

Rehabilitation of Stewart Hall

FEASIBILITY STUDY

October 2014



Prepared for:

Shippensburg University
Shippensburg, PA



Equestrian Sally Twiss, a junior, played Paula Rovers during the mock Lexington-Concord battle on campus.



Murphy & Dittenhafer
ARCHITECTS



Prepared by: Murphy & Dittenhafer Architects

226 West Market Street York, Pennsylvania 17401 717-848-8627

www.murphdittarch.com

TABLE OF CONTENTS	Page
1.0 Introduction	
1.1 Purpose of the Feasibility Study	1
1.2 Consultant Team	1
1.3 Acknowledgements	1
2.0 Executive Summary	3
3.0 Process	
3.1 Study Goals	4
3.2 Scope	4
3.3 Activities	5
4.0 Identification/Determination of the Needs	
4.1 Program for the Stewart Hall	6
5.0 Evaluations of the Conditions of the Existing Facility	
5.1 Site	8
5.2 Historic Information	8
5.3 Historic Photographs	10
5.4 Architectural	13
5.5 Functional Shortfalls of Facility	17
5.6 Existing Condition Floor Plans	18
5.7 Existing Condition Elevations	21
5.8 Existing Exterior Photographs	23
5.9 Existing Interior Photographs	25
5.10 Structural	31
5.11 Mechanical/Plumbing	38
5.12 Electrical	38
6.0 Recommendations/Findings/Concept Design	
6.1 Featured Concepts Designs	39
6.2 Additional Featured Elements of the Proposed Concept	40
6.3 Recommendations	41
6.4 Interior Scope of Work	41
6.5 Structural Scope of Work	42
6.6 Mechanical/Plumbing Scope of Work	43
6.7 Electrical Lighting/Power Scope of Work	46
7.0 Recommendations Figures and Images	
Concept Design Floor Plans	49
8.0 Summary of Code Issues	64
9.0 Preliminary Statement of Probable Construction Cost	66
10.0 Next Steps	
10.1 Conclusion	67
Appendices	
1 – Planning and Programming Data Sheet	

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 Purpose of the Feasibility Study

The purpose of this study is twofold, 1.) To analyze the adaptive re-use of the historic Stewart Hall building as the new home for the University Relations Office, and, 2.) To evaluate and document existing deferred maintenance needs, identify near-term cyclical and maintenance needs. Stewart Hall currently serves as the home to miscellaneous Department of Music and Theater Arts uses including the Little Princess Playhouse. The University proposes to improve and update various physical and functional conditions of Stewart Hall, to provide appropriate accommodations to house the University Relations Office and to better provide space to serve the various functions of the Alumni Association and the University as a whole.

The information presented in this report is based upon Murphy & Dittenhafer Architects' feasibility investigation and analysis process which occurred from January-May 2014. This analysis evaluated the types of existing spaces within Stewart Hall which may be readily adaptable to the needs of the University Relations Office, for hosted events and to determine if appropriate to recommend improvements to the existing spaces and upgrades to the physical plant.

In addition, Shippensburg University requested that Murphy & Dittenhafer examine in greater detail the probable renovation/construction scope of work and potential financial feasibility of rehabilitating/ renovating Stewart Hall. This Feasibility Study provides a comprehensive assessment of all of the necessary architectural and engineering remediation/ improvement aspects in order to develop a range of renovation scopes of work. Preliminary cost data has been developed for all aspects of the project to enable Shippensburg University to consider a comprehensive rehabilitation project.

1.2 Consultant Team

The Murphy & Dittenhafer Team was headed by Frank E. Dittenhafer, II, FAIA, LEED AP, principal of Murphy & Dittenhafer Architects of York, Pennsylvania, and Baltimore, Maryland. The team also included Todd Grove, AIA, Architect; Bruce R. Johnson, AIA, LEED AP, Architect; and David Ritter, Associate AIA, Architectural Designer. Kent Hoffman, P.E.; Gary Funk,; and Jason Borowski, P.E., LEED AP of Hoffman Borowski and Associates of Shrewsbury, Pennsylvania, Timonium, Maryland, and Selbyville, Delaware, were responsible for mechanical/ electrical/ plumbing and fire protection consultation. Brad Kirkham, P.E. of Baker, Ingram & Associates of Lancaster, Pennsylvania, Dover and Newark, Delaware, Haddon Heights, New Jersey, and Centreville, Maryland, were responsible for structural consultation.

1.3 Acknowledgements

While Murphy & Dittenhafer Architects is solely responsible for this report and its findings, the recommendations herein would not have been possible without the commitment and involvement of a number of individuals and departments. Murphy & Dittenhafer would like to thank Interim President Dr. Jody Harpster, Dr. Denny Terrell (Vice President for Administration and Finance), Mr. Lance Bryson (Associate Vice President for Facilities), Mr. Terry Starr (Associate Director for Planning, Design and Construction) and the Facilities staff of the University for their input and direction.

The future potential of Stewart Hall as a facility housing the University Relations Office and providing an appropriate setting to host the events of the Alumni Association and the University appear excellent. We greatly enjoyed our part in this Feasibility Study process and look forward to further assisting Shippensburg University with developing the final design for this exciting project.

