applied letters, directional arrows, icons such as those indicating restrooms, and two to four colors indicating hierarchy of information. Maps provide a visual representation of the building's layout, indicating key destinations and circulation routes.

In 2012, as part of the Theater Lab & Access Corridor project, new wayfinding was provided in the Galleries to direct visitors to the new public corridor along the west wall of the Roof Terrace. Concurrently, the existing floor-mounted signs located in the Galleries were in poor condition due to regular demounting and remounting and were permanently removed. Ceiling and wall mounted signage still remains on the Terrace Level.

Overall, the signage is in varying levels of physical condition and is not fully incorporated into the architectural design of the public spaces. Often, the signage and wayfinding devices are stand-alone objects within the Halls or

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Galleries that contribute to a sense of clutter. Since the Center is a very large building which routinely hosts multiple simultaneous events, differing signage showing varying information causes confusion as visitors, staff, and performers try to orient themselves within the Center.

See also Parking Garages section for wayfinding implemented in the parking garages.

2022 Recommendations: Wayfinding

Create and install uniform signage to improve the function and aesthetic of the wayfinding system.

Support Spaces

In order to operate the large number of theatrical spaces within the facility, support spaces are necessary. The Kennedy Center is fairly constrained in terms of square footage, with less space than would be expected in a facility of its size for rehearsal rooms, offices, storage rooms, and other spaces. However, through operational efficiencies, performances, events, festivals, and other activities make the maximum use of the space that does exist.

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Rehearsal Rooms

Eleven rehearsal rooms and several small practice rooms are situated throughout the facility. Seven of the rehearsal rooms are situated in the central block adjacent to the Opera House. One rehearsal room is situated near the Eisenhower Theater and one is situated near the Terrace Theater. Rehearsal Room #7 in the Opera House is unique in that it features exterior windows and natural light. The Terrace Theater rehearsal room is irregularly configured due to the structural constraints in that part of the building.

The rehearsal rooms are used for a wide variety of activity, including rehearsals, meetings, presentations, food preparation, and short-term offices for special events. This leads to a very heavy schedule of use and significant wear and tear. As identified in the 2006/2007 CBP, the rehearsal rooms had become worn and suffered from inadequate lighting and acoustical treatments, and in some cases, room access did not meet accessibility requirements.

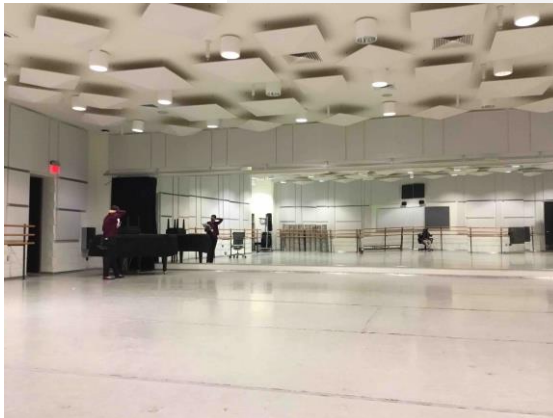


Figure 58. Rehearsal Room

Consequently, the Rehearsal Room Renovation project, completed in 2013, included new finishes and new infrastructure. The size and configuration of the rooms is largely unchanged. New audio and video systems, new acoustical ceilings and wall forms, and new dimmable lights with user-friendly control panels were installed. All wood flooring was sanded and resurfaced. In some cases, new subflooring was installed in order to improve accessibility conditions and eliminate non-compliant ramps.

Where dance barres and full-length mirrored walls were installed, those fixtures were maintained, and new sprung flooring systems were installed. In addition, new storage was created in many of the rooms, with new storage cubbies and closets installed where practical.

As part of the project, a new elevator was installed in the Education offices in the Opera House block. This new elevator allows for wheelchair access to Rehearsal Room #7, which had previously been accessible only through a wheelchair lift that was difficult to maintain and prone to outages.

2022 Recommendations: Rehearsal Rooms

No work is anticipated during the 2022 CBP planning period.

Offices and Storage Spaces

The lack of sufficient and efficient office and storage space is continuing problem for the Kennedy Center. Office space is located throughout the facility, with the largest office area concentrated around the Eisenhower Theater. The National Symphony Orchestra staff is located near the Concert Hall, the Education staff is located near the Opera House, and various other departments are located in areas that have been converted to offices over

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time. Because office space was not considered to be a significant need for the facility in the original design, such space is extremely limited, with nearly every possible space that could be converted to offices utilized for that purpose. Converted locations include theater lobby space, attic space, garage space, closets, and other miscellaneous locations. As a consequence of limited office space in the original design, very few offices have access to natural light. Additionally, many of the office “cubicles” throughout the building are built with permanent construction as opposed to systems furniture. As a result, the space is inflexible, and it is difficult and costly to reconfigure space to accommodate periodic changes in staff size or staff functions. Acoustical privacy and thermal comfort are also a concern in most office areas, as is lack of meeting space. Ceilings in some office areas are low, and lighting levels are inconsistent.

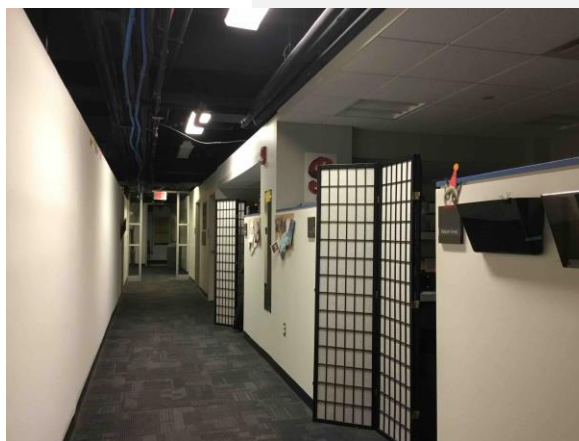


Figure 59. Office Space

Storage space is also limited for every aspect of building operations. Production storage and staging occurs primarily on Level A and at the levels of the various stages. This includes storage for equipment for each theater, equipment that is common to the entire facility, and areas for resident and visiting groups and performances. Retail Operations uses storage rooms throughout the facility; most of these are remotely located from the retail stores. Storage related to administration is also situated either within the areas of staff offices or in remotely located storage rooms. Art pieces and international gifts are also stored on site and in an unconditioned remote warehouse. Building materials and materials for set construction are located in areas on Level A near the service tunnel. Archival material, including extensive collections of photos and other documentation collected over the history of the Kennedy Center, is stored on site in various locations. An appropriate, climate-controlled space is needed to establish a formal centralized archive.

The Center leases warehouse storage space in Springfield, Virginia; however, this location is not conducive or efficient for storing items that must be accessed regularly.

In order to address some of these issues, upgrades and renovations were implemented in 2011. The 2006/2007 CBP noted the need for resources to be allocated to the improvement of office and storage spaces; consequently, the Office and Storage Renovation project was created. As part of the work, B-Level office areas and the entire third floor of the Eisenhower Theater block offices were renovated and new A-Level offices were created to accommodate expanding departments. These efforts helped the situation but more work is required to correct the office and storage space problems.

A Space Use Master Plan was developed using consultant services in 2019 (the Study also provided revised egress routes).

The Space Use Master Plan included a “test fit” and phasing plan to renovate the Marketing Offices and adjacent spaces. This plan requires the use of

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rehearsal rooms to provide swing space to renovate the existing offices without having to relocate staff to other facilities outside of the building.

The Space Use Master Plan will be reevaluated during this planning period to address changes in workspace requirements post-pandemic, with an emphasis on healthy workspace.

Minor office modifications are an on-going process and are completed on an as needed basis. Current requested office modifications include renovations to the Development Offices, HR Offices, Legal Counsel Office, Theater Programming, and Social Impact. Future office modifications should take into account the recommendations of the Space Use Master Plan to avoid unnecessary duplication of effort.

In FY20 a project was initiated to develop a swing space within the existing Terrace Gallery. The space was previously used as a 'Jazz Club', but this function has been relocated to Studio K in the REACH. The space is available to be repurposed as part of Office Improvements or Memorial Interpretation project.

2022 Recommendations: Office and Storage Spaces

Reevaluate Space Use Master Plan to address post-pandemic considerations.

Complete Phase 1 of an office and storage space renovations to implement the recommendations of the space use study.

Service Tunnel

The service tunnel spans the east side of Level A with access at the south and north ends of the tunnel. The tunnel is used for truck access and loading and unloading of material, as well as trash collection and deliveries. The tunnel consists of a main roadway, two loading docks, and a variety of storage, infrastructure, and support areas, such as Production metal and wood shops. Due to the nature of the facility and the layout of the site, there is no traditional "back door" for service and other building operations. The service tunnel provides for this need while concealing this activity from general view.

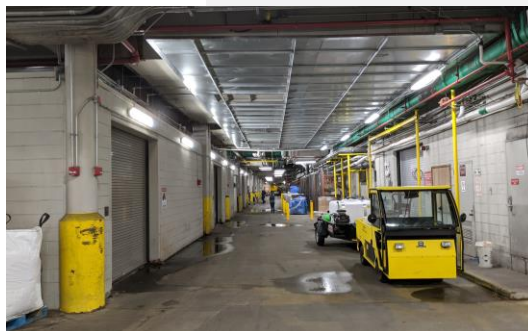


Figure 60. Service Tunnel

To facilitate the service and operational needs of the facility, there are two loading docks in the tunnel, each situated between two major theaters on floors above. The north loading dock (Loading Dock #1) serves the Eisenhower Theater, the Family Theater, and the Opera House. This dock provides access to freight elevators that service the north and center blocks of the building, including the Terrace Theater, Theater Lab, and Terrace Gallery. The south loading dock (Loading Dock #2) serves the Concert Hall and provides access to the south block freight elevator; it is the primary access for the kitchen and restaurants on the Terrace Level.

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The service tunnel is a utility space and is subject to near-constant activity involving vehicles, deliveries, dumpsters, forklifts, machinery, and other light industrial uses. The 2006/2007 CBP documented a number of problems in the tunnel, many related to infrastructure, due to the years of use and water infiltration. As a result, the Service Tunnel Renovations project was created. Construction was completed in 2012.

The project addressed a number of significant issues, with the most critical being those that affected the infrastructure of the facility. The tunnel is situated under the patron drop-off plaza, meaning that a large portion of the east plaza of the Kennedy Center, including roadways, sidewalks, planters, drainage systems, and other hardscape elements are in essence the roof of the service tunnel. Given the extremely sensitive nature of the infrastructure within the service tunnel, including electrical utility vaults, the emergency generator room, the fire pump room, and information technology server rooms, the condition and maintenance of the service tunnel is of paramount importance to the facility.

Water intrusion into the service tunnel and its adjacent areas has long been a problem. As a prior stopgap measure, the Service Tunnel Waterproofing project was implemented in 2009 to address the most immediate and critical items. The incoming corroded natural gas pipeline was replaced, improvements were made to duct plenums to improve rainwater drainage, and planter drains were repaired in the plaza above. However, some water intrusion problems in the four transformer vaults still existed. Exterior waterproofing on the below-grade walls of the vaults is not feasible; the 2012 project instead included waterproofing to be applied on the interior walls and injection grouting in concrete joints and conduit wall penetrations.

Although the intrusion through the structure has largely been arrested through the improvements of the Service Tunnel Waterproofing and the Service Tunnel Renovations project, a moderate amount of water continues to be deposited on the tunnel driving surface due to the infrastructure within, and water infiltration in adjacent electrical vaults continues to be an issue. Water comes from condensation lines from HVAC units, overflow lines from the reflecting pool pump room, and vehicles that bring moisture into the tunnel during wet weather. Moderate amount of water on the tunnel driving surface is acceptable as long as the drainage system is functional, however, the water infiltration into the electrical vaults needs to be addressed.

Prior to the implementation of the Service Tunnel Renovations project, the drainage systems were not functional. Trench drains were sparsely located, did not drain properly, and were not located at the lowest elevations of the roadway. Once the existing drain lines were excavated as part of the renovation, it was confirmed that all existing drainage pipes were blocked due to collapsed sections that needed replacement. As a result, a constant condition of standing water existed in large areas of the tunnel. This situation caused accelerated deterioration of the roadway, led to water infiltration and concrete deterioration below the loading docks, and added to the overall

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poor condition of the tunnel. Therefore, the 2012 project included new drainage systems and the roadway was repaired and partially resurfaced as necessary to provide the proper slope to the drains. The concrete below the loading docks was repaired.

The 2012 project also addressed a number of layout and organization issues, due to the poor configuration of the storage areas along the main roadway. Prior storage areas were constructed of chain link material, exposing stored materials to dirt, dust, and vehicle exhaust. New storage rooms have been built, constructed from concrete masonry units, providing more efficient layouts, and creating more secure and protected space. Where caged storage is appropriate, lockable storage shelves have been installed to create additional storage space.



Figure 61. Service Tunnel Entrance

During the 2012 renovation, overhead piping was relocated, and permanent steel bollards were installed in key locations to prevent vehicles from passing under low infrastructure, such as ceiling mounted air handling units.

The service tunnel and associated utility spaces are minimally conditioned, which is appropriate considering that the tunnel is essentially open to ambient air at the F Street entrance. However, a number of the adjacent spaces are enclosed, and many have received recent HVAC upgrades. A new air-conditioning unit was installed for the network server room at Loading Dock #1 in 2012 and is in good condition. The adjacent transformer vaults are cooled by individual air handling units that were replaced as part of the Mechanical Systems Modernization project in 2012. In addition, the lighting in the vaults was upgraded as part of the ongoing Building-Wide Electrical Renovations project in 2012.

Recent site observations indicate water intrusion problems at the service tunnel still exist. Many of the walls and slabs in the transformer vaults are saturated. The moisture in the concrete has led to significant efflorescence and likely carbonation. Cracks and spalls are beginning to develop as the rebar in the concrete oxidizes. Steel beams encased in concrete at the loading docks also exhibit significant spalling. The loading dock areas may be prone to moisture given their location in line with the expansion joint.

2022 Recommendations: Service Tunnel

Implement Loading Dock Concrete Repairs. Additional improvements are included in Building Envelope sections.

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Restrooms

The restrooms in the Kennedy Center consist of theater restrooms, public restrooms in the Motor Lobbies, Atrium, and Galleries, and a variety of staff and back-of-house restrooms. As a result of a series of capital projects including the Eisenhower Theater Renovation in 2008, the Toilet Room Renovations in 2009, and the South Block Renovations in 2010, most of the Center's restrooms are compliant with accessibility standards. However, many of the restrooms, especially the ones that were last renovated in 1998, are starting to show their age and are in need of renovation. As a result of their heavy use the plumbing fixtures are starting to fail and require frequent maintenance. The finishes are also starting to become worn and dated.

Back-of-house and public restrooms should be renovated in phased approach that aligns with the sanitary piping and domestic water system upgrades. First phase of the renovations, which will include full renovation of public and back-of-house restrooms in the Eisenhower Theater block, is planned during this planning period. In all remaining restrooms throughout the Kennedy Center, all manually operated faucets, flush valves, soap dispensers and paper towel dispensers will be replaced with automatic fixtures and accessories.



Figure 62. Back-of-house Unisex Restroom

Future project planning should also address the inconsistency of plumbing fixtures throughout the building. The variety of plumbing fixtures increases the cost of maintenance.

2022 Recommendations: Restrooms

Renovate back-of-house and public restrooms in Eisenhower Theater block.

Replace manually operated faucets, flush valves, soap dispensers and paper towel dispensers in all remaining restrooms with automatic fixtures and accessories.

Door Hardware

Doors and door hardware are an exceptionally challenging area of concern for the Kennedy Center. The facility contains more than 2,500 doors with a variety of requirements for egress, fire separation, acoustic separation, and security. Due to the operational needs of the facility, such as the constant

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movement of carts, materials, lifts, and production-related gear, wear and tear on the doors and hardware is an ongoing issue to be managed.

To address some of the ongoing issues, door hardware upgrades have been a significant component of several past capital project efforts. Life safety projects such as the 2005 Miscellaneous Life Safety Upgrades, the 2007 Motor Lobbies Life Safety Upgrades, and the 2008 Roof Terrace Life Safety Upgrades and its follow-on 2010 life safety doors work included major improvements to fire separation doors and addressed major issues identified in prior life safety surveys. In addition, other capital projects that have renovated locations such as theaters, restrooms, and office/support areas have included scope to upgrade doors for life safety compliance, accessibility improvement, and miscellaneous operational improvement. In addition to upgrades related to specific renovation projects, all doors in the facility were re-keyed in 2006.

Most recently, the Door Hardware Upgrades project was completed in 2012 to address the balance of door and hardware deficiencies. Over the course of the project, more than 800 doors were upgraded.

For fire separation doors, new hold-open devices tied to the fire alarm system were installed along with new code-compliant hardware and closers. Doors to elevator pits, water valve rooms, mechanical rooms, and switchgear rooms were repaired to correct major deficiencies in functionality, security, and in some cases accessibility. Where mechanical room doors opened directly into an egress corridor, new vestibules were added to meet life safety codes.

Accessibility work included installation of new power door openers at doors without ADA-compliant pull distance clearances, installation of lever handles, and adjustment or replacement of closers to meet push/pull force requirements. However, many interior doors remain heavy for acoustical reasons or due the size of the door and are difficult to operate by persons with disabilities, elderly, and children. Some doors in office areas have non-compliant knob hardware.

General repairs included the replacement of many doors in the Concert Hall that had received numerous previous repairs and could no longer be maintained. Doors in dressing room shower areas were replaced due to rust, and heavily used doors were retrofitted with continuous hinges to minimize the need for future repairs. Doors that were out of alignment were repaired or replaced depending on the severity of the problem.

Also as part of the Door Hardware Upgrades project, all bronze exterior doors were replaced in 2011, with the exception of the exterior doors in the Terrace Gallery, which are rarely used. These doors were original to the facility and had experienced deterioration and loss of functionality over their 40 years of use.



Figure 63. Acoustical Door at Theater Entrance

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Motor Lobby doors were replaced with automatic sliding doors on the south side of the lobbies adjacent to the ADA designated parking spaces. Similar door replacement should be considered in the next planning period for north side doors which remain swinging, are heavy and difficult to operate.

2022 Recommendations: Door Hardware

No work is anticipated during the 2022 CBP planning period.

Building Systems and Infrastructure

The Building Systems and Infrastructure category in the Kennedy Center's CBP includes projects that are necessary to modernize, update, and replace the facility's mechanical, electrical, plumbing, vertical transportation, and technical stage systems.

HVAC Systems

The Center's heating, ventilation, and air-conditioning needs are met through a complex array of air handling units, direct expansion units, humidification systems, and a variety of exhaust and make-up air systems. Chilled water and heating hot water are provided through a central plant utilizing electric chillers and gas-fired boilers.

Air Handling Units

The Kennedy Center space cooling and heating needs are served by 59 air handling units located in Mechanical Equipment Rooms (MERs) distributed throughout the building and in the service tunnel. Chilled water and hot water coils within each of the air handling units are served by the building central chiller and boiler plant to cool and heat the spaces. In addition to the supply and return fans associated with the air handling units, over one hundred stand-alone exhaust fans provide garage exhaust, general building exhaust, toilet exhaust, mechanical room ventilation, and kitchen hood exhaust. Fans for these systems range in size from 200 CFM to 31,000 CFM.

A number of changes have been made to the Center's air handling equipment in the last 8 years, after receiving few improvements over the first 35 years of operation. Systems that were originally installed as constant volume systems have been upgraded to operate as variable air volume systems. Theater renovations have included a moderate amount of refurbishment to upgrade air handling units and air distribution to match revised architectural layouts for the theaters. The 2010 Mechanical Systems Modernization project improved many of the air handling systems. Additional mechanical upgrades were accomplished through the MEP Modernizations Phase 2 project, which was completed from 2012 - 2016. As a result, much of the facility's supply side air handling equipment has been refurbished. The return and exhaust systems remain largely original to the Center.

The 2010 Mechanical Modernization Project provided the following upgrades:

Five constant volume air handling units serving transformer vaults and the refrigeration room were replaced: AC-8-G, AC-9-G, AC-10-G, AC-11-G, and AC-12-G. Units were provided with new direct digital controls (DDC), modulating automatic flow control valves, and automatic control of systems via the Building Automation System (BAS).

Five existing multi-zone air handling units were upgraded and converted to variable air volume systems: AC-1-G, AC-2-G, AC-3-G, AC-4-G, and AC-5-T. New components for each multi-zone unit included fans, variable speed

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drives, cooling coils, cooling control valves, unit casing sections, and drain pans, as well as outside air actuator/damper and filter upgrades as required. Each air handling unit system was provided with several new Variable Air Volume (VAV) terminal units with hot water reheat, which provide independent space temperature control via a new space thermostat for each zone in the spaces served.

Twelve air handling units received significant refurbishment or were replaced: AC-1-T, AC-2-S, AC-2-T, AC-3-R, AC-3-T, AC-4-O, AC-4-R, AC-6-G, AC-6-S, and AC-6-T were refurbished; AC-4-S and AC-6-O were replaced. The scope of the refurbishment work included work such as the replacement of damaged coils, dampers, actuators, filter racks, insulation, spring isolators, and door seals. Other refurbishment work elements included new traps on drain pans, ductwork repairs, and repair or replacement of damaged or missing control system components.

New space and return air carbon dioxide sensors for demand control ventilation were installed in seventeen locations. The new locations consist of high-occupancy spaces that experience large swings in the demand for outside air, such as performance spaces, rehearsal rooms, and large public areas such as the Grand Foyer and Roof Terrace Galleries. These new sensors and the accompanying control strategies allow the Center to save energy by reducing outside air to the facility based on actual occupancy rather than on anticipated peak occupancy. The sensors measure the carbon dioxide levels in the indoor air and control outside air intake to provide acceptable ventilation levels within the space.

New space pressure sensors were provided in twelve existing air handling systems serving the five main performance spaces and public areas including Grand Foyer, Hall of States, Hall of Nations and associated upper galleries. New outside air damper and relief fan control sequences were programmed to alleviate space pressure fluctuations between zones and minimize draft conditions.

The MEP Modernizations Phase 2 project, the majority of which was completed in March 2016 included the following work items:



Figure 64. Existing Refurbished AHU – original casing with new interior components

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Five existing multi-zone air handling units were upgraded and converted to variable air volume systems: AC-1-S, AC-5-S, AC-7-O, AC-8-O and AC-9-O. The scope of work was similar to VAV conversions implemented under the Mechanical Systems Modernization project. New components for each unit include fans, variable speed drives, cooling coils, cooling control valves, unit casing sections, and drain pans, as well as outside air actuator/damper and filter upgrades as required. Each air handling unit system was provided with several new VAV terminal units with hot water reheat, providing independent space temperature control for each zone served.

Eight air handling units serving elevator machine rooms were replaced: AC-4E-4-7, AC-3E-2-5, AC-3E-1, AC-2E-1-4, AC-2E-7-9, AC-2E-5-6, AC-3E-3-4, and AC-4E-6. New units are modular type with 2" double wall construction with modulating automatic flow control valves. All control system components were replaced and new control sequences were programmed.

Ten air handling units have been upgraded to replace damaged components: AC-1-O, AC-1-R, AC-2-O, AC-2-R, AC-3-O, AC-3-S, AC-4-T, AC-5-O, AC-7-G, and AC-7-T.



Figure 65. Newer Modular Replacement AHU

A new fan coil unit was installed to serve the Kennedy Center's main phone switch room. Two new fan coil units were installed in the Main Box Office, to separate air handling in the box office from the Hall of States.

The scope of the Mechanical Systems Modernization Project addressed all of the critical deficiencies in the air handling systems identified as high priority work in prior surveys and CBP implementation plans and provided new component and control strategies for more efficient system operation. With the completion of the 2012-2015 MEP Modernizations project, each of the Center's air handling units will have received critical upgrades to the supply air fan and heating and cooling coils. However, not all of the air handling unit return sections or fans have been refurbished or replaced. These sections are functional, but exhibit exterior surface degradation which should be monitored.

As part of the construction of the new JFK Gallery AC-2-R in MER 8 was replaced with 2 new stacked air handling units AC-2-R-1 and 2 as well as the replacement of AC-2-R-3 in MER 7.

2022 CBP Recommendations: Air Handling Units

Stand-alone return and general exhaust fans should be replaced or refurbished. This includes approximately 55 utility return fans, 56 utility exhaust fans, and 29 wall mounted propeller exhaust/ventilation fans.

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Continue to monitor the condition of air-handling unit casing sections that have not previously been upgraded.

Provide dehumidification and cooling to the River Pump room, to protect recently upgraded equipment and improve conditions for ongoing maintenance during the summer.

Direct Expansion Units

There are currently 31 direct expansion (DX) cooling/heat pump units installed in various locations throughout the building. These units were installed to augment the building's original air-handlers. Over time, the Center's spaces have been built out and reconfigured in ways not anticipated during the original construction, leading to a requirement for additional heating and cooling. Spaces such as computer rooms, phone rooms, and lighting control rooms have been added in a number of locations and require constant cooling.

Generally, DX units provide heating and cooling in locations where delivery of central plant chilled water and hot water is difficult or infeasible. However, DX units require special maintenance and are not as energy efficient as the air handling units served by the central plant. In some cases, units have their condenser sections located within small Mechanical Equipment Rooms (MERs) where there is limited opportunity for the generated heat to dissipate, resulting in such problems as reduced system capacity, excessive run times and units shutting off on high pressure alarm.

Therefore, the 2010 Mechanical Systems Modernization project included scope to remove DX units where feasible. The project included the removal of fifteen existing DX units and associated condensers. For most systems, the work consisted of the installation of a new replacement chilled water fan coil unit. Affected areas included the Opera House Dimmer Rooms, Gift Shop, Gift Shop Storage, Mailroom, Mailroom Office, Instant Charge, Transportation Office, Locksmith Office, and the Photo ID office.

In addition, critical spaces such as server rooms received "dual-cool" units that provide redundancy in the event of central plant failure. These units include a chilled water coil connected to the building central plant for chilled water. In addition, the units include water-cooled compressors that allow the units to generate cooling to the server room spaces in the event that the chilled water temperature rises too high to adequately condition the spaces. In that case, chilled water is then used as condenser water to carry away the heat rejected by the local DX refrigeration process.

As part of the Mechanical Systems Modernization project, new controls were installed to modulate automatic flow control valves and automatic control of



Figure 66. Typical Existing DX Condensing Unit Located in Mechanical Room

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systems via the BAS were provided. For dual cool units, new condensing units and refrigerant piping were provided.

Of the forty-six original total DX units, fifteen were removed and as part of the 2012 Mechanical Systems Modernization project. In the future, twenty five of the remaining thirty-one units should be assessed for replacement. Detailed design work is necessary to determine the feasibility of replacement, as some of the units may not be removable without extraordinary cost that may not be offset by the operational and maintenance savings. The remaining six units are not recommended for replacement due to the infeasibility of running piping to the necessary locations or due to the specific dedicated need for the DX unit.

2022 CBP Recommendations: DX Units

Continue to monitor the condition of remaining DX units. Add additional DX conditioning to electrical switchgear rooms, to improve longevity of components.

Garage/Service Tunnel Exhaust Systems

The original exhaust system in the parking garage included a limited number of fans to remove vehicle exhaust: thirty-eight total fans of various sizes served the three levels of the original garage. In 2003, the Garage Expansion and Site Improvements project implemented substantial upgrades and modifications to this system. To serve the entire garage, including the newly constructed garage additions, the garage exhaust system capacity was sizably increased. Fourteen old fans were removed and eighty-one new fans were installed. Controls were upgraded to turn fans on or off based on carbon monoxide levels in the garage utilizing ninety carbon monoxide sensors.

All fans are constant volume single-speed fans. Modification of the fans to variable frequency drives would increase energy efficiency by allowing each fan to run at the lowest speed necessary to ventilate the garages. In addition, variable frequency drives would provide a “soft start” for the fan motors, which would extend the equipment life. The fan speed would be automatically adjusted based on actual monitored carbon monoxide levels in the parking garage, providing the minimum amount of fan energy required to exhaust air properly.



Figure 67. Existing Garage Exhaust Fan

The current fan capacity for the garage exhaust system is approximately 1.3 million CFM for a total parking area of 762,000 square feet. This provides a maximum exhaust rate of approximately 1.7 CFM per square foot, which is well above the 0.75 CFM per square foot required by the latest the 2018 IBC.

The service tunnel exhaust system was also expanded and upgraded as part of the 2003 Garage Expansion and Site Improvements project. The site work resulted in the main outside air intake areaways (serving MER-1, 2, and 3) being moved closer to the building. The intake louver on the east wall of the tunnel was removed, and the intake route was relocated to receive outside

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air through new planters and intake openings in the plaza above. Additionally, the makeup air dampers were deactivated and locked in the closed position to avoid mixing vehicle exhaust with incoming outside air. The exhaust fan that serves the service tunnel entryway was abandoned in place, as its proximity to the F Street entrance of the tunnel, combined with the expanded service tunnel exhaust system installed during the Site Improvements project, make its operation unnecessary.

Under the Mechanical Systems Modernization project, ninety carbon monoxide sensors were replaced in 2012 due to their age and lack of reliability.

2022 CBP Recommendations: Garage and Service Tunnel Exhaust Systems

Convert twenty-three existing large constant volume garage exhaust fans to variable speed systems to save fan energy. Due to age, begin replacement of these units to coincide with controls upgrades. Integrate remaining garage exhaust fans to the building automation system to allow synchronized demand-controlled ventilation operation.

Chilled Water Plant

The Kennedy Center's cooling loads are served by a central chiller plant located in a large mechanical room (the "refrigeration room") on Level C. The chilled water plant consists of four 800 ton water-cooled, 4,160-volt electric centrifugal chillers installed in 1995. The chillers utilize refrigerant R-123A. The plant was designed to generate 3,200 tons of cooling at a chilled water supply temperature of 42°F, a chilled water flow of 1,280 gallons per minute, and a chilled water return temperature of 57°F.

Chillers

The existing chillers have been in operation for nearly 20 years. With proper maintenance, the anticipated service life for an electric centrifugal chiller is 25-30 years. The chillers have been routinely serviced and appear to be in fair to good condition. A "Chilled Water System Evaluation and Analysis" study was performed in support of the 2015 Comprehensive Building Plan. This study recommends the replacement of two of the chillers with new, high efficiency, VFD driven, variable flow chillers in order to increase plant efficiency and yield significant energy savings, while being a less costly option than replacing all four chillers. High efficiency, VFD driven chillers afford the facility an opportunity to capitalize on available low condenser water temperatures and allow one or two chillers to meet loads, an improvement over the current need to use two or three chillers. Various other aspects of the plant control system, including pumps, chilled water bypass, and



Figure 68. Existing Chiller (#3)

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condenser water control strategies will be altered to optimize plant energy savings.

In addition to the existing chillers, the system includes a water side plate and frame heat exchanger for economizing capability, installed in 2012 as part of the Mechanical Systems Modernization project. The heat exchanger provides cooling and energy savings during the winter months by substituting for the electric chillers.

In FY21, the refurbishment of Chiller 1 and 4 is planned.

An additional modular chiller was added as part of the REACH project.

Chilled water pumps

The 1995 design intent for the chiller plant was to operate no more than two chillers at one time with one chilled water pump running to serve both chillers. This sequence of operation provides 1,600 tons of cooling, as compared to the building's 1,450-ton peak cooling load requirement calculated for the 1995 project. Thus, when originally designed, the system provided more than 100% redundancy (3,200 maximum tons of cooling versus a peak load of 1,450 tons). However, due to additional loads that have been added to the building since 1995, the peak load has increased to approximately 2,000 tons, leading to the occasional operation of three chillers simultaneously. Despite this increase in load, the plant continues to provide adequate redundancy, as the need for simultaneous operation of three chillers is infrequent.

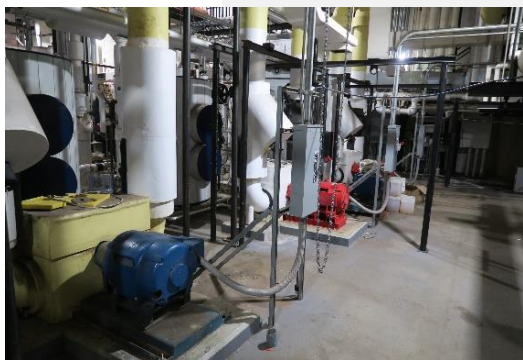


Figure 69. Existing Central Plant Pumps

Chilled Water Distribution

During the 1995 chiller plant renovation project, the original chilled water pumps were replaced with three variable volume pumps with a capacity of 3,000 GPM each at 125 feet of head. Each is equipped with a dedicated variable frequency drive. The variable frequency drives are designed to ramp the pump speed to maintain a system differential pressure setpoint. Differential pressure transmitters are installed across the chilled water supply and return piping in MER 6, 8, and 11. An automatic chilled water bypass control valve and orifice plate flow meter allow two-way control valves at each cooling coil to close during low load and still maintain a minimum flow through the chillers.

Although the chilled water pumps are relatively new, their casings are corroded due to condensation caused by insufficient insulation. While the pump casings appear to need replacement, the need is not urgent as the corrosion is superficial at this point. The condition of the casing should be monitored as part of regular maintenance. The pumps appear to be in good working order and could provide an additional 10-15 years of life. However, additional energy savings would result if two of the three chilled water pumps were upgraded to better match the system demands.

