Brutalism and the Public University: Integrating Conservation into Comprehensive Campus Planning

Shelby Schrank
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BRUTALISM AND THE PUBLIC UNIVERSITY: INTEGRATING CONSERVATION INTO COMPREHENSIVE CAMPUS PLANNING

A Thesis Presented

by

SHELBY D. SCHRANK

Submitted to the Graduate School of the University of Massachusetts Amherst in partial fulfillment of the requirements for the degree of

MASTER OF ARCHITECTURE AND MASTER OF DESIGN

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Architecture and Design
BRUTALISM AND THE PUBLIC UNIVERSITY: INTEGRATING CONSERVATION INTO COMPREHENSIVE CAMPUS PLANNING

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ACKNOWLEDGMENTS

I owe a great deal of gratitude to my advisor Carl Fiocchi for devoting his time, not only to this thesis, but to my last couple of years of research related to this topic. His interest and knowledge in building construction technology, historic preservation, Brutalism, and the Fine Arts Center in particular, have provided a tremendous amount of insight. I would also like to thank Norman Weiss for his advisement and guidance throughout this thesis, particularly related to the material conservation of concrete. His feedback has been a tremendous help in moving this project forward. I would also like to thank Stephen Schreiber, Eldra Dominque-Walker and Kathleen Lugosch for their ongoing support and encouragement throughout this thesis. Their involvement has brought many important viewpoints to the table which I have found highly valuable.

I would also like to thank Max Page, John Matthews, Lyle Dennit and Emma Messier for taking the time to speak with me over the course of the last few years on topics related to Fine Arts Center. Their relationship to the building as well as their willingness to share numerous resources and provide access to various spaces has been essential in molding this thesis in a meaningful way.
ABSTRACT

BRUTALISM AND THE PUBLIC UNIVERSITY: INTEGRATING CONSERVATION INTO COMPREHENSIVE CAMPUS PLANNING

SEPTEMBER 2020

SHELBY D. SCHRANK, BS, ST. CATHERINE UNIVERSITY
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The University of Massachusetts Amherst, the Commonwealth’s flagship campus, is home to several Brutalist buildings. Similar to other buildings of this genre, they have gone unrecognized for their importance to the campus and their prominent architectural significance. Additionally, due to the ravages of close to 50 years of exposure coupled with limited maintenance and, in some instances, neglect they are now at a point where restorative maintenance is critical in ensuring their future contribution to the campus.

This thesis addresses the importance of creating a comprehensive, long-term plan for these buildings, by first looking to the University’s most prominent, yet neglected building, the Fine Arts Center “designed by Pritzker Prize-winning architect Kevin Roche.”¹ The research and design hereafter is an attempt to address the current limitations that exist in relation to the building and to address necessary changes that pertain to the revitalization of the building to meet current University needs.

¹ Fiocchi, L Carl Jr., “A Period Examination Through Contemporary Energy Analysis of Kevin Roche’s Fine Arts Center at University of Massachusetts-Amherst” (2016), p. vi
A thorough investigation into best practices for concrete repair, cleaning, and protection are explored, as well as possible design interventions that may be implemented in the future. These design interventions aim to benefit the overall conservation of the building as well as maintain a sensitivity to the architect’s original design intentions. This thesis analyzes past design interventions that have been made, which lacked a sensitivity to the original design, and how this has had a negative impact on the building.

Architectural explorations as part of this thesis are used to develop a framework for design thinking and to create a model approach. Investigations into necessary upgrades and alterations to meet current code requirements such as accessibility, fire safety, and energy use are all considered. These explorations are meant to merge into specific guidelines which can then become part of a long-term comprehensive plan.

This thesis demonstrates that creating a comprehensive plan with a set of conservation protocols as well as architectural design guidelines will help ensure the building’s future on the campus. It also serves as an argument that architectural design considerations play a larger role in the context of conservation. This thesis aims to serve as a case study for other buildings on the University of Massachusetts Amherst campus, as well as other campuses around the United States and beyond. This study can be seen as a proactive measure to further prevent deferred maintenance and negate the use of unsuitable conservation methods through exigent repairs. It also serves as a means of preventing unsuitable design interventions, which ultimately compromise the building of its significance and authenticity.
Figure 1: The Fine Arts Center – Construction Complete in 1974, Image Courtesy of UMass Amherst Special Collections and University Archives
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INTRODUCTION

Originally and erroneously, concrete maintenance was thought to be a minimal requirement. Today, the University of Massachusetts Amherst’s Fine Arts Center has accumulated significant amounts of efflorescence, mold, mildew, algae, and miscellaneous visual contaminants. In addition, deterioration ranging from corrosion and cracking to delamination and spalling has occurred. This deterioration has led to numerous episodes of water infiltration throughout the building as well as exposed rebar in several areas. Various repair attempts have been made in the past to address some of these issues, but unfortunately these repairs did not holistically address the root cause(s) of the issue. Furthermore, they have altered the appearance of the building through the improper use of methods and materials and, in many cases, have exacerbated the issues even further.

Figure 2: Sloping Roof Facades with Large Scale Cracking, Image Courtesy of UMass Amherst Special Collections and University Archives
Concrete conservation requires a thorough understanding of material properties and characteristics. Conducting an investigation into the extent of concrete deterioration and damage can be a vital component in determining the condition of the building and where it is at in its lifecycle. It can also help determine a plan of action to address the root cause(s) and define why failure is occurring. This can help create a basis for problem-solving and offer solutions to prevent future deterioration. Many factors such as thermal expansion, freeze-thaw, chloride penetration from deicing salts, carbonation, and inadequate concrete cover depth over rebar can all be contributing factors to the current state of the concrete.² All of these factors would need to be considered and addressed as part of a long-term conservation plan.

Creating a conservation plan should include thorough research into the building’s original design specifications and construction drawings. It should also include the documentation of any past repair, cleaning, protection, and maintenance strategies that have been used in the past. These previous strategies would then be analyzed in order to
understand the procedures and limitations that existed. Additionally, this research should include any past reports, studies, or assessments that have taken place in addition to any alterations or upgrades.

Figure 6: Example Documentation of Original Construction Photo, Image Courtesy of UMass Amherst Special Collections and University Archives

Information on past projects may be limited however; as preliminary research into the University archives has shown that some work completed in-house by University personnel has not always been thoroughly documented. Although this may be common among academic buildings of this type, this can make fully understanding the root cause(s) behind material failure difficult. In this case, it is of the upmost importance that the individual(s) assessing the structure have a great deal of experience working with concrete. Experienced professionals may be able to help solve the question of why material failure is occurring and what may have been used in past repair, cleaning,
protection, and maintenance strategies. Any gaps in information within the University archives should be investigated at this time.

![Image](image.jpg)

**Figure 7: Past Repair with Unknown Materials and Methods, Image by Author**

Visual assessment and the documentation of existing conditions can be used to gain an understanding of the proliferation of efflorescence, atmospheric soiling, and biological growth that has formed, in addition to any material or structural deficiencies. However, to confirm these visual observations, a combination of field and/or lab testing may be required. Conducting a needs assessment for the entire building can help provide a list of priorities and address what issues need to be attended to first. This assessment may also offer initial time and cost estimates for completing each task. This assessment should become a side resource to aid the conservation plan.
Figure 8: Example of Atmospheric Soiling, Image by Author

Figure 9: Example of Biological Growth, Image by Author
Creating a conservation plan should include exploring possible repair materials that are both matching in color and texture to the original concrete. The materials should also be compatible with material characteristics such as strength and durability. The conservation plan should clearly outline the University’s aesthetic and performance expectations for cleaning, repair, and protection projects. Determining the desired outcome of a conservation project beforehand is very important and should be heavily weighted before making any large decisions. Providing these expectations upfront will also help to guide the project team.

When considering if, when, and how the building should be further protected, the conservation plan should also offer viable solutions. There are several different coatings, sealants, water repellents, corrosion inhibitors, and preventative measures such as realkalization and cathodic protection that can be used to accomplish a certain level of protection. These solutions, however, each have their pros and cons and should be
evaluated on a case-by-case basis. Proper mock-ups and testing should be utilized in order to ensure their long-term success. It should also be noted in the conservation plan that selecting and implementing a protection strategy may take ample time to complete, as it is important to determine that there will be no negative repercussions from its use.

Once and if a repair, cleaning, and protection strategy is selected, it is important that a skilled craftsman or contractor be a part of the project team to provide proper application or installation. There should also be a high degree of project management and oversight involved to ensure the level of work is satisfactory. Additionally, there should be a monitoring and maintenance schedule in place to help provide a framework for regular check-ups. This can help to track and document each strategy’s successes or failures. There are many effective concrete conservation projects to reference as case studies for repair, cleaning, and protection strategies, but many of them seem to lack this monitoring and maintenance component or fail to include it. This step seems critical in ensuring conservation efforts are maximized. The University of Massachusetts Amherst, as a facility with in-house personnel who deal with the ongoing maintenance of these buildings on a day-to-day basis, has a unique opportunity to ensure this step is followed. To accomplish this, a set of recommendations for when and how to inspect the building could be provided as part of the conservation plan as well as what to do when problems arise and when to intervene. These are all important factors that should be laid out as part of the conservation plan.

Leading into future design interventions, such as restoration or rehabilitation projects, having a similar set of architectural guidelines in place that are both sensitive to the aesthetic and functional qualities of the Fine Arts Center will be helpful in ensuring
the building’s long-term success. This segment in the conservation plan should discuss the various obstacles that pertain to upgrading existing building systems and accommodating spaces to meet modern-day requirements. These guidelines should help to navigate through various code updates and provide recommendations for the interior and exterior of the building, as well as the surrounding landscape and site. The intention for these guidelines is to be a tool for both firms and consultants working on campus, as well as in-house personnel to aid in thoughtful decision making.

The conservation plan should also include a thorough analysis of the building’s original and current use. This includes identifying the significance of each space and its associated materials. There should be a segment outlining the architect’s original design intentions while identifying a list of significant components that should not be altered or removed. This segment should also document any past design interventions that have been made which have already altered or removed significant components.

Many past design interventions to the Fine Arts Center have compromised the building of its original integrity and changed its overall aesthetic. These design interventions, which have occurred at various periods over time, have made no effort to match the existing building or each other in color, shape, or form to create a cohesive and uniform look. Each intervention, depending on its year, used various materials, styles, and methods of construction. For example, each addition constructed has used various types of metal and glass, doors and glazing, and has differentiated in assembly and profile. There are no obvious connections in their design which shows a blatant disregard for the architect’s original design intentions as well as the overall aesthetic and function of the building.
Figure 11: Analysis of Past Design Interventions, Drawing by Author

Many design interventions have also removed significant features, such as the two large exterior reflecting pools on the front, south plaza. These reflecting pools, once a monumental landscape feature, can now only be brought back through full-scale replacement. Interventions such as these have drastically altered a once bold, timeless design that once received rave reviews from architectural critics and was featured on the cover of magazines and newspaper articles for its groundbreaking innovation. Thus, it is essential that if the building ever intends to be restored, preserved, or rehabilitated in a suitable manner, these guidelines are vital.
Figure 12: Original Reflecting Pools, Image Courtesy of KRDJA
CHAPTER 1
APPROACHES IN CREATING A CONSERVATION PLAN

1.1 Yale Center for British Art

In 2002, when the Director of the Yale Center for British Art, Amy Meyers, began her tenure, the Center, constructed in 1974, was said to be in “fine health”. The initiative to create a conservation plan began with a discussion to replace two elevator control panels. It became evident that the design and maintenance decisions in this replacement might cause the architectural significance of the building to be altered from its original form.³

Figure 13: Louis I. Kahn and the Yale Center for British Art: A Conservation Plan Book Cover, Image Courtesy of the Yale Center for British Art

During a discussion on how to go about the replacement, the idea of forming a Building Conservation Committee emerged to help guide the process and navigate through similar situations. This committee included representatives from the University

³ Inskip, Peter, Stephen Gee, and Constance Clement, Louis I. Kahn and the Yale Center for British Art: A Conservation Plan (2011)
building staff and facilities office, along with architects and architectural historians from Yale’s School of Architecture. Constance Clement, the museum’s deputy director, agreed to be the chair and oversee the design and construction. The center’s very first director Jules D. Prown and Paul Mellon, Professor Emeritus of the History of Art who oversaw Louis Kahn’s original design and construction also joined the committee.\textsuperscript{4}

Following the formation of the committee, Peter Inskip and Stephen Gee of Peter Inskip & Peter Jenkins Architects were asked to serve as the consulting conservation architects. The firm was given the task to plan for the maintenance, repair, growth, and modification of the center. One of their main objectives was to identify key features that signify cultural importance and to ensure that these features are protected from alteration. The assessment also gave consideration to less central features, which may have the option to be changed or altered if necessary.\textsuperscript{5}

\textbf{Figure 14: Interior Gallery Space, Image by Author}

The conservation plan stresses the importance of conducting this planning when the site is not under a time constraint or pressure for immediate alternation, repair, or

\textsuperscript{4} Ibid.
\textsuperscript{5} Ibid.
expansion. A significant part of making the plan successful was to address it before an urgent need for action was required. The building also belonged to an age where all the original drawings and information were accessible, and individuals involved in the original construction could be contacted. This included original manufacturers who were still in operation.  