2.0 EXECUTIVE SUMMARY

2.0 EXECUTIVE SUMMARY

Purpose – Shippensburg University has undertaken this Feasibility Study/Concept Design of the renovation and adaptive reuse of Historic Stewart Hall, constructed in 1893, located on the campus of Shippensburg University. The adaptive reuse of Stewart Hall would repurpose the interior spaces to provide appropriate facilities for the University Relations Office, as well as provide appropriately functioning public spaces for events and functions held under the direction of the Alumni Association and the University as a whole.

Goal - The goal of the Study was to take a comprehensive, long-term view of a range of proposed building renovations/ rehabilitations/ restorations/ replacements, through consideration of multiple options, leading to a more fully developed renovation scope that considers potential design/construction/cost development approaches for Shippensburg University to pursue.

Activities – The Consultant Team met with Shippensburg University representatives and reviewed University data and information regarding the existing facility systems and needs. The Architectural/ Engineering team then undertook multiple site visits, reviewed existing building systems, reviewed applicable building and construction codes, confirmed the proposed programming, developed Concept Design drawings and a detailed proposed scope of rehabilitation work. The team also prepared a Preliminary Statement of Probable Construction Costs for the University's consideration.

Concept Plan – The study finds that the proposed renovation/rehabilitation/restoration concept plan satisfies current deferred maintenance needs, provides for near-term cyclic maintenance needs, and provides solutions to the identified functional shortcomings needed to accommodate the offices of University Relations and the necessary public events held by the Alumni Association and the University. The concept design approach considers the building renovation in the following two physical aspects: 1.) the lower floor to serve as the primary location for the offices of University Relations, and 2.) the first and second floor to serve as a public reception/event/gallery space, which will be used for numerous University events including those associated with the Alumni Association. The concept feasibility study/design is based on program information provided by Shippensburg University and other sources.

In Conclusion – Based on the information and material presented within this report, the Feasibility Study/Concept Design demonstrates the ability to successfully rehabilitate/restore/and adaptively re-use Stewart Hall as the new home for offices of University Relations and for hosting public events, as well as address deferred maintenance deficiencies, provides for near-term cyclic maintenance needs, and accommodates other misc, improvements in operational needs related to Stewart Hall.

3.0 PROCESS

3.0 PROCESS

3.1 Study Goals

Shippensburg University commissioned Murphy & Dittenhafer Architects to prepare a comprehensive feasibility study/concept design for the renovation and adaptive re-use of Stewart Hall located on the campus of Shippensburg University in Shippensburg, Pennsylvania, considering a range of proposed project rehabilitations/renovations/restorations to address deficiencies including deferred maintenance, building material component lifecycle repair/ replacement, systems improvements, and energy usage aspects, of the historic facility. The information and conceptual ideas developed in the study were used to determine a focused preliminary statement of probable construction budget costs for the proposed work at the historic facility.

3.2 Scope

The defined scope of the Feasibility Study/Concept Drawings was to develop a range of rehabilitation/renovation scopes of work, as well as integrating supplementary programmatic information gathered during programming confirmation and existing building investigation. The comprehensive renovation design developed through this process will enable Shippensburg University to review all of the project parameters and will assist the University in making an informed decision regarding the best direction in which to proceed with any future building improvements, additions, renovations and/or restoration work.

The supplementary information and comprehensive understanding regarding the proposed project was gathered from the following detailed investigations:

- In-depth program discussions with Shippensburg University including the facilities and maintenance staff personnel, administration representatives and the University Relations Office and associated office staff.
- Additional survey work of the building exterior involving a closer examination of site matters and the condition of the exterior envelope components.
- Additional survey work of the building interior including structural conditions, stairs and circulation, existing building systems, and finishes
- Application of current IEBC code requirements including ADA compliance
- Field survey and evaluation of the existing mechanical, electrical, and plumbing systems with respect to their age, condition, and suitability for continued use as part of the intended building use.
- Research of Historical and State level review processes and approvals.

The information facilitated M&D's preparation of the following documents:

- Component lifecycle evaluations and recommendations.
- HVAC systems assessment and recommendations.
- Structural systems assessment and recommendations.
- Concept drawings and preliminary outline descriptions of the project renovation scope of work based upon the range of possible renovation approaches.
- Preliminary Statement of Probable Budget Construction Costs.

3.3 Activities

The key elements of the process were:

Department/User Interviews and Work Sessions – The Murphy & Dittenhafer team conducted several interviews with University personnel, facilities and maintenance staff and the University Relations Office personnel in order to gain a complete understanding of the deficiencies and non-functioning aspects of the existing facility.

Site Visits and Survey Work – The Murphy & Dittenhafer team completed several field visits on various occasions to familiarize themselves with not only the larger physical conditions of the building, but to also study the unique areas and historic aspects of Stewart Hall.

Historical Research and Fact Finding – The team researched available information pertaining to the historic structure, interviewed an individual who was a student at the University when Stewart Hall was the gymnasium facility, as well as reviewed the state and local review and approval processes for any proposed alterations.

Deferred Maintenance and Cyclic Maintenance Considerations – An incomplete and mixed set of drawings received from Shippensburg University were reviewed to determine the extent of previous renovations and determine the extent of the existing building components that were not replaced during previous renovations of the building. In addition, University officials also provided the team with identified deficiencies, which were incorporated into our project approach.

Programming Considerations – Shippensburg University officials provided confirmation of the proposed programming elements in addition to desired updating and/or re-organizing of various key functional spaces within Stewart Hall. Murphy & Dittenhafer conceptualized additional component pieces that might be relevant in augmenting and enriching the desired short and long term programming and use of the historic facility and conceptualizing how these pieces could be organized within the space available.