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The chilled water distribution system received some key modifications in 2012 as part of the Mechanical Systems Modernization. New chilled water flow meters and flow control balancing valves were installed on each of the four chillers. Electrical system modifications were made to allow operation of all chilled water pumps simultaneously. New sequences of operations and control components were provided to improve sequencing and staging of all four chillers and ensure that only the required cooling capacity will operate at any given time. Additionally, the chilled water distribution system was provided with three new differential pressure sensors and new sequences of operation to improve control of chilled water pump speed based on system differential pressure setpoint.

Condenser Water System

The Kennedy Center utilizes water from the Potomac River to reject heat from the chiller plant. River water enters the facility through a 60" diameter inlet pipe and flows by gravity into a large concrete intake sump in the River Pump Room located in the southwest corner of the building on Level C. The sump is a large concrete tank that houses grid bars, sluicing nozzles, travelling wire mesh screens and sluicing gates that remove larger debris.

Four condenser water pumps draw river water from the concrete sump and pump it through a duplex basket strainer which provides final filtration before the water leaves the River Pump Room. Condenser water flows from the pump room across the building under Level C parking to the Refrigeration Room on the east side, where it passes through the chiller condensers. Condenser water is discharged back to the Potomac River through a 24" diameter outlet pipe in the same pipe chase under Level C parking as the condenser supply piping.

The Kennedy Center operates the condenser plant under a National Pollution Discharge Elimination System (NPDES) permit from the Environmental Protection Agency. The permit conditions require that the condenser water returned to the Potomac River not simultaneously exceed a maximum absolute temperature of 90°F and a maximum temperature differential above the river ambient temperature of 5°F. As of July 2021, new temperature requirements are being coordinated for the NPDES permit renewal.

This open river water system provides significant energy efficiency and water conservation advantages as compared to cooling towers but is a source of deposits and marine growth in chiller tubes that reduce efficiency. There is no existing isolation provided to protect the chiller condenser water tubes from increased minute particles and debris that bypass the existing filtration in the condenser water system. As a result, the chillers have required increased condenser tube maintenance and repair. Nonetheless, this additional maintenance effort generally represents a worthwhile tradeoff to avoid the installation and operation of cooling towers.



Figure 70. Existing Traveling Screen Unit in Condenser Water River Pump Room

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During the summer of 2018 the Center experienced a failure of the Condenser Water system. The immediate cause of the failure was an accumulation of sediment in the condenser water tank following historic flooding of the Potomac River. In addition, there is no way to perform periodic cleaning of the piping, since the system was built assuming that chlorination would prevent biologic fouling of the system. Since current EPA regulations do not allow chlorine to be discharged to the river, mechanical cleaning must be performed.

In FY 2019 funding was made available to make immediate repairs and improvements to the condenser water system. The scope of the initial effort (Phase 1) included the following:

- A. Installation of a permanent infrastructure that allows the connection of temporary cooling towers to the building chilled water machines.
- B. Complete cleaning and inspection of the condenser water inlet tank and supply and return piping.
- C. Installation of inspection ports for future maintenance activities.
- D. Inspection of the 5' concrete pipe that connects the Kennedy Center to the Potomac River (the building "heat sink").
- E. Installation of new in-line filtration with 80 micron mesh screens and automated backwash cycle.
- F. Replacement of key pumping system components installed during the original 1970 construction.

Based on deficiencies identified during the Phase 1 repair project funds were obligated to make additional repairs in 2020/2021. Improvements include:

- A. Installation of new automatic vents
- B. Installation of a new condenser water pump priming system
- C. Additional cleaning of the river inlet tank
- D. Replacement of one condenser water pump

2022 CBP Recommendations: Chilled Water Plant

Replace two of the four existing chillers (2 and 3) with high efficiency, VFD drive chillers to improve energy efficiency at low part load conditions.

Fully integrate chiller controls into the BAS.

Modify the existing plant control system to provide optimized staging and sequencing of the chillers.

Optimize the existing chilled water pumping control to provide the minimum necessary chilled water to cooling coils throughout the building.

Optimize condenser water pump sequencing controls.

Replace one of three chilled water pumps and upgrade all three variable frequency drives.

Remove existing automatic rotating screen units from the condenser water sump tank and install removable heavy gauge stainless steel screens with hoists for removal and cleaning of screens.

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Add additional plates (150 ton capacity estimated) to the waterside economizer heat exchanger for expanded capacity and reduced use of mechanical cooling.

Boiler Plant

The Kennedy Center was originally built as an all- electric facility with no natural gas service. An electric boiler was installed in each MER to provide heating hot water to local equipment in the room. The twelve electric boilers original to the facility provided a total heating capacity of approximately 8,100 kW, or 27 million Btu/hr. These electric boilers have outlived their expected life and are in poor condition.

In 2003, as part of an energy savings performance contract, a central gas-fired boiler plant was installed to provide an improved level of heating efficiency compared to the electric boilers. The system consists of two 8 MBtu/hr boilers located in the refrigeration room. Primary pumps were installed to cycle a constant volume of hot water through the boilers, with secondary pumps distributing hot water to each MER. The primary pumps are eleven years old and are in good condition. When the new gas boilers were installed, the piping system within each mechanical room was modified to combine the independent heating systems in each MER into a central heating plant.

While the Center needs heating hot water throughout the year to maintain comfortable space temperatures, the need for hot water during the summer and shoulder seasons is a small fraction of the demand in the winter. When there is any demand for hot water, the boilers activate and produce 200°F water, cycling on and off frequently during partial load conditions. A mixing valve resets the secondary hot water loop temperatures to lower values when outside air temperatures are warmer, but the boilers always produce 200°F water.

Primary Heating Hot Water Pumps

Prior to the 2012 Heating Hot Water System Upgrades project, problems existed with the boiler isolation valve operation. Depending on how much heating is required, either one or two boilers will operate. Ideally, hot water pump operation will match the number of boilers that are operating; i.e., one pump for one boiler, and two pumps for two boilers. However, the boiler plant's isolation valve configuration was not set up to perform this control strategy while properly isolating the boilers. Each boiler had manual isolation valves, and it was not practical for technicians to operate the valves



Figure 71. Existing Primary Boilers

as boilers cycled on and off. As a result, there were often times when one pump and one boiler were running, but half of the flow passed through the idle boiler. This was inefficient and caused maintenance issues with the boilers. To address this, the Heating Hot Water System Upgrades project provided new automatic boiler isolation valves. Many hot water system sensors were replaced, all sensors were recalibrated, and heating hot water controls were re-commissioned. Until 2012, the heating hot water distribution system consisted of four levels of pumping, referred to as a primary-secondary-tertiary-quaternary pumping system. Two primary pumps circulated water through the boilers and two secondary pumps. The secondary pumps distributed hot water from the refrigeration room to the MERs throughout the facility. At each MER, tertiary pumps pulled the distributed hot water from the secondary loop and circulated the water through the electric boilers. Where multi-zone air handling units were present, a quaternary-level circulating pump pulled from the tertiary loop to the unit's hot water coil whenever there was a demand for heating.

In fall 2011, the Center shifted from an interruptible gas rate to a non-interruptible rate, eliminating the need to rely on the electric boilers to provide heating during periods of gas curtailment. It has therefore become possible for the electric boilers to be removed from service. Analysis has shown that the Center is saving energy and money by utilizing a non-interruptible natural gas service and heating the hot water exclusively via the gas-fired boilers.

This change in the operation of the hot water plant allowed simplification of the excessively complex four-level pumping system. In order to accomplish this simplification, the primary pumps were not altered, but the secondary pumps were upsized from 40 to 75 horsepower. This increase in size makes the tertiary and quaternary pumps unnecessary; they have been removed where practical and otherwise abandoned in place.

In the future, the addition of a smaller summer boiler will allow off-season maintenance of the two primary boilers and to achieve operating efficiencies. With this longer-term project, the chemical treatment and air separator configuration should be evaluated holistically.

2022 Recommendations: Boiler Plant

To support preventative plant maintenance, perform camera and/or additional visual inspection of the existing flue system to determine overall condition, due to concern over water leakage.

Electric boilers previously decommissioned should be removed to free up floor area for future system modernization work or attic stock, to coincide with other mechanical room equipment replacement work.

Building Automation System

The original Building Automation System (BAS), installed in 1968 when the building was first constructed, was a pneumatic Barber-Coleman system. Portions of that original system remain, despite numerous modifications and upgrades over the years.

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The first significant upgrade occurred in 1997 when a Johnson Controls Metasys Personal Machine Interface (PMI) was installed to operate the existing pneumatic control system. This installation was a first step in the conversion of the pneumatic system into a Direct Digital Control (DDC) system. With the PMI installation, the facility had electronic centralized computer control even though the actual control devices remained pneumatic. Many temperature, pressure, and flow sensors were converted to electronic devices.

The next major upgrade occurred in 2003 in coordination with the energy savings performance contract. This revision added the Johnson Controls Metasys Extended Architecture (Metasys EA) control system onto the PMI system.

In the years 2003 to 2010, the control system operating in the Kennedy Center was a mix of the original pneumatic system, the 2003 PMI system, and the Metasys EA system. This mix of systems, including approximately 17 supervisory controllers and 450 field controllers, created some significant operational challenges, such as inconsistent set points, excessive need for manual overrides, failed sensors, non-standard sequences of operation, and an excessive need for technician training. In addition, parts of the systems were obsolete or were to become obsolete shortly. The pneumatic devices were functional but needed upgrades to provide a more standardized set of field devices, reduce the maintenance requirements of the system, and eliminate the central pneumatic compressor.

The 2012 Mechanical Systems Modernization project included a significant scope of work related to building automation. Most previous building automation components were removed or upgraded in order to fully convert to the Facilities Explorer system. Sequences of operations for major refurbished or replaced systems were reprogrammed and all sequences were migrated to the new non-proprietary system. All controls now function through the single Facilities Explorer system.

System graphics were upgraded to provide control screens for each air handling system, the chiller plant, and the boiler plant. New user interface graphics were provided with a floor plan for each level of the building indicating the zoning, control sensor locations, space set point, and actual space temperature, humidity, and space pressure where applicable.

These changes provide increased reliability of automatic control, reducing the amount of manual operation that must be performed. Sequences of operation will be maintained more easily over time, leading to fewer overrides and reduced contracted maintenance services. In addition, the new graphical interface screens facilitate troubleshooting for more rapid problem response time.

The recently completed scope of work for building automation is a comprehensive package that greatly enhances the Center's control systems. The lone remaining issue to consider is the continued presence of components of the old pneumatic system, including the existing pneumatic air compressor. Earlier recommendations suggested that all pneumatic

components be eliminated from the system; however, due to the size and complexity of the building automation system, further study is required to ensure that the benefits of eliminating pneumatics will justify the considerable cost.

2022 CBP Recommendations: Building Automation System

Continue to replace pneumatic system components as associated equipment is replaced.

Rooftop Solar Energy

In 2008 the Center was authorized by Congress to study, plan, design, engineer, and construct a photovoltaic system for the main roof of the Kennedy Center. The roof of the Center is flat, with a total area of 135,000 square feet, and would appear to lend itself well to the installation of a photovoltaic (PV) system due to its large open area and good exposure with no shade.

At the request of the Center, the US Department of Energy Solar America Initiative prepared a report in 2008 that describes solar energy opportunities at the Center; this report was updated in 2012. Results of the study indicate that a ballasted flat-mount system has the potential for over 1,178 kilowatts of photovoltaics made up of numerous arrays on the building roof, which could deliver over 1.53 million kilowatt-hours of electricity per year. In 2012, the PV system installed cost was estimated to be approximately \$6 million. The study estimated that by implementation of this project the Center would reduce electricity consumption and electrical costs by about 6-7%. These costs and savings projections are from early 2012; it is likely that with advances in technology and manufacturing, the cost of the project would now be less, and that the energy generated could be greater.

Installation of a rooftop solar array appears promising from an energy point of view. However, the age and construction of the Kennedy Center's roof system impact the viability of such an installation at this time. The roof was installed in 1999 and consists of a flat ballasted coal tar bitumen system. Although the roof is in good condition, the warranty will expire in 2019. While photovoltaics vendors and roofing contractors have advised that the coal tar system might support the weight of solar arrays without affecting the integrity of the roof if some modifications were made to the typical ballasted arrays, the Center does not wish to risk compromise of the existing roof, which is likely to serve another 10 years.

Therefore, consideration of a solar panel installation will be deferred until the roofing system needs replacement.

Plumbing Systems

The Kennedy Center's plumbing systems consist of pipes, valves, pumps, fixtures, heaters, and other equipment to manage domestic water and storm

water. In addition, the Center's grounds house four display fountains and a reflecting pool.

Domestic Water Systems

Domestic water is supplied to the Center by combination water/fire service mains which enter the building in two locations: the southwest corner of Level C and the northeast corner of Level B.

The domestic water system consists of a network of piping systems distributing horizontally to the Center across the ceiling space of Level A. There are numerous branches which distribute water through vertical risers supplying domestic water to restrooms, shower rooms, mechanical rooms and hose stations throughout all levels of the facility, including the parking levels. The domestic hot water piping system includes recirculation loop piping and balance valves to maintain hot water distribution temperature.

Domestic water distribution piping consists of both threaded galvanized piping and copper tubing with soldered or mechanical joints. The piping system is in fair condition in most locations, but issues exist in many areas. Leaking pipes occur periodically due to the age of the system. Much of the existing piping and valves were installed over 40 years ago. This original piping is likely to have asbestos insulation at piping elbows. Many of the existing gate valves are nonfunctional.

Modernization of the domestic hot water system was completed in 2012 as part of the Heating Hot Water System Upgrade project. Four electric storage water heaters were replaced by four high efficiency gas-fired condensing water heaters. Domestic hot water distribution was significantly improved as well. The existing four domestic booster pumps were replaced. The old pumps were undersized for the system given the expansion that has taken place over time; "dead legs" existed that were partially attributable to the lack of pumping power available. The new booster system provides a more powerful and efficient variable speed pumping system.

Distribution improvements were also achieved through modifications to the existing domestic hot water recirculation branch legs. Additional hot water recirculation loops were installed, non-functional valves throughout the facility were replaced, and new isolation valves were installed for improved control. However, there is still a lack of hot water flow to some areas at the ends of the distribution system due to scaling and corrosion of remaining, original piping.

The project also included replacement of the system distribution piping located in the refrigeration room, including the main isolation valves. This



Figure 72. Existing Domestic Water Heater

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improvement allows water service to be shut down for maintenance or other projects in only the affected sections of the building, rather than an entire block at a time.

The Center has two automatic landscape irrigation systems. The larger system was installed in 2005 as part of the Site Improvements project, and includes all irrigation on the main plaza level. A separate system on the Roof Terrace Level is limited to the perimeter planters and predates the Site Improvements project.

2022 CBP Recommendations: Domestic Water Systems

Replace existing domestic cold, hot and recirculated hot water piping throughout the facility. A detailed survey and engineering study should be commissioned to prioritize piping to be replaced within the budget constraints of each phase, impact to architectural finishes and operational considerations.

Sanitary and Vent Systems

The sanitary drain, waste and vent system consists of a network of vertical risers from plumbing fixtures on the upper floors connected to horizontal piping in the Level C garage.

The original sanitary and storm system piping installed when the building was constructed has reached the end of its useful service life. Floor flanges are failing, causing cracks and leaks in bell and spigot joints. A large crack was observed in the main, 10-inch, combination storm and sewer pipe in the Level C garage. Leaks have also occurred where newer piping has been connected to the original piping with no-hub bands. Storm drain piping frequently clogs due to infiltration for soil and sand from tree beds.



Figure 73. Existing Sanitary Main with Crack

2022 CBP Recommendations: Sanitary and Vent Systems

Replace existing sanitary drain, waste and vent piping throughout the facility. A detailed survey and engineering study should be commissioned to prioritize piping to be replaced within the budget constraints of each phase, impact to architectural finishes and operational considerations.

Sub-grade Pumping Systems

The Center's sub-grade pumping system consists of twenty sump pumps and associated pump chambers that are located in the interior perimeter of the Level C parking garage. The system also includes a sewage ejector and associated pump chamber in the Level C garage. The majority of the pump stations are duplex, submersible type pumps with basic on/off float switch controls. The discharge piping and float switches are exposed in the parking garage and therefore subject to cold weather temperatures, tampering, and vandalism.

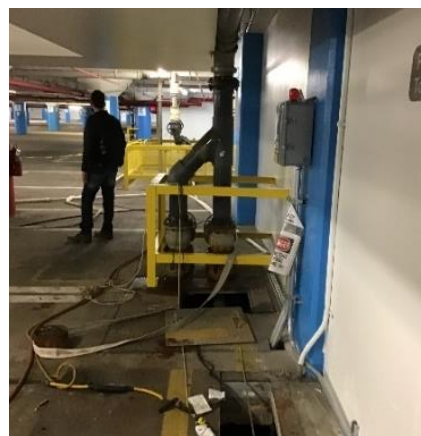


Figure 74. Typical Sub-Grade Pump Unit with Access

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Discharge piping insulation is often missing, and heat trace wiring is exposed in some locations. In one location, the piping is broken and the associated pump is not operational.

Most pump chambers are original to the building. In some locations, the pumps inappropriately discharge to both sanitary and storm drain lines. The pumps should discharge to sanitary lines only. Efficient motors should be provided, control panels should be upgraded and relocated to a level above the flood line, and high water alarms should be modernized. The pumps should be connected to the BAS in order to ensure proper alarm notification to maintenance personnel. Missing insulation, heat trace wiring, and broken piping should be repaired where needed. Any pumps that discharge to storm drain lines should be reviewed to ensure that storm drains are not receiving water mixed with sand separator discharge and lines should be rerouted to sanitary drains where necessary.

Some sub-grade pumps were replaced in 2015.

2022 Recommendations: Sub-grade Pumping Systems

Continue to replace sub-grade pumps and associated components as minor repair projects.

Electrical Systems

The Kennedy Center electrical service includes multiple primary feeders and utility transformers. In the event of a failure of any one component, the incoming service can be safely taken offline without interruption. The electrical service consists of six service feeders originating from separate Pepco bus sections. The six primary service feeders are routed into the building through four utility vaults located on the east side of the service tunnel.

Each transformer network supplies a collector bus through network protectors and power is distributed to the facility from each collector bus via service-entrance conductors. Each network is provided with multiple layers of protection to ensure a constant electrical service in the event of equipment failure. Also, to ensure a redundant electrical service, the installed capacity of each transformer network allows for one or more transformers in each vault to be offline and still meet the load of the building.

The associated service-entrance conductors are connected to the collector buses and exit the vaults to serve a total of twenty-six 480/277V and 208/120V switchboards located throughout the facility. These twenty-six switchboards feed all building electrical loads.

All generator loads are fed from common automatic transfer switches within the facility. A 600kW/750kVA diesel generator provides power to select loads throughout the facility should there be a loss of normal power. The generator was installed in 2001 and is in adequate condition. The capacity for additional loads was investigated in 2016 but the generator was not determined to be in need of upsizing.

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Power and Distribution Systems

A number of electrical system upgrades are recommended throughout the entire site. Currently, the facility does not have a grounding system in accordance with electrical code. A building grounding system is essential in ensuring all feeders, transformers, switchboards, and switchgear are properly protected.

The insulation is deteriorating on the existing electrical service-entrance conductors and feeders throughout the facility. Aluminum feeders are not passing the Megger test, a standard test method for determining the quality of conductor insulation. The condition of these feeders requires that they be replaced with new wiring that is safe and reliable.

The building's electrical system possesses half-size neutral conductors, which, while not ideal, was determined to be acceptable by both the electric utility and the electrical code at the time. These system neutrals have now become a problem due to the current loads being unbalanced causing the neutral conductors to carry excessive and damaging current during fault conditions.

The facility's emergency power distribution is configured so automatic transfer switches provide power to emergency loads when the emergency generator is active. Some standby loads (server rooms, security systems, telephone equipment, and sump pumps) are improperly tied into the emergency power network. Although the alternate power source is permitted to supply power to emergency loads as well as other stand-by loads, the transfer switch used for the emergency system is strictly limited to emergency loads only; that is, loads classified as emergency in accordance with code. Other loads are not permitted to be supplied from the emergency system transfer switch. Therefore, the Center's single generator can be used to supply both emergency and nonemergency loads, but only if multiple transfer switches are present and the appropriate loads are connected to each transfer switch. Additionally, it seems that the current generator is undersized for the required emergency load throughout the building. Some loads that would be best served from an emergency source are currently not being served from the generator (i.e. fire pump controls). It is recommended that a study be done to determine the proper size of the generator and increase the size if deemed necessary.

Short circuit, arc flash and coordination studies should be performed on the entire electrical system to determine if all panels and devices have sufficient interrupting ratings and to provide the required arc flash labels to electrical equipment for proper safety measures. This should at least be done for all loads served by the emergency generator but is recommended for the whole facility.

Most of the facility's electrical rooms and closets are original to the construction of the building, and some do not meet the requirements of the electrical code in terms of layout, working space, and firestopping of penetrations. It may be required to increase electrical space square footage to meet code-required working clearances and dedicated equipment space.



Figure 75. Existing Electrical Panel

Much of the circuit breaker type panel equipment is original to the building and has extended more than 10 years beyond what would normally be expected for replacement. Newer technology is more compact than the current equipment and will provide spare capacity and greater reliability.

2022 Recommendations: Power and Distribution Systems

Many feeders in the power distribution system are original to the building and are not passing the Megger test. It is recommended to replace all feeders serving switchboards, switchgear, and panelboards throughout the entirety of the site to allow for a reliable, safe, and efficient system.

The building does not currently have a central grounding system that supports all electrical, technology, and Audio/Visual equipment. It is recommended to install a central grounding system to properly provide protection to key electrical/electronic equipment from various potential faults in the system.

Much of the power distribution equipment throughout the site is original to the building and is overdue for replacement. Additionally, there are many panels that are worn or rusted and are in need of replacement. It is recommended to replace all pieces of electrical distribution equipment that were installed before the year 2000 or, replace equipment that is in poor condition.

Due to concerns regarding the size of the generator and its capacity to serve all emergency loads in the building, it is recommended that a study be completed to verify whether the generator can adequately serve all emergency loads in the building or whether it needs upsizing. If the study determines that the generator is undersized to serve all emergency loads, it is strongly recommended that a larger generator be installed in replacement of the current generator.

Lighting Systems

The interior lighting within the Kennedy Center consists of performance area lighting, performer support area lighting, public area lighting, and administrative area (back-of-house) lighting. Performance area and public area lighting consist mainly of incandescent downlights, chandeliers and wall sconces. Administrative and support areas consist primarily of more efficient fluorescent lighting. The Kennedy Center has made a concerted effort over the years to continually modernize lighting fixtures and fixture lamping to improve overall energy efficiency. In particular, the parking areas, motor lobbies, roof terrace level public areas, back of house administrative spaces and restrooms have been retrofitted with energy efficient fluorescent and LED lighting.



Figure 76. Existing Generator



Figure 77. Existing Lighting Control Panel

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The Kennedy Center's lighting control systems are a mix of various types of automatic and manual control. Numerous Lutron lighting control panels are located throughout the building to provide automatic controls to exterior building and site lighting as well as interior public spaces. Lighting controls serving mechanical and electrical rooms, restrooms, dressing rooms, rehearsal spaces, and other back of house areas are manual, with facility personnel operating the lights according to established schedules and/or coordination of special events. As a result of these manual processes, some lighting systems remain energized regardless of occupancy or other need for artificial illumination.

Much of the lighting that is automatically controlled is not served from a single centralized location and requires significant maintenance and upkeep. The facility's building automation system controls exterior lighting and the performance venues, but in many locations has not been set up for a specific control sequence or time schedule due to the constraints of the system as the BAS is designed for HVAC control, not lighting control. In addition, lighting control panels separate from the BAS are distributed throughout the facility and garages, leading to increased requirements for programming and maintenance in order to accomplish basic lighting control scheduling tasks.

The implementation of a centralized lighting control system for interior lighting is currently underway at the Kennedy Center. Installation of a central user-friendly programmable automatic lighting control system is helpful for maintenance and is an important part of electrical energy savings. With the centralized system, all time-based control areas, such as public areas, exterior building lighting and site lighting, can be consolidated to provide control at one centralized location. Lighting not connected to the centralized system should be provided with user-friendly local override controls for building staff where applicable. These controls are already provided in some areas for stagehands, maintenance crews, and housekeeping personnel.

Through regular maintenance, a number of light fixtures have been converted to LED lighting, greatly improving the energy performance and life cycle of the fixtures. There are still many incandescent and fluorescent fixtures in the public lobby areas and performance halls that have yet to be retrofitted with LED lamps. This conversion process from incandescent to LED is ongoing.

Although lighting occupancy sensors have been installed in many locations throughout the building, there are additional spaces where sensors can be installed. No occupancy sensors are present in the garage parking areas, which causes all garage lighting to be on continuously during business hours. Additionally, energy efficient lighting fixtures should continue to be specified for new capital projects, and, as part of regular maintenance, additional existing fixtures should be retrofitted to become more energy efficient. The Center should continue to monitor technology improvements in stage lighting to ensure the most energy-efficient stock is procured under the technical stage systems cyclical lighting replacement activity.

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2022 Recommendations: Lighting Systems

It is recommended that the street pole fixtures be removed from utility power and connected to a Kennedy Center controlled power source. This will allow for safe shutdown when the fixtures need maintenance.

It is recommended that the exterior lighting controls be upgraded to utilize a centralized control system. Within the control system, it is also recommended to put all exterior light fixtures on addressable zones. Using a centralized control system would not only provide a much easier method of control but also yield a large energy savings for the exterior lighting system.

Replace all planter light fixtures and ground mounted light fixtures on site. Many of these fixtures are either not working or heavily damaged from wear and tear over the years.

It is recommended to recircuit the flagpole lighting to the same 277V source feeding the rest of the exterior lighting for ease of maintenance and control.

Vertical Transportation Systems

The Kennedy Center's vertical transportation systems consist of variety of Passenger Elevators, Freight Elevators, ADA Lifts, Material Lifts and Escalators. Over the years, there have been many upgrades to these systems; however, many of the major components are still original to the installation when the building was erected. Between the years 2001-2008 the Center conducted comprehensive modernizations of the passenger and freight Elevator Modernization project.

The modernization of these units mainly consisted of the addition of new non-proprietary Motion Control Engineering IMC-SCR controllers with System-12 SCR Drives, reconditioned original Otis machines and DC motors, ELSCO Car and Counterweight roller guides (Passenger elevators), Cartop Handrails, Car and Hoistway door entrance equipment, Hall Call Stations, Hall and Car Signaling fixtures and Car Operating Panels. Although many of the units received similar upgrades, the scope was slightly different from one car to the next. For instance: One Elevator from each bank of elevator's 2E-1 through 2E-4 and 4E-1 through 4E-4 received one (1) new Hollister-Whitney 74 OH machine with a new DC Motor during the modernization. This was likely done to preserve the obsolete components, as the other units in the bank refurbished the original geared Otis machines and motors. Freight Elevator 2E-10 also retained its original Geared Otis Machine and motor but received a new Motion Control Engineering IMC-SCR controller, System-12 SCR Drive with new power operated Peelle Bi-Parting Freight Elevator doors. Freight Elevator 3E-5 also received a new 74 OH Hollister-Whitney Machine, power operated Peelle Bi-Parting Freight Elevator doors and a new Motion Control Engineering IMC-SCR controller with System-12 SCR Drive.

There are four (4) additional passenger elevators that were not part of the original installation of the building. Elevator 2E-11 (Family Theatre Elevator) was installed in 2005 as part of the Family Theatre Project and Elevator 2E-12 was installed in 2017 as part of the Terrace Theatre Project. Elevators 3E-8 and 3E-9 were installed in 2012 and were part of the Rehearsal Room Project and Theatre Lab & Access Corridor Projects.

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The cab interiors for the majority of the public passenger elevators have wood grain finishes and are in good condition. These types of interiors can be easily damaged and require frequent maintenance because of wear and tear from the riding public. The back of the house passenger elevators have painted steel cab interiors that appear to be original to the original installation. These cabs are in good condition for their age but should be replaced during the next round of Modernizations.

Elevators

The purpose of the 2021 CBP Survey is to provide a comprehensive evaluation of the elevators currently in use at The Kennedy Center for the Performing Arts. The condition of the original Otis Hoist Machines still being utilized at the facility is fair. The original Otis hoist machines are obsolete and components for these machines are no longer available. Many of these original Otis machines are leaking badly and as a result will need to be replaced during the next round of elevator modernizations.

Most of the units at the Center are utilizing Motion Control Engineering IMC-SCR controllers with System 12 SCR drives that were installed during the Modernizations between 2001-2008. While the IMC-SCR /System 12 was an ideal option for the modernization of DC (direct current) elevator technology, over time changes in equipment design have resulted in better reliability via AC (alternating current) motors and drives. Converting from DC to AC allows for improved energy efficiency and the elimination of machine room transformers, elevator motor brush rigging, and excessive carbon buildup in the machine rooms. At this time, Motion Control Engineering does still supply boards for the IMC-SCR controllers, but there is no timetable for how long they will continue to do so. The control systems of the units still utilizing DC technology should be converted to AC technology during any modernization of the elevator systems.

The door operators for each elevator were in good condition with most of the units being Otis I-Motion II Door Operators. The other operators were GAL MOVFR's, Schindler QKS Linear, ThyssenKrupp HD-03 Door Operators and Peelle power operated Bi-Parting Freight Door Operators. The Otis I-Motion II Operators are no longer supported by the manufacturer and are considered obsolete. Because of this obsolescence, I-Motion II boards will likely have to be sent out for repair in lieu of direct replacement. It is imperative that the Center systematically replace these operators to avoid any unnecessary downtime from obsolete components or board repairs.

The condition of the structural members of each elevator appear to be in good working condition and will most likely be retained through any elevator modernization. The Elevator's with occupied space below their pits, utilize code mandated counterweight safeties. The type of safeties on the counterweights of these units are wind up "pull out" safeties. These types of safeties are not common and should be replaced with Type "B" flex safeties



Figure 78. Elevator Lobby

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during any modernization. Cab interiors of the public passenger elevators have been refurbished at some point in the last decade and remain in good condition. Cab interiors used in the back of the house are original painted steel shells and can be upgraded during any modernization. Upgrades were done on a variety of the units in 2012, consisting of new machine guarding in the machine rooms, car top safety handrails, and cab ventilation. Minor repairs and adjustments that are required for the elevators are covered under the center's current vertical transportation maintenance contract.

Elevator No.	Type	Capacity in Pounds	Speed – fpm	No. of Stops
<u>2E-1</u> Hall of States Four Group	Otis Geared Traction <i>Modernized: 2008/2009</i>	5,000	350	8
<u>2E-2</u> Hall of States Four Group	74 OH Hollister-Whitney Geared Traction <i>Modernized: 2008/2009</i>	5,000	350	5
<u>2E-3</u> Hall of States Four Group	Otis Geared Traction <i>Modernized: 2008/2009</i>	5,000	350	2
<u>2E-4</u> Hall of States Four Group	Otis Geared Traction <i>Modernized: 2008/2009</i>	5,000	350	2
<u>2E-5</u> Eisenhour Theatre Front of House	Otis Geared Traction <i>Modernized: 2008</i>	5,000	200	4
<u>2E-6</u> Eisenhour Dressing Rooms	Otis Geared Traction <i>Modernized: 2007</i>	3,000	200	5
<u>2E-7</u> Eisenhour Stage Door Elevator	Otis Geared Traction <i>Modernized: 2005</i>	3,000	200	6
<u>2E-8</u> Executive Elevator	Otis Geared Traction <i>Modernized: 2005</i>	3,000	200	5
<u>2E-9</u> Eisenhour Stagehands Elevator	Otis Geared Traction <i>Modernized: 2007</i>	1,200	200	5
<u>2E-10</u> Eisenhour Freight Elevator	Bi-Parting Freight – Otis Geared Traction <i>Modernization: 2005 Peelle Door Modernization Package: 2010</i>	20,000	100	6
<u>2E-11</u> Family Theatre Elevator	ThyssenKrupp – Hydraulic <i>Installed: 2005</i>	2,100	90	2
<u>2E-12</u> Terrace Theatre Elevator	Veritron- Roped Hydraulic <i>Installed: 2017</i>	3,500	100	3

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<u>3E-1</u> Opera House Front of House Left Elevator	Otis Geared Traction <i>Modernized: 2003</i>	4,500	200	5
<u>3E-2</u> Opera House Stagehands Elevator	Otis Geared Traction <i>Modernized: 2003</i>	1,200	200	6
Elevator No.	Type	Capacity in Pounds	Speed – fpm	No. of Stops
<u>3E-3</u> Opera House Dressing Rooms Elevator	Otis Geared Traction <i>Modernized: 2003</i>	5,000	200	3
<u>3E-4</u> Canteen Elevator	Otis Geared Traction <i>Modernized: 2001</i>	5,000	200	6
<u>3E-5</u> Opera House Freight Elevator	Bi-Parting Freight- 74 OH Hollister-Whitney Geared Traction <i>Modernized: 2003</i>	20,000	200	3
<u>3E-6</u> Opera House Front of House Right Elevator	64 OH Hollister-Whitney Geared Traction <i>Installed: 2003</i>	5,000	200	4
<u>3E-7</u> Canteen Elevator	Otis Geared Traction <i>Modernized: 2001</i>	5,000	300	5
<u>3E-8</u> Education Elevator	Schindler- Hydraulic <i>Installed: 2012</i>	2,100	100	2
<u>3E-9</u> Theater Lab Elevator	Schindler- Hydraulic <i>Installed: 2012</i>	2,500	125	2
<u>4E-1</u> Hall of Nations Four Group	74 OH Hollister-Whitney Geared Traction <i>Modernized: 2006</i> <i>Cab Interiors: 2009</i>	5,000	350	5
<u>4E-2</u> Hall of Nations Four Group	Otis Geared Traction <i>Modernized: 2007</i> <i>Cab Interiors: 2009</i>	5,000	350	5
<u>4E-3</u> Hall of Nations Four Group	Otis Geared Traction <i>Modernized: 2007</i> <i>Cab Interiors: 2009</i>	5,000	350	2
<u>4E-4</u> Hall of Nations Four Group	Otis Geared Traction <i>Modernized: 2006</i> <i>Cab Interiors: 2009</i>	5,000	350	2
<u>4E-5</u> Concert Hall Backstage Elevator	Otis Geared Traction <i>Modernized: 2006</i>	5,000	350	9
<u>4E-6</u> Concert Hall Front of House Elevator	Otis Geared Traction <i>Modernized: 2008</i> <i>Cab Interiors: 2010</i>	4,500	200	4
<u>4E-7</u> Concert Hall Freight Elevator	Otis Geared Traction Center Opening Door <i>Modernized: 2006</i>	13,000	100	7

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Escalators

The north and south motor lobbies contain the escalators for the entire facility. There are three (3) units in each lobby bringing the total amount of escalators in the building to six (6). One (1) escalator is coupled with an adjacent stair to serve each landing and escalator direction can be switched, depending on performance schedule.