In short, the committee fully recognized the value of the early development of this conservation plan. They also recognized the importance of having full institutional support. This allowed time for investment and to engage in “meticulous and systematic physical and intellectual approval, involving many members of staff and the appropriate expert consultants.” By creating this plan during a relaxed time frame, the committee was also able to contract Cooper, Robertson & Partners to complete an additional study on the physical requirements projected for the next twenty years. These documents were created to help plan for the need for an expanded facility.

The conservation plan is set to serve as an example for other important sites throughout the United States. Regular re-assessments of the plan were indicated as a necessity to remain viable as priorities change. Ultimately, the committee determined as long as the plan was up to date, they should be able to establish the hierarchy of each issue that arises and figure the cost of each part. It was stressed that the plan should be reviewed periodically, initially within the first five years and then again, every ten years after that.

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6 Ibid.  
7 Ibid.  
8 Ibid.  
9 Ibid.  
10 Ibid., p. 13
The conservation plan, which was published in the form of a book, is broken down into various sections including contents, director’s forward, introduction, acknowledgments, understanding the place, the site and setting of the building, assessment of cultural significance, conservation policies, floor plans, selected further reading and index. The majority of the information previously mentioned can be found in the director’s forward and introduction. The introduction also provides an overview for the plan by establishing that conservation polices are primarily based off an assessment of cultural significance and acknowledging that some might be long-term while others are more immediate.\textsuperscript{11}

Moving through other components of the plan, the acknowledgments section recognizes both undergraduate and graduate students from the Yale School of Architecture who contributed to conducting research. The plan then moves into a section called understanding the place, where Louie Kahn’s visions are elaborated on. This section also breaks down the construction timeline, costs, and reasons for selecting certain materials. Also included are photos and drawings of Kahn’s original design concepts.\textsuperscript{12}

The next section, the site and setting of the building, provides additional context for the building, its location, and surroundings. This section is then followed by assessment of cultural significance, which highlights the building as one of Kahn’s most prominent works and signifies the importance of the museum’s art collection. This section is broken down into various subsections including as a building by Louis I. Kahn,

\textsuperscript{11} Ibid., p. 13
\textsuperscript{12} Ibid., p. 15-40
degree of survival and intactness, as a museum housing a specific collection, as urban fabric, statement of cultural significance, and levels of cultural significance. Each subsection provides valuable information for understanding the building, the site, and its location on campus as well as in the town of New Haven, Connecticut. Although the building is part of a campus, it exposes itself and interacts as a commercial venue within part of the city’s urban fabric.¹³

The next section, conservation policies also contains various subsections including method of approach, general polices, exterior of the building, external spaces, interior of the building, structure and building systems, external materials, and internal materials. These subsections move from general, overall considerations for the entire building to more specific areas of the exterior and interior. This includes structural and buildings systems as well as material specifics. The materials outlined consist of steel, concrete, glass, white oak, and travertine.¹⁴

The plan addresses essentially every part of the building, evaluating its importance and acknowledging whether it can be modified and if so, to what degree. It also gives an in-depth description of each design element, stating the importance of why certain elements need to be restored or preserved. There is also a breakdown of elements that can be changed or altered and how to go about this in the most sensitive way. Within this section, preliminary advice and guidelines are given on how to maintain and repair each element.¹⁵

¹³ Ibid., pp. 41-62
¹⁴ Ibid., pp. 63-186
¹⁵ Ibid, pp. 63-186
The conservation plan also includes a floor plans section which provides various drawings for reference and a selected further reading section which provides additional resources on related background and historical information. The plan then concludes with an index section to help further navigate through the book.¹⁶

Figure 15: Interior Gallery Space, Image by Author

*Louis I. Kahn and the Yale Center for British Art: A Conservation Plan* was the publication with the largest impact of this thesis and the body of work that sparked an initial interest in the research topic. After careful deliberation over the plan’s format and content, the question became whether the University of Massachusetts Amherst could create something of similar value and use, particularly for a building such as the Fine Arts Center which is in desperate need of a plan moving forward. Many considerations were contemplated in this question such as whether the significance of the two buildings

¹⁶ Ibid., pp 187-200
are of similar worth and value. The recognition of the Yale Center for British Art as a world-renowned art museum in addition to the significance of the architecture are just a few obvious considerations. It could be argued, however, that although not as widely recognized, the Fine Arts Center holds a certain level of national, regional, and local significance that is of high value and worth preserving. Additionally, although Louis Kahn may be a more well-known figure among the general public and architectural community, the work of Kevin Roche is still highly recognized and acknowledged.

Quite possibly the largest consideration, however, in creating a similar conservation plan to that of the Yale Center for British Art is private vs. public ownership. The Yale Center for British Art is located on a private campus while the Fine Arts Center is located on a public campus. The policies and general procedures for funding and completing projects of the scale and magnitude are typically accomplished in very different ways.

During a tour of the Yale Center for British Art through the Association for Preservation Technology Northeast in February 2018, Constance Clement noted that the conservation plan took nearly ten years to complete, and included several students, faculty, and ample funding resources and donors to make it a success.\(^ {17} \) Although the University of Massachusetts Amherst may have the students and faculty to make the project a success, the funding resources may not be as readily available or as easily obtainable. Initiating this conservation plan may also rely on the difficult task of convincing the campus community of the building’s worth and that this undertaking is

\(^ {17} \) Clement, Constance, and George Knight. “Conservation of the Yale Center for British Art.” *Association for Preservation Technology Northeast Annual Meeting & Symposium*. February 3, 2018.
meaningful and worthwhile. This task may not have been as difficult for the Yale Center for British Art as it was already admired and treasured among the University and the greater community.

Figure 16: Constance Clement and George Knight giving a Tour for the Association for Preservation Technology Northeast in 2018, Image by Author

Elaborating on these details as part of this thesis is an effort to acknowledge the challenges that come with this kind of project and that completing a conservation plan will not be a simple task. Ultimately, the stakeholders and the campus administration at the University of Massachusetts Amherst would need to agree that the Fine Arts Center is something worth preserving and that a commendable new vision for the building would aid in its presence on campus.

It is also important for the purposes of this thesis to point out why certain aspects of a case study may or may not be as successful for the Fine Arts Center and/or the University of Massachusetts Amherst in creating a conservation plan. One remark, in
particular to the Yale Center for British Art conservation plan is that it was primarily completed by architects. Though the architects did consult with the conservation engineering firm Weiss, Janney, and Elstner (WJE) Associates, there seems to be a technical component lacking in the plan. A conservation plan for the Fine Arts Center could be far more user-friendly towards individuals in the Physical Plant, Facilities and Construction, and Campus Planning Departments if it more directly addressed building maintenance and alterations. This conservation plan could also be a unique opportunity for in-house staff and personal at the University of Massachusetts Amherst to be trained and educated on these issues through this type of document.

One of the major challenges of maintaining and conserving Brutalist buildings is solving the complex challenges that arise as these buildings start to age. Many building owners are struggling to address the technical issues that occur as material deterioration starts and building systems become obsolete. A more technical conservation plan could provide further specifics on the material science and characteristics of concrete, while outlining the proper ways to implement repairs, cleaning, and protection, etc. in the future. Without this sort of guide, it seems the only way to gain this sort of knowledge and expertise on a project is to bring in outside consultants and professionals every time to help address an issue. While this might be an option in the private sector, this is often not the case in the public sector. For example, there are certain policies and procedures in place that a public university has to follow, such as putting a project out to bid. There may also again be the issue of funding to bring proper consultants in as needed.

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In defense of the lack of technical content in this case study, it could also be argued that the Yale Center for British Art may not need this sort of elaborate guidance in place, as the building has been maintained to a high degree. As indicated in the director’s forward, the staff put a great deal of care and attention into the building. It clearly states that strict routines for maintenance and minor renovations were followed and that there have only been two major restoration projects to date, one to replace the windows due to condensation problems in 1996, and another to renovate the roof in 1998. During the time of the roof replacement, other interior elements such as worn carpeting and frayed linens were also updated.\(^{19}\)

Unfortunately, this is not the case for the Fine Arts Center and many other buildings of this era. Many of these buildings have been exposed to insufficient conservation methods and inappropriate design interventions. This in addition to exposure to harsh climate conditions and intentional damage or vandalism. It should also be noted that the Yale Center for British Art may be less likely to make any major changes or alterations to the building, as its significance and original integrity is highly valued. The Fine Arts Center has been home to many different departments over the years and its program and function have continuously changed as a result. Some departments have moved into new facilities on campus leaving spaces unoccupied and/or open to changes in program and use. There have also been several interventions already implemented in an attempt to address concerns such as accessibility, HVAC requirements, and provide other modern-day amenities. As previously stated, this includes new building additions and the removal of various components, such as the\(^{19}\) Ibid.
exterior reflecting pools. Various restoration projects would need to be carried out to bring the Fine Arts Center back anywhere close to what it was at the time of its original construction and to the same level of authenticity as the Yale Center for British Art.

In conclusion, there are many positive features of the Yale Center for British Art conservation plan that are helpful to consider as a guiding point in creating one. The main takeaway however remains that a more technical guide or manual could be more helpful from a conservation standpoint, especially for a building in major struggle. The most helpful tool for professionals within a public university such as the University of Massachusetts Amherst may be to provide them with a more hands-on, step-by-step guide.
1.2 Salk Institute for Biological Studies

Figure 17: Front Cover of Conservation Management Plan, Image Courtesy of Salk Institute of Biological Studies via Getty Conservation Institute

The Salk Institute for Biological Studies conservation management plan was arranged by Wiss, Janney, Elsnter Associates, Inc. (WJE), Inskip and Gee Architects, and Historic Landscape Architect Liz Sargent. Similar to the Yale Center for British Art, the Salk Institute was designed by Louis I. Kahn and the conservation management plan was assembled by individuals from two of the same firms, WJE and Inskip and Gee Architects. The acknowledgments of this conservation management plan recognize the staff at the Yale Center for British Art for granting them permission to their work which was simultaneously taking place. Peter Inskip and Stephen Gee along with Liz Sargent, served as the principal authors of the conservation management plan, while four contributing authors and three editors from WJE Associates assisted. Beyond the main
authors and editors, there were also many individuals from the Salk Institute, WJE, and Inskip Gee Architects who helped play an important role in the completion of the conservation plan. The plan was funded through the Getty Foundation’s Keeping it Modern Grant.²⁰

The Yale Center for British Art conservation plan and the Salk Institute conservation management plan are similar in that they both share a common format and layout, including many of the same sections and subsections. The apparent difference, however, is the amount of technical content that is included in the Salk Institute conservation management plan. The content is expanded upon and includes sections related to treatment approaches further depth into building materials.²¹


²¹ Ibid.
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**Figure 18: Table of Content Page 1, Image Courtesy of Salk Institute of Biological Studies via Getty Conservation Institute**

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**Figure 19: Table of Content Page 2, Image Courtesy of Salk Institute of Biological Studies via Getty Conservation Institute**
The introduction section of the conservation management plan starts with the statement “At its simplest, a conservation plan is a document which sets out what is significant in a place and, consequently, what policies are appropriate to enable that significance to be retained in its future use and development. For most places it deals with the management of change. . . . . “Conservation plan” has become a convenient generic term covering a variety of productions. The type of place, needs of owners, range of problems encountered and skills available all mean that the scope and approach must be flexible if the contents are to be both useful and succinct. The structure of such plans should therefore be tailored to resolve relevant issues in the most direct way. . . . The actual structure and scope of the plan has to evolve to suit the particular place and its problems.”22

This statement sets the stage for the conservation plan. The text within the statement creates a framework that has the power to impact and influence the project team’s agenda and goals. It is also strong enough to withstand the test of time, speaking not only to the building at the moment but for the years to come. “The Conservation Management Plan reflects a simple concept: a thorough understanding of ‘Place’ is essential to the assessment of cultural significance and development of a Statement of Significance that can be agreed between all parties.”23

Following this statement, the introduction section moves into project objectives and project methodology. “The Conservation Plan provides a structure for considering future proposals for repair and development, and for formulating mitigation strategies as

22 Ibid., p. 2
23 Ibid., p. 3
needed.” The plan acknowledges that there are vulnerabilities that need to be identified to protect the site’s significance. It also recognizes the importance of having a document that can be altered as needed. Similar to the Yale Center for British Art conservation plan, it was anticipated that the first round of modifications to the plan would be made in five years and then again, every ten years after.