Preparation of Preliminary Statement of Project Budget Costs – Based on the preferred approach as selected by the University and the related scope of work, there was an initial exploration of the potential costs for the essential comprehensive scopes of renovation/addition/rehabilitation/restoration work. Utilizing extensive experience with local project construction costs for similar building renovations/additions/rehabilitation/restorations, the Murphy & Dittenhafer team prepared a preliminary statement of the project cost, including contingencies, permit fees, FF&E, and soft costs.

4.0 IDENTIFICATION/DETERMINATION OF THE NEEDS

4.0 IDENTIFICATION/DETERMINATION OF THE NEEDS

4.1 Program for Stewart Hall

As a result of the many interviews, work sessions, reviews and discussions held with all of the Stewart Hall stakeholders throughout the study period, various quantitative and qualitative aspects of the historic facility were reviewed and analyzed in detail to determine the ability to provide for the current/contemporary needs of a 21st century office space and public event space.

A thorough inspection and evaluation of the facilities unique historic building components, features and materials was carried out to determine the need for repairs and to address deferred maintenance items.

A thorough analysis and evaluation of all mechanical, electrical, plumbing, life safety, and other miscellaneous systems was carried out, including evaluation of energy efficiency, long-term sustainability, and life cycle reviews of all systems, components and elements in order to determine the best course of action regarding assessment of identified deficiencies. In addition, the existing size, arrangements of key functional elements, and overall appearance of spaces were evaluated.

As a result of this process, the following elements have been developed and identified as needing to be addressed as part of a comprehensive Stewart Hall renovation/ addition/ rehabilitation/ restoration project:

1. Common Priority Items:
 - a. Exterior building component rehabilitation/ restoration/ replacement, including painted wood windows, exterior doors, masonry and mortar joint deterioration and fire stairs.
 - b. Interior building component and finishes rehabilitation/ restoration/ replacement, including wood, tile and/ or vinyl sheet flooring; bathroom upgrades, lighting, window treatments, wall coverings, ADA deficiencies, historic suspended track, circulation, etc.
 - c. Site and grounds component improvements, including appropriate landscaping and entry walkways, handicapped accessible ramp(s), lighting, and location of any mechanical equipment.
 - d. Complete overhaul/ upgrades to various aspects of the mechanical, electrical and plumbing systems including energy efficiency features, upgraded energy controls and zoning, fire sprinkler system, and existing steam radiators.
 - e. Other miscellaneous items and aspects of the historic facility including matters such as appropriate accessibility and accommodations for catered events.

In addition, the goal of the adaptive reuse of Stewart Hall is to provide the necessary and appropriately functioning facilities for the University Relations Office, Alumni Association and the University. Through, the various interviews and discussions the following list of program requirements were compiled:

1. University Relations Office (Lower Floor)
 - a. (1) One Director's Office
 - b. (3) Three Assistant Director's Office's
 - c. Adequate space for (2) two Administrative Assistants
 - d. Work area for 1 Graduate Assistant

- e. Work areas for 3-4 student workers
 - f. Conference/ Meeting Room (minimum 20 persons)
 - g. Break Area for staff use
 - h. Storage Area for department items
 - i. Food Service Area/ Catering space
 - j. Lounge/ Gallery Space
 - k. ADA accessible restrooms
 - l. Mechanical room
 - m. Elevator
2. University Relations Office/ Alumni Association (First Floor)
- a. Multi-purpose/ Exhibition/ Gallery/ Event Space (minimum 150 persons)
 - b. ADA Accessible Restrooms
 - c. Entry/ Receptionist
 - d. Entry Lounge
 - e. Elevator
3. University Relations Office/ Alumni Association (Second Floor)
- a. Exhibition/ Gallery Space
 - b. Lounge
 - c. Elevator

5.0 EVALUATION OF THE CONDITIONS OF THE EXISTING FACILITY

5.0 EVALUATIONS OF THE CONDITIONS OF THE EXISTING BUILDING

5.1 Site

Stewart Hall is located in the South Central region of Shippensburg's campus, also known as the Cumberland Valley Normal School Historic District. Neighboring to the west is Old Main and to the Southwest the Martin House. The surrounding land stretches from Old Main Drive to the South and Henderson Access Road to the North. Stewart Hall is highly visible particularly along Old Main Drive and is complemented by the surrounding landscape and Shippensburg's Old Main building to the West.

5.2 Historic Information

Though, this university building was first opened in 1893, it did not receive its current name, Stewart Hall, until the year 1950 when it was dedicated to former faculty members John Keats Stewart and Harriet Wylie Stewart. At the time it was constructed, Shippensburg University was called 'The Cumberland Valley Normal School'. Stewart Hall is one of the original 5 buildings built under the guidance of Dr. Samuel Martin. Stewart Hall was the second building constructed of the original 5. Old Main, 1870; Stewart Hall, 1893; Horton Hall, 1895; Martin House, 1907; and Gilbert Hall, 1911 were all honored in 1985 when they were placed on the National Register of Historic Places.