The escalators are original Otis Type “R” escalators dating back to the original installation of the building. Due to their age and level of use, the escalator units received a modernization in 2014. The modernization consisted of retaining the existing truss and balustrades and the addition of new Motion Control Engineering controllers, refurbished original drive motors, new brake assemblies, drive chains, handrails, steps, as well as many new escalator code required safety features and switches. The contractor who was hired to complete the escalator modernization does not offer an escalator modernization product, which resulted in an unsatisfactory installation. Items such as handrail speed monitoring devices, missing step switches, step level switches, and other safety related items were not available on escalators when the Otis type “R” was designed. The addition of such items into areas with limited space and tolerances can result in poor functionality after the modernization. In January of 2016, the Center hired an outside 3rd party Vertical Transportation consultant to conduct a thorough review of the contractor’s work. This review resulted in the identification of many deficiencies that were corrected by the contractor at no cost.

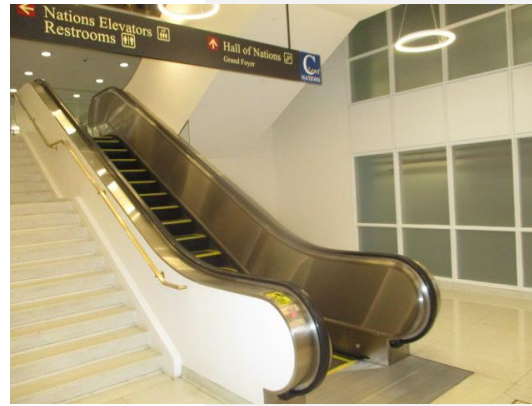


Figure 79. Escalator in Motor Lobby

Escalator No.	Type	Capacity in lbs.	Speed – fpm	Step Width
Escalator No. 1	Otis Type “R” <i>Modernized 2014</i>	8,000	90	48” Width
Escalator No. 2	Otis Type “R” <i>Modernized 2014</i>	8,000	90	48” Width
Escalator No. 3	Otis Type “R” <i>Modernized 2014</i>	8,000	90	48” Width
Escalator No. 4	Otis Type “R” <i>Modernized 2014</i>	8,000	90	48” Width
Escalator No. 5	Otis Type “R” <i>Modernized 2014</i>	8,000	90	48” Width
Escalator No. 6	Otis Type “R” <i>Modernized 2014</i>	8,000	90	48” Width

Within the last decade great advancements have been made in the form of escalator modernizations. Several major elevator/escalator manufacturers have developed comprehensive in-truss modernizations for escalators. These types of escalator mods are designed specifically for units, such as the ones found at The Kennedy Center. These in-truss modernizations strip all the original components off the existing truss and install specifically

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engineered parts for each escalator unit. These types of modernizations have a high percentage of success and customer satisfaction. The designed in-truss escalator modernizations can eliminate the need for certain components, such as the main drive and handrail drive chains via a geared direct drive system, which can be a primary and costly source of breakdowns on escalators. These types of modernizations are typically 15% more energy efficient than the type of modernization that was conducted in 2014. The Kennedy Center for the Performing Art's should plan to do full in-truss modernizations of the escalators on site by the year 2030.

Lifts

In addition to the elevators and escalators at the Center, there are five (5) public riding handicapped accessibility lifts and one (1) material lift. The lifts for the public were installed in areas that require accessibility but are not served by either an elevator or ramp. The material lift in the building is located in the gift shop storage room near the loading dock for the building.

Accessibility and material lifts are difficult to maintain, as they are typically used by the public and receive extensive wear and tear. To make matters worse, often the manufacturers of these lifts will go out of business without warning, making it increasingly difficult to source parts. The lifts onsite appear to be receiving adequate maintenance and worked accordingly during the surveys.



Figure 80. Accessible Lift at Family Theater Backstage

Most lifts on site have been replaced or newly installed within the last decade, apart from the North and South Opera House lifts. These lifts were manufactured by Porch Lift who is no longer in business. It is recommended to replace each of the Opera House lifts in the current planning period, to eliminate potential extended downtime in case of a component failure.

Lift No.	Model/Type	Use	Location
Lift No. 1	Garaventa Genesis <i>Installed: 2005</i>	Handicapped Lift	Family Theatre Backstage
Lift No. 2	Porch Lift <i>Obsolete</i>	Handicapped Lift	Opera House: North
Lift No. 3	Porch Lift <i>Obsolete</i>	Handicapped Lift	Opera House: South
Lift No. 4	Garaventa GSL Artira <i>Installed 2010</i>	Handicapped Lift	Concert Hall: North
Lift No. 5	Garaventa GSL Artira <i>Installed 2010</i>	Handicapped Lift	Concert Hall: South
Lift No. 6	PFLOW Series D <i>Installed 2013</i>	Material Lift	Gift Shop Storage

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Due to the size, complexity, and number of units at the Kennedy Center, monitoring the ongoing preventative maintenance and associated work-related invoices can be an arduous task. It is recommended that the Center enter a Maintenance Management program. This type of program allows ownership to develop a comprehensive maintenance specification that is fair and reasonable and put it out to bid amongst pre-qualified contractors. These types of maintenance specifications are beneficial and can include: Extending regular time call back hours, comprehensive coverage of all current and obsolete equipment onsite, guaranteed monthly preventative maintenance hours etc. This type of program can also include quarterly audit surveys including a written report, invoice reviews, capital planning, quarterly key performance indexing reports and on-site consultation at no additional cost. Maintenance Management programs such as the one described above have proven to greatly reduce costs and callbacks related to Vertical Transportation.

2022 Recommendations: Vertical Transportation

Phased modernization of elevators

Replacement of Opera House Tier Lounge lifts

Technical Stage Systems

Technical stage systems and performance related systems and equipment are critical for Kennedy Center operations. The quality of these systems directly affects the quality of performances and patron experiences.

The 2015 CBP survey identified a number of technical stage systems projects and infrastructure improvements. The identified deficiencies are projected for implementation over the planning period as capital projects and minor repair projects. In addition to planning for these known deficiencies, allowances have been developed for a planned facility wide cyclical replacement campaign for stage lighting, audio and video components, stage drapery, dance floor linoleum, stage hard board coverings and rigging equipment upgrades and replacements. The focus of the technical stage systems work is to upgrade the infrastructure required for productions.

Observations regarding theatrical and technical stage systems are included in each of the venue interior repair assessment and recommendation sections of this report. These observations have been blended into each venue assessment as theatrical system deficiencies are directly related to other building systems, including architecture, mechanical and electrical systems, and structural systems.

The Production Department strives to ensure that all equipment purchases remain modular, mobile, and coordinated. This is important due to the need to move equipment from venue to venue depending on particular performance requirements.

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Cyclical Equipment Replacement

The level of performances at the Kennedy Center is among the highest in the world and includes productions from around the globe. Audiences, visiting performing companies, designers, and production managers have extremely high expectations of the Kennedy Center and the in-house performance equipment must meet those expectations. Consistent performance of this production equipment is critical to maintaining the production values for which the Kennedy Center is famous.

The Center's current cyclical equipment replacement program was initiated in 2007. This program annually replaces outdated equipment and has prevented noticeable drop-off in equipment operation and ensured consistent, dependable performance of this equipment.

Performance equipment included in the annual replacement allowances includes:

- Stage Lighting Fixtures (fixed), Hardware and Special Effects Equipment.
- Moving Light Fixtures
- Stage Lighting Control Consoles and Distribution Equipment.
- Rigging Equipment.
- AV/Sound Equipment.
- Stage Drapery.
- Dance Floor Systems (e.g. Marley, Cascade, Linoleum, etc.)

Technical Stage Systems

Assisted Listening Systems

The existing assisted listening system has been noted to be inconsistent among venues, making distribution of device for patrons a cumbersome exercise for single venue events as well as multi-venue events requiring patrons to check-in/check out the devices based on the location they will be in. An update to all venue systems to a singular solution will allow for ease of distribution and patron use of the assisted listening devices and ease of management by the internal staff.

The scope of work shall include procurement of Infrared transmitter systems and receivers to provide a minimum of 2 separate channels of wireless transmission for the ALS per venue, which includes the Concert Hall, Opera House, Eisenhower Theater, Family Theater, Terrace Theater, Theater Lab and both Millennium Stages.

For each venue, this will require a quantity of infrared emitter devices to cover all seated areas based on the manufacturer's performance specifications. Each venue will also require a quantity of receivers to be compliant with Americans with Disabilities Act (ADA) requirements for hearing assistance devices in places of assembly with fixed seating. This quantity of receiver shall be provided with an equal number of audio earpieces as well as the required lanyard neck loop accessory quantities to

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be compliant with ADA requirements. A charging system shall be provided to accommodate the total quantity of receiver devices in the facility for ease of charging and storage when not in use.

The exact quantity of receivers to be provided shall be compliant with the ADA Requirements based on the capacity at the time of procurement. Note that the Millennium Stages are not fixed seating venues, and while they will require ALS capability they do not require a fixed system to accommodate patrons and may borrow from the inventories of other spaces when requested/required.

Signage kits shall be provided per venue to identify the Assisted Listening System capabilities of each venue.

The projected value is based on the equipment and infrastructure requirements identified herein with integration and configuration by a qualified contractor using Bosch Communications products as a basis of design for costing.

New dedicated audio control consoles have been purchased during FY20 in the Console Replacement project. This includes new mixing consoles and associated patching and processing equipment. The first phase of this project included upgrades to Opera House (Front of house, console that controls what the audience hears), Concert Hall (stage monitor, console that controls what a performer hears). Additional consoles have also been purchased for; Millennium Stages (both stages, both FOH and one monitor console to share), Family Theater (FOH), Theater Lab (FOH), and spare large format and medium format console that get used as needed for large scale events and performances that we do outside or in our large multi-purpose rooms that don't have dedicated permanent equipment or as spares if problems occur with any dedicated desk assigned to a space. The next phase would include a new console for the Central Broadcast/Recording Suite (which indirectly serves the entire facility).

Opera House Orchestra Pit Lift

The Opera House orchestra pit lift transforms the forestage area into a stage extension, seating area, or orchestra pit. The screw-jack actuators, motors, platform framing, and control and safety interlock equipment and wiring date from the original construction of the building. While the platforms and actuation equipment are in fair and usable condition, the controls are outdated and the safety systems are insufficient and some are failing.

Due to liability risk, a theatrical lift manufacturer is unlikely to be willing to replace controls and interlocks only so the full system should be replaced. Some components – such as the platform framing – may be salvageable for use with the new system.

2022 Recommendations: Technical Stage Systems

The Center should continue with the cyclical maintenance and replacement program for technical stage equipment increasing the value of the allocation as defined in the CBP 2022.

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Replace the Assistive Listening Systems with a building-wide, comprehensive system using the latest multi-channel technology.

Replace the Opera House orchestra pit lift with current industry standard motors, actuators, controls, and safety interlocks.

Theater-specific recommendations are provided in the Interior Repair section of this Plan to address identified needs.

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Memorial Interpretation and Visitor Services

The John F. Kennedy Center for the Performing Arts is a national presidential monument and living memorial. The building is a destination for patrons of the arts as well as visitors seeking to learn about President Kennedy and his legacy. An Interpretive Master Plan & Signage Program was prepared in March 1997 and is the basis for several memorial and exhibit installations throughout the Kennedy Center. These include two interpretive exhibits, Kennedy – His Life & Legacy and Explore the Kennedy Center. The Kennedy – His Life & Legacy exhibit, along with a large bronze sculptural bust of John F. Kennedy, is centered along the west wall of the Grand Foyer. This exhibit includes video and audio kiosks and free standing display panels. The Explore the Kennedy Center exhibit is located in the Hall of States and the Hall of Nations and is also presented with video and audio kiosks. These exhibits were installed in 2001.



Figure 81. Existing Memorial Exhibit

In addition to these interpretive exhibits, the Kennedy Center also presents daily performances as a part of the Performing Arts for Everyone program. These performances occur on the Millennium Stages, which are situated at each end of the Grand Foyer. Originally constructed to be demountable performance stages, the Millennium Stages have become a permanent feature in the Grand Foyer. Each performance is free to the public and is streamed live on the Kennedy Center website and digitally archived. The archived performances are available to educators around the world for use in classrooms, an expression of the mission of the Kennedy Center to enhance education through the performing arts.

A visitor services desk was installed in the Hall of States in 2004. This includes a desk for several volunteers who assist and direct patrons and guests, an information monitor that displays daily activity occurring in the building, and a resource display for brochures and program guides. An assisted listening device desk was also installed in 2004 in the Hall of States near the Grand Foyer. In addition to these stations, a guard station is situated in each of the Halls near the main entrance. These elements consist of stone and metal assemblies and are in good condition. These installations have been added in an ad hoc manner and contribute to an overall cluttered feeling within the halls. The Hall of States is the primary location for visitor orientation and registration for those not arriving through the on-site parking garage.

An additional visitor service area is located on Level A, one level below the Plaza level. This area serves as a main entrance from the parking garage and as a connection between the Hall of States and the Hall of Nations under the Opera House block. The area includes a retail gift shop, a Tour Desk for volunteers, and interpretive memorial materials. This area is flanked on either side by passages and stairs and escalators leading to the Hall of States and the Hall of Nations and the lower Motor Lobbies.

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The 2012 Level A Visitor Center project included a new memorial interpretation exhibit opposite the gift shop, a new tour desk, new finishes for the area, new wayfinding, and new electronic video displays. All of these Level A visitor spaces remain in good condition.

Another gift shop is situated in the Hall of States in an area that was once a coat check room. The Hall of States gift shop space projects into the Hall with a glass enclosure. This glass projection allows the contents of the gift shop to spill into the physical space of the Hall of States, contributing to the overall sense of clutter within the Hall. Further study is required to balance this patron amenity with the entry passage to the Grand Foyer.

A significant portion of the interpretative memorial mission is implemented through interactive computer displays and equipment. This includes display kiosks at the bust of President John F. Kennedy in the Grand Foyer, and also at the Hall of Nations and Hall of States. These displays include computer equipment, monitors, and systems that provide information about President John F. Kennedy, the Center, and its memorial function. The displays were installed in 2001; the monitors and keyboards were replaced in 2011, as well as the frosted glass display tops, which had become damaged through wear and tear.

The integrated braille accommodations for the visually impaired are damaged and no longer serve their intended purpose. Due to technological advancements and general wear over the past 20 years, the existing memorial interpretation exhibition features are outdated and do not sufficiently serve the memorial functions intended.

As an interim measure the interactive portions of the exhibits have been removed and the exhibits in the Hall of States and Nations are being refreshed with new finishes and monitors.

In 2018-2019, the Center undertook a Specific projects proposed under this Plan will be implemented in future years.

In late 2019 the Kennedy Center moved forward with the schematic design to initiate the renovations required in the Grand Foyer, Hall of States, Hall of Nations and Atrium on the Terrace Level. Projects developed in the schematic design include upgrades to finishes in the Grand Foyer, Hall of State and Hall of Nations such as new carpet, lighting, painting, facade upgrades to the Millennium Stages, replacing the ramps to the theaters, shifting the steps to the Opera House further out of the Grand Foyer and potentially relocated the JFK Bust to the opposite side of the Foyer.

The project in the Atrium shall include a total demolition of all finishes, removing the non-structural steel columns and a complete refinishing of the space. The Atrium is planned to be a flexible exhibit space to celebrate the life of John and Jacqueline Kennedy with a memorial exhibit.

Food service is provided to the public via a cafeteria-style restaurant and a formal restaurant on the Terrace level. These food service spaces fall outside the scope of the CBP. Snack and drink services are available also through

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vending machines and “intermission bars” in the Grand Foyer on the Plaza Level and States Gallery on the Terrace Level.

2022 Recommendations: Memorial Interpretation and Visitor Services

Renovation of the Atrium to a multi-use exhibit space celebrating the life of John F. Kennedy and the Arts. This work is substantially complete.

Replace existing finishes in the Grand Foyer, Hall of States and Hall of Nations to include new painting, carpeting, acoustic panels, curtains and replacement of existing patron seating. This work is being completed in FY23.

Replace existing Visitor Information Center (VIC) desk at the south side entrance to the Hall of States with a new desk in a new location. Include installation of digital media screens behind the VIC desk to enhance the visitor’s experience. Eliminate the existing Assistive Listening Device desk and provide mobile kiosks that would be located in the theater lobbies as required.

Replace, update or create new memorial content for the plaza level public spaces with new digital and/or physical content. Develop a central “memorial precinct” in the Grand Foyer in front of the Opera House and develop additional memorial content to compliment the Robert Berks John F. Kennedy sculpture.

Develop wayfinding design to provide a consistent system across all interior and exterior components of the campus. New wayfinding to consist of both static and digital systems for all public spaces.

Renovate the Box Office facades and install new picture rail system in the Hall of States and Hall of Nations.

Improve lighting in the Hall of States and Hall of Nations with new LED lighting and upgrade the existing Grand Foyer chandeliers to LED lighting.

Reconstruct the front steps of the theaters in the Grand Foyer and replace the existing ramps with new sloped flooring systems.

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Parking and Site Circulation

Site and Grounds

URBAN CONTEXT

The John F. Kennedy Center site is bordered by the Rock Creek and Potomac Parkway to the west, the Theodore Roosevelt Memorial Bridge approach ramp to the east and south, and F Street NW to the north. Vehicular circulation is provided along the east side of the site, providing a link to the south parking entrance and to Rock Creek Parkway, as well as to F Street NW, the on-ramp to the Roosevelt Bridge (I-66 and Route 50 westbound), and the north parking entrance. Pedestrian circulation occurs primarily at the north side of the site, providing access by foot to the main entrance plaza from F Street NW, via a monumental staircase and an accessible ramped sidewalk. There is sidewalk connecting the main building with The Reach located at the south end of the site. There is also a pedestrian crossing connecting to the Metrobus stop located at the eastern edge of the site.

The Kennedy Center's site was comprehensively renovated and refurbished through the Site Improvements project completed in 2005. The project included a reconfiguration of the roadways and garage entrances to coincide with the Garage Expansion project. All new finishes were installed on the exterior site and plazas, including granite pavers and planters, waterproofing, concrete, curbs, expansion joints, retaining walls, signage, trench drains, light fixtures, and miscellaneous site fixtures such as benches, bus shelters, and bicycle racks. The site was improved again in 2019 through the construction of The REACH expansion to the south. The Reach construction required a consolidation of the B and C garage level accesses into one location under the project, and changes to circulation and bus parking at the southern end of the site.

Although the Kennedy Center was designed as the cultural center for the capital city, and by extension the nation, its physical interaction with its urban context is severely limited. Together with the Watergate Complex and the Embassy of Saudi Arabia, the Center is isolated between two major high-speed roadways: the Rock Creek and Potomac Parkway and Interstate 66. Currently, the Center's only pedestrian street frontage is toward the northeast corner of the site near the intersections of F Street NW, New Hampshire Avenue, and 25th Street NW. At this juncture, these streets host little traffic (vehicular or pedestrian), except during Kennedy Center events. In 2019, a bicycle/pedestrian bridge was built between The REACH expansion and Rock Creek Parkway, providing an important north/south connection.

ZONING AND USE

The Kennedy Center property abuts two main District of Columbia Historic Districts: The East and West Potomac Parks Historic District and the Rock Creek and Potomac Parkway designated district. Therefore alterations to the building or its use would require additional scrutiny, as demonstrated by the design and approvals process of The REACH.

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NEIGHBORING LANDMARKS & SIGNIFICANT PROPERTIES

As noted in the Environmental Assessment produced for The REACH in October 2014, there are many historic and cultural resources that affect and are affected by the architecture and design of the Kennedy Center and its site. The Environmental Assessment for the Center identified the following nearby cultural resources:

1. Arlington Memorial Bridge (and related structures)
2. Arlington Ridge Park
3. East and West Potomac Parks Historic District
4. George Washington Memorial Parkway
5. Georgetown Historic District
6. Lady Bird Johnson Park
7. Lincoln Memorial
8. Lincoln Memorial Grounds
9. Memorial Avenue Corridor
10. Old Naval Observatory
11. Potomac Annex Historic District
12. Rock Creek and Potomac Parkway
13. Theodore Roosevelt Island
14. Watergate Complex

GETTING TO THE KENNEDY CENTER AND THE REACH

Although the Kennedy Center hosts many large events with hundreds of visitors, as well as multiple events every day of the year, the site itself has little connectivity to public transit. The Metro Busses 42 and 43 routes are the only bus line stopping at the Center, with a bus shelter located to the east of the main entrance. On one end, this route terminates at the Kennedy Center. It winds southeast through downtown, past Farragut North Metro before heading north and eventually ending in Mt. Pleasant.

The closest Metrorail station is Foggy Bottom/GWU/Kennedy Center, which provides access to Orange, Blue, and Silver rail lines. This station is a half-mile from the Center, corresponding to a 10-minute walk for the average person. In order to encourage use of the Metro, the Kennedy Center provides a frequent free shuttle to the Foggy Bottom/GWU/Kennedy Center station entrance.

The Kennedy Center grounds also host a 19-dock Capital Bikeshare station and several bicycle racks. Bicycle/pedestrian paths connect to the site on all sides. Cycling and pedestrian routes across the Theodore Roosevelt Memorial Bridge are accessible via the I-66 side path on the eastern edge of the site, and Virginia Avenue is accessible via paths to the north. The Rock Creek bicycle path is also accessible via the bicycle/pedestrian bridge across Rock Creek Parkway. These routes provide easy bicycle and pedestrian access to the site for employees and visitors.

VEHICLE ACCESS AND PARKING

A majority of patrons and employees access the Center and its grounds by personal vehicle, taxi, or ride-share. A multi-level parking structure was

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included in Edward Durell Stone's original design. This garage was expanded to the north and south in 2003 and was again reconfigured during the construction of the new South Expansion. The current configuration of the garage can hold 1,971 vehicles. However, the garage is rarely filled to capacity except for times when there are coinciding sold out events. Other garages nearby handle any overflow. There are traffic signals at both the north and south ends of the site accessing Rock Creek Parkway. The southern access point to the garage facilitates vehicle flow during large events if needed, otherwise this access is often closed. The southern access and signal were modified as part of The REACH expansion.

Structural constraints make circulation within the garages challenging in some locations. There are multiple areas where headroom and driving clearance are quite low and areas where building structures protrude into drive and walk aisles. The majority of the garage does not accommodate vehicles more than six feet tall, which means tall SUVs or vans, including those requiring eight foot-two inch clearance for wheelchair access, do not have necessary vertical clearance. The southern end of the garage is the only portion of the parking facility where vehicles over six feet tall can park. There are ADA van accessible spaces in this location. Therefore, patrons and staff with these types of vehicles have a longer path to the central core entry points.

A comprehensive wayfinding, signage, and marking plan as part of the South Expansion has greatly improved circulation for both vehicles and pedestrians in the garage. Walking paths throughout the garage clearly designate destinations, and levels of the garage are color-coded for efficient wayfinding. In addition, a new parking revenue control system was implemented to improve efficiency at the garage portals.

Service trucks have a dedicated service tunnel and loading docks located underground beneath the east plaza. This tunnel is also used for access by the President of the United States and other heads of state, as it provides the safest controlled entrance to the building.

As part of the new Reach expansion, a new underground bus parking area was constructed along with additional loading. While the main loading facility for the Kennedy Center is underneath the main plaza, this new facility serves as a supplemental loading for The Reach.

Although it has fewer bus parking spaces than before the expansion the below-grade bus facility has been sized to meet the needs of the Center accommodating school buses and charter buses. It can also accommodate the large tractor trailers used by touring performances. The area was also designed to allow the Metrobus 80 route the ability to turnaround onsite.

GENERAL SITE CIRCULATION

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Although the architecture provides plazas and covered porches on all sides of the Kennedy Center, the pedestrian activity is focused on the northeastern section of the site, at the only urban street front. The eastern façade and hardscaped plaza host a significant number of people and vehicles for drop-off, unloading, and staging for major events. This façade has six pairs of doors, accessing the Hall of States and Hall of Nations for pedestrian entry. In addition, load-in doors provide access to the backstage areas of the Opera House, Eisenhower Theater and Family Theater.

The bike/pedestrian bridge connection to the Kennedy Center was installed over Rock Creek Parkway and provides enhanced access to the waterfront and the Kennedy Center. There is currently a Memorandum of Understanding and a Transfer of Jurisdiction with the National Park Services that requires the Kennedy Center to provide security and ongoing maintenance. Maintenance includes repainting of the bridge every 10 (ten) years and the railings need to be inspected and tightened as needed.

GROUNDS

There are areas where sections of sidewalk have low spots where ponding occurs. The most significant of these is located at the approach sidewalk from the intersection of 25th Street NW and F Street NW to the main Kennedy Center entrance on the East Plaza.

There are also several locations within lawn or landscape areas that currently have minor ponding problems. Major ponding occurs at the lawn area adjacent to the sidewalk along F Street NW.

There are areas in the lawn such as the vicinity of the emergency generator exhaust where existing grades seem to provide positive drainage, yet standing water still occurs. If damage to landscape plantings is observed, these areas should be investigated using hand augers or other similar methods to determine why this is occurring.

The concrete driving aisles and pedestrian areas at the East Plaza have cracked concrete in multiple locations. This should be monitored for further cracking and decline. There are two locations in the drive aisles where cement has spilled and hardened. There is also general staining of the concrete throughout. Pavers in the pedestrian areas are showing signs of wear (staining, chipped corners, crumbling mortar). Repairs and cleaning methods for the concrete and pavers should be evaluated within the context of long-term improvements. Plantings in the East Plaza are showing signs of decline and should be evaluated within the context of long-term improvements.



Figure 82. East Plaza



Figure 83. Concrete Sidewalk and Lawn Area



Figure 84. Planters at North Plaza

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The North Plaza hardscape is showing signs of wear/decline. Cracks have formed in the concrete planter walls where the lights are located. Pavers in the pedestrian area are showing signs of wear (chipped edges, staining). These items should be monitored and evaluated within the context of long-term improvements. A section of pavers in the parking area is broken and should be replaced more immediately as part of minor repair projects. The ADA ramps should be cleaned, and railings repainted. The plantings are generally showing signs of decline and should be monitored.

The River Plaza pavers are showing signs of wear (chipped edges, staining). The railings have chipped paint and rust. The plant material is generally overgrown and in decline, and should be monitored and evaluated within the context of long-term improvements. These items should be monitored and evaluated within the context of scheduled long-term improvements.



Figure 85. River Plaza

The REACH Plaza was observed to have standing water and sedimentation was observed in the plaza between the main Kennedy Center building and The Reach. It is recommended to clean the drain tops to avoid buildup of foliage and to ensure proper drainage. Existing grades in this area (roughly 12,000 SF) should be analyzed. Sandbags were observed during a site walk. These sandbags were placed to help direct runoff towards the drains



Figure 86. Sandbags at REACH Plaza

2022 Recommendations: Site and Grounds

Replace Plaza trench drains

Minor repairs to pavers, railings, and planters are included under Minor Repair Projects

Parking Garages

The Kennedy Center parking garage consists of three levels of parking that provide 1,971 parking spaces (about 112 spaces were lost as a result of The REACH construction). The parking levels are labeled Level A, Level B and Level C with each level providing vehicular entrances at both the north and south sides of the site. The original parking garage roughly matched the footprint of the granite plaza above; however, the 2003 Garage Expansion project extended the garage to the north and south of the Center.

Travel between levels of the garage is possible via internal ramps that penetrate the slab. At these slab openings, metal railings provide a guard rail along the edge. However, these internal ramps are rarely used as motorists are directed to levels with available parking upon entering the garage.



Figure 87. Parking Garage Level C

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In the garage, the exit and wayfinding signage is occasionally obstructed from view due to the low height of the structure, which is frequently no more than six feet. At the motor lobby entrances, ramps provide an accessible pedestrian route into the motor lobbies. A simple handrail has been provided along the curb side of the ramp. A wall-mounted railing is recommended to be provided on the opposite side at all ramp locations. Some ADA designated parking spaces have column obstructions in the required clear space. These parking spaces should be reassigned. Accessible van parking is convenient to the REACH entrance but remote from motor lobbies. Additional accessible van parking spaces proximate to the motor lobbies should be considered.

Each of the parking structures is primarily concrete. The original A, B, and C parking levels consist of concrete columns with flat plate two-way concrete slabs. The ceiling of the A-level corresponds with the plaza level framing, and consists of concrete encased steel beams and girders, with a concrete slab between beams. A portion of the A-level garage structure cantilevers over Rock Creek Park, referred to as the "Overhang" structure, which is supported by a series of large built-up steel plate girders at the plaza-level, with steel hangers supporting the A-level.

A system of expansion and isolation joints crosses the garage structures. The main building includes two primary expansion joints, running east-west on each side of Opera House. There are also expansion joints at the intersection between the main building and the north and south plaza structures, respectively. At the perimeter of each of the three primary theaters (Eisenhower, Opera House, Concert Hall), there is an isolation joint at each of the supported garage levels. The expansion joints and isolation joints have historically been susceptible to water infiltration, which has accounted for much of the deterioration of the parking garage concrete.

The garage has undergone several significant repairs throughout its lifespan. New concrete topping slabs and membrane waterproofing were added to many of the garage slabs in the early 1990's to address slab deterioration, partially caused by the original mix design from the 1960's. Leaking expansion joints were addressed and repaired during the 2003 Site Improvements project. The undersides of the garage slabs were repaired to correct areas of spalled and loose concrete during the 2010 Spalled Concrete Repair project, with a focus on the worst conditions on Level C. More recently in 2019, a project to power-wash the garage floors and apply a coating membrane was completed at the A and B levels.

The portion of the garage that overhangs Rock Creek Parkway has undergone several repair campaigns specific to this area. Significant repairs, which required the temporary closure of Rock Creek Parkway, were completed in 1996 to patch the deteriorated concrete slabs. In 2014/2015, additional areas of loose concrete were identified, and the Phase 3 of the Parking Garage Repair Project was completed in 2017 to address these additional areas of deterioration.

Although the parking garage concrete has had a history of deterioration, most of the concrete was observed to be in fair to good condition, with local areas requiring cosmetic or structural repair.

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Throughout the parking garage A, B, and C levels, the concrete beam encasement and concrete slabs directly adjacent to building expansion and theater isolations joints are typically cracked or spalled. In several areas, cracks were tagged with spray paint. These cracks are not signs of significant structural distress, but should be addressed to prevent further propagation of cracks and to prevent any loose concrete from falling and becoming a hazard for cars or pedestrians.

The majority of areas requiring structural repair are located where water infiltration has occurred. Along the building expansion joints at the A-level ceiling, the framing that support the overhang at Rock Creek Parkway has areas of missing fireproofing and spalled concrete encasement. Minor corrosion of the large steel girders and some corrosion of the ends of the smaller infill beams has occurred. Please refer to Section 2.0 Life Safety and Security for additional observations and recommendations related to this item.

Directly above the loading dock spaces within the garage is the east entry driveway at the plaza level. Load-in to Opera House and Eisenhower Theater is through exterior doors facing the plaza. Production equipment and materials are loaded to backstage areas from trucks parked on the Plaza level along the east face of the building by staff using forklifts. The current load-in process presents a safety concern. Recommendations for this planning period include implementation of a new recessed hydraulic lift recessed in the pavement on the Plaza level near the loading door.

The Building-Wide Electrical Systems project in 2012 included some improvements to the garage lighting such as rewiring the emergency lighting circuits to ensure proper light levels. It also installed a small number of additional fixtures for better coverage. The 2015 Energy Assessment also identified the parking garage lighting as a good candidate for upgrading to more energy efficient LED fixtures. This work was completed in 2019.

2022 Recommendations: Parking Garage

Repair fireproofing, miscellaneous cracks, and correction of water-damaged structural members.