The following sections, understanding the place and assessment of cultural significance outline the mission and ideas set forth by Dr. Jonas Salk. These sections recognize the importance of the institute for its program and use as its architectural significance. Each building component is evaluated to determine its significance, as well as any vulnerabilities.

Included in the levels of cultural significance section is an assessment that ranks each element of the building and site based on significance. This assessment is meant to help justify project decisions, stating “the greater the significance, the greater the need for careful decision making.” In contrast, it also points out that elements deemed less significant may have more flexibility and options available for treatment. The goal here is to recognize the elements of greater significance, so they are unable to be altered or changed in the future. This section emphasizes when developing policies, significance is the most important factor.

The assessment is broken down into four levels of significance including exceptional, considerable, some, and no significance. It also points out elements that are

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24 Ibid., p. 3
25 Ibid., p. 3
26 Ibid., p. 3
27 Ibid., p. 77
28 Ibid., p. 77
considered to be intrusive and require removal. The criteria for ranking each element is laid out to help distinguish why a designation was chosen. For example, “the highest level, referred to herein as exceptional significance, pertains to those resources that can be tied directly to Louis Kahn’s design concepts and principles for the property, and retain a high degree of integrity.” Reversely, “Features that interfere with the understanding of Kahn’s design, impact the intended patterns of spatial organization, views, and/or contrast with the intended palette of materials are indicated herein as intrusive.”

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29 Ibid., p. 77  
30 Ibid., p. 77  
31 Ibid., p. 77
After this section, the plan then moves into conservation policies where it lays out the treatment approach and the four different types of projects set forth by The Secretary of the Interior’s Standards for the Treatment of Historic Properties, including
preservation, rehabilitation, restoration, and reconstruction. This section gives the
definition of each term to help users determine which category projects fit into. This plan
uses ten different standards from *The Secretary of the Interior’s Standards for the
Treatment of Historic Properties* to create a framework for policies specific to the Salk
Institute for Biological Studies. The plan also references guidelines and standards set out
by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the
International Council on Monuments and Sites (ICOMOS), and others as needed.\(^{32}\)

Although a larger amount of content is included, the policies included in this
conservation management plan are similar to that of the Yale Center for British Art
conservation plan in that they are very broad and general. In example of this is "Policy 3
To develop and implement a comprehensive trial strategy of the decay mechanisms
affecting the steel, glass, concrete, travertine, brick, concrete block, teak, and oak
surfaces to mitigate further damage and to inform the Maintenance Plan."\(^{33}\) Although this
may be a good and relevant policy, there is no further detail on how to go about
implementing a comprehensive trial strategy. For individuals who have no experience in
this area, this would be problematic as many are uninformed on best practices in doing
so. Furthermore, they do not have the proper resources and equipment to test the
mechanisms of decay on their own.

As previously mentioned, most projects on a public university such as the Fine
Arts Center would need to be put out to bid in order to complete this task. This can be
problematic however, as many firms who bid on these projects may also not be aware of

\(^{32}\) Ibid., p. 5
\(^{33}\) Ibid., p. 88
best practices. Moreover, they may find it unnecessary to bring in the proper consultants with the right amount of expertise to be a part of their team. This can lead to unsatisfactory work that although may be trying to adhere to the standards and guidelines set out in a conservation plan, is counterproductive and is not accomplishing what the plan set out to achieve. The bidding process can also create inaccuracies in conservation strategies over time if each project is always awarded to the lowest bidder and the project team constantly changes. Different firms and consultants may have various methods and approaches that conflict with each other. Therefore, unless the issues of this were resolved, a policy this broad and general would not suffice in a conservation plan for the Fine Arts Center.

Another example of this lack in detail is “Policy 4 To formulate appropriate and consistent cleaning, repair, and maintenance standards with all stakeholders and to coordinate and implement a long-term maintenance program.”34 This again leads to the same problem, not providing any detail on how to form the standards for successful cleaning, repair, and maintenance methods. The conservation plan for the Fine Arts Center could include these standards as part of a long-term maintenance program. If certain repair techniques and materials were established as being aesthetically pleasing and durable or if a cleaning solution with a certain chemical and pressure was proven to successfully remove stubborn build-up, these techniques could be included in the conservation plan. These seem to be the answers the University of Massachusetts Amherst is looking for. In short, the polices included in this case study recognize what should be done and that it should be done with quality and precision, but they do not

34 Ibid., p. 88
include particulars on how to accomplish it. The best example of this depth may be “Policy 6 To carry out photographic documentation of the external concrete, steel, travertine, and teak, etc. on an annual basis, for the first five years, then every five years after. In addition, known areas ‘at-risk’ should be documented more regularly to help determine their rates of deterioration. This documentation would, in turn, inform any testing for remedial action (present and future) as outlined in Policy *.”

This policy provides an initial level of guidance which although helpful, fails to include the different types of testing available and how to determine the rate of deterioration. Including this information could help users to understand when various testing is needed and how to complete it. Even if outside consultants are brought on to complete this testing and help to determine the rate of deterioration, this information will still be valuable to Project Managers and other personnel using the conservation plan.

The conservation management plan for Salk Institute recognizes this limitation by stating that the document should be used “to guide the future care and development of the Institute, but such documents will not be effective unless they are interpreted and implemented by persons with the relevant conservation-based expertise.” So in acknowledging this limitation, this thesis asks the question of whether a conservation plan could include and demonstrate a larger degree of this conservation-based expertise so that it may be used to University’s advantage. This gets to the heart of what many public universities such as the University of Massachusetts Amherst are facing as they are not able to bring in the proper consultants and expertise as issues arise. Furthermore,

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35 Ibid., p. 88
36 Ibid., p. 89
many of these public universities may not even be aware this expertise exists, relying on quick, make-shift repairs to fix the issues. As the introduction of this thesis points out, this has been a major cause in leading to the building’s current state and condition.

A solution to this problem may be to implement something similar to “Policy 7 To designate a senior officer whose responsibility is to oversee the conservation program of the Salk Institute”³⁷ and “Policy 9 To employ only persons qualified and experienced in treating the relevant material (concrete, steel, glass, teak and oak mill work, travertine, brick, etc.) Supervision should be consistent.”³⁸ Having an experienced, qualified individual in this role as part of the University staff would help to address some of the limitations previously mentioned.

Moving into the building materials section of the Salk Institute conservation management plan, there is a substantial amount of content related to the material properties and specifics of the cast-in-place concrete such as the color, amount of shrinkage, compressive strength, the composition of aggregate and sand, etc. It also identifies the material specifics of the reinforcing bars, wire mesh, prestressing bars, bearing plates between the columns and trusses, bearing strips at expansion joints, and the sealant material used. This is just an example of the details provided for cast-in-place concrete. This section goes on to cover all relevant materials, such as the use of slate and brick.³⁹

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³⁷ Ibid., p. 89
³⁸ Ibid., p. 89
³⁹ Ibid., pp. 173-258
However, the policies in this section are still very broad and general, providing only minimal information to users. An example of this is “Policy 90 To protect, conserve, and maintain Kahn’s architectural concrete to the highest standards and best practice.”

The major concern here is that this is the only policy that pertains to the concrete. This critique goes further into building systems, as the only guidance included is “Policy 126 To respect the integration of the structural and building services systems in the building and their coordination by the architect.”

Although this segment does a sufficient job in outlining Kahn’s vision and original design principles in regard to materials and building systems, there is still little guidance on how to repair, update, and replace them as needed.

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40 Ibid., p. 173
41 Ibid., p. 249
A conservation plan could also clearly outline a sensitive approach and offer solutions for updating electrical, mechanical, and plumbing systems while acknowledging their complexities, challenges, and special considerations. In the section related to electrical for the Salk Institute of Biological Studies, the conservation management plan offers a great deal of content related to what was originally installed for lighting.\textsuperscript{42} This includes "Policy 127 To prepare a holistic approach to the external lighting of the institute, respecting and integrating Kahn’s lighting strategies."\textsuperscript{43} However, a more detailed conservation plan could provide that approach as part of the conservation plan. Another example is “Policy 129 To minimize the energy use and carbon footprint of the building’s lighting systems by selecting the most efficient electric lighting systems by selecting the most efficient electric light sources that maintains the

\textsuperscript{42} Ibid., p. 255
\textsuperscript{43} Ibid., p. 255
use of the original lighting fixtures.”⁴⁴ A more detailed conservation plan could establish what these lighting sources are.

The last section in the conservation management plan, including *The Kahn Landscape* provides important considerations for the site and campus.⁴⁵ This section would be equally as important in a conservation plan for the Fine Arts Center as both architects had bold visions for how they wanted the buildings to connect and interact to their sites and surroundings. The Fine Arts Center conservation plan could clearly outline any policies or guidelines related to restoring or honoring Kevin Roche’s original vision for the exterior landscape, such as the reconstruction of the two reflecting pools previously mentioned. Similar to the Salk Institute, this section could also address certain considerations related to parking, accessibility, and navigation to and from the building.

In conclusion, this case study’s framework is useful for the purposes of this thesis. This case study serves as further evidence that background archival research is very important and every professional working on the building should have access to it. It also signifies the importance of having a Statement of Significance and guiding principles set in place. Additionally, it helps to compare the interventions and alterations that have taken place at both sites and how they have altered the significance and integrity of the building.⁴⁶

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⁴⁴ Ibid., p. 255
⁴⁵ Ibid., pp. 303-344
⁴⁶ Ibid., p. 68
CHAPTER 2
THE CONSERVATION PLAN

2.1 Pretext

Although conservation plans may differ, it is clear that there is a common ideology and approach. This generally includes initial discussions among organizers on how the plan should be assembled and utilized. The following chapter takes into account the previously mentioned case studies to create an outline of a conservation plan that is specific to the Fine Arts Center at the University of Massachusetts Amherst. The depth of research involved in this thesis helped to understand the current limitations and concerns the building is now facing. This included an intensive investigation into the Fine Arts Center itself, such as program and use, original design and construction, and past projects completed. This component was essential in understanding the complexities and challenges of a building this scale.

Although creating a full conservation plan could take multiple years and require a large project team to complete, this thesis aims to create a basis for what should be included. This thesis goes another level further by trying to understand the depth of each component proposed in the conservation plan. This includes an emphasis on the material conservation of concrete. This thesis stems from an interest in this particular area. As the practice of concrete conservation continues to evolve with new and emerging technology and strategies, this became a captivating area of study. Additionally, this thesis stems from an interest in architectural design considerations related to the conservation of Brutalist buildings. These design considerations aim to provide solutions for sensitive interventions that can be implemented in the future. This includes challenges such as
updating obsolete building systems and addressing code requirements related to accessibility and energy use. The conservation plan is meant to merge conservation and design in a way that honors the original authenticity and character of the Fine Arts Center.

Guiding this conservation plan is a general understanding of concrete conservation as well as architectural design strategies. This knowledge stems from research into various guides and resources, as well as personal experience and learning from academic courses, hands-on training, workshops, internships, building tours, and the attendance of several related lectures and presentations. These experiences introduced professionals with similar interests in the subject matter who were willing to share their expertise on best practices.

Thinking through the plan’s format and layout was challenging and involved many modifications and various iterations. However, each version felt like an improvement and what emerged is a proposal of a conservation plan that outlines each component and why it is important. It also includes example content to serve as reference. The intent is for this conservation plan proposal to serve as guide for the University if they were to implement a full conservation plan in the future.

2.2 Content

The conservation plan will begin by clearly outlining each section of the document. The layout will be specific enough so that any individual using the plan can easily pinpoint where they should look to find certain information related to their project or area of interest. This layout should make clear that there are preliminary sections that
are important to consider before diving into a project. The layout of contents will be similar to that of this thesis and include:

**Content**
**Acknowledgments**

**Introduction**
- Reasons for Creating a Conservation Plan
- Explanation of Format, Content and Layout
- User Guide and Instructions

**Understanding the Place**
- A Place and Time for Brutalism
- Significance
- Meaning to Stakeholders and the Community
- Original Design Intentions
- Programming and Use
- Identification of Significant Components
- Degree of Survival and Intactness
- Drawings and Specifications

**Conservation Policies**
- Method of Approach
- List of Policies

**Starting a New Conservation Project**
- Project Considerations
- Common Issues and Concerns
- When to Intervene
- Project Expectations
- Responsibilities of Project Team

**Conservation Methods**
- Visual Assessment and Documentation of Existing Conditions
- Field and In Situ Testing
- Lab Testing and Petrography
- Determining Priorities and Project Scope Based on Assessment
- Cleaning
- Repair
- Protection
- Construction and Application
- Monitoring and Maintenance

**Starting a New Design Project**
- Project Considerations
- Common Issues and Concerns
- When to Intervene
- Project Expectations
- Responsibilities of Project Team

**Design Considerations**
- Landscape and Site
- Building Systems and Materials
- Code Compliance
- Energy Use and Upgrades
- Space Planning and Programming
- Wayfinding and Navigation
- Rehabilitation and Alterations
- New Additions
- Electrical
- Mechanical
- Plumbing

**Figure 24: Layout of Conservation Plan**
2.3 Acknowledgements

The acknowledgments section should recognize the project team involved in creating the conservation plan, including both outside consulting firms and in-house personnel. It would also recognize any faculty, students, and staff that were involved, as well as any internal or external funding sources or grants that were provided to support the project. This may include individual donors, grants from organizations, or sponsorship from various departments and colleges within the University.