Stewart Hall first opened as the new gymnasium for the Cumberland Valley Normal School. It was viewed with a great amount of pride and was seen as "one of the finest and most modern gymnasiums of its time, thoroughly equipped with apparatus, including an indoor track." The gymnasium would have "the finest apparatus manufactured by the Narragansett Machine Co." The gymnasium was even used by the well known Olympian Jim Thorpe who used the indoor track as a training facility. However, in 1937, ground would be broken for a new Alumni Gymnasium, which brought different activity types to what would be now known as the "Old Gym," or currently Stewart Hall. Though, the Alumni Gymnasium was now the main gym on campus, the Old Gym still hosted athletic events, such as intramural basketball, however it also functioned as a temporary dorm for the boy's on campus as well as storage for the workmen.

The following is excerpted from the archives and special collections at Shippensburg University as written by Jessica Sheets (2005):

"The Old Gym was remodeled in 1949, for \$29,000, as a student recreation hall. New features included a game room, a girl's lounge, a conference room, up-to-date restrooms, a small kitchen, a vending machine room, a new entrance, new hallways, and a new maple floor for the gymnasium. After the remodeling, the building was named for husband and wife John Keats and Harriet Wylie Stewart. An Alumni Room upstairs, to be used for social gathering for students, alumni, and committees, was furnished in their memory.

The Stewarts served the Shippensburg University for a combined total of sixty-seven years. Mrs. Stewart, who graduated from the Cumberland Valley State Normal School in 1893, taught for thirty-two years, from 1904 to 1936. Her Normal School career began at the Normal School's model school, where she started as an assistant. After five years there, she began teaching history at the Normal School and later became head of the department. She received a Master's degree from Pennsylvania State University and began work on a doctorate. She passed away in January 1936 of pneumonia.

Mr. Stewart served on the faculty from 1906 to 1941, for thirty-five years. He primarily taught Latin and classical literature. He received his training from Susquehanna Collegiate Institute and Lafayette College and taught Latin and Greek for seven years before going to the Normal School's classical language department. He was often asked to speak at functions and avidly followed the Normal School sports. He taught until his passing in November 1941. Nine years later, Stewart hall was named in honor of him and his wife, remembering their dedication and service to the Normal School and perpetuation their memory."

5.3 - Historic Photographs

Stewart Hall - Historic Photographs



Historic Photograph



Historic Photograph



BASKET BALL

Historic Photograph



CHILDREN'S PLAYGROUND GYMNASTICS - MISS WITMAN

Historic Photograph



Class Drill - Gymnasium
From the 1898-99 Catalog

Historic Photograph



EXERCISE OF GYMNASIUM

From the 1898-99 27th Catalog

Historic Photograph



DUMB BELL EXERCISES - SENIORS

Historic Photograph



INDIAN CLUBS - MUSIC CLASS

Historic Photograph



MILITARY WORK

Historic Photograph



PYRAMID BUILDING

Historic Photograph



Historic Photograph



Historic Photograph



STRETCHING EXERCISE—Miss WYMAN'S CLASS

Historic Photograph



SWEDISH DANCE—Miss HARRISON'S CLASS

Historic Photograph



Historic Photograph



Historic Photograph



Vets Club

Row 1—1st. Standish, Sam Peterson, Harold Russell, Andrew Fitzgerald, Frank Healey, Robert T. Miller, L.H. Stone, James H. Beck, Row 2—G. G. Gage, Wm. Martin, Paul Fisk, Richard F. Brown, George W. Kappeler, Frank Smith, James C. Carter, Gordon Green, Roy Shultz, Jim Miller, Richard C. Davis, Bill C. Smith.

Historic Photograph



Equestrian Solly Tullin, a former player, played Paula Ketter during the mock Lexington-Covington battle on campus.

Historic Photograph

5.4 Architectural

The majority of the existing Lower Level Floor and Second Floor of Stewart Hall are currently used by Shippensburg University as storage areas. The First Floor is currently being used for various Department of Music and Theater Arts functions including the “Little Princess Playhouse”.

The existing building is constructed with masonry exterior bearing walls and interior wood joist framing and has a total gross area of approximately 11,021 square feet. The building is composed of three floors, a lower floor, located approximately 3’-0” below grade; a first floor, and a second floor, which includes a suspended indoor track (See existing lower floor, first floor, and second floor plans).



Southeast/ Main Entry Elevation

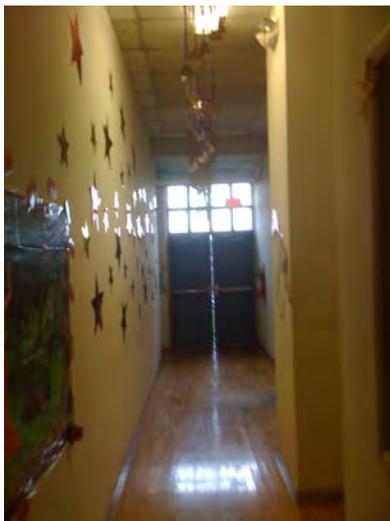
Ascending either of the two exterior main entry stairs, on the south face of Stewart Hall (towards Old Main Drive), will lead directly into the main vestibule of the facility at the First Floor. Directly to the east and west, upon entering, are the two prominent turrets. To the north of the main vestibule are two sets of “original” historic stairs, both of which go to all three levels. Continuing through the main stair vestibule area and past the two sets of stairs, one enters a central corridor. The corridor extends west to east and leads to a rear fire stair exit.