Prioritize structural repair at areas of higher deterioration and coordinate with work to address water infiltration.

Sound and patch loose and cracked concrete along expansion joints.

Repair structural members at areas of water infiltration at garage interior spaces, including Eisenhower transformer vault. Refer to Section 1.0 Exterior Envelope for recommendations.

Encase exposed steel beams at garage north and south expansion joints.



Figure 88. Concrete Cracks at Parking Garage Level C

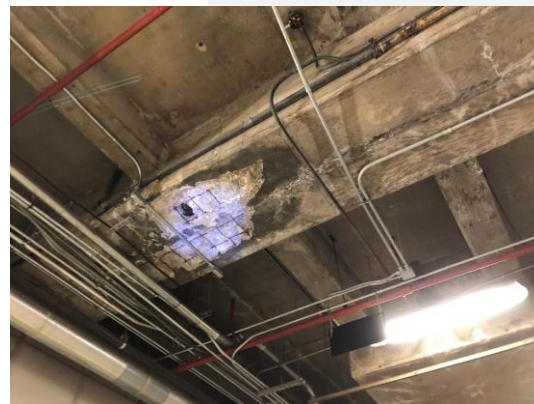


Figure 89. Exposed and Corroded Rebar at Loading Dock Concrete

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Repair deteriorated concrete slabs and beam encasement above loading docks at garage A-level and at limited areas above service tunnel.

Install new hydraulic dock lift at Opera House and Eisenhower Theater plaza-level loading entrances.

Repair caulk and sealant on the marble cladding façade overhanging Rock Creek Parkway.

WAYFINDING

Parking facilities can be large, complicated, and unnecessarily confusing. A well-designed graphics and signage system can effectively communicate critical wayfinding information to patrons, reducing confusion and improving safety.

In August of 2019 the Kennedy Center implemented a wayfinding scheme in the Level “A” Parking Garage developed from a concept design previously developed by BMD architects. A separate A/E design firm, Page Southerland Page, utilized the concept design to develop Construction Documentation that was necessary in order to advance the project.

The “A” Level Wayfinding project included cosmetic concrete repairs to all columns in the parking garage along with painting of the columns and painting of the motor lobby exteriors. Areas of the parking garage were separated with names of American cities. The orange color was selected from Kennedy Center Branding guidelines. A pedestrian path to be used for wayfinding was also implemented in the parking garage to assist patrons in finding their way throughout the garage. Level “B” and level “C” were implemented in 2020.



Figure 90. Wayfinding in Parking Garage Level A

Recommendations: Parking Wayfinding

Wayfinding will be addressed as part of the campus wide wayfinding project.

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Artwork

Exterior Artwork

The Kennedy Center has eight sculptures displayed across its seventeen-acre campus. The campus is split into two regions. The first is the central grounds which encompasses the original rectangular Kennedy Center. The second region is the newly constructed REACH Center located just to the south of the original building. The addition of the REACH Center in 2019 added 4.6 acres to the property. Four sculptures are located on the central grounds and four works on the REACH grounds.

The current sculptures are as follows:

- Don Quixote (Central Grounds)
- Untitled (Central Grounds)
- Amerika (Central Grounds)
- War or Peace (Central Grounds)
- Blue (REACH Grounds)
- Milk River (REACH Grounds)
- Brushstroke (REACH Grounds)
- Dance Steps (REACH Grounds)

The eight sculptures were installed in two separate phases. Those on the central grounds were installed in the 1970s. The four sculptures on the REACH grounds were installed in 2019. All sculptures were reviewed during the 2021 exterior survey, but focus was placed on the four sculptures on the central grounds due to their age.

Don Quixote, 1976, by Aurelio Teno, was given to the Kennedy Center as a gift from Spain and is located on the north lawn of the central grounds. The sculpture depicts a bronze figure of Don Quixote in a suit of armor seated atop a horse holding a steel lance. The bronze component emerges from a piece of white limestone that rests atop a second rounded piece of pink stone.

Don Quixote was not included in previous iterations of the CBP. The sculpture was documented in the 1993 Save Outdoor Sculpture, District of Columbia Survey, and was cataloged in the Art Inventories Catalog hosted by the Smithsonian Institution. The 1993 survey noted that the sculpture needed treatment but no known treatment implementations are associated with the survey. As of October 2020, the statue was in fair to poor condition and there are multiple condition issues concerning the bronze, iron, and stone components.

The protective wax coating on *Don Quixote* has deteriorated and is no longer providing a protective barrier. As a result, the bronze surface has dulled, and the patina has oxidized in an undesired and irregular manner. Also, the lack of protective coating caused the white limestone to develop copper staining caused from water run-off from the bronze



Figure 91: *Don Quixote* located on the north lawn of the Kennedy Center.



Figure 92: Evidence of bronze oxidation and blanching wax on the surface of *Don Quixote*.

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elements. Additionally, copper staining is present in the pits of the pink limestone.

The stone bases are finished in a rough, natural finish. Cracks and chips are considered part of the design of the base, though some areas have enlarged cracks and chips due to freeze/thaw cycles and general deterioration of the surface. Lastly, soiling is present across all stone and metallic surfaces from atmospheric soiling and biogrowth formation.

Untitled, 1973, by Eduardo Ramirez, is located on the north lawn of the central grounds. The geometric sculpture was gifted to the Kennedy Center by Columbia. It is made of black painted aluminum and depicts an abstract geometric design.

There is no record of previous work being performed to the statue. *Untitled* was not included in previous iterations of the CBP. The sculpture is in fair condition. While the metallic substrate is sound with no visible signs of corrosion, the paint system has reached the end of its service life.

The black coating is beginning to discolor, oxidize, crack and blister. Coating deterioration is more prominent in areas where water pools, especially on the exposed horizontal components. There is heavy soiling on all surfaces.

War or Peace and *Amerika* are located on the east plaza. The two sculptures were completed in 1971 and are bronze reliefs located on opposing sides of the sidewalk. Both sculptures were created by Jurgen Weber and were gifted to the Center by Germany.

War or Peace is located on the south side of the east plaza. The relief depicts a series of scenes which are meant to represent war and peace. The south side of the relief depicts imagery of war whereas the north side depicts imagery of peace. The relief sculpture is made entirely of bronze and rests on a concrete foundation.

Amerika depicts a series of scenes which include humans, buildings, and objects representing the idea of America.

Both sculptures were not included in previous iterations of the CBP. Like *Don Quixote*, *War or Peace* and *Amerika* were assessed in the 1994 Save Outdoor Sculpture, District of Columbia Survey. The survey is now cataloged in the Art Inventories Catalog hosted by the Smithsonian Institution.

Both *War or Peace* and *Amerika* are in fair condition. The bronze surfaces are heavily soiled and have lost their protective wax coating. Additionally, the bronze has oxidized due to the loss of the wax coating, creating some areas of an undesirable greyish-green patina.



Figure 93: *Untitled* located on the north lawn of the Kennedy Center.



Figure 94: *Amerika* located on the east plaza of the Kennedy Center.

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Based on the current records and conversations with the Kennedy Center staff, it was determined that the exterior sculptures on the Central Grounds have had no known conservation treatments or maintenance since their installation.

The sculptures located on the REACH grounds are generally in better condition than those on the central grounds, but some show signs of soiling and vandalism (*Blue*).

The statue *Blue*, 2019 by Joel Shapiro is located on the upper lawn of the REACH side of the facility. The statue is 24-feet high and depicts a humanoid figure made entirely of blue-painted aluminum. There is no record of previous treatment to the statue.

Blue is in fair condition, but vandalism occurred that damaged the surface of the sculpture. The painted surfaces of the statue have multiple scratches on all four sides of the square base. The scratches vary in depth. The scratches are not deep enough to affect the metallic substrate, but the lifespan of the blue coating will be significantly reduced if left untreated. Lastly, there surface is lightly soiled, which is consistent with its recent installation date and exterior placement.

Milk River (2019) by Deborah Butterfield is located in the Presidential Grove on the REACH grounds. The sculpture is a highly ornate painted bronze sculpture that is intended to mimic the texture and color of driftwood. *Milk River* is in good condition, though some general soiling is visible across the surface.

Brushstroke (1996-97) by Roy Lichtenstein is currently on loan to the Center from the Hirshhorn Museum and Sculpture Garden. The sculpture is in good condition but was not assessed further due to its status as a loaned piece.

Dance Steps (2019) by Carin Mincemoyer is located on the lower lawn of the REACH grounds. The steel and aluminum sculpture consists of multiple components that line a pathway. It is in good condition with minor soiling that is consistent with its recent installation date and exterior location.

As of 2021, the Center had no set procedures on the assessment and maintenance of the exterior art collection.

2022 CBP Recommendations: Exterior Artwork

Individual conservation work for *Don Quixote*, *Untitled*, *War or Peace* and *Amerika* to restore the protective coatings and prevent further deterioration from occurring on the sculptures.



Figure 95: *Blue* located on the north lawn of the REACH.

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The exterior sculptures require a thorough cleaning to remove soiling. During the cleaning, an assessment should take place to document all the pieces on display.

Following an assessment, a conservation campaign should be completed to address the deficiencies on the sculptures from the Central Grounds.

An Exterior Artwork Maintenance plan should be developed to help guide and direct staff on the maintenance and protection of their exterior art.

NOTE: All artwork assessment projects have been deferred due to funding constraints.

Interior Art

The Kennedy Center interior has a diverse art collection with paintings, sculptures, and tapestries on display throughout its theaters, lounges, and lobbies. Additionally, decorative finishes are found across the facility. These spaces are all open and accessible to the public.

As of 2021, there is no document that lists all the artwork currently on display at the Kennedy Center. The current artwork catalog was created in 2003 and exists as an un-editable itemized list. Many of the works listed are no longer on display or others are on display and not listed at all. There is currently not a system in place to document and track artwork that is loaned to the Center. The artwork had not been included in previous iterations of the CBP, and there is minimal documentation of previous treatments or maintenance programs.

The artwork and decorative finishes range from good to fair condition. All the artwork in the lobbies and event spaces have a visible layer of dust and soiling on the surface. While this layer is not damaging to the artwork, it does create an undesirable appearance and requires a regular cleaning by professionals trained in the cleaning of artwork to protect the pieces.

A Tapestry Maintenance Plan was created in 2003, but it remains a standalone program with minimal interaction from staff. Currently, there is no comprehensive maintenance plan to aide staff in the management of the interior artwork. As a result, much of the artwork is shows signs of soiling, deterioration, and damage.

Also in the lobbies, many of the pieces have visible signs of undesirable visitor impact. These areas of impact take the form of scuffs, dents, scratches, and abrasions. A number of the artworks on display within interior spaces require surface cleaning and further treatment. These pieces present discoloration, coating failure, and improper repairs that require intervention to prevent further damage from occurring. On the decorative finishes, there is visible soiling and some coating failure is visible on the brass and mirrored surfaces.

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Valery Koshlyakov's *Ideal Landscape* (tempera on linen 2013) and *Pastoral* (acrylic on linen 2013) were installed in the newly renovated Russian Lounge located on the first tier of the Opera House. Both paintings were gifted to the Kennedy Center by Vladimir Potanin. While new acquisitions, both paintings require intervention to address canvas sagging and paint failure.

Ideal Landscape is displayed on the south wall of the lounge and depicts an abstract view of a cityscape painted across three separate canvases. *Pastoral* hangs opposite *Ideal Landscape* on the north wall of the lounge and also depicts a cityscape. The imagery includes buildings, landscape, and some humanoid figures. There is a multimedia component on the lower right quadrant where an adhesive paper design is incorporated.



Figure 96: *Pastoral* located in the Russian Lounge of the Opera House.

Both pieces were included in the 2020 CBP in the section on the Russian Lounge under Special Event Lounges. According to the 2020 CBP the painting was designed to be the centerpiece of the room. No reference was made to the sagging canvas or failing paint.

Although a newer addition to Center's collection, both paintings exhibit damaged areas. *Ideal Landscape* has visible cracking of the tempera paint in two localized zones on the center panel. Craquelure on a canvas painting is not considered a critical issue, but the separation of the paint from the canvas is of a concern. Without addressing these issues, loss of paint will occur.

Pastoral was not stretched properly and has a noticeable sag along the bottom edge of the canvas. The deformation appears at the lower register and bows inward, creating a lip of the wooden canvas frames edge. This sag needs to be addressed immediately to avoid permanent damage to the painting's canvas and acrylic paint.

Ahrat in Seated Lotus Position is located in the lobby on the Second Tier of the Concert Hall. The sculpture is made of carved and painted wood and is in fair condition. There is considerable soiling across the surface and an incompatible repair is visible on the statue's right arm. In the 2003 catalogue, the repair is listed as needing further consultation. It does not appear that any further consultation work was completed.



Figure 97: *Ahrat in Seated Lotus Position* located on the second Tier Lobby of the Concert Hall.

The repair on the statue was an attempt to reattach the right arm at the elbow. The repair treatment was performed with an incompatible material, which has yellowed and hardened over time. Additionally, a small cavity was observed on the rear of the statue's torso where a section of surface coating chipped off.

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There are over 120 porcelain sculptures as well as the *Eight Panel Screen* in the adjoining Bird Room of the Concert Hall, also known as the George Rogers Clark Room. The wooden screen depicts scenes of people, animals, plants, and architecture across the front of the eight panels. The porcelain sculptures are in good condition. They are displayed inside glass cases and show no sign of damage. The *Eight Panel Screen* was noted in the 2003 catalog to have cracking across the surface. Currently, there is visible separation of the paint layer from the wood substrate. The paint failure is primarily located along the screen's bottom edge, feet, and the folding edge between the panels. In some areas, there is visible loss of paint. Between the seventh and eighth panels one of the hinges is broken, which causes the eighth panel to hang improperly.

The bronze bust of *Dimitri Shostakovich* by Ernst Neizvestny is located in the lobby of the Box Tier in the Concert Hall. It was gifted to the Center in 1976 by Mstislav Rostropovich in dedication of the composers 70th birthday. Like the other works in the Concert Hall, the bust was included in the 2003 catalogue. The statue is in fair condition and there is no documentation of it having received any conservation treatment or maintenance since it was placed on display in the 1970s.



Figure 98: *Dimitri Shostakovich* located in the lobby of the box tier of the concert hall.

The bust has a heavy layer of soiling. Additionally, the lacquer coating on the left side of the bust is failing. The lacquer has blistered and flaked, resulting in spots of green-grey oxidized surface.

Poseidon, located in the Box Tier of the Eisenhower Theater, is a modern bronze reproduction of an ancient Greek statue of the god Poseidon. The sculpture is positioned to express the moment at which Poseidon is throwing a trident. The statue was given to the Center as a gift from Greece in the 1970s and was documented in the 2003 catalogue.

The sculpture is in fair condition. The sculpture has a heavy layer of soiling and the protective wax coating has deteriorated and dulled. There are no structural concerns, but the sculpture's extremities (fingers and toes) have brightened considerably from being touched by visitors.

2022 CBP Recommendations: Interior Artwork

The interior sculptures and artworks require a thorough cleaning to remove soiling. During the cleaning, an assessment should take place to document all the pieces on display.

Individual conservation work for *Ideal Landscape*, *Pastoral*, *Ahrat in Seated Lotus Position*, *Eight Panel Screen*, *Poseidon*, and *Dimitri Shostakovich* to prevent further deterioration from occurring to the works.

An Interior Artwork Maintenance plan should be developed to help guide and direct trained professional and staff on the maintenance and protection of the interior art.

NOTE: All artwork assessment projects have been deferred due to funding constraints.

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Implementation Plan

A capital project implementation plan was prepared for each Kennedy Center building component during the development of the 2021 CBP. The implementation plan has been updated to reflect the changes in project status, estimated costs and appropriated funds.

In formulating this plan, projects were prioritized in terms of need. Projects have been scheduled in such a way as to keep the facility operating to the maximum extent, with efforts phased over the multi-year period. In addition, the expected life of equipment was considered as a predictive element in determining the sequencing of projects.

For continuing multi-year projects included in the previous planning period, the implementation plan has been updated, with the sequence and priority of those projects maintained. Costs and schedules have been updated to reflect progress in estimating and design. All information reflects the latest data available, including known construction market conditions and projected escalation rates.

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Multi-Year Implementation Plan

MULTI-YEAR IMPLEMENTATION PLAN						
	FY22	FY23	FY24	FY25	FY26	FY27
1 Exterior Building Envelope						
1.1 Plaza Trench Drain Replacement		150,000				
1.2 Exterior Envelope Studies - Marble Panels		200,000				
1.3 Exterior Walls at Level A, B, C - Near Term Repair - Repairs			1,500,000	1,000,000		
1.4 Exterior Door Investigations		100,000				
1.5 Plaza Level Columns					900,000	
1.6 Waterproofing And Leak Investigations		300,000				
1.7 Waterproofing Repairs		1,300,000	1,300,000			
1.8 White Single Ply roofing replacement		2,700,000				
1.9 Roof Surveys, Investigation, and Repair		250,000	250,000			
1.10 Exterior Art Work Assessment and Repair **		0				
2 Life Safety & Security						
2.1 Hazardous Material Abatement	38,593	50,000	50,000	50,000	50,000	50,000
2.2 Fire Alarm System Upgrade	92,463	3,500,000	3,500,000			
2.3 Fire, Life Safety, and Environmental Deficiencies	756,633	400,000				
2.4 Life Safety Upgrades-Rated Fire Door Testing&Penetrations		435,000				
2.5 Life safety: Interior Steel fire proofing review & repairs		810,000				
2.6 Sprinkler System Repair - Dry pipe investigation parking garages		100,000				
2.7 Extend Sprinkler System: Areas not appropriately sprinklered		175,000				
2.8 Vehicle Force Protection - Vehicle wedge barriers					900,000	
2.9 Security Cameras Network Video Recorders Upgrade	250,000	50,000			900,000	
3 Interior Repair & Accessibility						
3.1 Concert Hall Seating & Carpet Replacement & Painting		500,000	5,000,000			
3.2 Opera House and Ike Theater Rigging Replacement Study		150,000				
3.3 Opera House Seating and Finishes Upgrades						4,200,000
3.4 Office Space and Backstage Improvements Study	265,500					
3.5 Office Space Improvements - Phased Renovation		4,100,000	4,200,000	4,300,000	4,500,000	4,600,000
3.6 Eisenhower Theater Green Room Renovation **	0					
3.7 Improvements to Parking Level Lobbies - Restroom Upgrades **			0			
3.8 Bathroom Upgrades - Office Space Full Renovation				2,100,000	2,100,000	2,200,000
3.9 Assistive Listening Systems Upgrades			650,000			
3.10 Interior Art Assessment & Conservation **			0			
3.11 Art and Decorative Finishes Maintenance Plan **			0			
3.12 Level A Connection to the REACH		2,000,000				
3.13 Interior and Exterior Wayfinding		500,000	500,000			
4 Building Systems	FY22	FY23	FY24	FY25	FY26	FY27
4.1 HVAC in Switchgear rooms		175,000				
4.2A MEP Modernization Ph 3 - Fan replacement (garage, general	178,950	500,000	500,000	525,000	550,000	560,000
4.2B MEP Modernization Ph 3 - Garage fan controls upgrade (23 fans)		560,000				
4.3 Family Theater Temperature	43,150					
4.4 Hydronic System Optimizations (EPA)	167,331	2,100,000	225,000	2,100,000		
4.5 Sanitary System an Domestic Water System Study	125,659					
4.6 Sanitary System Upgrades - Phase 1	108,004	900,000	920,000	950,000		
4.7 Domestic Water System Upgrades - Phase 1			850,000	875,000	900,000	
4.8 Electrical Power Dist. Study		100,000				
4.9 Study to locate all unused electrical equip		30,000				
4.10 Electrical Distribution Upgrades - Grounding System		125,000	125,000			
4.11 Electrical Distribution Upgrade - Replace feeders		950,000	980,000	1,000,000	1,000,000	1,100,000
4.12 Distribution Equipment Replacement		590,000	600,000	625,000	645,000	665,000
4.13 Lighting System Upgrade - Exterior Lighting Controls		150,000				
4.14 Lighting system upgrade - Disconnect PEPCO feeds		65,000				
4.15 Generator System Upgrade - Study					220,000	
4.16 Generator System Upgrade - Replacement						1,500,000
4.17 Technical Stage Systems	1,000,000	1,300,000	1,325,000	1,330,000	1,335,000	1,400,000
4.18 Opera House Pit Lift Replacement		750,000		2,000,000		
4.19 Cyclical Elevator Refurbishment		500,000	500,000	1,000,000	1,200,000	2,600,000
5 Memorial Interpretation						
5.1A 5.1 Atrium Renovation & Exhibit	13,387,417					
5.1B 5.2 Upgrade Grand Foyer		5,151,000	500,000	1,000,000	1,000,000	1,000,000
5.1C 5.3 JFK Memorial Interp				3,500,000	3,500,000	3,500,000
6 Parking & Site Circulation						
6.1 Loading Dock Concrete Repairs		2,500,000				
6.2 Exterior Dock Lift Study		75,000				
6.3 Exterior Dock Lift @ OH and IKE loading doors			625,000			
7 Comprehensive Planning & PMO						
7.0 Project Management Office	850,000	1,000,000	2,050,000	2,050,000	2,050,000	2,050,000
7.1 Comprehensive Plan Development (2027)						900,000
7.2 Document Management & Comprehensive Life Safety Analysis		391,000				
7.3 Minor Repair	432,606	500,000	500,000	500,000	550,000	550,000
** Project funding not available.						
Total Costs	17,657,713	36,132,000	26,600,000	24,855,000	22,250,000	26,825,000
Annual Appropriations	13,400,000	17,440,000	18,150,000	22,000,000	22,000,000	23,000,000
Carryover	41,752,504	37,494,791	18,802,791	10,352,791	7,497,791	7,247,791
Balance	37,494,791	18,802,791	10,352,791	7,497,791	7,247,791	3,422,791

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Graphical Schedule of Projects

	FY22				FY23				FY24				FY25				FY26				FY27			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.1 Plaza Trench Drain Replacement																								
1.2 Exterior Envelope Studies - Marble Panels																								
1.3 Exterior Walls at Level A, B, C - Near Term Repair - Repairs																								
1.4 Exterior Door Investigations																								
1.5 Plaza Level Columns																								
1.6 Waterproofing And Leak Investigations																								
1.7 Waterproofing Repairs																								
1.8 White Single Ply Roofing Replacement																								
1.9 Roof Surveys, Investigation, and Repair																								
1.10 Exterior Art Work Assessment and Repair																								
2.1 Hazardous Material Abatement																								
2.2 Fire Alarm System Upgrade																								
2.3 Fire, Life Safety, and Environmental Deficiencies																								
2.4 Life Safety Upgrades-Rated Fire Door Testing&Penetrations																								
2.5 Life safety: Interior Steel fire proofing review & repairs																								
2.6 Sprinkler System Repair - Dry pipe investigation parking garages																								
2.7 Extend Sprinkler System: Areas not appropriately sprinklered																								
2.8 Vehicle Force Protection - Vehicle wedge barriers																								
2.9 Security Camera Server Upgrades																								
3.1 Concert Hall Seating & Carpet Replacement & Painting																								
3.2 Opera House and Ike Theater Rigging Replacement Study																								
3.3 Opera House Seating and Finishes Upgrades																								
3.4 Office Space and Backstage Improvements Study																								
3.5 Office Space Improvements - Phased Renovation																								
3.6 Eisenhower Theater Green Room Renovation																								
3.7 Improvements to Parking Level Lobbies - Restroom Upgrades																								
3.8 Bathroom Upgrades																								
3.9 Assistive Listening Systems Upgrades																								
3.10 Interior Art Assessment & Conservation																								
3.11 Art and Decorative Finishes Maintenance Plan																								
3.12 Level A Connection to the REACH																								
3.13 Interior and Exterior Wayfinding																								

P = In-Process
 C = Complete
 D = Delayed due to Funding

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Graphical Schedule of Projects

	FY22				FY23				FY24				FY25				FY26				FY27			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4.1 HVAC in Switchgear rooms																								
4.2A MEP Modernization Ph 3 - Fan replacement																								
4.2B MEP Modernization Ph 3 - Garage fan controls upgrade (23 fans)																								
4.3 Family Theater Temperature (Legacy)	C																							
4.4 Hydronic System Optimizations (EPA)	P				P																			
4.5 Sanitary System and Domestic Water System Study	P																							
4.6 Sanitary System Upgrades - Phase 1	P																							
4.7 Domestic Water System Upgrades - Phase 1																								
4.8 Electrical Power Dist. Study					P																			
4.9 Study to locate all unused electrical equip					P																			
4.10 Electrical Distribution Upgrades - Grounding System																								
4.11 Electrical Distribution Upgrade - Replace feeders																								
4.12 Distribution Equipment Replacement																								
4.13 Lighting System Upgrade - Exterior Lighting Controls																								
4.14 Lighting System Upgrade - Disconnect PEPCO feeds																								
4.15 Generator System Upgrade - Study																								
4.16 Generator System Upgrade - Replacement																								
4.17 Technical Stage Systems	P				P																			
4.18 Opera House Pit Lift Replacement					P																			
4.19 Cyclical Elevator Refurbishment					P																			
5.1A Atrium Renovation & Exhibit				C																				
5.1B Upgrade Grand Foyer	P				P																			
5.1C JFK Memorial Interp					D																			
6.1 Loading Dock Concrete Repairs	P				P																			
6.2 Exterior Dock Lift Study																								
6.3 Exterior Dock Lift @ OH and IKE loading doors																								
7.0 Project Management Office																								
7.1 Comprehensive Plan Development (2027)																								
7.2 Document Management & Comprehensive Life Safety Analysis																								
7.3 Minor Repair	P				P																			
Total Projects FY22-27	47																							
In-Process	15				13				0				0				0				0			
Completed	2				0				0				0				0				0			
Delayed-Funding	4				2				3				0				0				0			

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Project Detail Descriptions

Detailed descriptions of each capital project listed in the Implementation Plan are included in this section. Descriptions include project scope, project justification, degree of urgency for implementation, estimated project cost, and a suggested timeline. Annual budgets have been calibrated to coincide with anticipated appropriation funding. Estimated project costs have been adjusted for escalation to the year of implementation, based on reasonably predictable market escalation rates.

The project cost estimates included in this report are based on the descriptive information and diagrams in this report. As capital projects are developed from the preliminary planning stage to detailed designs and project scope, project costs will require evaluation and possible adjustment.

Project budget information is classified to indicate its status in the various stages of the project. The following terms are used:

Estimate of Probable Cost

When a project's projected financial information is first developed, prior to any design work, the information is termed the Estimate of Probable Cost. This information is utilized for long-term planning and is not a project budget. It is subject to significant changes as the project scope and schedule are developed and should not be used as a basis for future comparison to determine the budget performance for a project.

Preliminary Project Budget

For some projects, an interim estimate is developed between the Estimate of Probable Cost and the establishment of the Project Budget. This is the Preliminary Project Budget. This figure reflects some level of refinement of the design and therefore a more accurate cost; however, the design is not yet sufficiently developed in order for the budget to be considered accurate and therefore final. This preliminary budget, if developed, typically occurs for larger projects at the concept design level. It is not used as a basis for future comparison to determine the budget performance for a project.

Project Budget

The project budget is typically established at 35% design. At that point, the design is sufficiently complete so as to allow for a confident estimate of the project costs. This figure is used as the basis for future comparison to determine the budget performance for a project.

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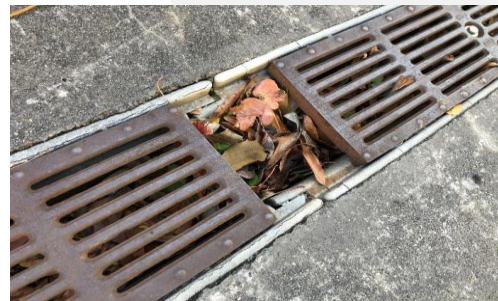
2022 Comprehensive Building Plan

1.1 Plaza Trench Drain Replacement

Annual Obligations	FY 2023 (Projected):	\$150,000
	Total (Projected):	\$150,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2022 CBP)		\$150,000

The existing trench drains in the plaza were inspected for overall condition and quality. During the site visit, the existing trench drains adjacent to the main road were found to be damaged. Portions of the trench drain tops have fallen off and exposed the trench drain bodies. It is recommended that these damaged trench drains be replaced with HS-20 loading/traffic rated drain tops to prevent flooding and maintenance issues in the trench drains. Approximately 140 LF of trench drain is recommended to be replaced. See blue markings in attached aerial site markup.

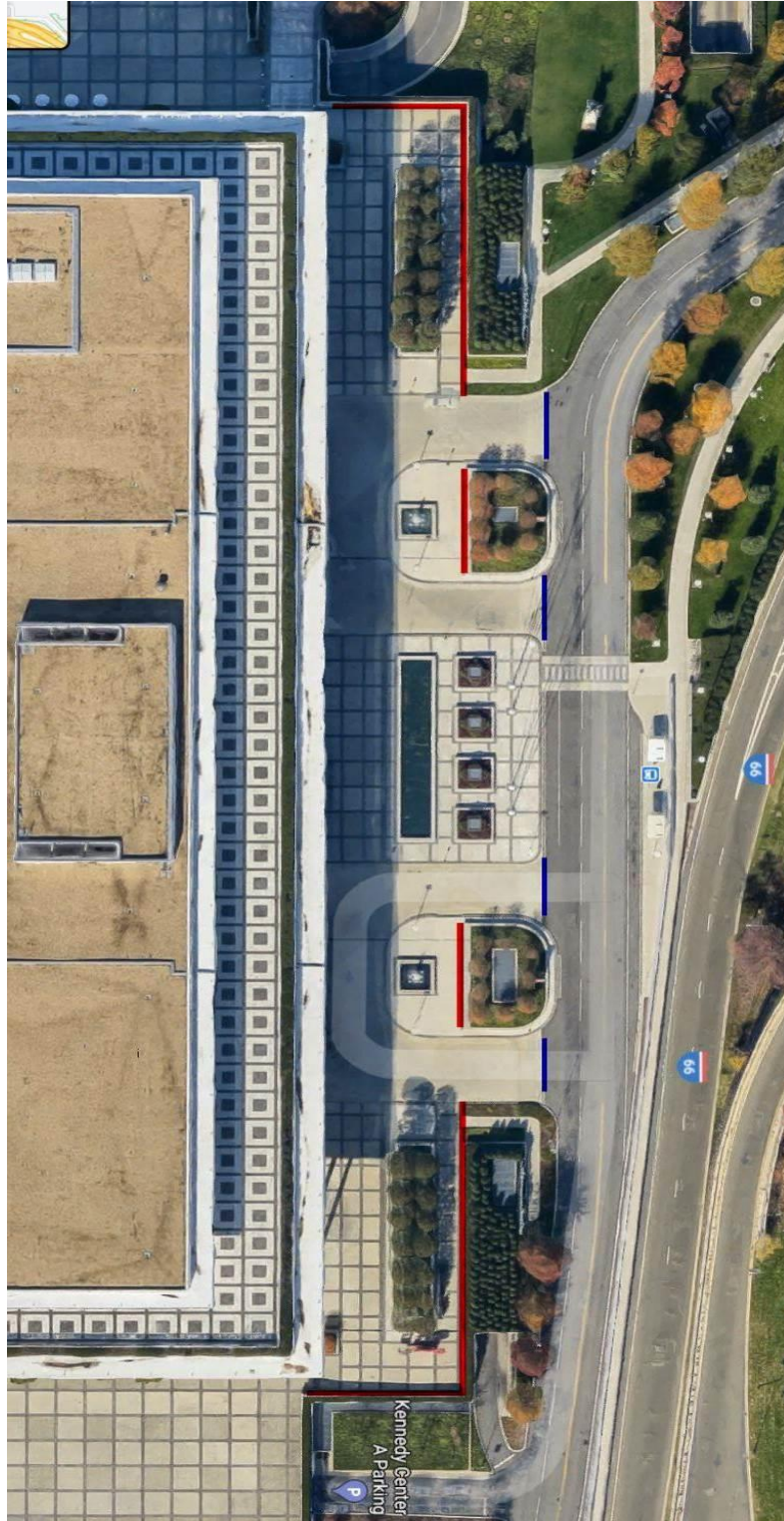
The existing trench drains closer to the interior plaza were found to be full of foliage, trash, and debris. It is recommended these trench drains be removed of all items within the drain body to prevent flooding and maintenance issues. Approximately 610 LF of trench drains is recommended to be cleaned out. See red markings in attached aerial site markup.



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1.2 Exterior Envelope Studies

Annual Obligations	FY 2023 (Projected):	\$200,000
	Total (Projected):	\$200,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$200,000

Studies and further investigations of the exterior envelope have been grouped together for this overall exterior envelope studies project.

Stone Repair Manual and Maintenance Plan:

Consistent with the 2020 CBP, establish a manual for the maintenance and repair of the exterior stone. Additionally, establish a regular schedule for survey and observation of the exterior stone. Coordinate maintenance tracking with CMMS.

Cleaning Studies - Marble and Granite:

For the marble cladding, conduct specialized cleaning studies of the following discoloration patterns:

- Discoloration along the marble panel joints,
- Discoloration in the field of the panels in irregular mottled patterns,
- Discoloration in the field of the panels concentrated along veins,
- Dark black discoloration at the marble fascia panels, coping units, and Rock Creek Parkway overhang,
- Efflorescence at marble fascia panels and planter walls, and
- Yellow discoloration at bands of two courses of marble panels on the north and south facades.