2.4 Introduction

The introduction section of the conservation plan is broken into three subsections. These include reasons for creating a conservation plan, explanation of format, content and layout, and user guide and instructions. This section should provide essential background material for all individuals working on the building to consider before starting either a conservation or design project.

2.4.1 Reasons for Creating a Conservation Plan

The first subsection, reasons for creating a conservation plan, should explain the origin and evolution of the conservation plan. It should explain how the need for a conservation plan arose and provide an understanding of the amount of time, planning, and effort that was needed to accomplish it. More specifically, it should include a description stating the condition of the building at the time the conservation plan was created and list the major issues that led to its demise, such as lack of maintenance and active neglect. This section should also explain how the conservation plan will provide
the necessary care needed to aid in the building’s future. Additionally, it should serve as an important advocacy measure by acknowledging the building’s importance and highlighting the benefits associated with providing a viable, feasible resource to aid in future projects.

This subsection should acknowledge the Fine Arts Center, as well as other Brutalist structures on campus, as part of the University’s social fabric and cultural heritage. It should also acknowledge how conserving the Fine Arts Center fits into the University’s overall mission to be a more sustainable campus. By providing why and how conservation can be beneficial from an environmental standpoint and why it should the University’s responsibility to upload these buildings as a means of sustainability should be included. This subsection should challenge users to think of ways in which the building can become more environmentally responsive and how this additionally benefits the overall health and well-being of users. A bold statement declaring the significance of upgrading what we already have would be highly acknowledged not only by the University, but also by the green building community.

2.4.2 Explanation of Format, Content and Layout

The second subsection, explanation of format, content, and layout, should explain how the conservation plan is constructed. It should emphasize that the conservation plan is meant to serve as a manual and technical guide, rather than a book. It should also note that the plan is intended to be a durable document that can be used on-site and in the field. To provide this flexibility, the plan is ultimately broken into three parts. Part 1 includes introduction, understanding the place and conservation polices and should be
considered and referenced by all parties throughout a project. Part 2 and Part 3 on the other hand are more specific to completing either a conservation or design project. This subsection should make clear that the latter two parts have the ability to be broken down even further to accommodate task-specific projects, e.g. a cleaning project or an electrical project. This offers stand-alone segments for easy access and handling, while still allowing them to be a part of the larger, cohesive conservation plan. This subsection should also provide an explanation of how the layout in each segment provides a sequence for completing a conservation or design project.

2.4.3 User Guide and Instructions

The third subsection, *user guide and instructions*, should provide initial guidance for users on how to navigate through the plan and each project type. It should elaborate on how following these steps will help to successfully complete a project. This subsection is intended to help ensure that the guide remains as user-friendly as possible and that it is both functional and accessible to all parties.

2.5 Understanding the Place

The section *understanding the place* is meant to provide users with a rich history and background of the building’s design and construction. Rather than leaving this task up to each individual or team at the start of a project, this section will offer important information users should know. Many projects may not allow the necessary time and/or resources to properly delve into the building archives. In addition, many in-house personnel may fail to consider important information on a regular basis. Either way,
adding this component into the conservation plan ahead of time could help the University save time and reduce costs. It also ensures the entire project team is “on the same page” and they have all the same access to organized, well-structured resources that can be quickly referenced as needed. This section consists of six different subsections including a place and time for Brutalism, significance, meaning to stakeholders and the community, original design intentions, programming and use, identification of significant components, degree of survival and intactness, and drawings and specifications.

2.5.1 A Place and Time for Brutalism

As few may understand the reasons Brutalism came to fame in the late ‘60s and early ‘70s, the first subsection, a place and time for brutalism should signify the importance of the style and why administers at the University of Massachusetts Amherst choose to invest in bringing well-known 20th-century architects such as Kevin Roche to campus. This subsection should start with a definition and common characteristics of Brutalism such as its use of raw, molded concrete with sculptural masses that supply both structure and form.47

This subsection should then include a timeline of Brutalism’s evolution and fame, starting with its emergence in Europe which eventually migrated to the United States. It should then discuss how it gained popularity in the public realm, specifically on the American campus and how eventually its conception was part of a larger campus master

47 Fiocchi, L Carl Jr., “A Period Examination Through Contemporary Energy Analysis of Kevin Roche’s Fine Arts Center at University of Massachusetts-Amherst” (2016), p. 26
plan at The University of Massachusetts Amherst.\textsuperscript{48} A more thorough example of this would be:

Brutalism first appeared in Le Corbusier’s Unité d’Habitation in Marseilles in 1952.\textsuperscript{49} By the mid-1950s, the term New Brutalism was adapted by a generation of young architects who were “moving away from the international style of the Miesian box of steel and glass, to structure with more form and monumentality.”\textsuperscript{50} At UMass Amherst, “Brutalism appeared during the 1960s and 1970s when a major building boom occurred on the campus. Following the first surge of students post-World War II, campus enrollment had nearly doubled from 2,400 to 4,700 students and by 1967 campus enrollment was 15,000 students.”\textsuperscript{51} “Many of the Brutalist buildings exist through the creation of the 1961 campus master plan by world-renowned landscape architect Hideo Sasaki of Sasaki, Walker and Associates. Sasaki helped develop and design a master plan that brought in some of the most well-known architects of the 20th century. Through Sasaki’s direction, the trustees of the university made an intentional decision to seek out modernist architects for the design of the key buildings on campus.”\textsuperscript{52}

This subsection should also emphasize the social, political, economic, and technological advances that were made through Brutalist architecture. As writer Mark Pasnik writes in \textit{Heroic: Concrete Architecture and the New Boston}, concrete became a material that structurally and sculpturally reshaped the public realm.\textsuperscript{53} This style of architecture was an effort to symbolize a “progressive civic vision through

\begin{flushleft}
\textsuperscript{48} Ibid., 127  \\
\textsuperscript{49} Ibid., 26  \\
\textsuperscript{50} Pasnik, Mark, Michael Kubo, and Chris Grimley. \textit{Heroic: Concrete Architecture and the New Boston} (2015)  \\
\textsuperscript{51} Fiocchi, L Carl Jr., “A Period Examination Through Contemporary Energy Analysis of Kevin Roche’s Fine Arts Center at University of Massachusetts-Amherst” (2016), p. xxviii  \\
\textsuperscript{52} Ibid., xxviii  \\
\end{flushleft}
monumentality and robust architectural expression.”\textsuperscript{54} This subsection should also include statements which speak to the degree of importance and the impact Brutalism had on American architecture such as “yet the concrete works of the era stand as reminders of a time when civic investment in the public realm was possible and, at its best, achieved with high standards.”\textsuperscript{55}

2.5.2 Significance

The next subsection, \textit{significance}, should discuss the building’s local, regional, and national significance, both as a world-class performance venue as well as an architectural marvel by an award-winning architect. In support of this text, this subsection should include architectural reviews, newspaper and journal articles, photographs, and written documentation that has been published regarding the building’s design, construction, and ongoing operations.

Important considerations and the majority of this content can be found in \textit{The Campus Guide} by Professors Max Page and Marla Miller who proclaim, “At the time of its design, in 1968, the Fine Arts Center was an innovation on American campuses. Before this time, no campus, public or private, had a facility of this scope and ambition. UMass commissioned designs for a huge complex of interconnected arts facilities comprising 220,000 gross square feet, four auditoriums (including one exceeding 2,000 seats), the University Gallery, 17 classrooms, 75 studios, and 56 faculty offices.”\textsuperscript{56} “The

\textsuperscript{54} Ibid.

\textsuperscript{55} Ibid.

\textsuperscript{56} Miller, Marla R., and Max Page. \textit{University of Massachusetts at Amherst} (2013), p. 46
Fine Arts Center made Amherst a stopping point for major music, theater, and dance productions.”57

Figure 25: Mummenschanz Mime Performance, August 1984, Image Courtesy of UMass Amherst Special Collections and University Archives

Figure 26: St. Paul Orchestra Performance, November 1981, Image Courtesy of UMass Amherst Special Collections and University Archives

57 Ibid., p. 46
In recognition of the architect Kevin Roche, this subsection should also include a brief history of Roche’s work and career. An example version of this could include some of the following biographical content from the book *Kevin Roche: Architecture as Environment*.

Kevin Roche, a native of Ireland, studied at University College Dublin before coming to the United States to study under Mies van der Rohe at the Illinois Institute of Technology (ITT). Roche worked closely with Eero Saarinen in his early career and took over many of Saarinen’s projects after his passing in 1961. Saarinen and Associates later became Kevin Roche John Dinkeloo and Associates (KRJDA) in 1966.\(^{58}\)

Roche was recognized for his willingness to engage in social, cultural, and economic issues, as well as his eagerness to tackle difficult problem solving such as transportation and infrastructure. He also recognized the importance of preservation and restoration, having worked on many existing structures.

Roche was one of the first architects of his generation to incorporate energy efficiency into his designs. One of his major contributions to the field was the introduction of research-based design and the forces that shape the built environment.59 “For Roche, architecture is an art of reasoning and a building an outcome of research and analysis. As a master of logical thinking, he is known to push a paradigm to its limits. The results are often provocative and surprisingly even unruly.”60

“Roche’s ability to realize even his wildest architectural ideas owes greatly to his later partner John Dinkeloo, an architect by training with an expertise in building technology. Like Roche, Dinkeloo did not settle into existing ways of doing things. Architecture, according to him, did not progress through new forms but through a coordinated effort by architects, engineers, and manufacturers to develop new technologies, which entailed complicated procedures involving prototyping and material testing.”61

In 1982, Roche became one of the first recipients of the Pritzker Prize, the highest honor given to a living architect, and he won the Gold Medal from the American Institute of Architects in 1993.62 “To fully appreciate Roche’s architecture one need, consider only the powerful amalgam of architectural legacies, ideas, and personalities that he has encountered at various stages of his life. His early training in architecture provided him with two architectural constructs that have anchored his thinking: classicism, and with it the idea of timeless formal principles, and modernism, with its functional, technological, and social emphases.”63

“At University College Dublin, the program organized along the model of the Ecole des Beaux-Arts, which was founded in eighteenth-century France and introduced architecture as a discipline within its own internal rules. The goal was to train competent practitioners who would make functional and beautiful buildings en masse. Manuals laid out the formal principles while less attention was given to structure, details, and material choices. Its highly rational and systematic approach to architecture, with

59 Ibid.
60 Ibid.
61 Ibid.
62 Ibid.
63 Ibid.
its emphasis on plan parti as a main generator of architecture, has informed Roche’s design method ever since.”64

“Roche spent his first year there studying the classical orders of architecture, becoming aware of continental modernism only towards the end of his studies. He modeled his 1945 thesis project for a Presidential Residence after Le Corbusier’s Pavillon Suisse (1930-32), a dormitory at the University of Paris, and he visited several modernist buildings, including Corbusier’s during a 1946 excursion to France, Switzerland, and Italy. Certain aspects of Le Corbusier’s theoretical position carried over to Roche’s own work. Roche’s interest in geometry as a generator of architecture and the guardian of both order and individual creativity, as well as his preference for pure geometric shapes, can be traced both to this Beaux-Arts training and to Le Corbusier’s influence.”65

2.5.3 Meaning to Stakeholders and the Community

This third subsection, meaning to stakeholders and the community, should outline even further the importance of the building to students, faculty, staff, and alumni in addition to the general public. This subsection should provide specifics on each department that has called the building home and a history of how the building has been used over time, not only as a place of learning, but also as a place to witness and view live theater performances, art, and musical entertainment. This subsection should include photo documentation and publications that showcase past events that have taken place which speak to the building’s importance to the campus and the community.