East stair to Second Floor – First Floor



Central Hall Viewing East – First Floor



Central Hall Viewing North – First Floor
Seating Area – First Floor



The Lower Level is accessed from the entry stair on the left upon entering the main vestibule. The men’s restroom can be found at the southwest corner and the women’s can be found on the southeast corner, at the bases of the prominent corresponding turrets. In addition, the mechanical room can be found at the northeast corner with a small exit door accompanied by 5 stair risers, which exits to the east. An existing ramp to can be found at the exterior northwest corner which descends from grade level to the lower floor. Throughout the Lower Level are existing rooms of various sizes, which are mainly used as storage areas for the University.



Men's Restroom – Lower Level



Women's Restroom – Lower Level



Mechanical Room – Lower Level



Existing Ramp – To Lower Level

The second floor is accessed from the two main entry stairs from the first floor and both lead to the central enclosed corridor and the historic suspended indoor track. Located on the south side are two storage/ studio areas which occupy both of the turret areas on the east and west. In the central area of the south is an existing room that is used for storage. A door on the west end of the central hallway exits to the historic suspended indoor track once used by Olympian Jim Thorpe. Originally, the track was open to the first floor, but at some point, through its many years of history, a drop ceiling was added to conceal the track and hide the current mechanical equipment that supplies the facility.



Second Floor Hallway



Storage/ Studio – Turret



Suspended Historic Track/ Lay in Ceiling



Suspended Historic Track

Though the overall condition of major building structure elements of the 1893 facility are in relatively good condition proposed renovations and building system upgrades will necessitate removable of non-historic facility’s interior components. The following elements and/ or building components and systems have been identified as requiring rehabilitation and/ or specialized rehabilitation and restoration work:

Brick Facades: While in overall good condition, the multi-wythe brick walls are exhibiting cracking at some locations—such as at window openings and corners. Water is permitted to enter at these locations and will cause on-going deterioration of the brick and back up wall construction and can also promote mold growth within the construction.

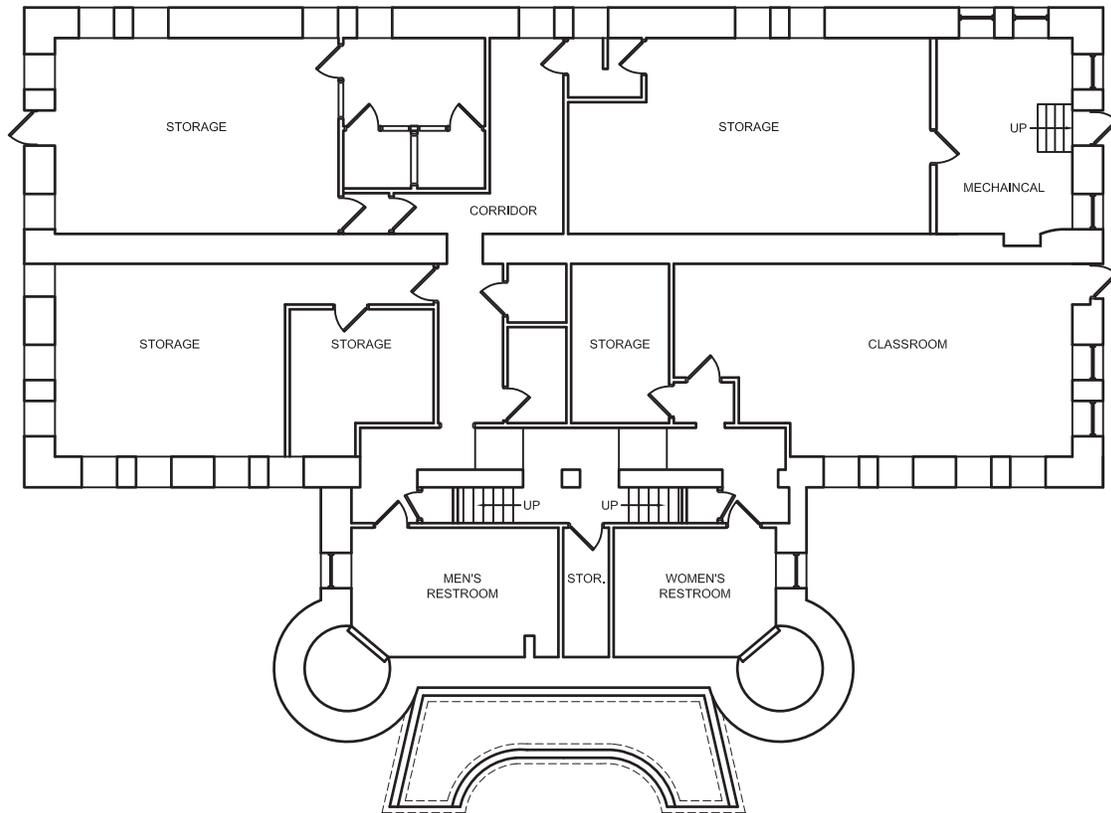
Windows: The existing single pane, painted, historic wood windows appear to be original to the facility. Glazing is aged and falling out. In some cases the wood framing has rotted and will require rehabilitation and/or replacement. The windows do not meet modern standards for energy efficiency. The wood frames, while keeping with the original historic construction and appearance require a high level of ongoing maintenance and are contributing to the poor energy performances of the building envelope.

Roof: The roof of Stewart hall has recently been replaced (2004) with a manufactured slate tile roofing system with new underlayment and built-in gutter.