For the granite cladding, conduct specialized cleaning studies including the following discoloration patterns:

- Red discoloration at the granite pavers,
- Red discoloration at the granite planter and fountain walls,
- Green and black discoloration at granite planter and fountain walls, and
- Efflorescence at granite planter and fountain walls.

Note: Design the cleaning study and trials to incorporate the findings of the previous studies.



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Exterior Walls and Soffits:*Levels A, B and C and Rock Creek Parkway Overhang Close-Range Survey and Sounding*

Complete close-range survey and sounding in the near term to:

- a) Remove potential incipient spall fall hazards present at the marble and precast panels,
- b) Complete discrete stabilization repairs,
- c) Confirm the repair quantities and locations for full scale repairs, and
- d) Review substructure conditions as possible using borescope and discrete inspection openings.

The last marble repairs completed at the Rock Creek Parkway overhang included broken panel replacement in 2005. Repairs to the concrete soffit over Rock Creek Parkway were completed during the summers of 2016 and 2017. During the survey for this study, the highest concentration of distress at the vertical wall surfaces was observed at the north facade and the portions of the north, west, and south facades along Rock Creek Parkway. Recommend a regular cycle of inspection and sounding of the concrete soffit due to the risk of a spalls hitting vehicles below.

*Plaza and Terrace Level Overhangs Close-Range Survey and Sounding*

Conduct a close-range survey and sounding of 100% of the marble fascia and coping units as well as discrete incipient spalls identified via visual survey of the Plaza Level Facades. Goal of survey is to:

- a) Remove potential incipient spall fall hazards present at the marble,
- b) Review the general condition of the marble,
- c) Complete discrete stabilization repairs, and
- d) Confirm the repair quantities and locations for full scale repairs.

Plaza Level Soffit Investigation

Review the condition of the top surfaces of the stucco soffit panels especially at the known leak locations of the Plaza Level overhang and discrete panels with reddish brown water staining markings.

Terrace Level Joint Sealant Discoloration Investigation

Conduct investigation to understand source of red discoloration of the joint sealant at the bottom of the window frame-to-stucco joints at the Terrace Level.

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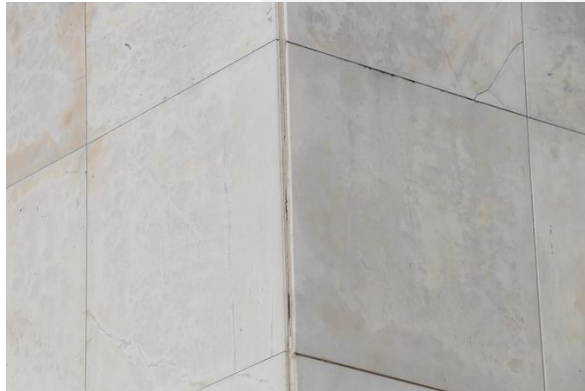
2022 Comprehensive Building Plan

1.3 Exterior Walls at Level A, B, and C - Near Term Repairs

Annual Obligations	FY 2024 (Projected):	\$1,500,000
	FY 2024 (Projected):	\$1,000,000
Total (Projected):		\$2,500,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$2,500,000

Engage a qualified consultant to develop and contractor to complete repair scope. Anticipated repair scope to include the following items:

- a) Replacement of 100% of the joint sealants (All of the exterior sealants at these Levels are past their service life and are experiences adhesive and cohesive failures.);
- b) Sounding 100% of the marble panels, precast panels, and concrete walls;
- c) Sounding 100% of the cementitious parge coatings at soffits (north and south overhangs, adjacent to but not extending over Rock Creek Parkway);
- d) Visual inspection and repairs of any portions of the substructure exposed during construction efforts;
- e) Miscellaneous marble panel repairs including cracking and incipient spalls review and repair of previous repairs;
- f) Potentially some marble panel replacements;
- g) Miscellaneous precast panel repairs;
- h) Miscellaneous concrete repairs;
- i) Miscellaneous cementitious parge coat repairs;
- j) General cleaning 100% marble, precast, and concrete surfaces; and
- k) Specialized cleaning of heavy soiling and discoloration at marble and precast panels per results of cleaning studies.



Recommend a regular cycle of inspection and sounding of the concrete soffit due to the risk of a spalls hitting vehicles below.

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1.4 Exterior Door Investigation

Annual Obligations	FY 2023 (Projected):	\$100,000
	Total (Projected):	\$100,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$100,000

The exterior automatic sliding and bronze hinged double doors are not well sealed to prevent air leakage. Since they are relatively new (the sliding and hinged double door replacements were completed in 2006, 2010 included the Curtain Wall Replacement project, and 2011 included a Door Hardware Upgrade project), this study would consider options to address installation of supplemental gaskets or weatherstripping to address air infiltration while keeping the door in-service.

Review door preservation as well as thermal efficiency and air/water infiltration goals in coordination with HVAC design and performance. Investigate options for restoration and addressing gaskets and air leakage of the doors and entryways throughout the building as part of any overall HVAC improvement projects. Recommend completing mockups and testing of the preferred options during this phase.



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1.5 Plaza Level Columns

Annual Obligations	FY 2026 (Projected):	\$900,000
	Total (Projected):	\$900,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$900,000

The exterior columns at the plaza level are assumed to be a structural steel tube with a decorative column cover, made up of light gauge sheet metal. Per the historic documentation, these columns were specified to have bronze covers and fins, with an alternate option for "ornamental metal" column covers.

The as-built columns are painted with a bronze-colored paint. At most of the columns, surface level corrosion and rust staining has occurred near the base. Given the presence of rust staining and paint, it is assumed that the alternate option for ornamental metal covers was selected in lieu of the original bronze. Further investigation is recommended in order to confirm the as-built condition of the column base and the existing paver and waterproofing condition.



This project includes scope to repair all corroded steel and repair damaged existing flashing at column bases. Pavers shall be locally removed to investigate condition of existing HRA waterproofing flashings at column bases to assess membrane damage due to steel substrate corrosion and review steel condition to determine if structural repair is required, and repair membrane flashings as necessary. It is assumed that no structural repair will be required. Cosmetic repairs to prevent further deterioration shall include cleaning and repainting columns with corrosion-inhibiting primer, epoxy intermediate coat, and high-performance topcoat and repair at discrete cracked, detached, and bent column fin bases. Installation new bird-proofing system at the tops of the columns is recommended.

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1.6 Waterproofing and Leak Investigations

Annual Obligations	FY 2023 (Projected):	\$325,000
	Total (Projected):	\$325,000
Project Budget		\$325,000
Estimate of Probable Cost (Source: 2021 CBP)		\$325,000

Based on the Kennedy Center Records and on-site observations, there are potential leaks at the following sub-grade spaces:

- Level B/A Service Corridor & Support Spaces,
- Level B Garage Northeast Corner,
- Below Plaza Level Expansion Joints,
- Below Plaza Level Fountains, and
- Discrete Locations on Levels A & B.

During the on-site survey, active leaks were observed at the following locations:

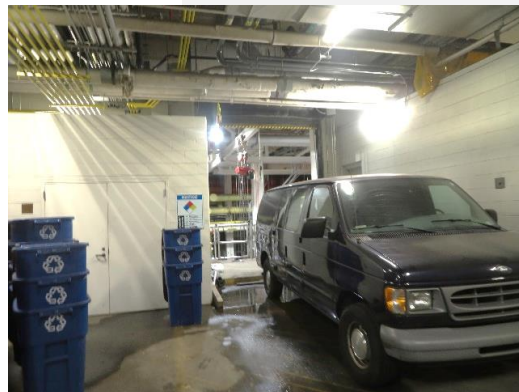
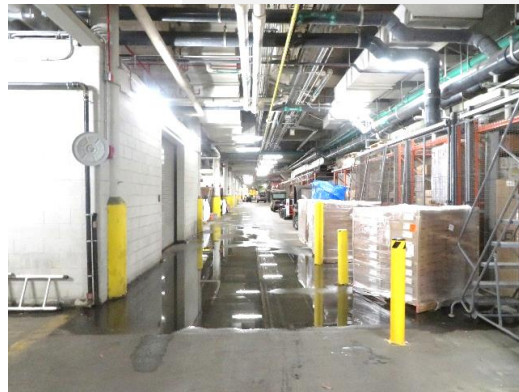
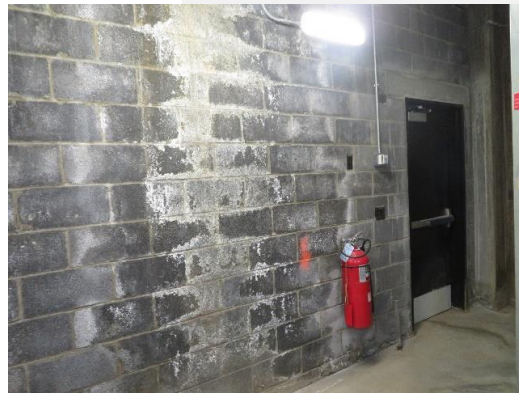
- North pump rooms,
- East transformer vaults rooms,
- Garage northeast corner (Level B),
- Mechanical ducts/shafts,
- Pipes and pipe penetrations, and
- Expansion joints.

Staining, concrete distress, corroded steel, and efflorescence indicating past and potentially ongoing water infiltration were observed at each of active and potential leak locations. Starting points for the investigation efforts include: 1) developing an active Leak Log and 2) confirming the active versus dormant leak locations that have already been addressed by previous repair campaigns. As part of investigation, water testing will likely be necessary to identify the source of active leaks.

Engage qualified consultant to investigate active water infiltration through Level B/Level A service corridor and support spaces (below grade along east Level B service corridor) and the Level B garage northeast corner and to develop appropriate water infiltration mitigation strategies.

Engage qualified consultant to review and investigate all other reported leak locations as determined by the Leak Log. Based on the records provided by the Kennedy Center for this study and the project team's on-site observations, the following known potential leaks are not otherwise included in investigations listed above:

- Northeast Level B stairs (Stair B111);
- Level B parking garage west wall (north of Room B352); and
- Southeast Level B (at The Reach connection and southeast garage entry);



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- Northeast Level A exterior door to stairs (Door NE-A1); and
- Northeast Level A (Room LA-50).

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1.7 Waterproofing Repairs

Annual Obligations	FY 2023 (Projected):	\$1,300,000
	FY 2024 (Projected):	\$1,300,000
	Total (Projected):	\$2,600,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$2,575,000

This budgetary item is dependent upon the results of the investigations into the sources of the leaking (1.6 Waterproofing and Leak Investigation) and is centered on repairs to waterproofing elements that are likely contributing to active water infiltration.

Following general leak investigation, engage qualified consultant to design and contractor to complete scope. Implement appropriate water infiltration mitigation strategies to address any confirmed active leakage determined during the investigation phase.

Engage qualified consultant to design and contractor to complete the following scope:

- Implement appropriate water infiltration mitigation strategies to address ongoing leakage Level B/Level A service corridor and support spaces based upon consultant investigation. Sound full extents of vault ceiling concrete slab. Remove loose concrete and patch spalls and cracks. Clean and paint ends of encased steel beams where corrosion has occurred and patch encasement.
- Implement waterproofing repairs, as developed by consultant investigation, to address ongoing water infiltration at the northeast corner of parking garage Level B.
- Replace failed Plaza Level waterproofing expansion joint assemblies, tie-in with adjacent HRA waterproofing membrane to remain alongside the joints. Work scope not to be confused with paver surface level joint covers, though replacement of exposed silicone-faced pre-compressed joint seals at planter walls should also be replaced during the work.
- Replace corroded in-fountain piping. Repair piping penetration flashings through HRA structural waterproofing beneath concrete fountain basins; consider full structural waterproofing replacement within the fountain footprint and tie-in with adjacent Plaza structural waterproofing to remain. Replace failed Plaza Level fountain basin waterproofing liner coating after structural



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waterproofing repairs and concrete topping
reinstallation.

- Replace 100% sealant at all plaza fountain, planter, and paver associated joints including the facade-to-paver joint. Complete discrete stone repairs. Complete 100% granite cleaning based on findings of the cleaning studies (1.1 Exterior Envelope Studies). Complete storm system upgrade and replace copper fountain drainage piping with PVC.

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1.8 White Single Ply Roofing Replacement

Annual Obligations	FY 2022 (Projected):	\$0
	FY 2023 (Projected):	\$2,700,000
	Total (Projected):	\$2,700,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$3,000,000

The membrane is in fair condition and near the end of its expected useful lifespan; each overhang roof has several urgent maintenance repairs. The overhang roofs service lives can likely be extended for up to five more years with higher annual maintenance expenditures and maintenance inspections per year until replacement.

Repair drain flashings at white single ply overhang roofs at multiple drains (inspect all and repair as needed) to extend service life of roofs.

At end of extended service life, remove and replace white thermoplastic single-ply roof membrane assemblies at Plaza and Terrace Level overhangs due to age-related deterioration. Include snow/ice retention system and/or raised roof edge with roof membrane assembly replacement to mitigate wind-blown falling snow/ice over roof edge.



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1.9 Roof Surveys, Investigations, and Repair

Annual Obligations	FY 2023 (Projected):	\$250,000
	FY 2024 (Projected):	\$250,000
	Total (Projected):	\$500,000
Project Budget		TBD
Estimate of Probable Cost (Source:2021 CBP)		\$500,000

Roof surveys, investigation, and repairs of the Terrace, Main Roof and Penthouse roofs been grouped together for this overall project.

Terrace Level Expansion Joints:

Engage qualified consultant to remove joint covers and investigate condition of expansion joint seals.

Main Roof and Penthouse Roofs:

There are a number of conditions that need maintenance and targeted repairs. This will extend the service life of these roofs to beyond the 5-year projection of this study. Existing coal tar pitch BUR assembly should retain sufficient integrity and durability to persist for another decade or more, with proper localized maintenance.

Engage a qualified roof consultant and contractor to conduct comprehensive maintenance survey of in-situ coal tar pitch BUR roof membrane assemblies to identify all lead pipe boots, penetration flashings, and membrane blisters that require maintenance repair/replacement. Complete necessary repairs to BUR assembly in-kind and replace all exposed joint sealants at sheet metal expansion joint covers and perimeter flashing conditions.

The Kennedy Center should continue semi-annual inspection and maintenance protocol for Main Roof coal tar pitch BUR membrane assembly. Contact Koppers to obtain copy of original roof warranty information for the Center's records, even if expired.

Penthouse Kitchen Exhaust Penetrations:

Engage qualified consultant to investigate active water infiltration at kitchen exhaust penetrations. Engage qualified consultant to design and contractor to complete scope. Implement roofing repairs, as developed by consultant investigation, to address ongoing water infiltration. Patch edge of concrete slab at rough opening. Repair existing steel beams framing opening where corrosion has occurred.



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Concert Hall Plenum Space:

Engage qualified consultant to investigate source(s) of reported ceiling/duct condensation within the Concert Hall plenum space and develop mitigation strategies. Additionally, review and confirm that roof leak catchment devices arranged throughout the plenum space pre-date the 1999 Roof Replacement project roof membrane assembly replacement and do not represent active leaks; if leaks are active include appropriate repairs in Main Roof Maintenance Repairs item below.

Engage qualified consultant to design and contractor to complete scope. Implement appropriate water infiltration mitigation strategies to address any confirmed active leakage determined during the investigation of the Concert Hall Plenum Space.

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1.10 Exterior Art Work Assessment and Repair

Annual Obligations	FY TBD (Projected):	\$260,000
Total (Projected):		\$260,000
Project Budget:		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$260,000

All the sculptures in the central grounds require a conservation campaign to clean soiled surfaces, remove staining, and repair and renew lost and deteriorated coatings. Treatments which should be addressed include: cleaning to remove atmospheric soiling (all sculptures), renewal of wax coating on bronze sculptures (*Don Quixote*, *Amerika*, and *War or Peace*), patina correction on bronze sculptures (*Don Quixote*, *Amerika*, and *War or Peace*), paint repair or recoating on the aluminum sculptures (*Untitled*), copper stain removal on the stonework (*Don Quixote*), and coating stabilization (*Untitled*).

Following these initial conservation treatments, regular assessment to identify minor problems and subsequent maintenance cleaning should be performed annually to help protect sculptures from developing undesirable changes.

The above cost includes assessment, conservation treatment, documentation, and reporting of the treatment.

The project does not have funding at this time.



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The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan***2.1 Hazardous Material Abatement*

Annual Budget Obligations	FY 2018:	\$38,886
	FY 2019:	\$0
	FY 2020:	\$0
	FY 2021:	\$77,982
	FY 2022 (Projected):	\$38,593
	FY 2023 (Projected):	\$50,000
Total (Projected):		\$170,461
Project Budget		TBD
Estimate of Probable Cost (Source: Kennedy Center)		N/A

This work reflects the ongoing need to address the presence of hazardous materials within the building, primarily asbestos containing materials. The materials are abated as they are encountered during construction. Expenses are incurred annually and funding has been utilized for this work in several prior years. The annual projection is based on the anticipated abatement necessary in conjunction with scheduled construction projects.

Hazardous materials abatement is not a distinct project; therefore, the budget represents an allowance. The work spans every year of the CBP and may change greatly depending upon the scope of the many other capital projects that are implemented. Efforts are made to align projected expenditures with the projects and their expected impact on asbestos containing materials. An annual amount is budgeted for abatement, depending on what capital efforts are anticipated that will require removal of hazardous materials. In recent fiscal years, the work related to the modernization of mechanical systems required significant removal of asbestos-containing pipe elbows and insulation on duct, pipe, and air handling units. In FY16 and FY17 abatement funds were transferred to the Terrace Theater Renovation project so that work could be performed under a single funding document.

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The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan****2.2 Fire Alarm System Upgrade**

Annual Budget Obligations	FY 2018:	\$60,848
	FY 2019:	\$5,180
	FY 2020:	\$253,963
	FY 2021:	\$0
	FY 2022 (Projected):	\$92,683
	FY 2023 (Projected):	\$3,400,000
	Total (Projected):	\$867,984
Project Budget (source: Design Documents 2021)		
Estimate of Probable Cost (Source: 2015 CBP)		\$1,000,000
Estimate of Probable Cost (Source: Fire Alarm System Life Cycle Analysis-2021)		\$7,000,000*
* Excludes escalation		

The fire alarm system is at the end of its useful life. The fire alarm system replacement is in the design process. There are also several deficiencies found during field investigations that must be addressed during the fire alarm replacement process.

These deficiencies include locations that require additional manual pull stations, non-compliant notification devices, missing AV equipment shutdown, and missing smoke detection.

The approach to the project has been revised and the design documents are being updated to reflect replacement of the fire alarm system control by the original proprietary manufacturer.

2.3 Fire, Life Safety, and Environmental Deficiencies

The existing diesel Fire Pump at the Kennedy Center and associated auxiliary equipment were installed in 1989. The emergency/standby distribution switchboards in the generator room are the original equipment installed in 1969. The emergency/standby switchboards have exceeded their expected service life and the manufacturer is no longer providing new replacement parts. Repairs to the system are often delayed due to the availability of used parts which are often salvaged from other systems. Design has been completed for the upgrade and replacement of the obsolete systems as part of the Fire Pump Auxiliary Equipment Connections project. The project will was awarded in FY22. Construction will take more than a year due to the long lead times for the new electrical panels. Construction is anticipated to be complete in FY24.



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The Kennedy Center during an annual power outage in section noted numerous deficiencies in regard to life safety egress requirements. The deficiencies include lack of adequate emergency egress illumination and exit signs required to guide occupants to safety in the event of an emergency. A project is currently in design to correct the noted deficiencies. The design was completed and issued for bid. The project is being de-scoped to reflect work that will be completed in-house by the Kennedy Center Electrical Shop. This will represent a significant savings in the completion of the project.

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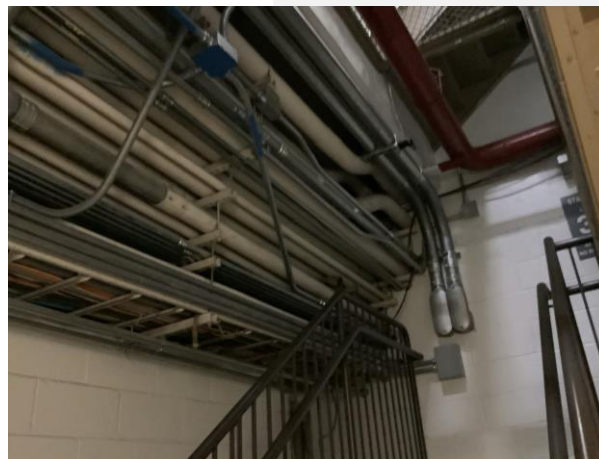
2.4 Life Safety Upgrades – Rated Fire Door Testing & Penetrations

Annual Budget Obligations	FY 2022:	Commented [FCI1]: Coord with Production
	FY 2023 (Projected):	\$435,000
	Total (Projected):	\$435,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$435,000

Maintaining fire resistance rated assemblies is crucial in ensuring the integrity of building during fire emergencies.

The building consists of many fire doors in fire -resistance rated assemblies. The Kennedy Center is to perform a NFPA 80 mandated fire door assembly inspection with a written record. During survey, fire doors were observed with broken latches and deficiencies. Each door assembly investigation must be performed by a qualified person in accordance with NFPA 80. This includes a visual inspection before testing and the closing of all fire doors by means of activation during testing.

Penetrations in rated walls must be sealed in order to maintain the fire-resistance rated capabilities intended. There are several rated walls that have unsealed penetrations. These areas include the exit passageways on Level B, the fire pump room, Stair 2-10, and Stair 4-8. For purposes of this estimate assume 10 unsealed penetrations in the Level B exit passageway, Level A generator room, pump room, and in stair 4-8. Stair 2-10 contains approximately one hundred conduit runs through the enclosure.



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*2.5 Life Safety – Interior Steel Fire Proofing Review and Repair**

Annual Budget Obligations	FY 2022 (Projected):	\$0
*Project is being completed in conjunction with 6.1 Loading Dock Concrete Repairs	FY 2023 (Projected):	\$810,000
Total (Projected):		\$810,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$810,000

Spray applied fireproofing and concrete fireproofing was found to be in deteriorating condition in several locations during site investigation. Assess the condition and application of the existing spray applied fireproofing throughout the building, particularly mechanical spaces and the garage. Note locations and document where fireproofing is damaged and produce an estimated cost for remediation.

Within the main building, local areas of missing fireproofing encasement have been identified at the roof terrace level. This project will investigate the extent of missing fireproofing at roof terrace level atrium and identify required repairs. Repairs assumed to include patching fireproofing where existing concrete encasement at steel beams has been locally chipped out to facilitate installation of hung pipes or conduit and providing fireproofing at existing steel trusses where not currently encased or spray applied, east of the atrium.



The scope represents the likely effort involved at a minimum of 10 individual locations, but not all locations could be identified during the CBP assessment. A dedicated analysis of the affected areas in the mechanical spaces and garage should be included in the scope of work to ensure the scope of the remediation is accurate and specific.

This project is also intended to address the missing fireproofing and associated structural repairs at the garage A-level at the overhang at Rock Creek Parkway. The existing overhang structure consists of a series of large built-up steel plate girders, with smaller infill steel beams framing to the girders. The large girders have spray-on fireproofing, and the infill beams are encased in concrete. Along the girders, local patches of spray-on fireproofing are missing. At the two north-south building expansion joints, water infiltration has resulted in structural deterioration of the beams and girders, including surface level corrosion of steel and cracking and spalling of concrete. Repairs will include re-application at patches of missing spray-applied fireproofing and along expansion joints, cleaning and painting of exposed corroded steel at plate girders and perpendicular steel beams framing to plate girders. Spalled concrete encasement will be removed and patched. Sounding should be performed on marble façade panels following repair to ensure repair activities have not resulted in loose panels.

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2.6 Sprinkler System Repair – Dry Pipe Investigation Parking Garages

Annual Budget Obligations	FY 2023 (Projected):	\$100,000
	Total (Projected):	\$100,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$100,000

The sprinkler system is past typical life span. Repairs to the system will be necessary to ensure adequate protection in case of a fire emergency.

Perform a piping investigation of the dry-pipe sprinkler systems. Investigation shall include an inspection of the dry-pipe valves and a survey of the interior of the dry-pipe sprinkler piping at a sprinkler main, a sprinkler cross main, and a sprinkler branch line. Each dry-pipe sprinkler zone on all garage levels will be sampled.

Samples of piping, including a main section, a cross main section, and branch line section shall be taken and submitted for metallurgical testing to determine the condition of the pipe. Sprinkler system shall be restored for operation at the end of each survey. Sprinkler contractor shall be on hand to drain system, to access the interior of piping, to take samples, and to restore system to operation.



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2.7 Extend Sprinkler System: Areas not Appropriately Sprinklered

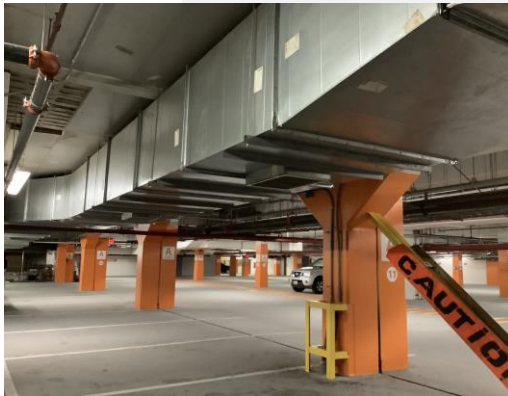
Annual Budget Obligations	FY 2023 (Projected):	\$175,000
	Total (Projected):	\$175,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$175,000

Design and install sprinkler protection in areas that are currently not protected. These areas include:

- Level B mechanical room with palletized storage near stair 4-9A. The Sprinkler system does not seem adequate to handle present commodities.
- Paint spray booth on Level A. This booth is not currently protected. Ensure fire protection is provided in accordance with NFPA 33.
- Parking garage on Level A near space Austin 11. The Sprinkler protection stops partway under duct that is greater than 4 feet wide.
- Room 1208A on Plaza level.
- Room 1218. These sprinklers are being provided during public space modernization project.

These sprinkler systems must be designed in compliance with NFPA 13, including verification of the hydraulic demand of the additions.

Stages are required to be provided with standpipe hose connections on both sides of the stage. It appears the hose connection is only provided one side of the Eisenhower Theater Stage.



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2.8 Vehicle Force Protection – Vehicle Force Barriers

Annual Budget Obligations	FY 2026 (Projected):	\$900,000
Total (Projected):		\$900,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$900,000

During assessment of the condition of the security systems and posture of the Kennedy Center it was noted that there is little in the way of perimeter reinforcement, like fences. Of particular note was the lack of vehicle control, like bollards and barriers.



The scope of this recommendation is to install retractable wedge barriers at control points along the access roads for the center. These barriers will restrict access along intended access routes and make identification of threats more actionable as they circumvent the obstructions.

Provide vehicle (wedge) barriers to enhance vehicular access control to the site in an emergency. The budget estimate includes 4 wedge barriers, intended for installation across all lanes of traffic on 25th street and F Street. The cost estimate also includes installation of actuating controls at the location of the stakeholders' preference. Likely in the Security Operations Center.

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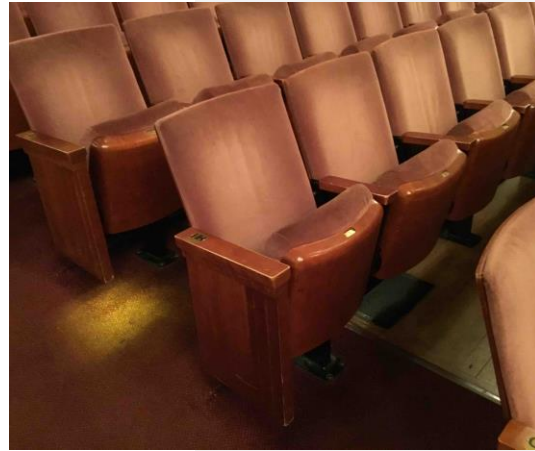
3.1 Concert Hall Improvements

Annual Budget Obligations	FY 2023 (Projected):	\$500,000
	FY 2024 (Projected):	\$5,000,000
	Total (Projected):	\$5,500,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$5,500,000

2020 CBP Project Number: 3.2

The Concert Hall received a comprehensive renovation in 1998 that included all new life safety systems, accessibility improvements, new finishes, new technical stage systems, and other improvements. With the passing of time since the renovation, several issues have arisen due to normal wear and tear that require attention.

The existing seats are beyond their useful life, require constant maintenance to keep operable, and should be replaced. The carpet is worn and recommended for replacement. Several railings do not match typical handrails used throughout the hall - non-matching railings will be replaced to standardize handrails throughout hall. Improvements also include repair and refinishing of wood railings at cross aisles and painting of perimeter walls and painted partial height walls in audience chamber.



Work previously identified in prior CBPs that is not included in this 5-year cycle includes improvements to acoustics to accommodate a range of programming and installation of dampers in major ductwork to allow rebalancing air flow. These projects may be incorporated into future project beyond the planning period of the current CBP.

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3.2 Opera House and Eisenhower Theater Rigging Replacement Study

Annual Budget Obligations	FY 2023 (Projected):	\$150,000
Total (Projected):		\$150,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$150,000

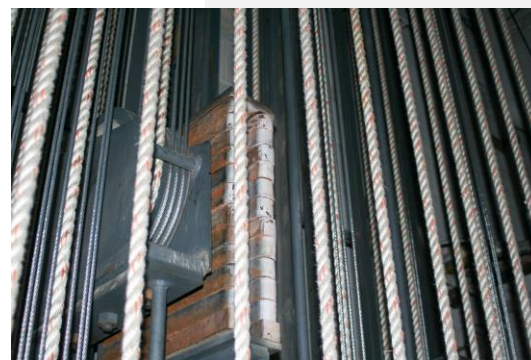
The manual double-purchase counterweight rigging systems in the Opera House and Eisenhower Theater are aging, inefficient, and potentially unsafe. The systems do not meet the rigorous technical expectations of contemporary performances and are in need of replacement with motorized automated rigging systems.

Double-purchase systems require counterweight equal to twice the total load on the lineset. This weight must be manually added to arbors at a loading gallery far above the stage. This operation presents a risk of weight falling to the work area below. In addition to the safety risks, this process is time consuming, creating significant labor costs.

A fully automated motorized rigging system does not require counterweight and would be more efficient and safer to operate. A motorized system could be designed with greater line set weight capacities than the existing counterweight rigging system. In addition, automated rigging systems may be equipped with safety interlocks such as overload sensors, slack line sensors, and a robust system of emergency stop stations.

The computerized control system, consisting of a central control console as well as a hand-held remote console, will also allow accurate and repeatable starts, stops, speeds, and positioning for scenery move cues.

A detailed study and cost justification, including implementation strategy and impact of venue closure and lost revenue, is planned in FY 2023. This study will fully explore the spacing and arrangement of new automated rigging hoists as well as structural and electrical impact of the upgrades.



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3.3 Opera House Seating and Finish Upgrades

Annual Budget Obligations	FY 2027 (Projected):	\$4,200,000
Total (Projected):		\$4,200,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$4,200,000

The Opera House interior improvement needs are limited. Most finishes are still in good condition except for the wear of the fixed seating since a renovation in 2003. The carpet is showing signs of wear, and frayed edges were observed throughout, particularly at cable tray paths.

Renovations include replacement of fixed seating and carpet. Fixed seating will be removed and replaced and new broadloom carpet with wood wall base and cable pathway covers will be installed throughout the hall.



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3.4 Office Space and Backstage Improvements Study

Annual Budget Obligations	FY 2022 (Projected):	\$265,500
	Total (Projected):	\$310,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$310,000

2020 CBP Project Number: 3.3

Staff office areas in the facility range in configuration and quality. The number of employees working at the Kennedy Center today far exceeds that which was initially envisioned when the Center was built. The workspace areas have been developed over time in various spaces not dedicated to performance areas or public spaces. Many spaces are not efficiently planned due to the organic nature of growth and office renovation. Many staff and storage areas are utilized based on the space available, and efficiencies are poor.

Backstage areas similarly range in quality and efficiency and should be evaluated. Workspace areas are often adjacent to backstage areas and should be considered comprehensively to improve efficiency and allow for flexible use of shared spaces and resources.

The need for an office space master plan was identified in a prior CBP and the plan was completed in 2019. The plan's recommendations included office and storage space renovations to increase workplace density, provide key adjacencies between departments, and provide consistent workspace kit of parts.

The master plan will be reevaluated to address changes in workspace requirements post-pandemic, with an emphasis on healthy workspace. Hybrid work styles and staff reductions should be considered, and optimal workspace density should be reevaluated. The revised master plan will include revised planning approach, kit-of-parts, and implementation plan.



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3.5 Office Space Improvements – Phased Renovation

Annual Budget Obligations	FY 2023 (Projected):	\$4,100,000
	FY 2024 (Projected):	\$4,300,000
	FY 2025 (Projected):	\$4,300,000
	FY 2026 (Projected):	\$4,500,000
	FY 2027 (Projected):	\$4,600,000
Total (Projected):		\$21,700,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$21,700,000

2020 CBP Project Number: 3.3

Staff office areas in the facility range in configuration and quality. The number of employees working at the Kennedy Center today far exceeds that which was initially envisioned when the Center was built. The workspace areas have been developed over time in various spaces not dedicated to performance areas or public spaces. Many spaces are not efficiently planned due to the organic nature of growth and office renovation. Many staff and storage areas are utilized based on the space available, and efficiencies are poor.