64 Ibid.
65 Ibid.
Figure 28: Kickoff Celebration for Fine Arts Center 1986 Season, Image Courtesy of UMass Amherst Special Collections and University Archives

Figure 29: Kickoff Celebration for Fine Arts Center 1986 Season, Image Courtesy of UMass Amherst Special Collections and University Archives
2.5.4 Original Design Intentions

The next subsection, *original design intentions*, should continue to elaborate on Roche’s past influences and design strategies through his design concepts specifically for the Fine Arts Center. To outline these notable design intentions, this subsection could be organized to include content related to the building’s placement and site, space planning
and layout, and materials. Content related to the building’s placement should discuss why the current day site was chosen for the Fine Arts Center and the significance of the building’s location and placement relative to the campus pond. This should signify Roche’s dramatic move to provide a grand entrance to campus by creating a gateway through the building structure. Instead of making an entrance visible through architectural form, Roche left a massive void in the building’s center so that the eye was drawn through the building towards the pond, which serves as the heart of the campus. This gateway is accompanied by cascading stairs down to the pond level. Roche imagined a lively setting for this space with the staircase serving as outdoor seating and the area around the pond hosting concerts and events.66

![Image]

Figure 32: “Gateway” through Building out to Campus Pond, Image Courtesy of KRJDA

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This subsection should also discuss several strategies and techniques Roche incorporated into the building’s design and placement to optimize occupant comfort. Some examples of this include strategies for daylighting, shading, and glare control. His design involved a thorough analysis of the building’s orientation relative to the sun, minimizing the building’s exposure on the east and the west and maximizing it on the north and south. These design considerations are evolutionary as they provided energy efficiency at a time when decisions were not being influenced by the pressure of climate change and energy consumption was not a major concern of the time.67

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67 Fiocchi, L Carl Jr., "A Period Examination Through Contemporary Energy Analysis of Kevin Roche’s Fine Arts Center at University of Massachusetts-Amherst" (2016), p. 7
Figure 34: Physical Model of Design Concept Showcasing Natural Light Strategies, Image Courtesy of UMass Amherst Special Collections and University Archives

Figure 35: East Exterior Elevation Showcasing Concept Constructed and Angled Windows that Line Facade, Image Courtesy of KRJDA
In regard to space planning and layout, this subsection should go through each space one by one to distinguish the specific design intentions Roche had for each space. This includes highlighting particular elements that are unique to each space. This subsection should coincide with later sections that identify significant components and evaluate their level of significance and current condition. An example of a design intention Roche had for Concert Hall was to make the connection between the audience and the stage intimate, so it did not feel like an enormous space. To achieve this, he reversed the concept that balconies typically recede away from the stage. In his design, “stacks of mezzanines reach forward rather than back, moving closer and closer as they extend higher and higher. Put another way, the cheap seats get you closer to the action.”

Figure 36: Full House Performance Showcases Balcony Seating Design, Image Courtesy of UMass Amherst Special Collections and University Archives

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In regard to material intentions, this subsection should acknowledge Roche’s functional and aesthetic objectives, explaining why he chose to use reinforced concrete as the primary building material. This segment should identify why he choose particular characteristics related to the concrete such as its warm buff color and smooth texture finish. In addition, this subsection should elaborate on details such as the concrete’s ability to provide plasticity, durability, and compressive strength, while outlining the construction methods used to arrive at its manifestation. This will, in turn, help the users of the conservation plan to understand why certain decisions were made from a technological standpoint. Examples of this would include the type of formwork used, the sizing and placement of the formwork, strength in psi, type and source of aggregate, etc. For a conservation plan, it is essential to include this information and where the materials were quarried, sourced, and manufactured if possible. This information will be extremely helpful in guiding a conservation project, particularly related to the repair design. This subsection could also establish if the supplier or manufacturer is still in operation and available to offer insight on replacement material as needed.

2.5.5 Programming and Use

The subsection *programming and use* should provide visual representations such as charts and diagrams to represent each space and section of the building either by the department and/or level. Due to the building’s size and the number of level changes, this type of assessment could be highly valuable in helping users understand the building’s layout, square footages, and additional space requirements. This subsection and related graphic material should also help to analyze how each space has been used historically as
well as how it is used today, if different. This content will be highly valuable for future design interventions such as renovations, which require space planning and/or a change of occupancy. It may also help to aid conservation projects that address interior issues related to water infiltration and moisture to see how they might be affecting certain spaces.

2.5.6 Identification of Significant Components

In many case studies such as the Yale Center for British Art and the Salk Institute for Biological Studies, the conservation plan included a breakdown of each space, element, and material with a ranking of their significance. Although effort should be made to preserve all significant components, this breakdown may be beneficial for the Fine Arts Center in determining priorities and making project decisions. This subsection should help to clarify what elements should not be removed or altered. Additionally, it should list any significant components that have already been removed or altered on the building to date. This information will be helpful in the following subsection, degree of survival and intactness, which will further discuss how the building has changed since its original construction. Creating a chart similar to that of the case studies mentioned could create a visual that is easy for the user to comprehend and reference.

2.5.7 Degree of Survival and Intactness

The subsection, degree of survival and intactness, should take into consideration the ranking of significant components in the previous section and further discuss the condition of those both intact and those that have been removed or altered. This includes
listing the current condition of each space, component and material, i.e. in good condition or has been removed. This subsection could include a similar chart or table to that of the previous subsection with a legend indicating these different conditions.

Any further specifics relating to conditions of certain spaces, components, or materials should be side referenced in a conditions assessment or needs assessment that would be completed in coordination with the conservation plan and referenced as needed. These assessments should be completed on a regular and continuous basis. This subsection should briefly list corresponding evaluations, assessments, and studies that have been done on the building and where the user can reference them.

This subsection should also discuss the various changes that have happened to the building over time, such as departmental moves and how they have affected the building’s functional and aesthetic qualities. This section should also provide the list of major renovations, additions, and upgrades that have taken place, as well as past repairs, cleaning, and protection strategies that have been implemented. This should then be the segment that discusses how these past interventions and strategies have affected the building’s current state.

2.5.8 Drawings and Specifications

The final subsection, *drawings and specifications*, should aid the previous subsections by providing original specifications and construction drawings such as plans, sections, and elevations. These documents should be included in a manner in which they can be referenced on site. They should be large enough to note important details, while still being small enough to visually coincide with the rest of the conservation plan. Since
there will be too many drawings and specifications to include in the conservation plan, this subsection should also list where these resources can be found and referenced for more detail and larger, full-sized drawings.

### 2.6 Conservation Policies

The section, *conservation policies*, should outline general conservation policies for the entire building and site. In other conservation plans, the policies are typically laid out one by one throughout the conservation plan and appear sporadically throughout various sections. As previously mentioned, however, these policies are too broad and do not provide enough specific detail. Therefore, alternatively, this plan should include these general policies all in one place for reference while leaving specific guidelines and protocols related to certain materials and components to their related section specific to conservation or design. These general, more broad policies are still important to include as they provide an overall direction for the conservation plan. These policies also serve as an excellent starting point to reference before diving deeper into a more specific project type.

#### 2.6.1 Method of Approach

The subsection *method and approach* should reiterate the previous reasons mentioned for creating a conservation plan and provide a strong statement to drive the project team. This will again help ensure everyone is “on the same page” and has a common ideology for approaching a conservation project in the future. This can also help
to alleviate any differences in ideologies that sometimes can occur when working on
conservation projects and more specifically Brutalist buildings.

2.6.2 List of Polices

The list of polices subsection should include each policy in an organized and well
thought out format. It should start with general policies that affect the entire building and
site, such as considerations for significant components, honoring original design
intentions, etc. It should then move more specifically into policies related to restoration
and rehabilitation, signifying that new design interventions should only be used when
completely necessary and they should aim to be reversible and not destroy or alter any
existing building fabric. This subsection should also include policies related to project
management and construction administration. Ultimately, it could include of twenty to
thirty policies that really speak to the overall goals and most important considerations.
These policies should create and overall set of core values and guiding principles to help
users move forward in a conservation or design project.

2.7 Starting a New Conservation Project

Conservation projects are often challenging and complex. In addition, many
clients such as the University of Massachusetts Amherst may not be familiar with general
approaches and procedures. The section, starting a new conservation project, is meant to
serve as an outline for project considerations, expectations, and responsibilities. The
section is broken up into five subsections including project considerations, common
issues and concerns, when to intervene, project expectations, and responsibilities of the project team.

2.7.1 Project Considerations

Project considerations should signify the importance of completing a successful conservation project and set out the criteria established by the University and the divisions of Physical Plant, Facilities and Construction, and Campus Planning in doing so. This subsection should emphasize the importance of the conservation plan in serving all three of these divisions and any project related to the building. Considerations should include regulations and procedures the University has set in place for construction projects including environmental, health, life, and safety concerns. These considerations should also note important state and local regulations as well as OSHA standards that need to be followed. Specific examples of this would include guidelines for abatement and disposal of waste as well as instructions for dealing with hazardous materials such as Polychlorinated Biphenyls (PCBs) and asbestos. This section should point out who to contact as these instances occur and where to find resources on how to proceed. It should also make clear to users the amount of time that may be needed to complete a conservation project and to stay diligent, as there is often a common sequence of research, assessment, testing, mock-ups, and careful implementation needed to ensure projects will be successful.
2.7.2 Common Issues and Concerns

The subsection *common issues and concerns* should provide an overview of the mechanisms of decay and common issues that arise with building materials as they begin to age. For example, in reference to reinforced concrete, this subsection should include specific information on the history and origin of concrete including its manufacturing and production. It would also include characteristics of the concrete such as its strengths, weaknesses, and typical modes of failure. It should outline specific problems related to original construction deficiencies and craftsmanship as well as the effects of prolonged exposure to wind, rain, snow, and salt.69 This subsection should serve as a mini lesson for users who are unfamiliar with certain building materials such as concrete to more fully understand their properties and behavior.

A superior example of this text can be found in an article by preservation architect Susan Turner who outlines what professionals need to know in the conservation of concrete. This text includes:

**History**

“The first manmade cement was created by Englishman Joseph Aspdin, who burned powdered limestone and clay in his kitchen stove in the 19th century to make what he named “Portland” cement. This invention evolved into bagged cement, which could be shipped and mixed onsite. Today in the 21st century, cement is manufactured through a closely controlled chemical combination of calcium and silica, with small amounts of such naturally occurring elements as aluminum, iron, and magnesium found in the limestone. Making cement is a dry method, which starts with quarrying and collecting the principal raw materials.”70


“The calcium component is derived from limestone, along with shells, chalk, or marl that is combined with shale and clay and crushed. This mixture is placed in a rotary kiln at 2700° F. The burning converts the mix to “clinker.” Once cooled, clinker is finely ground to a powder and the resultant cement is mixed with sand and coarser aggregate. When water is added, the cement hydrates and forms a binder for the sand and aggregate, curing the whole into what is known as concrete.”\textsuperscript{71}

**Installation Methods**

“Poured in-place concrete uses forms fabricated to the desired configuration from wood, steel, or fiberglass. The material and the fabrication of the formwork play a large part in the final appearance. The resulting appearance can leave exposed form tie holes and seams visible, or the surface can be smooth out with a thin, cement-based parge coat for a more refined appearance.”\textsuperscript{72}

**Strengths and Weaknesses**

“In compression, concrete is very strong. It also meets the air barrier requirements of ASHRAE 90.1 and the 2012 International Energy Code. The downside is that it is very weak in tension – thus the introduction of steel reinforcement, which provides the tensile support. The drawback of reinforcing steel is possible corrosion due to several processes, which results in damage to the concrete.”\textsuperscript{73}

**Typical Failure Methods**

“Concrete can crack due to building differential movement or insufficient design. This can cause a structural issue that could require an engineering repair solution. Shrinkage of the concrete as it dries, or a lack of control joints in the pour, could cause hairline cracks.”\textsuperscript{74}

“The curing process that hardens the concrete is a reaction wherein the calcium silicates in the cement combine with water to create calcium silicate hydrate, calcium hydroxide, and heat. The resulting concrete has a high pH, which protects embedded reinforcing steel by limiting electrical transfer. Carbonation occurs as the concrete ages, a process that combines carbon dioxide with moisture in the

\textsuperscript{71} Ibid., p. 20
\textsuperscript{72} Ibid., p. 20
\textsuperscript{73} Ibid., p. 20
\textsuperscript{74} Ibid., p. 20
concrete pores, creating carbonic acid. This lowers the pH to below 8.6, at which point electrochemical migration can occur between cathodes and anodes. The ferrous steel reinforcing bars, or rebar, can oxidize (rust) within the concrete due to this cathodic action, or due to shallow embedment, or moisture, which expands the cross section of the rebar. If it has sufficient embedment, the concrete will contain it. However, limited cover over the rebar permits the carbonation to reach the rebar more quickly, and with less concrete to resist the oxidation expansion, it leads to cracks, rust staining, and even pieces spalling off.”

This is just an example of content that could be included, which should be decided upon by the project team assembling the conservation plan. It would be up to the project team to decipher this information and add additional content. For example, the history segment could further elaborate back to the early use of concrete by the Romans or the first use of reinforced concrete in the United States. Additionally, it could provide more details on the use of concrete in 20th-century structures and other Brutalist buildings. The characteristics of concrete could also be further elaborated on such as its quality dependence on “the ratio of water to the binder; binder content; sound, durable, and well-graded aggregates; compaction during placement; and proper curing.” Typical failure methods could also be expanded on to include a list of common material failures including cracking, spalling, staining, and deflection. This subsection should further outline why these failures are occurring.