5.5 Functional Shortfalls of Facility

1. Access. Currently there is only one means of handicap accessibility, via an ADA ramp on the west, which allows guest with disabilities to access the lower level. However, these guests are restricted to the lower level as there are no other means of accessible routes for accessing the remaining two levels. Providing an accessible ramp and an elevator would make the facility ADA accessible, which would increase its overall functionality.
2. Restrooms. The existing restroom facilities are non-compliant with ADA guidelines and are poorly located in the facility. Currently, the restrooms are located on the lower level which requires guests to traverse down to use the facilities.

5.6 - Existing Condition Floor Plans



EXISTING LOWER LEVEL FLOOR

BLDG.
NORTH

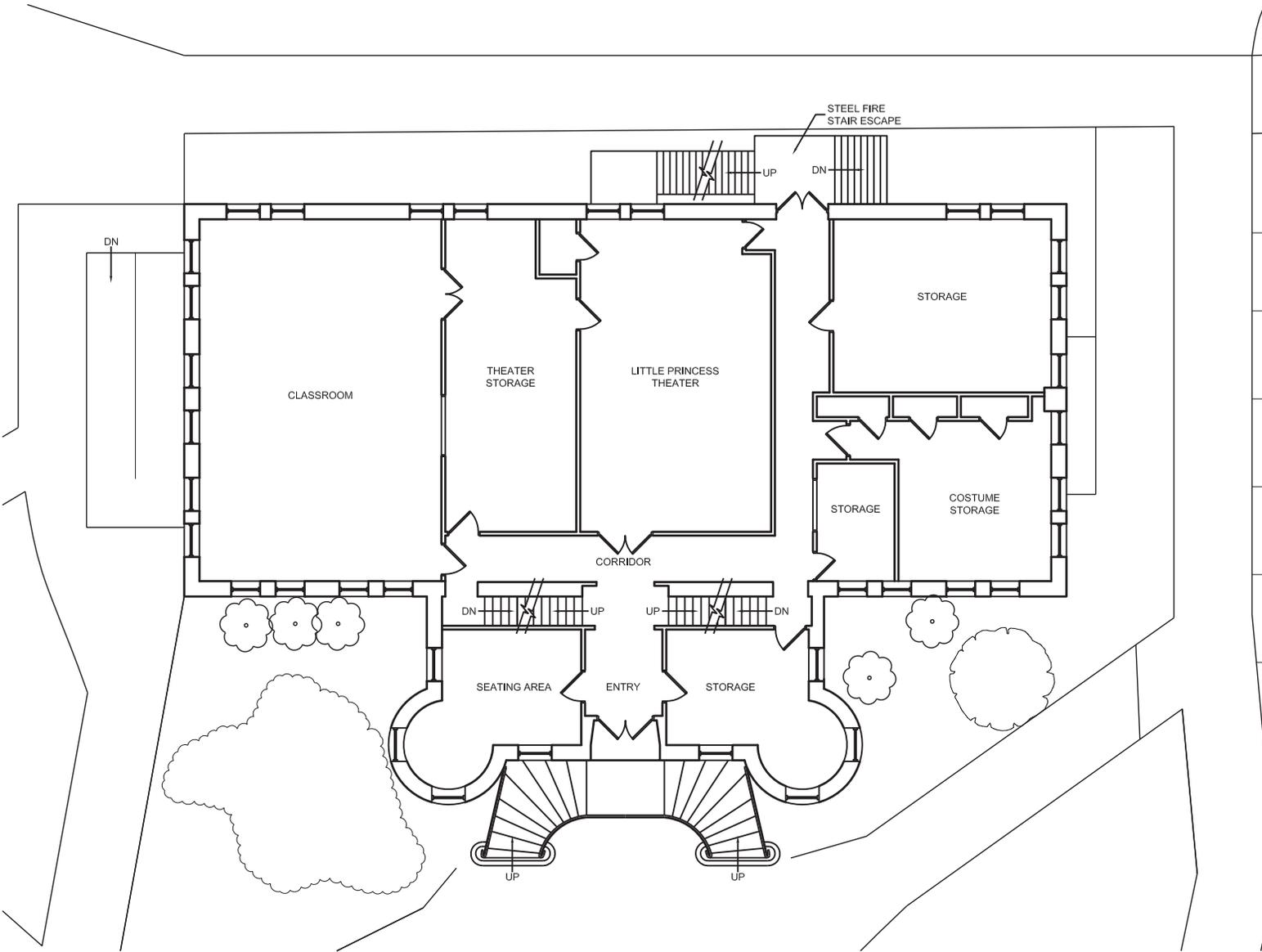


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





EXISTING FIRST FLOOR

BLDG.
NORTH



0 8' 16' 32'