This project consists of phased renovation of all existing office space except recently renovated areas. The project scope will be refined based on the recommendation of the revised master plan. The renovation will focus on reconfiguration and improvements related to office, storage, and conference space, and will include new finishes, furniture, lighting, and mechanical and electrical infrastructure upgrades. Renovated workspace will include teaming and conference spaces with video conferencing equipment and departmental breakrooms with kitchenettes. Minor repair and cleaning scope is included for areas recently renovated.

The balcony on the 2nd Tier of Eisenhower Theater is used as an office space and includes several cubicles. The space is open to the Grand Foyer below and presents an acoustical issue during performances on Millennium Stage. The existing cubicles will be removed, and the balcony space will be reconfigured into two shared conference rooms acoustically separated from the Grand Foyer with new fire rated acoustical glass partitions. New furniture, wall and floor finishes, and video-conferencing infrastructure will be provided. Existing ceiling will be replaced with acoustical plaster ceiling in the new conference rooms. Existing chandeliers will remain, and additional recessed lighting will be provided. New acoustical glass partitions will extend to ceiling and will provide STC rating of 50. Motorized blackout shades mounted adjacent to the glass partition will provide visual privacy and limit glare while acoustic wall treatment will provide good speech intelligibility for conferencing.



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3.6 Eisenhower Theater Green Room Renovation

Annual Budget Obligations	FY TBD (Projected):	\$400,000
Total (Projected):		\$400,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$400,000

The Eisenhower Theater Green Room finishes and furnishings are worn and no longer appropriately represent Kennedy Center's identity as a premier arts institution. The Green Room lacked an adjacent kitchen, and this need was previously addressed by incorporating a kitchenette in the adjacent corridor. Additionally, a table with coffee makers and a freestanding small fridge with a microwave were added in the Green Room. These solutions appear provisory and do not fully address the need for a catering kitchen.



The Eisenhower Theater Green Room will be fully renovated. Improvements will include replacement of carpet, new wall and ceiling finishes, lighting, and new furniture. A new dedicated 250 sf catering kitchen will be provided directly adjacent to the Green Room. Equipment will include commercial refrigerator, commercial ice machine, commercial dishwasher. Plumbing equipment will include commercial double compartment sink, hand sink, and mop sink. A new built-in millwork with built-in small undercounter refrigerator and beverage cooler, small sink and water line for coffee maker will be provided in the Green Room.

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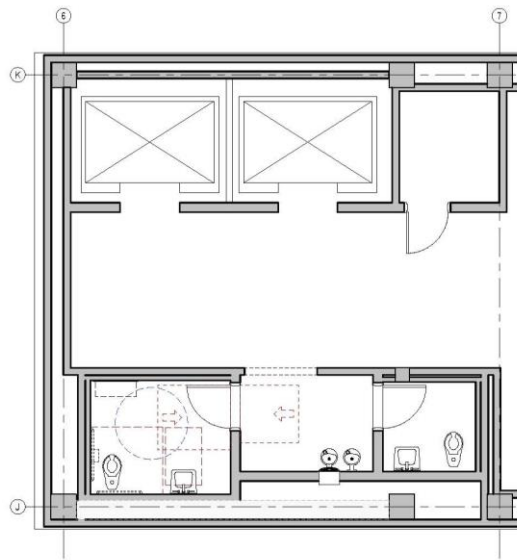
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3.7 Parking Level Lobbies Restroom Upgrades

Annual Budget Obligations	FY TBD (Projected):	\$1,300,000
Total (Projected):		\$1,300,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$1,300,000

The purpose of the project is to renovate and upgrade the existing public restrooms located in the Motor Lobbies of Parking Level A, B and C. There are 4 single use restrooms (2 men's and 2 women's) located on each of the parking levels B & C. There are 4 multi-use restrooms (2 men's and 2 women's) located on parking Level A. The restrooms received a minor upgrade in 2008 but, except for the women's restrooms on Level A, the existing finishes have not been replaced. The existing restrooms finishes are dated and in poor condition.

The proposed design shall renovate the existing restrooms to provide new fixtures, toilet accessories, finishes, light fixtures and replace existing deteriorating domestic water and sanitary piping. The new design shall comply with current building code and meet or exceed the requirements for accessibility.



Concept Design

Project has be deprioritized and will not be proceeding.

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3.8 Bathroom Upgrades – Phase 1

Annual Budget Obligations	FY 2025 (Projected):	\$2,100,000
*Portions of this project will be included in the Office Space Improvements projects.	FY 2026 (Projected):	\$2,100,000
	FY 2027 (Projected):	\$2,200,000
	Total (Projected):	\$6,400,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$6,400,000

Some back-of-house and staff area bathrooms do not meet current ADA maneuvering clearances and mounting heights of fixtures and accessories. Many public and back-of-house bathrooms have plumbing fixtures, light fixtures, wall and floor finishes and countertops that are aging and appear worn.

Back-of-house and public bathrooms should be renovated in phased approach that aligns with the sanitary piping and domestic water system upgrades. First phase will include full renovation of public and back-of-house bathrooms in the Eisenhower Theater block. In all remaining bathrooms throughout the Kennedy Center, all manually operated faucets, flush valves, soap dispensers and paper towel dispensers will be replaced with automatic fixtures and accessories.

Full renovation scope includes replacement of existing finishes, fixtures, accessories, and toilet partitions. Each group toilet room will include at a minimum one large wheelchair toilet compartment and one ambulatory toilet compartment with all required grab bars. All unisex toilets will be fully accessible with grab bars and clearances as required by ADA.



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3.9 Assistive Listening Systems Upgrades

Annual Budget Obligations	FY 2024 (Projected):	\$700,000
Total (Projected):		\$700,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$7000,000

The existing assisted listening system has been noted to be inconsistent among venues, making distribution of device for patrons a cumbersome exercise for single venue events as well as multi-venue events requiring patrons to check-in/check-out the devices based on the location they will be in. An update to all venue systems to a singular solution will allow for ease of distribution and patron use of the assisted listening devices and ease of management by the internal staff.

The scope of work shall include procurement of Infrared transmitter systems and receivers to provide a minimum of 2 separate channels of wireless transmission for the ALS per venue, which includes the Concert Hall, Opera House, Eisenhower Theater, Family Theater, Terrace Theater, Theater Lab and both Millennium Stages.

For each venue, this will require a quantity of infrared emitter devices to cover all seated areas based on the manufacturer's performance specifications. Each venue will also require a quantity of receivers to be compliant with Americans with Disabilities Act (ADA) requirements for hearing assistance devices in places of assembly with fixed seating; the amount of ADA compliant receivers is based on the seating capacity of each venue. This ADA compliant receivers shall be provided with an equal number of audio earpieces as well as the required lanyard neck loop accessory quantities to be compliant with ADA requirements. A charging system shall be provided to accommodate the total quantity of receiver devices in the facility for ease of charging and storage when not in use.

The Millennium Stages are not fixed seating venues, and while they will require ALS capability, they do not require a fixed system to accommodate patrons and may borrow from the inventories of other spaces when requested/required.

Each emitter location shall require a backbox / rough in with custom plating for termination of equipment as well as the routing of conduit and cabling to a point where an output of the main audio reinforcement system for the venue can provide a line level audio output to feed the transmitter devices that will be housed at the audio head end location.

Signage kits shall be provided per venue to identify the Assisted Listening System capabilities of each venue.

Anticipated cost has been adjusted to accommodate increase in inflation escalation.

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3.10 Interior Art Assessment and Conservation

Annual Budget Obligations	FY TBD (Projected):	\$100,000
*Funding not available		
	Total (Projected):	\$100,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$100,000

The Kennedy Center interior has paintings, sculptures, tapestries on display, and numerous decorative finishes within the structure. The artwork and finishes are found throughout the Center's theaters, lounges, and lobbies. These spaces are all open and accessible to the public. Of all the artwork assessed the following pieces were determined to require conservation treatment to address various damages visible on the pieces. The above cost includes assessment, conservation treatment, documentation, and reporting of the treatment.

- *Ideal Landscape* and *Pastoral*, Russian Lounge
- *Ahrat in Seated Lotus Position*, Concert Hall Lobby, 2nd Tier
- *Eight Panel Screen*, Bird Room
- *Poseidon*, Eisenhower Lobby, 1st Tier
- *Dimitri Shostakovich*, Concert Hall Lobby, 1st Tier

Ideal Landscape (tempera on linen) was installed in 2014 in the Russian Lounge. The painting has visible cracking and separation of the tempura paint in two localized zones on the central canvas. The craquelure of the paint is not considered a critical issue, there is visible separation between the paint and canvas along the edge, which is an area of high priority.

The painting should be assessed by a paintings' conservator to ensure that there is no possibility of damage to the canvas like that found on *Pastoral*. After assessment, the cracking paint should be consolidated using a light adhesive. The cracking should be photographed and monitored by in-house staff to determine if damage is ongoing.

Pastoral (tempera on linen) was installed in 2014 in the Russian Lounge. The painting is improperly stretched and is now sagging at the bottom half of the canvas. This sagging created a lip over the wooden edge of the canvas frame. Also, on the center right hand side of the canvas above an adhesive paper detail the canvas is bowing inward and back outward creating a bubbled section. The sag in the painting causing the lip is a major conservation issue and should be addressed immediately. Not addressing this sag will cause irrevocable harm to the painting.

The painting should be assessed by a paintings' conservator to determine if there is permanent damage to the acrylic paint on the canvas. As part of this assessment, the painting should be photographed, and the sag measured in its current condition to identify if this is an active sag. The assessment will develop a method and procedure for corrective actions. Following the assessment, the painting should be removed from the wall, unframed, and re-

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stretched over the canvas. The canvas should also be inspected for paint cracking or failure from the sag.

Ahrat in Seated Lotus Position is located in the Concert Hall Lobby on the 2nd Tier. There is a discolored and yellowed patch on the right arm of Ahrat in Seated Lotus Position. This repair was done to repair and secure the arm which had been severed from the body. On the back of the torso a piece of the exterior coating has broken off and exposed the interior plaster body. Both the broken portion and the discolored repair are aesthetic concerns but are not causing further damage to the piece.

The sculpture should be cleaned to remove the soiled layer. The delaminated surface on the back should be repaired by a qualified conservation professional. During this repair, the statue should undergo an assessment to evaluate and determine if the clear coating at the arm will deteriorate the statue and if/how it should be removed.

Eight Panel Screen is located in the Bird Room. The screen has cracked and cleaved paint in multiple locations. Paint failure is primarily located around the folding exposed edges and along the bottom edge and the feet. These areas of loss vary in size and shape, but the majority of loss occurs between the paint and ground layers of the panel. At the center of the third panel, the paint is separating from the wooden substrate and has created a fragile gap. The hinge located between the 7th and 8th panels has broken and come loose.

This screen should undergo conservation address the cleaving of the paint and prevent further damage to the paint. The exposed edges where the paint has already failed should be consolidated. Hinge between the 7th and 8th panel should be fixed or replaced if necessary.

Poseidon is located in the Eisenhower Lobby on the 1st tier. The statues extremities; i.e., fingers and toes, are discolored from continuous interaction with guests and the wax layer is beginning to dull, forming a hazy and dull appearance.

The statue should be cleaned and a new application of a protective wax layer applied. If desired, the patina on the fingers and toes can be darkened to better match the sculpture.

Dimitri Shostakovich is located in the Concert Hall Lobby on the 1st Tier. The bust requires cleaning and has localized areas of bronze discoloration across the surface due to the blistering and failure of the lacquered layer. Underneath the lacquer of the left side of the face is a green-grey patina.

The sculpture should be cleaned to remove heavy soiling. The lacquer on the left side of the bust requires stabilization to prevent further deterioration. Areas of loss can be filled and patched to match the surrounding color.

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3.11 Art and Decorative Finishes Maintenance Plan

Annual Budget Obligations	FY TBD (Projected):	\$190,000
*Funding not available		
	Total (Projected):	\$190,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$190,000

Currently there is no active maintenance plan or art catalog for the Kennedy Center. Without these operational guides and plans, there is no way to track, document, locate, or maintain the vast collection of art that is under the stewardship of the Kennedy Center. It is recommended that the following documents be developed: a comprehensive art catalog, a visitor impact plan-interior art, a maintenance plan for interior decorative finishes and a maintenance plan for bronze exterior art. The above cost includes the onsite meetings, research, development and writing of the maintenance plans and catalog.

The current catalogue of artwork was made in 2003 and does not include all of the artwork currently on display at the Center. Many of the works listed are no longer on permanent display. A new comprehensive catalogue should be completed for all of the artworks currently on permanent display at the Kennedy Center. This should include condition, location, if the work is on loan, and visual descriptions of each work and can be done in house or by a qualified conservator.

Much of the interior artwork has evidence of undesirable visitor interactions with the pieces on display. This includes places where visitors have kicked, touched, and moved furniture which has damaged the artworks. A visitor impact plan should be developed by inhouse staff. The plan should overview standardized procedures mitigate and manage how and where visitors come into contact with the artworks.

Conservation issues observed in the Center related to discoloration, soiling, improper repairs, and undesirable visitor impact. The majority of the artwork requires surface cleaning, though some of the artwork is visibly damaged (scratches, damage to mirrored surfaces, paint splatters) and discolored. The Kennedy Center should work with a qualified conservation professional to develop a maintenance plan. The plan would outline the maintenance strategy, schedule of work, operations, and develop an action plan to maintain, assess, and protect the decorative finishes and artworks on permanent display. Emphasis should be placed on the development of maintenance cleaning procedures, training of inhouse staff on maintenance procedures, and creation of a procedure to assess and document condition of artworks on a cyclical basis.

The bronze work requires regular maintenance to protect the surfaces from undesirable change and discoloration. In comparison to the other works of art on display at the Center those with bronze finishes most consistently had the highest degree of alteration. A maintenance plan should be developed to better maintain the fragile surfaces. This plan should emphasize routine

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cleanings, train inhouse staff on maintenance procedures, and create a procedure to assess and document the bronze pieces on a cyclical basis. This plan should be developed by a qualified conservator in collaboration with the Kennedy Center.

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3.12 Level A Connection to The REACH

Annual Budget Obligations	FY 2019:	\$95,563
	FY 2020:	\$264,655
	FY 2021 :	\$13,881
	FY 2022 (Projected):	\$ (86,717)
	FY 2023 (Projected):	\$2,000,000
	FY 2023 (Projected):	TBD
Total (Projected):		\$2,287,382
Construction Budget – Level A South Office (A/E estimate May 20, 2022)		\$1,327,621
Project Budget (Base on FY2019 Design & Gov't IGCE)		\$2,800,563
Estimate of Probable Cost (Source: 2019 CBP)		\$1,000,000

2020 CBP Project Number: 3.6

An inviting, accessible pathway sheltered from the weather is needed for patrons and staff to move between the Center and The REACH. A portion of such a path was designed and constructed as part of the REACH project, but those portions within the Center were not included. This project will design and construct a route between the Center's Level "A" motor lobby and the new lobby constructed by The REACH.

The project design was initiated in FY19 and developed to the Design Development stage. The project was then terminated and the remaining funds for the original design were de-obligated. The project has since then been re-initiated in FY20 to complete the design of the interior connection of the Center to the REACH. The project scope was expanded to include the renovation of the office spaces affected and displaced by the internal corridor. The renovation of the existing construction office located in the Level "A" parking garage has been added to the project scope to provide swing space during construction and new offices for staff displaced by the new corridor design.

The scope for the project has been reduced to the design and construction of the Level A South Office that will provide flexible office space adjacent to the REACH that can be used by Kennedy Center staff as needed or as swing space for future office renovations.

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3.13 Interior and Exterior Wayfinding

Annual Budget Obligations	FY 2023 (Projected):	\$1,000,000
Total (Projected):		\$1,000,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2020 CBP)		\$2,000,000

2020 CBP Project Number: 3.5

The Kennedy Center building serves many functions and includes a variety of spaces, including theatrical venues, gift shops, restaurants, event spaces, and other areas. Detailed wayfinding signage is vital to orient and direct visitors, employees, volunteers, and performers to the major circulation routes and specific destinations throughout the building. The Center's current system was installed in 2001 and consists of freestanding and mounted signs, a collection of kiosks, and maps and brochures. All signage and materials feature various designs and font styles, contributing to a sense of visual disharmony throughout the building. Many signs are in poor condition. Design of the new signage will align with signage in The REACH project since the entire wayfinding scheme will be coordinated across the full Kennedy Center campus. The new wayfinding will incorporate recommendations from the Memorial Interpretation Master Plan completed in 2019.

This project will create and install uniform signage to improve the function and aesthetic of the wayfinding system.

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4.1 HVAC in Switchgear Rooms

Annual Budget Obligations	FY 2023 (Projected):	\$1750,000
Total (Projected):		\$175,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$175,000

The primary switchboard rooms on the 17' level are noted as needing additional temperature and humidity control to protect equipment. This includes seven separate rooms. The scope includes provisions for new split-system DX cooling, with condensing units located in the garage. The estimated sizing is two-tons per room.



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4.2A MEP Modernization Ph 3 - Fan Replacement

Annual Budget Obligations	FY 2022 (Projected)	\$0
	FY 2023 (Projected):	\$120,405
	FY 2024 (Projected):	\$500,000
	FY 2025 (Projected):	\$525,000
	FY 2026 (Projected):	\$550,000
	FY 2027 (Projected):	\$560,000
Total (Projected):		\$2,635,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$2,635,000

The majority of existing fans are original, with spot replacement of components over their lifetime. This proposed scope includes work originated in the 2015 CBP and includes replacement or refurbishment of return, general exhaust, and garage exhaust fans, with the exception of fans flanking MER 3 (E-1, 2, 3, 8, 9, 10, 34, 38), which are newer. The scope includes 55 utility return fans, 56 utility exhaust fans, 11 inline exhaust fans, and 29 wall mounted propeller fans (vent/exhaust). For this work, prioritization should be given to utility exhaust fans. Return fan utility sets should be replaced in conjunction with remaining work on associated air-handling units.



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4.2B MEP Modernization Ph 3 - Garage Exhaust Fan Controls Upgrade

Annual Budget Obligations	FY 2023 (Projected):	\$560,000
Total (Projected):		\$560,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$560,000

The proposed scope provides new variable frequency drives for 23 large centrifugal type garage exhaust fans with interlock to garage carbon monoxide sensors (typical two per fan). The scope shall include a zoning study which include consideration of interaction with smaller garage propeller fans for optimal balance of energy efficiency and garage air quality.

Fans include:

EF-AN-1
 EF CN1-1 to EF CN1-5
 EF-CS-1 to EF-CS-4
 EF-BN-1 TO EF-BN-2
 EF-BN3-1 TO EF-BN3-3
 EF-BS2-1 TO EF-BS2-4
 EF-BS3-1 TO EF-BS3-2
 EF-BS4-1 TO EF-BS4-2



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4.3 Family Theater Temperature

Annual Budget Obligations	FY 2021:	\$21,169
	FY 2022	\$21,981
Total (Projected):		\$43,150
Project Budget (Source: 2021 Internal IGE)		\$100,000
Estimate of Probable Cost (Source: 2015 CBP)		\$450,000

2020 CBP Project Number: 4.9

The Family Theater has experienced significant temperature stratification since it opened in late 2005. The stage and especially the backstage area are often uncomfortably cold, while simultaneously the audience at the top, rear seating is uncomfortably warm. This problem has been substantially mitigated using the existing HVAC controls to properly balance the air flow into the space. Based on in house evaluations it was determined that two minor ducts that serve the production booth and the upper gallery space have had the supply and return air ducts crossed. A task order is being implemented to address the crossed duct installation. This work was completed in December of 2021.

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4.4 Hydronic Systems Optimization

Annual Budget Obligations	FY 2018	\$91,047
	FY 2019	\$5,063,242
	FY 2020:	\$9,023
	FY 2021:	\$851,089
	FY 2022 (Projected):	\$167,331
	FY 2023 (Projected):	\$2,100,000
	FY 2024 (Projected):	\$2,200,000
	FY 2025	
	Total (Projected):	\$12,027,917
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$6,400,000
Estimate of Probable Cost (Source: 2019 CBP)		\$8,648,597
Estimate of Probable Cost (Source: 2015 CBP)		\$4,827,500

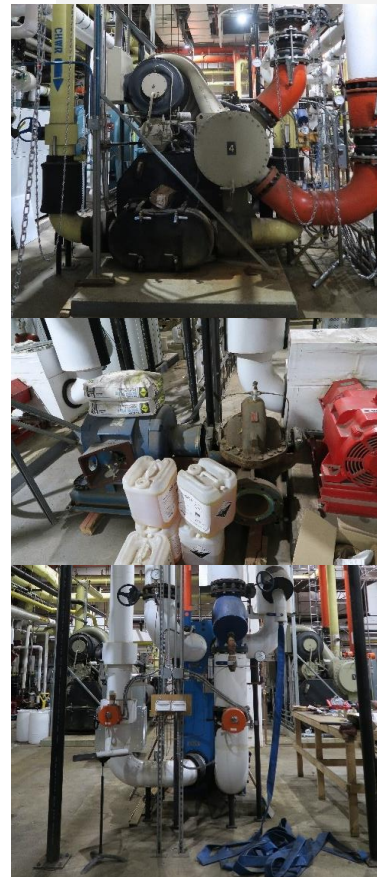
2020 CBP Project Number: 4.3

4.4.1 – Chiller Replacement (Chiller 2 and 3) – this is carryover scope originated in the 2015 CBP, calling for full replacement of two of four Trane centrifugal chillers (910 tons nominal). The proposed scope includes replacement with similar capacity units. Scope should include upgrade of existing feeders and demolition of existing chillers (R-123 refrigerant). Chiller 1 and 4 are refurbished in FY21. This project is substantially complete.

4.4.2 – Chiller Controls Upgrade – this is new scope to allow improved control and staging of existing and future chillers and associated three primary chilled water pumps through open protocol (BACnet) communication. This project is substantially complete.

4.4.3 – Chiller Pump Upgrades (1 pump + 3 VFDs) - this is carryover scope originated in the 2015 CBP. Proposed scope includes replacement of one of three primary pumps and all three variable frequency drives (125 HP each). Scope to include test and balance and electrical work to refeed all pumps from their associated electrical panel.

4.4.4 – Waterside Economizer Upgrade. Due to the increased cooling demand of the REACH project, additional waterside economizer capability is necessary. The existing plate and frame heat exchanger should have additional plates added up to an additional 150 ton capacity.



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4.9.5 – River Pump Room Conditioning. The existing river pump room is currently only served by a heating and ventilation unit. With significant equipment upgrades in 2020, enhanced conditioning is recommended to prevent excessive temperature and humidity conditions for equipment life and operator maintenance. The existing pump room is 5,500 sf with an estimated 10 tons of cooling capacity. Provide split-system unit with condensing unit located in garage (Option 1) or chilled water AHU with branch piping from central plant (2") @ 500 ft run (Option 2). Indoor unit shall be ceiling hung with ducted supply air distribution system.



4.9.6 – Condenser Water Filtration Updates. Significant upgrades to the river pump room condenser water equipment were made in 2020, including replacement of pumps, piping, system fill/priming, and controls. While the system's duplex strainer was replaced, the traveling screen system, which acts as a first stage of filtration, has not yet been upgraded. This scope completes work required for the condenser water pump system, with replacement of two traveling screen units.



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4.5 Domestic Water and Sanitary System Study

Annual Budget Obligations	FY 2022 (Projected):	\$125,659
Total (Projected):		\$125,659
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$265,000

This study supports the execution of CBP items 4.6 and 4.7. Due to the complexity of existing domestic water and sanitary distribution systems, this study will include a deeper review of interrelated scope required to upgrade systems, utilizing a strategic multi-phased approach. This study will identify related architectural finish work and potential service disruptions.

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4.6 Sanitary System Upgrades – Phase 1

Annual Budget Obligations	FY 2021:	\$16,925
	FY 2022:	\$108,004
	FY 2023 (Projected):	\$900,000
	FY 2024 (Projected):	\$920,000
	FY 2025 (Projected):	\$950,000
Total (Projected):		\$2,770,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$2,770,000

The original sanitary and storm system piping installed when the building was constructed has reached the end of its useful service life. Floor flanges are failing, causing cracks and leaks in bell and spigot joints. A large crack was observed in the main, 10-inch, combination storm and sewer pipe in the Level C garage. Storm drain piping frequently clogs due to infiltration for soil and sand from tree beds.

The scope of this project is to partially replace existing sanitary piping throughout the building, with an initial focus on the Eisenhower Theater block, including both public and back-of-house areas. Upgrades will support upgrades to the primary administrative office areas of the facility. Prior to this project, a study will be commissioned to determine the extent of piping to be replaced in this phase (4.5). New piping is recommended to be cast iron with no-hub fittings.

Projects:

Sanitary Piping Repairs (PM021-09) Ike Block completed February 2022.

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4.7 Domestic Water System Upgrades – Phase 1

Annual Budget Obligations	FY 2024 (Projected):	\$850,000
	FY 2025 (Projected):	\$875,000
	FY 2026 (Projected):	\$900,000
Total (Projected):		\$2,625,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$2,625,000

The domestic water piping has reached the end of its useful service life. Original, galvanized steel piping within walls has never been replaced over the life of the building and is leaking. Hot water piping is restricted due to scale and corrosion, preventing adequate hot water flow to the areas of the building furthest from the water heating equipment. There are not adequate isolation valves provided throughout the building to facilitate servicing.

The scope of this project is to partially replace existing domestic water piping throughout the building, with an initial focus on the Eisenhower Theater block, including public and back-of-house areas. Prior to this project, a study will be commissioned to determine the extent of piping to be replaced in this phase. New piping is recommended to be Type L copper with wrought, copper fittings, insulated with mineral fiber or flexible elastomeric insulation.

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4.8 Electrical Power Distribution Study

Annual Budget Obligations	FY 2021	\$0
	FY 2022 (Projected):	\$100,000
Total (Projected):		\$100,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$100,000

Electrical coordination, short circuit, and arc flash studies.

Short circuit and coordination studies should be performed on the entire electrical system to determine if all panels and devices have sufficient interrupting ratings. Arc flash studies should be performed on all equipment to ensure the proper personal protection is used by maintenance staff when equipment needs servicing. These studies should at least be done for all loads served by the emergency generator. This project would entail updating the electrical coordination, short circuit, and arc flash studies for implementation of electrical system upgrade.

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4.9 Abandoned Electrical Equipment

Annual Budget Obligations	FY 2021	\$0
	FY 2022 (Projected):	\$30,000
Total (Projected):		\$30,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$30,000

Study to identify all abandoned and unused electrical equipment.

There are several areas where electrical equipment is abandoned throughout the building. The Electrical/Mechanical room near the entrance of the service tunnel is an example. Removal of this equipment will clean up the overall electrical system in the building and remove any loose wiring that may be dangerous to occupants.

The scope of this study would be to locate and verify all abandoned and unused electrical equipment, conduit, raceway, cable tray, and wiring throughout the entirety of the site. All equipment deemed to be abandoned (including starters and pneumatic controls for mechanical equipment) should be removed.

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4.10 Electrical Distribution Upgrade - Grounding

Annual Budget Obligations	FY 2023 (Projected):	\$125,000
	FY 2024 (Projected):	\$125,000
Total (Projected):		\$250,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$250,000

Install an NEC compliant central building grounding system. Ensure all feeders, transformers, and switchboards are properly grounded.

Currently, the Kennedy Center facility does not have a central grounding system in accordance with the National Electrical Code. All equipment is grounded separately using multiple methods. A central building grounding system is essential in ensuring all feeders, transformers, switchboards, and switchgear are properly protected and easily maintained.

The scope of this project would be to provide a grounding riser to accommodate all electrical equipment in each of the 3 portions of the building. It is our suggestion to provide a separate grounding riser for the Eisenhower, Opera, and Concert Hall portions of the building. Each of the three risers will travel through their respective portions of the building and connect at a central location at Level 017. Initially, ensure all transformers and switchboards are properly connected to the central grounding system.

It is suggested to provide grounding busbars in all Mechanical Equipment Rooms and IT/AV rooms that all equipment can utilize. A #300 KCMIL conductor can be used to connect all busbars together to form a riser through each portion of the building. A central grounding busbar should be established at Level 017 to collate the 3 risers from each portion of the facility.

This project also must include the addition of a ground rod system to be constructed and connect to the main grounding busbar. A connection to the incoming cold water service pipe and a concrete encased electrode should also be established and connected to the main grounding busbar on level 017.

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4.11 Electrical Feeder Replacement

Annual Budget Obligations	FY 2023 (Projected):	\$950,000
	FY 2024 (Projected):	\$980,000
	FY 2025 (Projected):	\$1,000,000
	FY 2026 (Projected):	\$1,000,000
	FY 2027 (Projected):	\$1,100,000
Total (Projected):		\$5,030,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$5,030,000

Replace all existing feeders throughout building.

The insulation is deteriorating on the existing electric service-entrance conductors and other feeders throughout the facility. Aluminum feeders are not passing the Megger test, a standard test method for determining the quality of conductor insulation. The condition of these feeders requires that they be replaced with new wiring that is safe and reliable.

The building's electrical system possesses half-size neutral conductors, which while not ideal, was determined to be acceptable by both the electric utility and the electrical code at the time. These system neutrals have now become a problem due to the current loads being unbalanced causing the neutrals to carry excessive and damaging current during fault conditions.

The scope of this project is to replace nearly all existing feeders throughout the building. All feeders should be subject to the Megger test and replaced if they do not pass. All feeders that are serving pieces of equipment that are set to be replaced should also be replaced with new conductors. Refer to the "Electrical Distribution Upgrade - Distribution Equipment Replacement" project for details on which equipment is subject to be removed and replaced. Only feeders that are serving existing to remain equipment and pass the Megger test shall be certified to remain. All new feeders are recommended to be copper and contain full size neutrals where applicable. All aluminum feeders should be priced to be replaced with their NEC equivalent size in copper. All conduits should remain as-is.

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4.12 Electrical Distribution Equipment Replacement

Annual Budget Obligations	FY 2023 (Projected):	\$590,000
	FY 2024 (Projected):	\$600,000
	FY 2025 (Projected):	\$625,000
	FY 2026 (Projected):	\$645,000
	FY 2027 (Projected):	\$665,000
Total (Projected):		\$3,125,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$3,125,000

Replace electrical distribution equipment throughout the building.

Much of the distribution equipment including switchboards, switches, and circuit breaker type panel equipment is original to the building and has extended more than 10 years beyond what would normally be expected for replacement. Newer technology is more compact than the current equipment and will provide spare capacity and greater reliability.

The distribution equipment in the building is a mixture of newer technology and older technology. Equipment ages range between 1969 and 2015. The scope of this project is to replace all panels that are old, worn, or damaged with new up-to-date panels and equipment. In general, all panels installed before 2000 should be replaced. All panels that have been installed post 2000 can remain considering that the panel is not damaged or worn in any way. There were several locations in the garage levels and in the MER rooms where panels were subject to water damage and rust. Even though these panels may have been installed after the year 2000, we still suggest they get replaced with new.

Based on a survey, it was determined that 80% of all switchboards should be replaced with new, and roughly 60% of all other electrical distribution equipment should be replaced with new. New equipment and associated devices (i.e. circuit breakers) should be provided by the same manufacturer to limit attic stock on site. It also needs to be ensured that the new equipment does not take up a larger footprint than any existing equipment. Many areas are very tight on clearances and will not allow an increase in equipment size. Also ensure that all new equipment has the proper NEMA rating for the location in which it is going. For example, equipment near a boiler should be in a NEMA 4 enclosure.

The price of this project should not include any wiring associated with the equipment. The wiring line item is taken care of in a separate job cost. Pricing should only be based on a one for one swap of electrical equipment.

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4.13 Lighting System Upgrade – Exterior Lighting Controls

Annual Budget Obligations	FY 2023 (Projected):	\$150,000
Total (Projected):		\$150,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$150,000

Install new centralized lighting control system for all exterior lighting.

The exterior lighting for the building is not served from a single centralized location and requires significant maintenance and upkeep. Lighting is controlled from multiple areas that are not intuitive. Some exterior lighting is controlled by the building automation system but does not have a specific control sequence and is not set up for coordination with outdoor events. Building automation systems are designed for HVAC control, not lighting control. Installation of a central user-friendly programmable automatic lighting control system is critical to maintenance and electrical energy savings.

The scope of this project would be to install a new centralized lighting control system for all exterior lighting. Put all exterior lighting on addressable zones. Provide a central control station that can override all lighting throughout the site for use by the production and maintenance staff. System shall have both timeclock and photocell control along with dimming capability and scene setting capability. A control zone is to be provided for each fixture type located in each separate area of the site. Allow system to control a minimum of 40 addressable zones. Assume zones are 50% 0-10V dimming and 50% ELV dimming.

Replace all planter lighting in the plaza adjacent to the REACH and in the front of the building with low profile, exterior rated, LED fixture that will properly drain when water is introduced. Account for approximately 120 new planter fixtures. Install new ground mounted site lighting where applicable. Ground mounted fixture should be low profile and damage resistant from landscaping equipment (e.g. lawn mower). Account for approximately 20 new ground mount lights. All new lightings should be interconnected to the new centralized lighting control system.