75 Ibid., p. 20
77 Ibid.
78 Ibid.
79 Ibid.
2.7.3 When to Intervene

The subsection, *when to intervene*, should continue to discuss material failures specific to the building and what to do as problems arise. As previously noted, many makeshift repairs using miscellaneous, unknown materials have been used to fill cracks and cover problem areas. This subsection is meant to help avoid these types of situations and negate the use of exigent, makeshift repairs.

Many of these past repairs may have seemed like preventative measures, but they were unnecessary in many cases and did more harm than good. An example of this is a parge coating that was applied over various types of cracking. Not only were some cracks harmless and fine left exposed, but the coating introduced a new material to the existing concrete which has led to further deterioration and damage as the materials are incompatible.

This subsection should address what about a crack, spall, etc. is a threat to the structure and when it should be addressed in order to avoid further deterioration. It should also discuss that if an area of concern is deemed nonthreatening, that it still be closely monitored in case of any changes. Additionally, it should discuss concerns such as biological growth, soiling, staining, etc. and when the presence of a certain substance on the building’s facade is a cause for concern. As some light discoloration and aging of the concrete is expected, extreme cleaning regimens intended to bring the building back to its original appearance should be avoided as they may also do more harm than good. Some extreme cleaning treatments have been used unsuccessfully on the building in the past which has now altered the surface of the concrete and affected its porosity even further. This has left the concrete more susceptible to corrosion and future deterioration.
2.7.4 Project Expectations

The subsection, *project expectations*, should outline the aesthetic and performance goals for a repair, cleaning, and protection project, as well as the amount of careful research and planning required to properly assess, document, test, and determine the causes of material failure. This subsection should address the importance of having experienced professionals to properly collect and interpret data as well as skilled craftsmen and contractors to provide quality application and implementation. This subsection should also discuss the desired life expectancy of a conservation project to make sure the University’s goals are being met and that funding efforts are maximized. Project decisions can be heavily dependent on life expectancy as the University will need to consider the amount of ongoing maintenance and monitoring required for each strategy as well as its requirements for reapplication and/or replacement.
2.7.5 Responsibilities of the Project Team

It should be acknowledged that project expectations are the responsibility of each member of the project team. This subsection will outline the duties and responsibilities of each type of professional working on a project including the architect of record, engineer, contractor, conservator, and owner. Most importantly this subsection should include the responsibilities of the project manager and stress the importance of proper management and oversight in completing a successful project.

2.8 Conservation Methods

*Conservation methods* should be established by the project team creating the conservation plan and should be primarily based on the success of previously completed projects. If and when a successful cleaning, repair, or protection strategy is established for the Fine Arts Center, it should be added into the conservation plan. This can help to create standard guidelines and procedures that can then be modified and altered as needed. For instance, there may be multiple types of repair methods and materials needed for different parts of the building. A repair design mix may need to be altered due to varying strengths and colors of different parts of the building. Additionally, for cleaning, there may be more than one solution needed to address multiple types of concerns on different parts of the building such as biological growth, staining, and soiling.

The purpose of this section is to be a tool and resource for users to become familiar with standard methods and best practices of conservation and have access to all current options available. As the primary building material for the Fine Arts Center is concrete, this thesis will reference *Preservation Brief 15: Preservation of Historic*
Concrete which was published by the National Park Service U.S. Department of the Interior. Although the content of this section will differ depending on the project team and professionals involved, this preservation brief provides valuable information that directly correlates to the technical content that is lacking from most conservation plans. This thesis stresses the importance of including this technical content into the conservation plan.

While the preservation brief is currently available as a side resource for professionals involved in other conservation plans, the value of incorporating this type of content into the conservation plan itself could be tremendous. Moreover, if the contents of this preservation brief were integrated into a conservation plan in a way that is specific to the building, they could be even more valuable. As the preservation brief covers the preservation of all types of historic concrete, there is unrelated content that could be removed and/or condensed. This section will include various aspects found in the preservation brief and is broken down into nine subsections including visual assessment and documentation of existing conditions, field and in situ testing, lab testing and petrography, determining priorities and project scope based on assessment, cleaning, repair, protection, construction and application, and monitoring and maintenance.

2.8.1 Visual Assessment and Documentation of Existing Conditions

As Preservation Brief 15: Preservation of Historic Concrete points out, a condition assessment should begin with the review of the building’s original construction and past repairs. This typically includes construction drawings, specifications, and

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80 Ibid.
photographs. This conservation plan provides a jump-start by supplying this information upfront in beginning of the plan for the user to reference throughout a project. The preservation brief also points out that further guidance for conducting a visual survey and assessment can be found through the American Concrete Institute (ACI) which offers several resources. Although these resources should be noted in the conservation plan as part of final section additional resources available, the goal of this particular subsection is to take into consideration these technical guides and resources and to provide a custom guide for the visual assessment and documentation of the Fine Arts Center. The content of this subsection should discuss what to look for when conducting a visual assessment and how to document findings. This subsection should outline common tools for assessment such as binoculars for seeing out of reach surfaces and gauges to measure width of cracks. This subsection should also provide detail on how each tool can be used and why it is helpful.

Additionally, this subsection should include common procedures for transferring data and findings from the assessment into construction documents and/or a formal report. There are many different ways to produce these documents so this subsection should be helpful in establishing what method is best for the University and where these documents should be stored for future use. Once these documents are complete, instead of including them in the conservation plan, they should become a separate resource that can be referenced as needed. They should then be added to the degree of survival and intactness subsection which would list all past projects with completed assessments.

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81 Ibid.
2.8.2 Field and In Situ Testing

The subsection *field and in situ testing* is important for professionals who are unaware of the current options available for testing. These tests can help assess the amount of deterioration and/or damage that has occurred to a structure and where it is at in its lifecycle. Few professionals understand the importance and value of performing these tests to properly inform decision making. This subsection should outline nondestructive testing options that can be used on-site without altering or destroying historic fabric as well as more invasive testing options that are available if necessary. This should include nondestructive techniques such as hammer sounding to identify areas of delamination and more intensive methods such as ground-penetrating radar and pulse velocity to help determine the concrete thickness and to locate voids. Magnetic detection can also be used to help determine the size, placement, and depth of the embedded reinforcing steel.\(^\text{82}\) There are also multiple options available to measure the rate of corrosion such as half-cell testing and linear polarization.\(^\text{83}\) These are just a few examples of testing options that could be listed. Other more invasive testing approaches such as probes could also be mentioned.

2.8.3 Lab Testing and Petrography

In addition to field testing, it is usually also beneficial to take a set of core samples from the building for lab testing. The subsection, *lab testing and petrography*, should discuss the process of evaluating the condition of concrete through these samples.

\(^\text{82}\) Ibid.
\(^\text{83}\) Ibid.
There are common procedures related to collecting core samples that should be outlined as part of this subsection such as selecting an area that is representative of existing conditions and locating an area that is nonobstructive and out of eyesight.\textsuperscript{84} This subsection should acknowledge common procedures for taking the samples and sending them off to a lab for petrographic evaluation where an experienced geologist can test “air-content, water-cement ratio, cement content, and general aggregate characteristics”\textsuperscript{85} as well as “chloride content, sulfate content, and alkali levels of the concrete; identification of deleterious aggregates; and determination of depth of carbonation.”\textsuperscript{86} This subsection should emphasis that petrographic evaluation can help determine the compressive strength of the existing concrete in psi which is helpful in determining what is needed for repair work.\textsuperscript{87} In addition, it can also help to identify any evidence of damage due to “cyclic freezing and thawing, alkali-aggregate reactivity, or sulfate attack.”\textsuperscript{88} This subsection should also point out that petrographic evaluation follows ASTM C856, \textit{Practice for Petrographic Examination of Hardened Concrete}.\textsuperscript{89}

\textbf{2.8.4 Determining Priorities and Project Scope Based on Assessment}

The subsection \textit{determining priorities and project scope based on assessment} should reference all three of the last subsections to further explain to the user how to interpret the results of the assessment and testing to determine project priorities and to

\textsuperscript{84} Ibid.
\textsuperscript{85} Ibid.
\textsuperscript{86} Ibid.
\textsuperscript{87} Ibid.
\textsuperscript{88} Ibid.
\textsuperscript{89} Ibid.
establish a scope plan. The subsection should further discuss what certain assessment and test results mean and how this helps to determine priorities. The subsection should also establish the importance of addressing the root cause(s) of an issue to further reduce the rate of deterioration and/or damage. This subsection should outline the criteria for making project decisions and what priorities should be based upon, such as urgent matters related to falling or tripping hazards or major episodes of water infiltration.

2.8.5 Cleaning

After determining priorities, the conservation plan should further address specific conservation projects such as cleaning. After assessment and testing have determined the type of soiling, staining, or biological growth that is present, this subsection should help to outline all the types of cleaning methods available and what can be used to clean a certain problem type. Each cleaning method listed should be considered safe among conservation professionals as well the University. This subsection should again stress the implications that have occurred from past power washing attempts to the building and how these strategies can ultimately damage and harm the structure. The aesthetic performances of a cleaning project should also be reiterated in this subsection along with common reasons for cleaning such as for the preparation for repairs, improved appearance, etc.\textsuperscript{90} This subsection should outline whether the concrete in certain areas needs to cleaned at all by signifying “if cleaning is required, then the gentlest system that will effective should be selected.”\textsuperscript{91} This subsection should also make clear “the intent of

\textsuperscript{90} Ibid.
\textsuperscript{91} Ibid.
the cleaning program should not be to return the structure to a like new appearance. Concrete can age gracefully, and as long as soiling is not severe or deleterious, many structures can still be appreciated without extensive cleaning.”

In outlining the different types of cleaning that are appropriate, this subsection should identify the three primary methods including water methods, abrasive surface treatments, and chemical surface treatments. Each method should then be broken down to further identify common equipment and product manufacturers that are available for each.

The subsection should then signify the importance of conducting trial samples and mock-ups before full-scale application. It should refer back to the subsection on project considerations and further elaborate on specifics related to the disposal of hazardous materials such as run-off water. These considerations can play a large role in selecting a cleaning method, as they relate to extra cost and liability. As cleaning options are listed, this subsection should state whether each is appropriate for meeting mandatory requirements and what the challenges associated with each are.

2.8.6 Repair

The repair section should again reference content that can be found in Preservation Brief 15: Preserving Historic Concrete, which includes specifics on surface preparation, formwork and molds, and matching techniques related to concrete. As previously noted, the repair program should not only address existing conditions but also
reduce future deterioration and damage. This subsection should outline the procedures for selecting and sourcing materials as well as conducting mock-ups and trial samples. It should also specify how to evaluate mock-ups and trial samples as well as who is in charge of making executive decisions related to repairs such as the owner, contractor, architect, engineer, and/or other consultants involved. Whoever is evaluating the mock-ups and trial samples should ensure the materials are compatible with the existing in both appearance and performance.95

For surface preparation, this subsection should outline the conditions needed for new repair material to properly adhere to the existing substrate.9 For example, it should specify that concrete should be cut back at least ¾” behind the rebar for concrete repair material to properly bond.96 Additionally, it should outline protective coatings that need to be applied to rebar as part of a repair system. This subsection should also outline equipment available and instructions for the removal of concrete. This may include hand tools such as chipping hammers or saw-cutters as well as instruments used to clean the substrate after removal such as sand or air blasting. More delicate tools such as a wire brush and a device for needle scaling may also be recommended.97

When repairing areas with custom formwork, this subsection should outline how to properly match the existing details. This includes careful consideration of the concrete surface and joints. This will be a large consideration for the Fine Arts Center as an initial condition assessment has shown evidence of large areas of deterioration along many

95 Ibid.
joints, particularly in areas where floor systems meet the exterior walls. Many of these joints have unfortunately already been exposed to inappropriate repair materials, causing further deterioration. Coming up with a repair design that removes inappropriate repair material and matches that of the existing formwork detail will be a unique challenge that should be outlined as part of the conservation plan.

This subsection should again stress the importance of having the original construction specifications to aid in this effort. It should acknowledge that it is often best to use materials similar to those of the original concrete as many prepackaged mixes used today have a compressive strength that is too high and is incompatible with the low strength of the existing concrete. This is where proper testing to determine the psi of the existing concrete is important. Aggregate and cement type, water content, and water to cement ratio should also be considered. The effects of admixtures should also be noted as they can change the appearance of the concrete mix.\textsuperscript{98}

\textsuperscript{98} Ibid.
As Preservation Brief 15: Preservation of Historic Concrete states, the “design of the concrete patching material should address characteristics required for durability, workability, strength gain, compressive strength, and other performance attributes. During installation of the repair, skilled workmanship is required to ensure proper mixing procedures, placement, consolidation, and curing.”