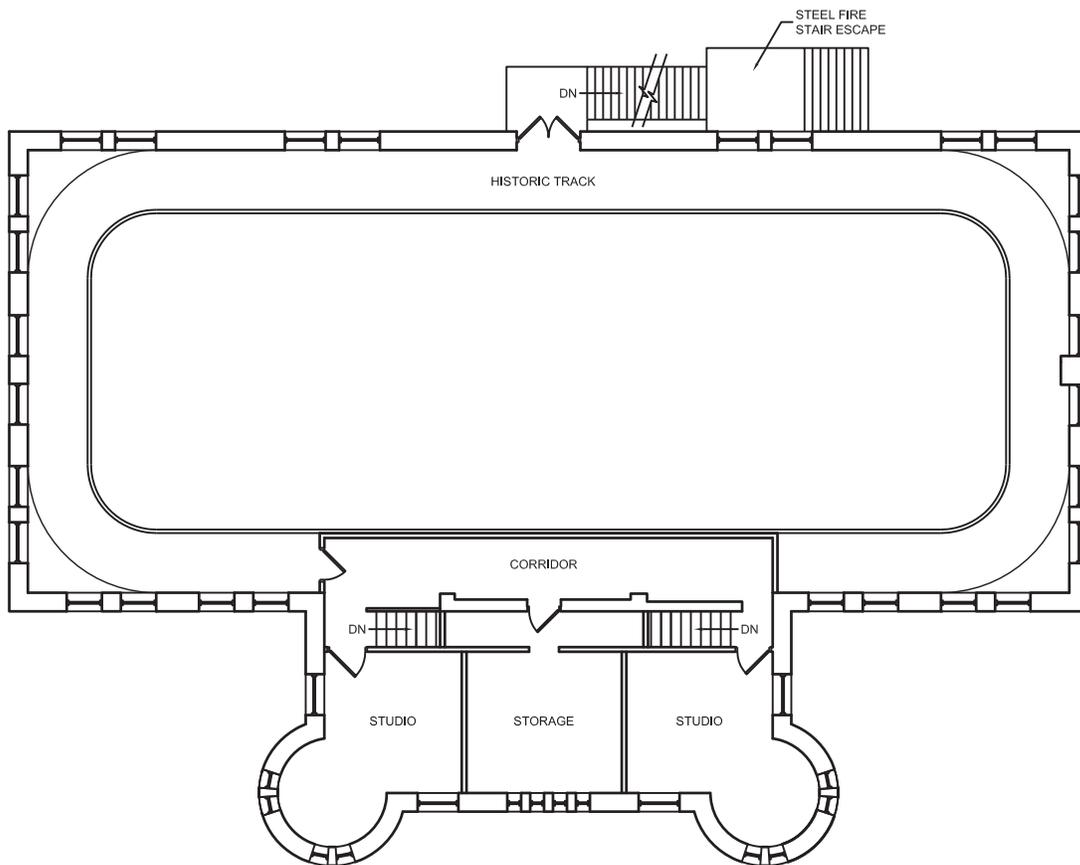
SCALE: 1/16" = 1'-0"



FEASIBILITY STUDY FOR STEWART HALL - SHIPPENSBURG UNIVERSITY
SHIPPENSBURG, PENNSYLVANIA

DATE: 08/25/14

Murphy & Dittenhafer
ARCHITECTS



EXISTING SECOND FLOOR

BLDG.
NORTH



0 8' 16' 32'



SCALE: 1/16" = 1'-0"



FEASIBILITY STUDY FOR STEWART
HALL - SHIPPENSBURG UNIVERSITY
SHIPPENSBURG, PENNSYLVANIA

DATE: 08/25/14

Murphy & Dittenhafer
ARCHITECTS

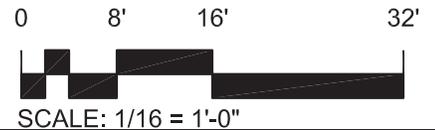
5.7 - Existing Condition Elevations



EXISTING SOUTH ELEVATION



EXISTING WEST ELEVATION

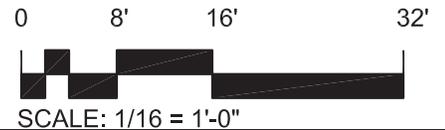




EXISTING NORTH ELEVATION



EXISTING EAST ELEVATION



5.8 - Existing Exterior Photographs

Stewart Hall - Exterior Photographs



Southeast View



South Elevation



Southwest View



West Elevation



Northwest View



North Elevation



Northeast View



East Elevation



Southeast View



Northwest View - ADA Accessible Ramp



Southeast View - Turret



Southwest View - Entrance Stair

5.9 - Existing Interior Photographs

Stewart Hall - Interior Photographs



Lower Level - Mechanical Room



Lower Level - Mechanical Room



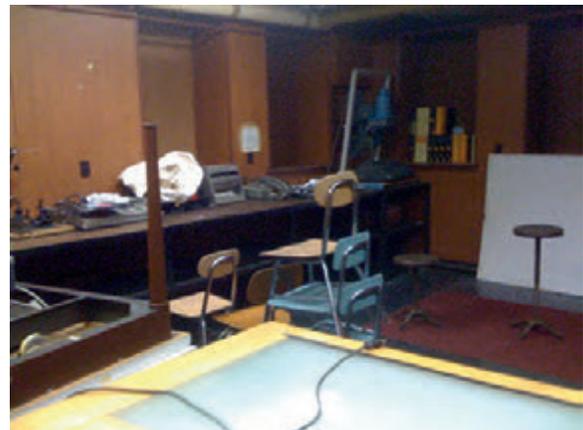
Lower Level - Classroom



Lower Level - Storage



Lower Level - Storage



Lower Level - Storage



Lower Level - Storage



Lower Level - Hall



Lower Level - Womens Restroom



Lower Level - Womens Restroom



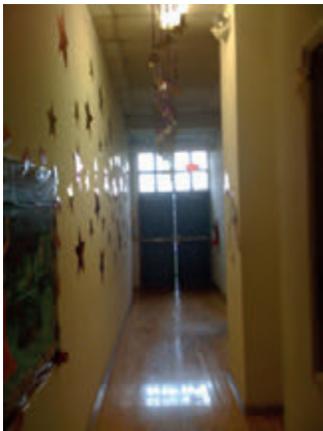
Lower Level - Mens Restroom



First Level - Stair Up



First Level - Hall (West to East)