Recircuit 4 flagpole lights with 277V wiring at the front of the building.

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4.14 Lighting System Upgrade – Disconnect PEPCO Feeds

Annual Budget Obligations	FY 2023 (Projected):	\$65,000
Total (Projected):		\$65,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$65,000

Negotiate with Pepco to allow the Kennedy Center to disconnect any street lighting that the Center maintains.

The Kennedy Center maintains the street pole lighting on site, but PEPCO currently feeds power to these fixtures. The Center does not have any way to turn off these fixtures when maintenance needs to be done. The fixtures need to be disconnected from PEPCO services and refeed to be powered by the Center's distribution equipment. Contact with PEPCO needs to be established so coordination of this work is seamless.

All wiring will need to be 480V and fed through new underground conduit going back to distribution equipment on level 017. Streetlight fixtures will need to be incorporated into the new exterior central lighting control system. Work is to be coordinated with the 'Lighting Upgrade – Exterior Lighting Controls' project.

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4.15 Generator System Upgrade – Study

Annual Budget Obligations	FY 2026 (Projected):	\$220,000
Total (Projected):		\$220,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$220,000

Study to upsize existing generator.

The current 600kw diesel generator is undersized for the required emergency load throughout the building. Some loads that would be best served from an emergency source are currently not being served from the generator (i.e. fire pump controls). The scope of this project would be to perform a study to confirm the size of the generator.

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4.16 Generator System Upgrade – Replacement

Annual Budget Obligations	FY 2027 (Projected):	\$1,500,000
Total (Projected):		\$1,500,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$1,500,000

Upsize existing generator.

The current 600kw diesel generator is undersized for the required emergency load throughout the building. Some loads that would be best served from an emergency source are currently not being served from the generator (i.e. fire pump controls). A study to confirm the size of the generator is budgeted under a separate project number.

Based on the study results, it would be the scope of this project to upsize the generator and associated fuel tank to accommodate the new load. Provide an allowance for an additional automatic transfer switch to ensure all optional, standby, and life safety loads are separated per the NEC. An additional breaker will need to be installed at the generator to serve the fire pump controls if it is determined that the fire pump controls should be backed up by the generator.

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4.17 Technical Stage Systems

Annual Budget Obligations	FY 2022 (Projected):	\$1,000,000
	FY 2023 (Projected):	\$1,320,000
	FY 2024 (Projected):	\$1,325,000
	FY 2025 (Projected):	\$1,330,000
	FY 2026 (Projected):	\$1,335,000
	FY 2027 (Projected):	\$7,710,000
Total (Projected):		\$7,710,000
Project Budget		TBD
Estimate of Probable Cost (Source: Kennedy Center)		\$7,710,000

The Theater Technical Equipment Cyclical Replacement Program was initiated in 2007 to provide a yearly allocation of funds for the replacement of outdated equipment that has passed its usable or repairable life. The program continues to maintain a modern, dependable, industry-standard inventory of technical performance equipment, to meet the rigorous performance and operational expectations of a world class performing arts facility.

The Cyclical Replacement Program provides equipment replacement for the following Performance Systems:

- Stage lighting fixtures (fixed), hardware and equipment
- Moving Light Fixtures
- Lighting Control Consoles & control distribution equipment
- Rigging Equipment
- Performance Audiovisual Equipment (Audio, Video, Production Communications & Control)
- Stage Drapery/Soft Goods
- Dance Floor Systems (e.g. Marley, Cascade, Linoleum, etc.)

The current value of the Cyclical Replacement Program has remained steady at \$1,000,000/year and will remain for FY22. However, for subsequent years, the value is recommended to increase, accounting for the following:

- Approached end of life of large-inventory of high-value pieces of equipment, such as Moving Light Fixtures.
- Additional equipment inventory from the addition of the REACH
- Potential adjustments/reductions to current manufacturer sponsorship & discount arrangements.

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4.18 Opera House Pit Lift Replacement

Annual Budget Obligations	FY 2022 (Projected):	
	FY 2023 (Projected):	\$750,000
	FY 2024 (Projected):	\$0
	FY 2025 (Projected):	\$2,000,000
Total (Projected):		\$2,750,000
Project Budget		TBD
Estimate of Probable Cost (Source: Kennedy Center)		\$2,750,000

The Opera House orchestra pit lift transforms the forestage area into a stage extension, seating area, or orchestra pit. The screw-jack actuators, motors, platform framing, and control and safety interlock equipment and wiring date from the original construction of the building. While the platforms and actuation equipment are in fair and usable condition, the controls are outdated, and the safety systems are insufficient and some are failing.

Due to liability risk, a theatrical lift manufacturer is unlikely to be willing to replace controls and interlocks only so the full system should be replaced. Some components – such as the platform framing – may be salvageable for use with the new system.

It is recommended that a study be undertaken to assess the scope, feasibility, and cost of the lift replacement and that the full replacement project be implemented no later than FY 2026.

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4.19 Cyclical Elevator Refurbishment

Annual Obligations	FY 2022 (Projected):	0
	FY 2023 (Projected):	\$500,000
	FY 2024 (Projected):	\$500,000
	FY 2025 (Projected):	\$1,000,000
	FY 2026 (Projected):	\$1,200,000
	FY 2027 (Projected):	\$2,600,000
Total (Projected):		\$6,975,000
Project Budget:		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$7,800,000

Many of the elevators at The Kennedy Center for The Performing Arts are past or nearing the end of their equipment lifecycle and are coming due for full comprehensive elevator modernizations. Capital plans should be made to upgrade Elevators 3E-4 and 3E-7 (Canteen Elevators) starting in 2021, with the anticipation of starting the full modernizations by year 2023. These elevators were last modernized in 2001 but retained many components that are now past their useful life and should be replaced in the next round of Elevator Modernizations. Modernization should include the replacement of Cab Shells and Interior finishes, New Machines, New Controllers, New Roller Guides, New Door Equipment, the addition of 3E-4 and 3E7 elevators to the control panels located in the command center, etc. Numerous parts that are replaced during the modernization can be retained on site and re-used for spare parts on the other units utilizing the same equipment at the facility. The modernization of Elevators should continue at an interval of every 2-3 years depending on year of installation/modernization or overall reliability of each individual unit. This will give the facility adequate supply of obsolete boards and components, while allowing to properly capital plan for cyclical replacement of each unit.

Most lifts on site at the Kennedy Center for the Performing Arts have been replaced or newly installed within the last decade, apart from the North and South Opera House lifts. These lifts were manufactured by Porch Lift who is no longer in business. The Opera House lifts should be replaced in 2021/2022, to eliminate potential extended downtime in case of a component failure.

Proposed modernization schedule:

- FY22 Replace North and South Opera House lifts
- FY23 Modernize Elevators 3E-4 & 3E-7
- FY24 Modernize Elevators 3E-1 and 3E-2
- FY25 Modernize Elevators 3E-3 and 3E-6
- FY26 Modernize Elevators 2E-7 and 3E-5
- FY27 Replace Backstage Family Lift
- Modernize Elevators 2E-10, 2E-8, 4E-5 & 4E-7

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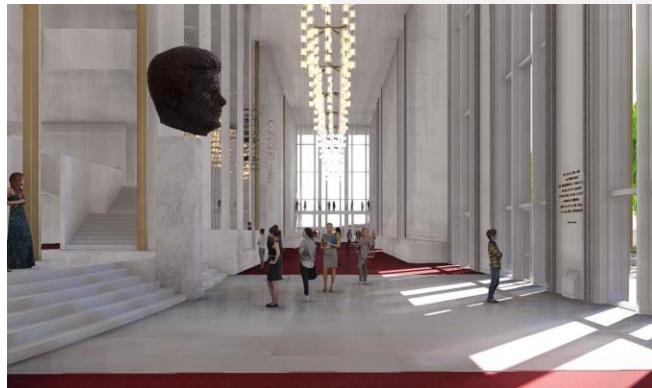
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5.1 Atrium Renovation & Exhibit

Annual Budget Obligations	FY 2018:	\$1,590,778
	FY 2019:	\$1,785,407
	FY 2020:	\$736,028
	FY 2021:	\$5,364,732
	FY 2022 (Projected):	\$13,387,417
	FY 2023 (Projected):	\$5,151,000
	FY 2024 (Projected):	\$500,000
Total (Projected):		\$28,515,362
Project Budget Atrium Renovation (Source: 2021 A/E DD Estimate)		15,000,000
Project Budget Plaza Level Improvements (Source: 2021 A/E DD Estimate)		7,000,000
Estimate of Probable Cost (Source: 2019 CBP)		\$19,330,000
Estimate of Probable Cost (Source: 2015 CBP)		\$18,000,000

Since the entire Center and all its activities serve as a memorial to President John F. Kennedy, memorial interpretation and services that welcome visitors should occur in all public spaces. In order for the Center to more effectively carry out that purpose, a single comprehensive design effort was undertaken in 2018-19 to consider memorial interpretation in all the public spaces of the Center, including both interior and exterior space at the Plaza and Terrace Level. The project is planned to be implemented in phases. The first two project being implemented are the Renovation of the Atrium and the Renovation of the Plaza Level.

Atrium Renovation (JFK Gallery)

The existing Atrium is located on the Roof Terrace level and connects the Nations and States Gallery. This space is a space used to host special events such as banquets, education activities and small performances. The renovation of this space will include the renovation Atrium into an exhibit space that can also serve the current multi-purpose functions of the space. This project will enhance the Memorial through a series of exhibits that will celebrate President Kennedy's life and legacy as related to the performing art. The new JFK Gallery was opened to the public on September 17, 2022. The last phase of the project includes the installation of delayed materials, the replacement of temporary equipment, corrections of construction deficiencies and final punch list of the project.

Plaza Level Renovation

The Grand Foyer, Hall of States, and Hall of Nations are public circulation spaces that are extensively used not only for Kennedy Memorial and visitor

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service functions, but also for exhibits and special events installed by the Programming and Education Departments. Finishes in the Hall of States, Hall of Nations and Grand Foyer were replaced in 2001 and are in need of refreshing, in keeping with the Center's responsibility to maintain these spaces in a manner consistent with other national Presidential memorials. This project will include the replacement of existing carpets, furnishings, acoustical panels, curtains, and minor infrastructure improvements to support the new iBars being installed under a separate project. The project is going through the bidding phase and is anticipated to start construction in early 2023.

Additional projects from the 2019 master plan including improvements to the Plaza level memorial content will be implemented as funding allows.

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6.1 Loading Dock Concrete Repairs

Annual Budget Obligations	FY 2023 (Projected):	\$2,500,000
*This project is being completed in conjunction with project 2.5 Life Safety-Interior Steel Fire Proofing Review and Repair		
	Total (Projected):	\$2,500,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$2,500,000

The structure at the plaza level near the east entrance consists of steel beams with concrete encasement and concrete slabs. This structure forms the ceiling of the service areas and loading docks at the Parking Garage A & B Levels.

The underside of the concrete encased steel beams and concrete slabs is in poor condition in the areas of Loading Dock 1 & 2. The beams and slabs show signs of moisture infiltration, including staining, cracking, and spalled material. In areas where spalls have occurred, reinforcing bars and mesh are visible and show some signs of corrosion. Smaller amounts of cracking and staining are visible at the nearby service tunnel.

This project will address structural repairs to the deteriorated concrete elements and shall be coordinated with associated waterproofing and building envelope repairs to the plaza level above to prevent further water infiltration and deterioration.

The structural repairs will remove all loose concrete and patch cracks and spalls. All exposed and corroded steel reinforcement and steel framing will be cleaned, repaired, and coated. During this work, similar patching on a much smaller scale will occur at the service tunnel. Minor patching only is assumed at the service tunnel.



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6.2 Exterior Dock Lift Study

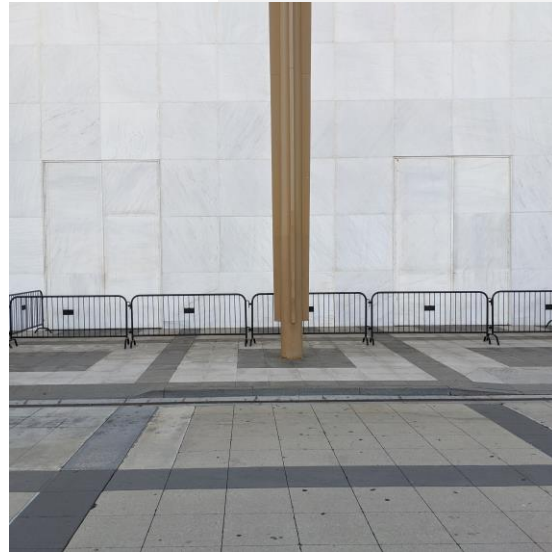
Annual Budget Obligations	FY 2023 (Projected):	\$75,000
Total (Projected):		\$75,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$75,000

Opera House and Eisenhower Theater loading is through exterior doors from plaza using forklifts. This presents a safety issue.

This study will explore the feasibility to provide new custom hydraulic dock lifts at Opera House and Eisenhower Theater loading entrances. The lifts will be recessed in existing topping slab and pavement layer and will sit on the top of existing structural slab.

The lift size and loading capacity will be confirmed with Kennedy Center staff. The structural capacity of the existing slab will be evaluated.

The study will include architectural, civil, structural, and theatrical design evaluation.



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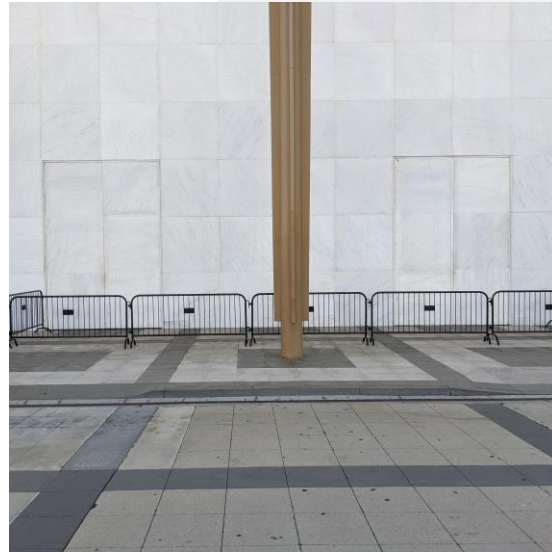
6.3 Exterior Dock Lifts at Opera House and Eisenhower Theater Loading

Annual Budget Obligations	FY 2024 (Projected):	\$625,000
Total (Projected):		\$625,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$625,000

Opera House and Eisenhower Theater loading is through exterior doors from plaza using forklifts. This presents a safety issue.

This project will implement new custom hydraulic dock lifts at Opera House and Eisenhower Theater loading entrances. The lifts will be recessed in existing topping slab and pavement layer and sit on the top of existing structural slab and shall not require trenching or cutting into the existing structure. The recessed pit will be fully waterproofed. The weight of the lift shall be selected to not exceed the allowable 100 psf superimposed dead load capacity of the existing structure, otherwise additional structural reinforcement will be required.

Lift platform surface will align with the existing curb and sides will have integral ramps and removable railings. The proposed lift size is 12'x20' with loading capacity of 12,000 lbs. The lift platform will have exterior grade porcelain paver finish. Power unit will be located in the backstage area near the loading doors. Adjacent drive pavement will be raised to be flush with the lift surface, with ramped sides and matching surface finish.



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7.0 Project Management Office

Annual Budget Obligations	FY 2022 (Projected):	\$850,000
	FY 2023 (Projected):	\$1,000,000
	FY 2024 (Projected):	\$2,050,000
	FY 2025 (Projected):	\$2,200,000
	FY 2026 (Projected):	\$2,300,000
	FY 2027 (Projected):	\$2,400,000
Total (Projected):		\$10,800,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		N/A

Project Management Office funding includes all salaries and miscellaneous administrative costs to implement the capital program, including preparation of the annual Comprehensive Building Plan update.

Starting in FY2024 a portion of the Salaries and Benefits for the Contracting Office is being added to the PMO budget to support the on-going Capital expenditures. This is a significant increase in the overall budget for salaries and benefits.

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Annual Budget Obligations	FY 2027 (Projected):	\$900,000
Total (Projected):		\$900,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		N/A

The Kennedy Center's Comprehensive Building Plan (CBP) is the capital plan for the facility. This document, mandated by the John F. Kennedy Center Act Amendments of 1994, was first prepared in 1995 by an Architectural/Engineering consulting firm under contract to the Kennedy Center. The plan is updated annually by Kennedy Center staff, with periodic updates provided by external consultants. These consultants provided updates include new survey information about the facility and extend the planning period of the document.

The work will require physical survey of the facility, providing updated information on problems and issues that have been identified in previous iterations of the CBP, and identifying any new issues that may have arisen since that time.

The final product will consist of a new Comprehensive Building Plan that provides a roadmap for the Kennedy Center's capital program through fiscal year 2032 and a Facility Condition Report that will address non-capital maintenance and repair deficiencies. These documents will be the basis for future funding authorization and appropriation requests.

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7.2 Document Management and Comprehensive Life Safety Analysis

Annual Budget Obligations	FY 2022 (Projected):	\$0
	FY 2023 (Projected)	\$391,000
Total (Projected):		\$391,000
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		\$391,000

The Kennedy Center was constructed between 1966 and 1971. Since it was original constructed, the building has undergone many renovations, upgrades, and improvements. These projects have typically focused on a partial area of scope of improvements, and the project documentation typically addressed the limited area of scope of work. The improvement and renovation projects complied with the code requirements in place at the time of the project construction.

The Kennedy Center does not have a comprehensive set of building documentation of the current as-built condition. In addition, a comprehensive code analysis of the current as-built condition is needed to support project planning efforts going forward in a comprehensive manner.

This project scope includes the development of an electronic document management platform and a comprehensive life safety analysis of the building. Life safety analysis will include occupant load calculations (simultaneous and non-simultaneous), exit capacity, exit travel distances, and exit separation, fire resistance rated construction, and general building code compliance assessment and recommendations

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7.3 Minor Repair Projects

Annual Budget Obligations	FY 2021:	\$845,856
	FY 2022 (Projected):	\$432,606
	FY 2023 (Projected):	\$500,000
	FY 2024 (Projected):	\$500,000
	FY 2025 (Projected):	\$500,000
	FY 2026 (Projected):	\$550,000
	FY 2027 (Projected):	\$550,000
Total (Projected):		\$3,878,462
Project Budget		TBD
Estimate of Probable Cost (Source: 2021 CBP)		N/A

Whenever a need is identified, whether through the capital planning process, during daily operations, or through maintenance inspections, a decision is made regarding the source of funding for the correction. The distinctions between the various potential funding sources are as follows:

Capital Projects: Any item estimated above \$150,000 will be handled as a capital project.

O&M Program: Any item that is deemed to be routine or daily maintenance will be covered under the O&M Program. In general, individual issues that are estimated at under \$10,000 will fall into this category, although this maximum amount may be increased to \$25,000 if the item is considered urgent or can be planned for as a predictable maintenance item for a future year. If A/E design services are required, the issue will usually fall under Minor Repair.

Minor Repair: Any projects not included above will be handled under Minor Repair. This will generally include major maintenance items below \$150,000 in cost.

The above definitions are considered guidelines only. The Kennedy Center will exercise judgment on a case-by-case basis to consider various factors when assigning project categories and funding. The urgency of a project will be an administrative decision that takes into account the effects of equipment failure, energy costs, life safety considerations, accessibility considerations, and other relevant factors. Other factors may affect the categorizing of projects; for example, several Minor Repair projects may be bundled together to become a single Capital Project, depending upon urgency and availability of funds.

Refer to Facility Condition Report for the detailed list of minor repair projects.

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Appendix: Previous Studies and Resources

Reports, Manuals, Articles, and Contracts

Report. *Fan (HVAC) Report*, Carrier, May 1968.

Manual. *Electrical System; Fire/Sprinkler Alarm System, Operating and Maintenance Manual*, Syska & Hennessy, Inc., June 1971.

Article. *Acoustic Study, Article on Original*, Cyril M. Harris, January 1972.

Report. *Entrance Plaza, Marble Joints*, Edward Durell Stone, Severud Associates, October 1972.

Manual. *American National Standard Practice for the Inspection of Elevators, Escalators, and Moving Walks, Inspector's Manual*, American Society of Mechanical Engineers, 1973.

Report. *Feasibility Study for Separate Metering of Concessions and Rental Areas*, Syska & Hennessy, May 1976.

Report. *Road Inventory and Needs Study, Road Inspection/Inventory Program Report*, Federal Highway Administration, Virginia, July 1976.

Report. *Investigation of Leakage with Findings and Recommendations for Design Solutions*, Olympic Engineering Corporation, Seattle, Washington, 17 November 1976 and December 1976.

Report. *Management Survey*, John Muir Institute for Environmental Studies, 1977.

Report. *Waterproofing of Roof, Canopy, 109' Terrace, Kitchen Floor Plumbing and Electrical Engineering Services*, Robert M. Stafford, Inc., for Faulkner, Fryer & Vanderpool, April 1977.

Report. *Repair of Leaks, Comprehensive Design Report and Proposals - Phase 2*, Faulkner, Fryer & Vanderpool, June 1977.

Manual. *Maintenance Suggestions, National Park Service/Denver Service Center Manual*, Faulkner, Fryer & Vanderpool Architects, 1980.

Manual. *Bikeway Planning and Design Manual*, Department of the Interior, National Capital Region, 1980 (?).

Report. *Industrial Hygiene Survey, Asbestos Report*, JRB Associates, October 1980.

Report. *Comprehensive Study of HVAC Control System and Energy Management System*, Galehouse & Associates, July 1981.

Report. *Roof Moisture Survey Report and Recommendations*, NM&G Research & Development, Inc., December 1981.

Report. *Integrated Pest Management - Year Three Final Report*, John Muir Institute, November 1981 - October 1982.

Report. *Concepts of Loss Control Report: Management/Loss Control, Cause/Effect Accidents Controlling Property Damage, and Waste/Survey of Loss Control Techniques*, International Loss Control Institute, 1982.

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- Report. *Asbestos Risk Assessment Survey, Theaters*, JRB Associates, December 1983.
- Report. *Asbestos Risk Assessment Survey, Select Areas*, JRB Associates, January 1984.
- Report. *Industrial Hygiene Asbestos Survey*, Southern Insulation Company, January 1985.
- Letter. Summary of investigation and recommendations concerning the transmission of sound between the Terrace Theater and the Eisenhower Theater, Cyril M. Harris, PhD., Consultant in Acoustics, 6 June 1985.
- Report. *Project Manual for Ramp from F Street to Rock Creek and Potomac Parkway*, Federal Highway Administration, August 1986.
- Report. *Evaluation of Parking Garage*, Raths, Raths & Johnson, November 1987.
- Report. *Kennedy Center Marble Survey (Plaza Paving), 1987-1988*, Judson Ball, National Park Service, Denver Service Center - TEA.
- Manual. *Management Policies*, Department of the Interior, National Park Service, 1988.
- Report. *System Evaluation Report, MMS Review, Evaluation, Efficiency, System Improvements - Benefits*, Roy Jorgensen Associates, 1988.
- Report. *Management and Maintenance of Outdoor Sculpture (draft)*, Georgia Institute of Technology, 1988.
- Manual. *NPS Sign Manual*, Department of the Interior, National Park Service, January 1988.
- Report. *Most Efficient Organization Study: Organization Structure, Work Productivity*, Roy Jorgensen Associates, May 1988.
- Report. *Maintenance Needs Report, Short Term/Future Maintenance Needs*, Roy Jorgensen Associates, June-September 1988.
- Report. *Kennedy Center Parking Garage*, Raths, Raths & Johnson, August 1988.
- Report. *ACVA Samplaire Installation Report (Air Supply)*, ACVA Samplaire, October 1988.
- Report. *The John F. Kennedy Center for the Performing Arts - Preliminary Facilities Program*, Cushman & Wakefield, New York, New York, 17 January 1989; revised 13 April 1989.
- Report. *Preliminary Facilities Program Report*, Cushman & Wakefield, January 1989, revised April 1989.
- Report. *Denver Service Center, Annual Report, 10 Year Statistical Report, FY 1989: Planning, Design, Construction Supervision and DSC Operations*, National Park Service, Denver Service Center.
- Report. *Acoustic Study - Phase I*, Artec Consultants, July 1989.
- Report. *Preliminary Facilities Program*, Cushman & Wakefield, April 1989.
- Report. *Expansion Joint Repairs with Belzona Elastomer, Underground Storage Tank*, January 1990.

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Report. *Kennedy Center Parking Garage Renovation Report*, James Madison Cutts, Structural Engineer, January 1991.

Report. *HBI Re-Inspection Report #1, #2, Air Handling Inspection*, Healthy Building International, June and December 1991.

Report. *Parking and Traffic Circulation Plan, Technical Memorandum #1*, Robert Peccia & Associates, August 1991.

Report. *Repair Method Evaluations, Kennedy Center Park Garage*, Raths, Raths & Johnson, January 1992.

Report. *Investigation for the Preservation and Restoration of the John F. Kennedy Center for the Performing Arts*, 22 volumes, Wiss, Janney, Elstner Associates, Inc., with Quinn Evans / Architects, Schal Associates, Inc., and HOH Associates, Inc., 18 February 1992.

Volume 1: Survey Report

Volume 2: Database Manual and Drawings (144 sheets)

Volume 3: Survey Documentation - Region 1, Penthouse Roof (roofing); Region 2, Penthouse Walls (stucco); Region 3, Main Roof (roofing)

Volume 4: Survey Documentation - Region 4, Main Roof Fascia (marble); Region 5, Terrace Roof Overhang (roofing)

Volume 5: Survey Documentation - Region 6, Terrace Roof Fascia (marble); Region 7, Terrace Roof Soffit (stucco)

Volume 6: Survey Documentation - Region 8, Walls (stucco)

Volume 7: Survey Documentation - Region 9, Walls (curtain/entrance - glass and metal); Region 10, Walls (louvered)

Volume 8: Survey Documentation - Region 11, Columns (metal); Region 12, Roof Terrace Paving (terrazzo)

Volume 9: Survey Documentation - Region 13, Continuous Planters at Perimeter of Roof Terrace (marble); Region 14, Roof Terrace Fascia (marble)

Volume 10: Survey Documentation - Region 15, Plaza Roof Overhang (roofing); Region 16, Plaza Roof Fascia (marble)

Volume 11: Survey Documentation - Region 17, Plaza Roof Soffit (stucco)

Volume 12: Survey Documentation - Region 18, Walls (marble)

Volume 13: Survey Documentation - Region 19, Walls (curtain - glass and metal); Region 20, Columns (metal)

Volume 14: Survey Documentation - Region 21, Plaza Paving (marble)

Volume 15: Survey Documentation - Region 22, Drive and Median (concrete)

Volume 16: Survey Documentation - Region 23, Large Planters at West Side of Plaza (marble); Region 24, Large Pools/Fountains at West Side of Plaza (marble)

Volume 17: Survey Documentation - Region 25, Small Planters at North, South, and East Sides of Plaza (marble); Region 26, Continuous Planters at North, South, and East Sides of Plaza (marble);

Volume 18: Survey Documentation - Region 27, Median Planters (marble); Region 28, Median Pools/Fountains (marble)

Volume 19: Survey Documentation - Region 29, Fascia at North, South, and West Elevations (marble)

Volume 20: Survey Documentation - Region 30, Soffit at North, South, and West Elevations (concrete); Region 31, Walls below Fascia at North, South, and West Elevations (concrete)

Volume 21: Survey Documentation - Region 32, Garage Ceiling under Plaza (concrete); Region 33, Service Area under Plaza (concrete)

Volume 22: Survey Documentation - Region 34, Interior Survey/ Miscellaneous Data

Report. *Mechanical/Electrical Systems, Investigation and Recommendations*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 12 February 1992.

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- Report. *Parking and Traffic Circulation Plan/Study*, Robert Peccia & Associates, March 1992.
- Report. *Mechanical/Electrical Systems: Investigation and Design*, Wiss, Janney, Elstner Associates, Inc., 30 July 1992.
- Report. *Investigation of Condensate Tank Concrete Conditions*, Wiss, Janney, Elstner Associates, Inc., 15 October 1992.
- Report. *Mechanical Backstage Improvement Study, Study of Technical and Backstage Improvements*, Roger Morgan Studios, November 1992.
- Report. *1993 Annual Report*, Kennedy Center.
- Contract. *Construction Contract Clauses - Sample*, Smithsonian OCPM, January 1993.
- Report. *John F. Kennedy Center for the Performing Arts Accessibility Study*, 7 volumes, Wiss, Janney, Elstner Associates, Inc., with Quinn Evans / Architects, Roger Morgan Studio, Inc., Rolf Jensen & Associates, Inc., Schal Associates, Inc., and Jaffe Holden & Scarbrough, 8 February 1993.
Volume 1: Introduction and Executive Summary
Volume 2: Site and Parking
Volume 3: General Public Areas
Volume 4: Opera House
Volume 5: Eisenhower Theater
Volume 6: Concert Hall
Volume 7: Appendix A: Fire Protection and Life Safety Survey (Rolf Jensen & Associates, Inc.)
Appendix B: Acoustical Review Report (Jaffe Holden & Scarbrough)
- Report. *Mechanical & Electrical Systems Repair*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 14 April 1993.
- Report. *Concrete Condenser Water Tank Repair, Gate Modifications, and New Isolation Device*, Wiss, Janney, Elstner Associates, Inc., with Greeley and Hansen Engineers, 26 June 1993.
- Report. *The Preservation and Restoration of the John F. Kennedy Center for the Performing Arts, Investigation Report*, 5 volumes, Wiss, Janney, Elstner Associates, Inc., Quinn Evans / Architects, Schal Associates, Inc., and Jaffe Holden & Scarbrough Acoustics, Inc., 19 July 1993.
Volume 1: Executive Summary (9 August 1993)
Volume 2: Documentation and Recommendations, Roofing
Volume 3: Documentation and Recommendations, Soffits/Ceilings
Volume 4: Documentation and Recommendations, Paving and Planters/ Pools
Volume 5: Documentation and Recommendations, Walls
- Report. *Administrative Space Program - Office Programming Questionnaires*, Simpson Gumpertz & Heger, Inc., August 1993.
- Report. *1994 Budget and Management Plan*, Kennedy Center, September 1993.
- Report. *1994 Annual Facility Plan: Management Review Plan Draft*, October 1993.
- Report. *Existing Conditions Building Analysis of the Administrative Offices in the Eisenhower Block*, Sulton Campbell Britt Owens & Associates and Simpson Gumpertz & Heger, Inc., January 1994.
- Report. *1995 Budget and Management Plan*, Kennedy Center, September 1994.

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The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan**

- Report. *Budget and Management Plan*, Kennedy Center, September 1994.
- Report. *Cooling Systems Alternative Study*, Wiss, Janney, Elstner Associates, Inc., and Environmental Systems Design, Inc., 15 November 1994.
- Report. *John F. Kennedy Center for the Performing Arts: Summary of Deficiencies*, Wiss, Janney, Elstner Associates, Inc., January 1995.
- Report. *Security Survey*, Bernard Karam, Security Consultant, January 1995.
- Report. *Budget Justification to Congress*, Kennedy Center, February 1995.
- Report. *Concert Hall Acoustic Study*, Quinn Evans/Architects, February 1995.
- Report. *Comprehensive Building Plan for the John F. Kennedy Center for the Performing Arts*, Wiss, Janney, Elstner Associates, Inc. and Quinn Evans/Architects, July 1995.
- Report. *Concert Hall Program & Concept Design Study*, Quinn Evans/Architects, July 1995.
- Report. *Analysis of the Development of Parking and Site Circulation*, Quinn Evans/Architects and Hartman Cox Architects in association with Graelic Inc., James Madison Cutts, and Arena Consultants, December 1995.
- Report. *Elevator/Escalator Condition Assessment*, 3 volumes, Lerch, Bates & Associates Inc., 2 February 1996.
Volume I: Maintenance Condition Audit Report
Volume II: Periodic Inspection & Test Report
Volume III: Modernization Recommendations
- Report. *Research and Analysis Report*, Edwin Schlossberg Incorporated, March 1996.
- Report. *Recommended Scope of Work of the Repair of Service Area Beneath the Plaza*, Wiss, Janney Elstner Associates, Inc., 23 April 1996.
- Report. *Building Automation System Study*, Environmental Systems Design, Inc., 26 April 1996.
- Report. *Interpretive Master Plan & Signage Program*, Edwin Schlossberg Incorporated, June 1996.
- Report. *Comprehensive Building Plan for the John F. Kennedy Center for the Performing Arts*, Wiss, Janney, Elstner Associates, Inc., August 1996.
- Report. *Investigation of the Service Tunnel and Loading Dock*, Wiss, Janney Elstner Associates Inc., August 1996.
- Report. *Fire Protection and Life Safety Master Plan Report*, Rolf Jensen & Associates, Inc., for Wiss, Janney, Elstner Associates, Inc., October 1996.
- Manual. *Interim Theater Accessibility Modifications*, Quinn Evans Architects / Hartman Cox Architects, 10 October 1996.
- Report. *Interpretive Master Plan & Signage Program – Revised*. Edwin Schlossberg Incorporated, June 1997.
- Report. *Opera House and Mezzanine/Gallery Feasibility Study*, Wiss, Janney, Elstner Associates, Inc., July 1997.