Considerations for methods of application such as formed rather than trowel-applied patch repairs should also be discussed. The use of crack repair material should be clearly outlined including the use of cementitious repair mortar and epoxy injection. The use of elastomeric sealants should also be discussed as they create a visually noticeable and inappropriate solution for historic concrete. Cementitious repair material, although not as effective as elastomeric sealants with a shorter life span should be recommended to

99 Ibid.
avoid altering the building appearance. This segment should also cover active structural and thermal cracking and ways to repair it to accommodate movement.¹⁰⁰

This subsection should also include a segment on replacement when materials are beyond repair. Although this should be seen as a last resort, there are a few large areas of concern around the building that may require replacement. Additionally, if the conservation plan does outline future plans for restoring original concrete features such as the reflecting pools or other components that have been removed, this segment should further elaborate on the procedures for doing so. In that case, a separate subsection on replacement might be appropriate.

The overall goal of this subsection is to stress the importance of quality craftsmanship and to emphasize the importance of creating a repair system that works. Once repair materials and methods are established, it could then be possible to train University staff and in-house personnel within the Department of Physical Plant to conduct these repairs as needed. However, if proper training is not implemented to achieve this, this subsection should emphasize that an experienced contractor should be involved.

From this subsection, the user of the conservation plan should walk away with an understanding that it is possible to properly match concrete with the right amount of effort and also that successful repairs are dependent on solving the root cause(s) of failure.⁹ This is one of the most important subsections of the conservation plan as it is often the most challenging part.

¹⁰⁰ Ibid.
2.8.7 Protection

This subsection should list all available methods of protection that could be acceptable for the Fine Arts Center. It should additionally point out protective measures that are inappropriate and should be avoided such as coatings, as they are irreversible and drastically change the aesthetic and character of the building. This is also an issue with other protection methods such as clear water repellents, as they can alter the concrete’s color or sheen. These protection methods can also affect the dew point in a building wall.101

This subsection should address roof systems and drainage as a protective measure, discussing the current use of lead-coated-copper (LCC) cladding that has been applied to many of the building’s sloping roof facades. This cladding, which was applied to halt the occurrence of surface cracking and water infiltration, is now at a point where it requires either repair or replacement. The cladding is failing in multiple areas which has led to further deterioration and damage of the concrete and a recurrence of water infiltrations as a result. Assuming the cladding is at the end of its service life, this conservation plan could explore options for providing a better protection system if one is available. This would include exploring the idea of removing the LCC cladding and restoring the slopped roofs to their original uncoated concrete finish and then possibly implementing another protective strategy. If the LCC is the best solution, then guidelines and procedures for either repairing or replacing the cladding material should be discussed.

This subsection should also include methods to avoid future deterioration and damage by changing the typical strategies used for salting the sidewalks and ramp walkways around the building. Many conditions around the building are a direct result of the use of salt and other de-icing methods. When and if an alternate method is established to help ease the effects of salt on the concrete and prevent future deterioration, that method should be included in this subsection as part of the conservation plan.

As previously mentioned in the introduction of this thesis, there are many types of protection options that can considered. While they all should be deliberated, these solutions also need to be tested and evaluated to ensure that there will not be any negative repressions from their implementation. This subsection should again signify the importance of having an experienced professional as part of the project team to help determine a holistic solution and to help oversee proper testing and mock-ups. It should also be noted in this subsection that it may take ample time and multiple years to test and
determine if a system works. An experienced professional should be involved to help determine this and additionally recommend full scale or partial application.

2.8.8 Construction and Application

Once proper assessment, testing, and mock-ups have been complete to establish a cleaning, repair, and/or protection solution, the subsection, construction and implementation should further elaborate on how to successfully implement these strategies following University regulations and general procedures. This subsection should include a detailed guide for project management and oversight, as well the responsibilities of each team member involved in construction and implementation. This subsection should also include instructions for scheduling and evaluating work as well as recommendations and training requirements.

2.8.9 Monitoring and Maintenance

Implementing a new cleaning, repair, and protection solution can lead to future changes in materials. Design interventions can also affect materials they interact with. The subsection monitoring and maintenance should address how to monitor those changes to ensure there are no negative repercussions from their implementation. This subsection should also outline how to continuously monitor. Monitoring could include photo documentation and field notes to report findings. These findings should then become a side recourse that is referenced as needed. The guidelines in this subsection should specify how often certain areas or the full building should be inspected. Particular consideration should be given for certain areas that need special attention. These areas
may need to be inspected more frequently than the rest of the building. This may include recently completed conservation and/or design projects.

Some conservation projects may require maintenance and monitoring and include continuous or regular repairs or reapplication. The specifics involved in creating this sort of detailed maintenance plan should come from the recommendations of the project team creating the conservation plan as well as the University. This would include considerations such as time, budget, and personnel needed to complete. Ultimately, the University should acknowledge these guidelines as a way to avoid urgent and costly repairs from deterioration that goes unnoticed. This subsection should also outline the typical lifespan of products and materials that have been used on the building as a means for guiding on when monitoring and maintenance should occur.

2.9 Starting a New Design Project

Although conservation and design projects should be considered holistically to preserve the historic integrity of the building, each project type has its own unique attributes. By dividing the project types into two segments within the conservation plan, the content will be easier for the user to access. This section should follow a similar format and layout to that of a conservation project but should be altered with content specific to design.

The following design considerations are often included in many conservation plans. However, the difference in the conservation plan for the Fine Arts Center could be again more detailed instruction and guidance for completing successful design projects. This subsection should reference recommendations set by The Secretary of the Interior’s
Standards for the Treatment of Historic Properties, the International Existing Building Code (IEBC), and the International Energy Conservation Code (IECC).

The design component of this thesis analyzed past design interventions that have been implemented which have lacked a sensitivity to the building, as well as new interventions that may be implemented in the future. In response, this thesis aimed to create a framework for design thinking and to provide a model approach that could be used as part of the conservation plan. Multiple design considerations were explored to revitalize the building while still honoring the architect’s original design intentions. This included considerations such as accessibility, energy upgrades, wayfinding, and space planning to name a few.

It should be noted, however, that considering all of these design components as part of a conservation plan would again require a large project team and ample time to complete, so for the purposes of this thesis, the main lobby space was chosen as a focus area to address some of these considerations. The lobby was chosen because the current lobby addition has had the largest impact on the building’s appearance and function to date. The lobby, added in the late 1990s, now covers what was originally an open “gateway” through the building.

As the lobby addition is now at a point where it has become outdated and obsolete, this thesis became an opportunity to redesign this space. The new design proposed reinventions this space by adding a minimal, transparent addition that is non-obstructive and uses quality materials that will be durable as well as classically “timeless.” While the full restoration of the open “gateway” may be possible and should be considered as part of the conservation plan, this thesis took into account that full
restoration of the “gateway” may not be feasible or favorable to the University. Full restoration would involve not only removing the current lobby addition, but also reconstructing demolished elements such as the original floor paver system, a skylight, and a concrete canopy over the Rand Theatre entrance. Additionally, full restoration would not help to accommodate the lack of lobby space that is missing from the building’s original design. In recognition of this, this thesis addresses the question: if there has to be a lobby addition, how can its design complement the building, while still persevering its original authenticity and character? Although the design proposed may not be implemented into the conservation plan, it is meant to provide an example exercise on how to avoid inappropriate interventions.

Figure 40: Original “Gateway” Space, Image Courtesy of Richard Longstreth
Figure 41: Current Lobby Addition, Image Courtesy of UMass Amherst Special Collections and University Archives

Figure 42: Rendering of Design Proposal for New Lobby Addition, Image by Author
2.9.1 Project Considerations

The project considerations subsection should signify the importance of completing a sensitive and appropriate design project and again set out the criteria established by the University and the divisions of Physical Plant, Facilities and Construction, and Campus Planning in doing so. Considerations should again include regulations and procedures the University has set in place including state and local building codes and OSHA standards. This subsection should generally outline these considerations while specifying who to contact and where to look for further guidance.

The difference for this subsection compared to a conservation project however will be more related to considerations such as means of egress, fire protection, and energy use to name a few. This subsection should outline how the conservation plan provides detailed instructions for each consideration. This subsection should also make clear that there are four different types of projects related to the treatment of historic properties outlined by the National Park Service U.S. Department of the Interior. As previously mentioned, these terms include preservation, restoration, rehabilitation, and reconstruction.102 These four terms will be defined in this subsection for reference. Even if the building is not currently listed on the National Register of Historic Places, the conservation plan should follow The Secretary of the Interior’s Standards for the Treatment of Historic Properties in the case that if it ever intends to be listed, it will meet the criteria. This subsection should point out that these standards should be referenced in

addition to the conservation plan to ensure they are properly understood and implemented.

2.9.2 Common Issues and Concerns

The subsection *common issues and concerns* should list considerations that have or could arise in the future. A few examples of this include the need for enhanced accessibility and occupant comfort. This subsection should explain how buildings of this era often lack handicap accessible spaces and how they often do not include common amenities such as air conditioning or heated lobby spaces. These are concerns that have now become an issue, however, as it is not ideal to be in a hot building on a warm summer day or to be cold outside the building on a chilly winter night. These design considerations, among others unmentioned, should all be listed as part of this subsection while outlining what modern-day amenities and code updates are needed to bring the building up to date.

2.9.3 When to Intervene

The subsection *when to intervene* should make clear that design interventions should only be implemented as necessary. Although providing modern-day amenities should be a priority, it should be achieved within reason. This subsection should reference the *conservation policies* section with general recommendations, as well as additional instructions and guidelines for deciding when intervention is necessary. If and when intervention is necessary, these guidelines should reiterate that it should aim to be reversible, without altering or destroying any significant components or the building.
fabric e.g., wall, ceiling, and floor assemblies. If interventions are not reversible and/or do alter significant components, they should be approved and agreed upon at the executive level. When this is the case, the assessment of levels of significance in the identification of significant components subsection would be extremely helpful in making these critical decisions and making sure the most important components of the building are fully considered.

Many guides and resources, such as The Secretary of the Interior’s Standards for the Treatment of Historic Properties can help to establish how to successfully implement a sensitive design intervention. In addition, the U.S. Department of the Interior also offers several preservation briefs related to various design considerations. The preservation brief that was referenced the most frequently throughout this thesis was Preservation Brief 14: New Exterior Additions to Historic Buildings: Preservation Concerns, as it was the most relevant for designing a new lobby addition. The design proposal considered the recommendation that “a new exterior addition to a historic building should be considered in a rehabilitation project only after determining that requirements for the new or adaptive use cannot be successfully met by altering non-significant interior spaces.”

It is important for users of the conservation plan to familiarize themselves with an understanding of when it is appropriate to intervene before diving into a new design project. There are often simple solutions that can be implemented to help avoid drastic and unnecessary changes. This conservation plan should stress that ample time may be needed to explore all of these options to avoid implementing an invasive solution. This

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subsection should take into account common issues and concerns laid out in the previous subsection and provide the groundwork for knowing when a space, system, or material needs to be updated or replaced. The latter subsection on design considerations should then further outline how to successfully implement them.

2.9.4 Project Expectations

The project expectations subsection should outline the aesthetic and performance criteria for any intervention implemented. It will again acknowledge the importance of following the conservation policies set out earlier in the conservation plan and selecting materials that complement the original building fabric, meet energy performance goals, etc. It should also reiterate that any design project completed should meet the criteria of the Secretary of the Interior’s Standards for the Treatment of Historic Properties and should not disqualify the building from receiving future designation or receiving any future funding or benefits.

2.9.5 Responsibilities of Project Team

The subsection responsibilities of project team should discuss the importance of having professionals with previous experience in preservation architecture involved. These professionals should be familiar with The Secretary of the Interior’s Standards for the Treatment of Historic Properties and common terminology used. They should also be familiar with the common challenges associated with working with existing buildings. Although this recommendation may be hard to enforce, it is important to note in this subsection as there are many different ways in which architects, interior designers, engineers, and/or consultants can interpret certain standards and regulations. Having
individuals with expertise in this area to provide project management and oversight is of the upmost importance. This subsection should again also emphasize the importance of having experienced contractors and construction professionals to help ensure there is a proper level of care and detail taken when implementing new interventions and that the existing building fabric is not harmed in the process.

2.10 Design Considerations

The design considerations section should further outline instructions and guidance for common design issues and concerns. Although there are many ways to organize these considerations, and many more could be added, this thesis aims to provide a basis for what should be included. The following subsections should include content from the various resources previously mentioned such as Preservation Brief 14: New Exterior Additions to Historic Buildings: Preservation Concerns and incorporate them into the conservation plan in a way that is specific to the Fine Arts Center. Rather than leaving it up to each individual to reference and interpret these external resources, the intention of this section is to include this detailed content in a way that is applicable. Including this amount of detail and instruction as part of the plan could also help to ensure these recommendations and guidelines are followed. Additionally, as many design considerations such as energy use, the building envelope, and structural capabilities may require an expert consultant be brought on, the following subsections could still provide all parties of the conservation plan with a basic understanding of these considerations.
2.10.1 Landscape and Site

The *landscape and site* subsection should examine exterior features and discuss how they interact with the building as well as the surrounding campus. There are currently large areas of concern such as the front, south plaza facing Haigis Mall as well as the back, north plaza facing the campus pond that demand attention. These spaces should be considered as part of the conservation plan. As previously mentioned, this subsection could also address parking and navigation to and from the building.

Figure 43: South Front Plaza Facing Haigis Mall, Image by Author
Figure 44: Landscape Area that Replaced the Footprint of a Former Reflecting Pool, Image by Author

Figure 45: North Plaza Area Adjacent to Campus Pond, Image by Author
2.10.2 Building Systems and Materials

The subsection *building systems and materials* should discuss how to address building components such as roofs, walls, flooring, windows, doors, curtain walls, and other structural systems. This subsection should also outline certain materials that should be used as part of a system or individually. This includes outlining proper repair and replacement techniques for these systems and materials. For instance, this subsection should specify that if a roof needs to be repaired or replaced, what system(s) and/or materials are appropriate and how it should be installed. Another example, in the case of windows and doors, should be to discuss whether these elements should be repaired and/or replaced in the future. More specifically, this subsection should outline what types of glass, metal, etc. are appropriate if replacement or repair is necessary. This may include the discussion of whether replacement would improve energy and thermal performance. An example of this would be the use of triple pane or double pane glass.

When considering structural systems such as floors, walls, and ceilings, this subsection should also outline concerns related to structural loads. It should point out certain areas where movement and forces may impact future design considerations.

To create this guidance and instruction, this subsection could reference the design proposal of the new lobby addition provided. This includes noting certain finishes that would be appropriate such as the use of mahogany wood for new reception desks or the use of bronze hardware for new signage, handrails, and/or curtain wall systems. These are just a few examples of materials that could be used which are distinguishing from the original.
Figure 46: Concert Hall Theatre Showcasing Current Building Systems and Finishes, Image by Author

Figure 47: Hallway to Concert Hall Showcasing Current Carpet and Hardware Finishes, Image by Author
2.10.3 Code Compliance

The subsection code compliance should list all considerations related to code compliance such as life, health, and safety concerns. This subsection should include information on accessibility, fire safety, and change of occupancy to name a few. In regard to fire safety, this subsection should include recommendations for protection systems, sprinklers, water supply, means of egress, finishes, etc. This subsection should also outline the requirements listed in the *International Building Code* (IBC) as well as other standards and regulations that need to be followed. It should additionally address
how to meet new standards for energy use which have been set by the International Energy Conservation Energy Code (IECC).

2.10.4 Energy Use and Upgrades

The subsection energy use and upgrades should further discuss design strategies for meeting new energy code requirements as well as additional efficiency measures that could be implemented. This may include the use of insulation or other means of improving the building envelope. This subsection should highlight the energy saving features that were originally implemented into the building’s design, such as the use of natural daylighting. This subsection should emphasize that these design features may be the best use of daylighting on campus and that they should be acknowledged and put to good use. Interventions that have been added over time such as the addition of photovoltaic (PV) solar panels on the building’s south roof facade should also be discussed. If these PV panels are intended to be a continuous building feature, this subsection should outline guidance for their future maintenance and/or replacement. If they are intended to be removed at the end of their lifespan, this subsection should then address how to properly deconstruct, disassemble, and dispose of them in a way that will not be harmful to the existing building fabric.

2.10.5 Space Planning and Programming

The subsection space planning and programming should help aid in future rehabilitation and renovation projects. This subsection should reference relevant plans, diagrams, and charts in the programming and use subsection to help users understand the
makeup of space and square footages. This subsection should also clearly outline considerations for a change of occupancy or use. This could include space requirements and the program needs of each department, so the user is able to better understand the make-up and function of each space. Additionally, this subsection could include considerations for any future space planning and programming needs that may be anticipated.

2.10.6 Wayfinding and Navigations

One consideration that is currently lacking in the building today is the use of proper signage to improve navigation and wayfinding. This is an extremely important consideration as the Fine Arts Center is a very large complex with multiple entrances, exits, and level changes. This subsection should speak to the complexity of the building’s layout and acknowledge that it consists of several different complexes that are all joined together. This subsection should provide insight on specific types of graphics and labels that are appropriate for improving navigation and wayfinding throughout the building. Additionally, it should provide instructions for proper installation. This may include the possible implementation of new technology and digital signage. This subsection should also include diagrams and charts to showcase common paths of travel throughout the building. This would help the user to understand general patterns of movement and how each space is utilized. This would in turn be beneficial to the other subsections such as space planning and programming as these considerations could further help other spaces to better function.
2.10.7 Rehabilitation and Alterations

Although the conservation polices should be followed closely, this conservation plan should recognize that certain changes may need to be made in the future to accommodate the building and its users. This subsection should continue to closely follow the rehabilitation guidelines set out by *The Secretary of the Interior’s Standards for the Treatment of Historic Properties* as well as other relevant resources such as the preservation brief on new building additions. This subsection should acknowledge the levels of significance chart when working within this subsection to help determine what spaces, elements, or materials can be altered or removed if needed. If major alterations or additions are necessary, such as in the case of the new lobby addition, then their design should be thoughtfully and carefully considered. The design exploration of this thesis aimed to showcase this thoughtful consideration. Throughout the design process, the idea to create an atrium space within the new lobby design emerged. This design would ultimately give a new life and presence to the University museum which it has lacked since the building was constructed. Although this move is drastic and may seem controversial, this design intervention proved to provide more advantages than disadvantages as it creates a double level lobby space that provides additional programmable space. It also helps to direct the flow of traffic through the lobby, gallery, and theatre spaces. Although this intervention is invasive and irreversible to some extent, it should be noted that it does not alter any significant components such as original flooring, walls, or ceilings that have not already been altered and/or removed by the current lobby addition.
To reiterate, although new additions should be discouraged in the conservation plan, if one is deemed necessary, this subsection should provide guidance on how to incorporate one in the most sensible manner. This includes considerations such as the scale, height, and proportion of the addition relative to the existing building. In the case of the new lobby design, many factors were considered to help determine a suitable design solution. This included how to align the addition with the existing structure and how it should be connected. This subsection should aim to specify appropriate structural systems and connections types for these interventions. This subsection should also address how create a distinction between the old and the new as this is a very important in meeting the criteria for the National Register of Historic Places. This became a very large consideration in the design exploration for the new lobby space, as the goal was for the addition to compliment the building, while not giving the intention that it is original. The ultimate goal is to protect the integrity of the building.  

\[104\] Ibid.
2.10.8 Electrical

The subsection electrical should outline the building’s original lighting features, while also noting if any of them have been replaced and if so, with what. The condition of each should be accessed and documented as a side reference when possible. This subsection should also note recommendations for future maintenance, repair, and replacement such as the addition of lighting solutions that improve user function and enhance energy savings. This subsection should outline electrical systems related to security, audio, outlets, and power distribution. The specifics for installation and use should also be thoroughly documented.

2.10.9 Mechanical

The mechanical subsection should outline the types of systems used in the building such as elevators and HVAC systems to name a few. This subsection should also note where utility rooms are located as well as the location and layout of piping and ductwork for heating and cooling systems. Similar to the electrical subsection, this subsection should note the condition of each system and if any new systems have been added in the past. Additionally, this subsection should offer guidance on how to update, repair, and replace these systems and offer a timeline for doing so. This subsection should aim to address concerns such as air quality and distribution and introduce the latest strategies for implementing new building systems into existing structures.
2.10.10 Plumbing

The **plumbing** subsection should be similar to the previous two in that it should outline what plumbing systems are original and which systems have been added. All of these subsections should reference the list of past repairs, alterations, and upgrades that would be provided as part of the *degree of survival and intactness* subsection. Additionally, this subsection should offer guidance on how to repair common plumbing issues in the building and outline replacement fixtures that are appropriate when necessary. This subsection should also consider where plumbing chases are located and where waste is being collected and distributed as this will be important for users to consider when updated or renovating restrooms in the future.

2.11 Additional Resources Available

There are many additional resources that can help to aid the conservation plan. Some of these are specific case studies that relate to conservation and design methods and techniques, while others are more professional guidelines and standards. These resources should be accessible to users of the conservation plan and should be listed in this section as they become available. This section should serve as an annotated bibliography by providing a brief explanation and description of each resource. Each resource should then be categorized into segments for easy access. For example, previously mentioned resources such as *Preservation Brief 14: New Exterior Additions to Historic Buildings: Preservation Concerns* should be listed under the design resources section while *Preservation Brief 15: Preservation of Historic Concrete* should be listed under the conservation resources section.
Further examples of resources related to conservation, and more specifically concrete, could include case studies and guidance provided by the American Concrete Institute (ACI), International Concrete Repair Institute (ICRI), Getty Conservation Institute (GCI), and the Association for Preservation Technology (APT).

Some of these organizations such as GCI and APT also provide resources and case studies related to other building materials and design concerns which should be included in this section when relevant. The section should also reference long-standing documents such as *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, *The Venice Charter*, and *The Madrid Document* as applicable.
CONCLUSION

In summary, the contents of this thesis prove that there are many important components in creating a long-term conservation plan and that they should be considered holistically. Simply cleaning a building or adding a new addition will not be a solve-all. Full revitalization of the Fine Arts Center would require a large amount of time, effort, and planning. There must be a well-thought-out resource to help guide the process and ensure the building’s future. A conservation plan would help to accomplish this and ensure the building has the ability to grow and change as the University does.

The purpose of creating a comprehensive conservation plan is to address a significant gap in the University’s existing plan with a direction looking toward the future. The aesthetics and architectural value of these Brutalist structures could be enormously increased which would add substantively to the campus’ public realm. This is an opportunity for the University of Massachusetts Amherst to be a leader in Brutalist conservation.

Although perceptions of these Brutalist buildings have not always been positive among stakeholders and the campus community, many individuals do recognize their historical value and significance. As previously stated, these buildings, including the Fine Arts Center, are part of the University’s cultural heritage and social fabric. These buildings have influenced and impacted many generations. In addition, their bold and striking architectural features are worthy of appreciation and draw the attention of many. Their innovation and monumental grandiose demands attention.

Some may wonder then, however, why the Fine Arts Center isn’t more frequently praised in these regards. The reason should be obvious that it is hard to praise a building
that is so far in neglect and has not been maintained. If the students on campus saw the University make an effort to care and maintain the building, they would understand the importance of building and further embrace its presence.

Some may also wonder why the younger generation is so drawn to Brutalism. This question gets asked all the time when it should be obvious that the answer lies with authenticity and a sense of timelessness. Buildings that are preserved, maintained, and restored with a certain level of sensitivity are worthy of that awe inspired moment when people see them. This is true for all generations, not just the younger. It is all too common today that new additions and the gutting of building interiors is recommended to add a new life and presence to Brutalist structures. However, thorough analysis of this perception throughout this thesis has proven the opposite. People may be momentarily attracted to a new addition or feature, but what they are really attracted to in the long run is originality and quality-built materials.

This is evident in the case of the current lobby addition for the Fine Arts Center. Although it may have seemed grandiose at the time of its design and construction in the late 1990s, it is now seen as an outdated addition with a very low approval rating among users. This is the very issue this thesis and the creation of a conservation plan aims to address. The design of the new lobby proposed in this thesis aims to prove that a building can still find new life while honoring the character and timeless qualities of the building.

There are a few great examples of this that were referenced throughout the design process of this thesis including the restoration of the MET Breuer and the TWA Flight Center. The main takeaway from analyzing these case studies was that the general public does not praise these buildings because large new additions were added, or the interiors were
gutted. Rather, they are praised because their timeless authenticity was thoughtfully preserved through careful restoration and revitalization. These are just a few examples of buildings that are worthy of that awe moment when they are encountered. Through creating this conservation plan, this thesis aims to prove that this same response is possible for the Fine Arts Center.

Most importantly, this thesis aims to make clear that revitalization and restoration projects need to fully consider the technical components of material conservation. As previously mentioned, this is often the most challenging part. Frankly, if there is not a simpler way for the University to address these issues in the future, the Fine Arts Center as a whole will continue to suffer. The University has to be invested in bringing in the right expertise to address these issues. As also previously mentioned, this comes with many extra obstacles being located on a public university. There are very few, if any, examples of conservation plans for public institutions. This again is a chance for the University of Massachusetts Amherst to be a leader in this regard and to create a path for other public universities facing similar challenges. It is with great hope that this thesis becomes a viable resource and a motivation for accomplishing this.