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The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan**

- Report. *Comprehensive Building Plan for the John F. Kennedy Center for the Performing Arts*, Wiss, Janney, Elstner Associates, Inc., September 1997.
- Report. *Site Circulation and Parking, Phase II, Compilation of Work*, Wiss, Janney, Elstner Associates, Inc. September 1997.
- Design Manual. *Signage: Grand Foyer Banners*, Edwin Schlossberg Incorporated, 7 October 1997.
- Report. *An Investigative Study for the Repair of Restaurant Kitchen Leaks*, Quinn Evans Architects, October 1997.
- Report. *Summary of Proposed Opera House Technical Modifications*. Wiss, Janney, Elstner Associates, Inc., 10 December 1997.
- Report. *Additions to Parking Garage & Site Improvements and Modifications, National Capital Planning Commission Preliminary Site and Building Plan Submission, Book 1 of 3*, BTA Architects, Inc., 2 March 1998.
- Report. *Environmental Assessment – Additions to Parking Garage & Site Improvements and Modifications, National Capital Planning Commission Preliminary Site and Building Plan Submission, Book 3 of 3*, Louis Berger & Associates, Inc., 2 March 1998.
- Report. *Transportation Management Plan – Additions to Parking Garage & Site Improvements and Modifications, National Capital Planning Commission Preliminary Site and Building Plan Submission, Book 2 of 3*, 2 March 1998, revised 12 March 1998.
- Manual. *A Level Concert Hall/NSO Storage and Service Elevator, B Level Temporary Restaurant Storage and Loading Dock, and National Symphony Orchestra Administrative Department - Design Manual*. Wiss, Janney, Elstner Associates, Inc., April 1998.
- Manual. *Security Operations Center & Stage Door Entrance – Design Manual*. Wiss, Janney, Elstner Associates, Inc., April 1998.
- Report. *KC Repair Restaurant Kitchen Leaks, Review of Repair Recommendations*, Quinn Evans Architects, 29 April 1998.
- Design Manual. *Interim Plaza Uplight Safety Repairs*, Quinn Evans Architects, 8 May 1998.
- Design Manual. *Grand Foyer Mirrors Design Manual*, Quinn Evans Architects, 8 May 1998.
- Design Manual. *Terrace Theater Catwalk*, Quinn Evans Architects, 19 May 1998.
- Manual. *Education Department Space Modifications – Design Manual*. Wiss, Janney, Elstner Associates, Inc., 30 May 1998.
- Report. *Additions to Parking Garage – Site Improvements and Modifications*. BTA Architects, Inc., 6 July 1998.
- Report. *Basis of Design, The Kennedy Center Parking Structure Expansion and Renovation*, Walker Parking Consultants, 4 June 1998.
- Drawings. *Additions to Parking Garage & Site Improvements and Modifications, National Capital Planning Commission Final Site and Building Plan Submission*, BTA Architects, Inc., 6 July 1998.

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The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan**

- Design Manual. *Grand Foyer Mirrors Design Manual—Revised*, Quinn Evans Architects, 6 July 1998.
- Report. *Comprehensive Building Plan for the John F. Kennedy Center for the Performing Arts*, Wiss, Janney, Elstner Associates, Inc., September 1998.
- Report. *Preliminary Budget Estimate for Kennedy Center Garage Addition and Other Improvements*, Clark Construction Group, 18 December 1998.
- Manual. *Additions to Parking Garage & Site Improvements and Modifications, Pre-Design Services Workshop, Workbook*, Sasaki Associates, Inc., 14 December 1998.
- Report. *Comprehensive Building Plan for the John F. Kennedy Center for the Performing Arts*, Wiss, Janney, Elstner Associates, Inc. and The Kennedy Center Project Management Office, 1999.
- Manual. *Signage System Comprehensive Standards*, dated January 1999.
- Report. *Comprehensive Site Assessment Report*, Schnabel Engineering, 22 January 1999.
- Manual. *Garage Expansion and Site Work Project, Design Manual*, Wiss, Janney Elstner Associates, Inc., 26 March 1999.
- Manual. *Garage Expansion and Site Redevelopment Project, Appendix A, Add-On/Optional Projects*, Wiss, Janney Elstner Associates, Inc., 26 March 1999.
- Manual. *Garage Expansion and Site Redevelopment Project, Appendix B, Supporting Documentation*, Wiss, Janney Elstner Associates, Inc., 26 March 1999.
- Design Manual. *Millennium Renovation Design Manual – First Draft*, Polshek Partners/Tobey + Davis, 5 April 1999.
- Manual. *JFK Interpretive Exhibit, Final Design Manual*, Edwin Schlossberg Incorporated, May 1999.
- Report. *Concert Hall Humidity*, Wiss Janney Elstner Associates, Inc., May 1999.
- Manual. *JFK Interpretive Exhibit, Final Design Manual Addendum*, Edwin Schlossberg Incorporated, July 1999.
- Report. *Fenestration Study*, Quinn Evans Architects, 15 August 1999
- Report. *Final Geotechnical Engineering Report, Kennedy Center Parking Garage Additions, F Street and Rock Creek Parkway*, Schnabel Engineering, 8 December 1999.
- Manual. *JFK Memorial Exhibit, Interactive Storyboard*, Edwin Schlossberg Incorporated, February 2000.
- Design Manual. *Grand Foyer Mirrors – Update*, Quinn Evens Architects, 3 March 2000.
- Report. *Interstate Access Point Approval Study – Southbound Potomac River Expressway On-Ramp in Vicinity of The John F. Kennedy Center*, Wells & Associates, LLC, 28 September 2000.
- Report. *Elevator/Escalator Assessment Report (Draft)*, Wiss, Janney, Elstner Associates, Inc. 12 March 2001.

For Official Use Only

The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan**

- Preliminary Project Manual. *Electronic Security System, Upgrade Concept Design*, Kling Lindquist, 29 June 2001.
- Report. *Final ECSM Proposal for The John F. Kennedy Center for the Performing Art*, Johnson Controls, 26 April 2002.
- Report. *Acoustical Measurements Report of the Opera House*, Jaffee Holden, 17 May 2002.
- Report. *Textile Survey*, Julia Brennan, May 2002.
- Report. *2002 Comprehensive Building Plan*, Ehrenkrantz Eckstut & Kuhn Architects, PC, Group Goetz Architects, and Theater Projects Consultants, December 2002.
- Report. *Art Survey*, Rosemary DeRosa/Doug Robinson, March 2003.
- Report. *2002 Comprehensive Building Plan Workbook*, Ehrenkrantz Eckstut & Kuhn Architects, PC, Group Goetz Architects, Theater Projects Consultants, August 2003.
- Report. *Space Use Master Plan*, Ehrenkrantz Eckstut & Kuhn Architects, PC, Group Goetz Architects, Theater Projects Consultants, October 2003.
- Report. *Space Requirements Program, Appendix to 2002 Space Use Master Plan*, Ehrenkrantz Eckstut & Kuhn Architect, PC, Group Goetz Architects, and Theater Projects Consultants, October 2003.
- Report. *Egress & Fire Modeling Study of the Grand Foyer, Hall of State and Hall of Nations*, Ehrenkrantz Eckstut & Kuhn Architects, PC, 7 November 2003 (Updated 22 March 2008).
- Report. *Curtain Wall Restoration Project Design Manual*, Ehrenkrantz, Eckstut & Kuhn Architects, PC, 30 August 2004.
- Report. *Opera House Backstage Concrete and Mechanical Equipment Analysis*, Warner Construction Consultants, Inc., 14 January 2005.
- Report. *Eisenhower Theater Renovation Concept Design Manual, Volume 1: Report and Volume 2: Appendices*, Quinn Evans Associates, 19 January 2005.
- Report. *Eisenhower Theater Renovation Schematic Design Report, Volume 1: Report, Volume 2: Appendices, Volume 3: Survey, and Volume 4: Structural Calculations*, Quinn Evans Associates. 30 September 2005.
- Report. *Test and Balance Survey, Kennedy Center Eisenhower Theater*, American Testing, Inc. for Mueller Associates (subconsultant to Quinn Evans Associates), 25 April 2006.
- Report. *2007 Master Facilities Study*. Westlake Reed Leskosky, October 2007.
Volume 1 (Plumbing)
Volume 2 (Air Distribution)
Volume 3 (Hydronics)
Volume 4 (Electrical)
- Report. *2009 Update of the Kennedy Center Space Use Master Plan (Draft)*, Grimm + Parker Architects, 7 January 2009.
- Report. *Kennedy Center Service Tunnel Waterproofing Analysis of Water Intrusion Sources and Remedies*, Samaha Associates, P.C., 26 January 2009.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Report. *Exterior Marble Cladding Evaluation Report*, Gale Associates, Inc., 5 May 2009.

Report. *JFKC Exterior Wall Evaluation*, Gale Associates, Inc., 14 May 2009.

Report. *Space Use Master Plan Update*, Grimm + Parker Architects, June 2009.

Report. *A Level Visitor Center Renovation Concept Design Report*, Quinn Evans Architects, 2 February 2010.

Report. *RCP Overhang Structural Assessment and Survey*, Gale Associates, Inc., 6 August 2010.

Construction Documents

Drawings. *John F. Kennedy Center, Original Drawings: Architectural, Structural, Mechanical, Plumbing, Sprinkler, and Electrical*, The Office of Edward Durell Stone, vellum, photocopy reduction, 16 May 1966.

Drawings. *John F. Kennedy Center, Architectural, Structural, Mechanical, Plumbing, Sprinkler, Electrical, Stage Equipment, and Elevators*, sepia on mylar, 16 May 1966.

Drawing. *John F. Kennedy Center for the Performing Arts - Site Plan*, The Office of Edward Durell Stone, 16 May 1966.

Project Manual. *John F. Kennedy Center for the Performing Arts, Architectural/Structural Sections 1 through 51, Specification (with addenda) and proposal forms*, General Services Administration, June 1966.

Three-ring binder. Notes from progress meetings on original construction, circa 1967 to 1971.

Drawings. *John F. Kennedy Center, Structural Steel Shop Drawings*, Bethlehem Steel, full size, 1967 and 1968.

Drawings. *Roof Terrace Restaurant*, The Office of Edward Durell Stone, 9 May 1968.

Drawings. *Encore Cafe*, The Office of Edward Durell Stone, 1 October 1968.

Drawings. *Encore Cafe, Cabinetry Drawings*, The Office of Edward Durell Stone, 2 December 1968 and 26 March 1969.

Drawings. *John F. Kennedy Center, Fabric, Furniture and Carpet Selection Drawings*, The Office of Edward Durell Stone, 1968 and 1969.

Drawings. *John F. Kennedy Center, Electrical Shop Drawings*, Ernst-Fischbach, 1968 and 1969.

Drawings. *John F. Kennedy Center, Drawings for Interior Spaces*, The Office of Edward Durell Stone, 1968 and 1969.

Drawings. *Theater Lounge, in the Eisenhower Theater (also called George Rodgers Clark Room)*, The Office of Edward Durell Stone, 29 April 1969.

Drawings. *Atrium (Elevation 109'), Plans and Elevations*, The Office of Edward Durell Stone, 4 July 1969.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Drawings. *John F. Kennedy Center, Miscellaneous Mechanical, Electrical, Plumbing, and Sprinkler Shop Drawings*, Syska and Hennessy Inc., 5 August 1969.

Drawings. *John F. Kennedy Center, Architectural Drawings*, The Office of Edward Durell Stone, paper, sepia, with many updates, June 1970 or June 1971 (to be catalogued in Kennedy Center Archives).

Drawings. *John F. Kennedy Center, Temporary Office Space at 84'-0" Level*, Hardy Holzman Pfeifer Associates, 26 May 1972.

Drawings. *John F. Kennedy Center, Temporary Film Theater at Plaza Level (40'-0")*, Hardy Holzman Pfeifer Associates, progress prints, 8 September 1972.

Drawings. *John F. Kennedy Center Library, Layout Drawings*, ISD Incorporated, 31 August 1977.

Specifications. *Specifications for Repair of Leaks*, National Park Service, Denver Service Center, October 1977.

Drawings. *John F. Kennedy Center, Studio Theater (Terrace Theater), Architectural, Structural, Mechanical, and Electrical Drawings*, Johnson/Burgee Architects, Issued for Bid 1 October 1977.

Drawings. *Repair of Leaks - John F. Kennedy Center* (68 sheets), Faulkner, Fryer, and Vanderpool, Architects, 31 March 1978.

Drawings. *John F. Kennedy Center, Studio Theater (Terrace Theater), Architectural, Structural, Mechanical, and Electrical Drawings*, Johnson/Burgee Architects, Revised 14 April 1978.

Specifications. *Specifications for Repair/Repainting Concert Hall Ceiling*, National Park Service, Denver Service Center, April 1978.

Project Manual. *Project Manual for Repair of Leaks, Rock Creek/Potomac Parkway*, National Park Service, Denver Service Center, May 1978.

Drawings. *Repair of Leaks - John F. Kennedy Center* (22 sheets), Faulkner, Fryer, and Vanderpool, Architects, September 1978.

Drawings. *John F. Kennedy Center, As-Built Drawings for Studio Theater (Terrace Theater)*, J. R. Clancy Construction and others, paper sepia, July-December 1978.

Drawings. *Fountain Repairs River Terrace* (2 sheets), National Park Service, Denver Service Center, April 1979.

Drawings. *Marble Fascia Repairs - John F. Kennedy Center (Plaza Level Fascia)* (4 sheets), Faulkner, Fryer, and Vanderpool, Architects, April 1980.

Drawings. *Plaster Soffit Repairs - John F. Kennedy Center* (3 sheets), Faulkner, Fryer, and Vanderpool, Architects, May 1980.

Project Manual. *Project Manual for Marble Fascia Repairs, Rock Creek and Potomac Parkway*, National Park Service, Denver Service Center, June 1980.

Project Manual. *Project Manual for Plaster Soffit Repairs*, National Park Service, Denver Service Center, August 1980.

Drawing. *Roof Repairs - John F. Kennedy Center*, National Park Service, Denver Service Center, February 1982.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

- Drawings. *Alterations to Existing Offices (Elevation 56')*, Sullivan Almy, Architects, 24 December 1986.
- Drawings. *The Friends Shop Office and Storeroom (Elevation 20')*, Sullivan Almy, Architects, 20 January 1988.
- Drawings. *John F. Kennedy Center, Instant Charge Offices*, Sullivan Almy, Architects, 29 January 1988.
- Project Manual. *Project Manual for Fire Protection Water Supply*, National Park Service, Denver Service Center, August 1988.
- Drawings. *Eisenhower Theater, Office Renovation for Friends and Development*, Grand Engineering, 12 July 1989.
- Specifications. *Specifications for Rock Creek Parkway Rehab from Virginia Avenue to Ohio Drive*, Federal Highway Administration, January 1990.
- Drawings. *John F. Kennedy Center, Office Renovation of Second Floor*, W. G. Reed Architecture, 25 January 1990.
- Project Manual. *Project Manual for Parking Garage Repairs*, National Park Service, Denver Service Center, May 1990.
- Project Manual. *Project Manual for Parking Garage Restoration, A,B,C*, National Park Service, Denver Service Center, 18 August 1992.
- Drawings. *Tour Lobby Shop*, Stokoe Callison Architects, P.C., 3 June 1992 (to be catalogued in Kennedy Center Archives).
- Specifications. *Technical Specifications for Mechanical/Electrical Improvements*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., October 1992. (Chiller repairs; superseded.)
- Drawings. *Mechanical/Electrical Improvements*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., October 1992. (Chiller repairs; superseded.)
- Specifications. *AIA Master Spec - Mechanical/Electrical*, Steve Doulis, NPS Architect/Project Manager, October 1992.
- Specifications. *Technical Specifications for Modifications for Accessibility*, Quinn Evans / Architects, in association with Wiss, Janney, Elstner Associates, Inc., 22 December 1992.
- Drawings. *Modifications for Accessibility*, Quinn Evans / Architects, in association with Wiss, Janney, Elstner Associates, Inc., July 1992.
- Project Manual. *Restroom Accessibility Modifications*, National Park Service, Denver Service Center, 5 March 1993.
- Project Manual. *Supplementary Conditions for Construction - Sample*, Sulton Campbell Britt Owens & Associates and Simpson Gumpertz & Heger, Inc., April 1993.
- Specifications. *Technical Specifications, Condenser Water Tank Repair*, Wiss, Janney, Elstner Associates, Inc., with Greeley and Hansen, 30 September 1993.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

- Drawings. *Condenser Water Tank Repairs*, Wiss, Janney, Elstner Associates, Inc., with Greeley and Hansen, September 1993.
- Project Manual. *Condenser Water Tank Repairs*, National Park Service, Denver Service Center, 1 December 1993.
- Drawings. *Electrical/Plumbing Improvements*, Wiss, Janney, Elstner Associates, Inc., and Environmental Systems Design, Inc., April 1994.
- Drawings. *Garage Improvements*, Wiss, Janney, Elstner Associates, Inc., and Environmental Systems Design, Inc., April 1994.
- Specifications. *Technical Specifications for Lighting Improvements*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., May 1994.
- Specifications. *Mechanical Systems, Phase II - Coil Replacement*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., May, 1994.
- Drawings. *Mechanical Systems, Phase II - Coil Replacement*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., May 1994.
- Specifications. *Technical Specifications for Garage Improvements*, Wiss, Janney, Elstner Associates, Inc., and Environmental Systems Design, Inc., 6 June 1994.
- Drawings. *Lighting Improvements*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 6 June 1994.
- Drawings. *Sidewalk and Median Paving Repairs*, Wiss, Janney, Elstner Associates, Inc., July 1994.
- Specifications. *Technical Specifications for Sidewalk and Median Paving Repairs*, Wiss, Janney, Elstner Associates, Inc., 13 July 1994.
- Project Manual. *Building Systems-Phase I, General Repairs*, National Park Service, Denver Service Center, 21 July 1994.
- Project Manual. *Electrical/Plumbing Improvements*, National Park Service, Denver Service Center, 21 July 1994.
- Specifications. *Technical Specifications for Mechanical Systems, Chiller Replacement*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 28 July 1994.
- Project Manual. *Mechanical Systems: Phase II - Coil Replacement*, National Park Service, Denver Service Center, 12 August 1994.
- Specifications. *Technical Specifications for Electrical/Plumbing Improvements*, Wiss, Janney, Elstner Associates, Inc., and Environmental Systems Design, Inc., 6 May 1994; revised 10 August 1994.
- Drawings. *Mechanical Systems, Chiller Replacement*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 16 September 1994.
- Specifications. *Technical Specifications for Theater Lighting Dimmer Project: Concert Hall and Opera House*, Environmental Systems Design, Inc., October 1994.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Drawings. *Theater Lighting Dimmer Project: Concert Hall and Opera House*, Environmental Systems Design, Inc., October 1994.

Project Manual. *Mechanical Systems: Chiller Replacement*, National Park Service, Denver Service Center, 20 January 1995.

Specifications. *Technical Specifications for Theater Lighting Dimmer Project: Terrace Theater*, Environmental Systems Design, Inc., 3 May 1995.

Drawings. *Theater Lighting Dimmer Project: Terrace Theater*, Environmental Systems Design, Inc., 3 May 1995.

Specifications. *Technical Specifications for Building Automation Systems*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 14 July 1995.

Drawings. *Building Automation Systems*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., July 1995.

Solicitations. *Solicitation for Building Automation System*, United States Army Corps of Engineers, 14 July 1995.

Specifications. *Technical Specifications for Facade: Phase I, Marble Cleaning*, Wiss, Janney, Elstner Associates, Inc., 31 July 1995.

Drawings. *Facade: Phase I, Marble Cleaning*, Wiss, Janney, Elstner Associates, Inc., July 1995.

Solicitations. *Solicitation for Facade: Phase 1, Marble Cleaning*, United States Army Corps of Engineers, 31 July 1995.

Specifications. *Technical Specifications for Lighting Systems: Phase I, Interior Lighting*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 12 July 1995.

Drawings. *Lighting Systems: Phase I, Interior Lighting*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., July 1995.

Solicitations. *Solicitation for Lighting Systems: Phase 1, Interior Lighting*, United States Army Corps of Engineers, 31 July 1995.

Specifications. *Technical Specifications for Main Roof, Penthouse & Roof Terrace Repairs*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 31 July 1995.

Drawings. *Main Roof, Penthouse & Roof Terrace Repairs*, Wiss, Janney, Elstner Associates, Inc., with Environmental Systems Design, Inc., 31 July 1995.

Solicitations. *Solicitation for Main Roof, Penthouse & Roof Terrace Repairs*, United States Army Corps of Engineers, 31 July 1995.

Specifications. *Maintenance and Life Safety Repair Projects: Theater Lab Recarpeting, Opera House Handrails, Concrete Curb for Diesel Storage Tank*, Wiss, Janney, Elstner Associates, Inc., 11 September 1995.

Drawings. *Maintenance and Life Safety Repair Projects: Theater Lab Recarpeting, Opera House Handrails, Concrete Curb for Diesel Storage Tank*, Wiss, Janney, Elstner Associates, Inc., 11 September 1995.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Specifications. *Maintenance and Life Safety Repair Projects: Amendment No. 1, Sprinkler System Extension*, Wiss, Janney, Elstner Associates, Inc., 14 September 1995.

Drawings. *Maintenance and Life Safety Repair Projects: Amendment No. 1, Sprinkler System Extension*, Wiss, Janney, Elstner Associates, Inc., 14 September 1995.

Specifications. *Maintenance and Life Safety Repair Projects: Theater Lab Emergency Lighting*, Wiss, Janney, Elstner Associates, Inc., 5 October 1995.

Drawings. *Maintenance and Life Safety Repair Projects: Theater Lab Emergency Lighting*, Wiss, Janney, Elstner Associates, Inc., 5 October 1995.

Specifications. *Maintenance and Life Safety Repair Projects: Asbestos Abatement & Fireproofing Installation, Parking Garage Exit Sign Replacement*, Wiss, Janney, Elstner Associates, Inc., 3 January 1996.

Drawings. *Maintenance and Life Safety Repair Projects: Asbestos Abatement & Fireproofing Installation, Parking Garage Exit Sign Replacement*, Wiss, Janney, Elstner Associates, Inc., 3 January 1996.

Specifications. *Asbestos Removal: Building Automation System*, Wiss, Janney, Elstner Associates, Inc., 27 June 1996.

Drawings. *Asbestos Removal: Building Automation System*, Wiss, Janney, Elstner Associates, Inc., 27 June 1996.

Specifications. *Concert Hall Renovation, Phase II, 100% Submittal*, Quinn Evans/Architects and Hartman Cox, 30 June 1996.

Drawings. *Concert Hall Renovation, Phase II: 100% Submittal*, Quinn Evans/Architects and Hartman Cox, 30 June 1996.

Drawings and Specifications. *Repair Restaurant Kitchen Leaks – Phase 1*, Quinn Evans Architects, 14 October 1997.

Control Drawings and Specifications. *Signage: Grand Foyer Banners*, Edwin Schlossberg Incorporated, 3 December 1997.

Project Manual. *Continuous Planter Railings and Fascia Panel Replacement*. Wiss, Janney, Elstner Associates, Inc., 10 February 1998.

Project Manual. *Grand Foyer Mirrors*, Quinn Evans Architects, 22 July 1998.

Project Manual. *Terrace Theater Catwalk*, Quinn Evans Architects, 14 August 1998.

Drawings. *Water Line Relocation*, Sasaki Associates, Inc., 5 October 1998.

Specifications. *Water Line Relocation*, Sasaki Associates, Inc., 16 October 1998.

Drawings. *Building Automation System*, Wiss, Janney, Elstner Associates, Inc. 7 December 1998.

Specifications. *Building Automation System*, Wiss, Janney, Elstner Associates, 7 December 1998.

Drawings. *Subscription and Group Sales Offices* (former Education Department), Quinn Evans Architects, August 1999.

For Official Use Only

The John F. Kennedy Center for the Performing Arts**2022 Comprehensive Building Plan**

Specifications. *Former Education Space Renovation*, Quinn Evans Architects, August 1999.

Drawings. *Garage Expansion and Site Work – Phase 1*, Sasaki Associates, Inc., 10 September 1999.

Specifications. *Garage Expansion and Site Work – Phase 1*, Sasaki Associates, Inc. 10 September 1999.

Specifications. *Concert Hall Platform Lift*, Quinn Evans Architects, January 2000.

Drawings, *Concert Hall Platform Lift*, Quinn Evans Architects, January 2000.

Drawings. *Installation of Bar Drains in Israeli Lounge*, Wiss Janney Elstner Associates, Inc., February 2000.

Specifications. *Terrace Theater Restroom Renovation* (North Gallery Restrooms), Daniel, Mann, Johnson & Mendenhall/Napa Construction, February 2000.

Drawings. *Terrace Theater Restroom Renovation* (North Gallery Restrooms), Daniel, Mann, Johnson & Mendenhall/Napa Construction, February 2000.

Drawings. *Fire Alarm System Replacement*, Wiss, Janney, Elstner Associates, 4 February 4, 2000.

Specifications. *Replacement of the Fire Alarm System*, Wiss, Janney Elstner Associates, 4 February 2000.

Specifications and Drawings. *Level A Renovation*, Tobey + Davis, 25 February 2000.

Specifications and Drawings. *Level B Bunker Renovation*, Tobey + Davis, 25 February 2000.

Drawings. *Garage Expansion & Site Improvement*, 100% Submittal, Wiss, Janney Elstner Associates, Inc., 15 March 2000. (Vol. I, II, III).

Specifications. *Garage Expansion & Site Improvement*, 100% Submittal, Wiss, Janney Elstner Associates, Inc. 15 March 2000. (Vol. I, II, III).

Drawings. *Interpretive Exhibit*, Polshek Tobey + Davis Joint Venture Architects, 2000.

Project Manual. *JFK Interpretive Exhibit*, Tobey + Davis

Project Manual. *Millennium Stages Electrical Distribution Boxes*, Quinn Evans Architects, July 2000.

Drawings. *The Kennedy Center*, Tri Pyramid Structures, Inc., 14 July 2000.

Drawings. *Interpretive Exhibit, Audiovisual and Computing Systems*, Robert Slye Electronics, Inc. Drawing Release A, 4 August 2000.

Specifications. *Public Space Modifications, Phase 1, Revised*, Polshek Tobey + Davis Joint Venture Architects, 26 October 2000.

Specifications, Drawings, Details. *Signage, Phase 1 (Public Spaces)*, Gallagher & Assoc., November 2000.

Specifications, Drawings, Details. *Signage, Phase 2 (Theaters)*, Gallagher & Assoc., November 2000.

General Construction Information. *North Block Administrative Offices*, Desbuild, December 2000.

Specifications. *Public Space Modifications, Phase 2, Revised*, 12 February 2001.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Drawings. *Carpet (Public Space Modifications, Phase 2)*, Polshek Tobey + Davis, Joint Venture Architects, 14 February 2001.

General Construction Information. *President/VP Offices*, HSU, March 2001.

Specifications. *Add Flag Poles in Hall of Nations*, Smith Management Construction, March 2001.

Drawings. *Public Space Modifications, Phase 3, ADA Ramp, Food Service Stations, Furniture*, Polshek Tobey Davis, Joint Venture Architects, 12 March 2001.

Specifications. *Public Space Modifications, Phase 3, ADA Ramp/Food Service Stations*, 12 March 2001.

Specifications. *Public Space Modifications, Phase 3, Furniture Specification*, 12 March 2001.

Drawings. *Garage Expansion & Site Improvement Project for the John F. Kennedy Center for the Performing Arts*, Washington, DC, dated March 26, 2001, including Modification #2, dated December 3, 2001.

Specifications, Drawings. *Encore Cafe Renovation*, Elkus/Manfredi, July 2001.

Specifications. *Public Space Modifications, Phase 4*, Polshek Tobey + Davis, Joint Venture Architects, 27 July 2001.

Specifications. *Level A Gift Shop: Floor Repair*, WJE, August 2001.

Specifications, Drawings. *B Level Offices*, WJE, October 2001.

Drawings. *Public Space Modifications, Phase 4, Concession Cart, Concierge Desk, NSO Welcome Center*, Polshek Tobey + Davis, Joint Venture Architects, 27 July 2001.

Drawings, Details. *Flagpoles, Hall of Nations*, Gallagher & Assoc., May 2002.

Specifications, Drawings, Details. *Signage (Art Plaques)*, Gallagher & Assoc., 28 June 2002.

Specifications, Drawings. *Terrace Theater Handrails*, Quinn Evans Associates, July 2002.

Specifications, Drawings, Details. *Signage (Miscellaneous Signs)*, Gallagher & Assoc., 22 July 2002.

Specifications, Drawings. *Opera House Renovation*, Quinn Evans Associates, 11 October 2002.

Specifications, Drawings. *Restaurant/Kitchen Renovation*, Thierry Despont Associates/ Dominion Engineers, December 2002.

Specifications, Drawings. *Gift Shop Renovation, Hall of States*, Eileen Ritter, December 2002.

Drawings. *Exterior Lighting*, WJE, 20 December 2002.

Drawings. *Public Space Modifications, Phase 4-Information & ALD Desks*, Polshek Tobey + Davis--Joint Venture Architects, Dewhurst MacFarlane and Partners, Inc., McMullan & Associates, and Shen Milsom Wilke, 14 February 2003.

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The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Specifications. *Public Space Modifications-Phase 4, Information and ALD Desks*, 14 February 2003.

Specifications, Drawings. *Chilled/Condenser Pump VFD and Controls*, ESD, October 2003.

Specifications, Drawings. *Elevator Modernization Phase 2*, WJE, 1 May 2004.

Specifications, Drawings. *Curtain Wall Restoration (Includes "Roof Terrace Doors" Project)*. Ehrenkrantz Eckstut & Kuhn Architects, PC, Israel Berger & Associates, and Robert Silman Associates, 27 July 2004.

Drawings. *Life Safety Improvements, Phase 1*, Ehrenkrantz, Eckstut & Kuhn Architects, PC, 14 July 2004.

Project Manual. *Life Safety Improvements, Phase 1*, Ehrenkrantz, Eckstut & Kuhn Architects, PC, 11 August 2004.

Specifications, Drawings. *New Family Theater*. Richter, Cornbrooks, Gribble, Inc., 31 January 2005.

Specifications, Drawings. *Curtain Wall Restoration*. Ehrenkrantz, Eckstut & Kuhn Architects, PC, 8 March 2005.

Specifications, Drawings. *Roof Terrace Door Modifications*. Ehrenkrantz, Eckstut & Kuhn Architects, PC, 16 May 2005.

Drawings. *Concert Hall Handrails*. Quinn Evans Associates, 1 June 2005.

Specifications, Drawings. *Security Operations Center*. Quinn Evans Associates, 11 June 2005.

Specifications, Drawings. *Electronic Security Upgrades*. Quinn Evans Associates, July 2005.

Specifications, Drawings. *Vehicle Barrier & Guard Booth for F Street Service Tunnel*. Richter, Cornbrooks, Gribble, Inc., 25 July 2005.

Specifications, Drawings. *Kennedy Center Door Numbering System*. Quinn Evans Associates, 10 August 2005.

Specifications, Drawings. *Motor Lobby Life Safety Upgrades*, Ehrenkrantz, Eckstut & Kuhn Architects, PC, 11 August 2005.

Drawings. *Building-wide Signage Update*. Gallagher Associates, 9 September 2005.

Drawings. *Existing Condition Database Drawings*, Quinn Evans Associates, 23 August 2006.

Specifications, Drawings. *Eisenhower Theater Renovation*. Quinn Evans Associates, 20 July 2007.

Specifications, Drawings. *Roof Terrace Life Safety Upgrades*, Ehrenkrantz, Eckstut & Kuhn Architects, PC, 17 October 2007.

Specifications, Drawings. *Restroom Renovations*. Richter, Cornbrooks, Gribble, Inc., 8 October 2007.

Drawings. *Main Concert Hall- Handrail Additions*, Grimm + Parker Architects, 14 April 2008.

For Official Use Only

The John F. Kennedy Center for the Performing Arts

2022 Comprehensive Building Plan

Specifications, Drawings. *Terrace Gallery/Jazz Club Ceiling Renovation*. Grimm + Parker Architects, December 2008.

Specifications, Drawings. *Curtain Wall Replacement*, Samaha Associates PC , Architects, March 2009.

Drawings, Specifications. *Gallery Floor Replacement*, Richter, Cornbrooks, Gribble, Inc. March 13, 2009.

Drawings, Specifications. *Israeli Lounge Renovation*, Richter, Cornbrooks, Gribble, Inc., April 17, 2009.

Drawings, Specifications. *Coat Check Room*, Richter, Cornbrooks, Gribble, Inc., April 17, 2009.

Drawings. *Column Q7 Repair*, Samaha Associates PC, 29 May, 2009.

Specifications, Drawings. *South Block Renovation*, Grimm + Parker Architects, 19 June 2009.

Specifications, Drawings. *2008 Life Safety Improvements*, Quinn Evans Architects, July 2009.

Specifications, Drawings. *Stair Tower Upgrades*, Richter, Cornbrooks, Gribble, Inc., 31 July 2009.

Specifications, drawings. *Garage Concrete Repair*, Grimm + Parker Architects, August 2009.

Drawings. *Existing Condition Database Drawings*, Quinn Evans Associates, 23 October 2009.

Specifications, drawings. *Office Renovations*, Richter, Cornbrooks, Gribble, Inc., 15 October 2010.

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