First Level - Hall (South to North)



First Level - Playhouse Theater



First Level - Seating Area



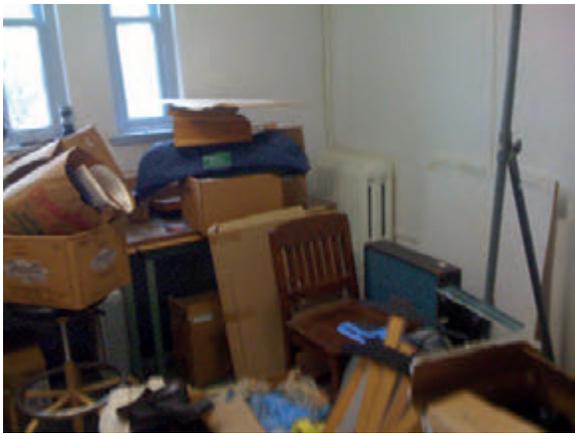
First Level - Theater Storage



Second Level - Stair Down



Second Level - Storage



Second Level - Storage



Second Level - Turret Area



Second Level - Hall (West to East)



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area



Second Level - Track Area Turret



Second Level - Track Area

5.10 Structural

The existing structure and foundation of Stewart Hall appear to be in good condition. There are no obvious signs of significant structural failure or other issues that would result in any unsafe conditions. However, some repairs are required to reinforce several load-carrying components. Other less critical repairs are also suggested to mitigate the potential for future distress.

1. Roof Framing

- a. The original roof framing, viewed from the attic access hatch, appears to be in generally good condition. Framing consists of 2x rafters, of various depths, at approximately 24 inches on-center. There were no visual signs of distress observed in the roof framing. See Photographs 1 and 2.



Photograph 1 – Attic framing



Photograph 2 – Attic framing

- b. Heavy timber trusses frame the roof of the gymnasium. The timber trusses are exposed to view and appear to be in good condition. The majority of the truss connections are visible from the running track. The connections are predominantly steel brackets and saddle plates with through-bolts. No sign of distress or damage was observed in any timber truss.
- c. A dormer exists on the east and west elevations of the buildings. A gap is present between the roof framing and the exterior wall that extends to the dormer. The wall was visually inspected from the ground and there does not appear to be any lateral displacement. See Photograph 3.



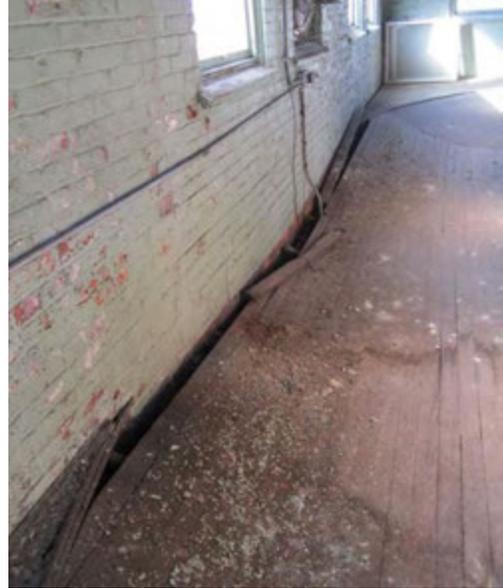
Photograph 3 – Gap at eyebrow dormer

2. Second Floor and Running Track Framing

- a. The second floor framing was not visible in the south portion of the building.
- b. The running track is framed with 2x floor joists. The floor joists span from the exterior walls to built-up wood beams around the interior perimeter of the running track. In addition to being supported on the exterior wall, the interior perimeter of the running track is supported from the timber roof trusses with 1³/₄ inch diameter hanger rods. The hanger rod connection to the running track was not visible. See Photograph 4.
- c. The flooring of the running track is severely warped. See Photograph 5.



Photograph 4 – Running track hanger rod



Photograph 5 – Damaged running track floor

- d. A number of interior brick arches above the windows are showing signs of distress. Step cracks are present in many of the brick arches. The cracks were not observed on the exterior of the building.

3. First Floor Framing

- a. The first floor framing was not visible in most of the building. A portion of the first floor framing was visible in the Mechanical Room. The framing that was observed consisted of 2x12 floor joists spaced at 12 inches on-center. Assuming that the entire first floor is framed with similar materials, the floor framing is adequate to support the loads required by code.
- b. Two horizontal cracks were observed in a mortar joint in the south exterior brick wall of the building. The first is located along the southwest wall of the original gymnasium, directly below two windows. The second crack occurs in the southeast corner of the building. Both cracks were observed from inside the building and have moved, horizontally, approximately $\frac{1}{2}$ inch. Neither crack nor any displacement was visible on the exterior of the building. See Photographs 6 and 7.



Photograph 6 – Southwest horizontal wall crack



Photograph 7 – Southeast horizontal wall crack

- c. It appears that the lintels above the first windows are trimmed with a 1x board. The majority of the 1x trim boards along the east and west walls of the building are displaced. Although the trim pieces are not structural, they may be concealing a possible water infiltration issue at the window heads. See Photographs 8 and 9.



Photograph 8 – Displaced 1x window trim



Photograph 9 – Displaced 1x window trim and brick damage

- d. The northwest corner of the first floor appears to be allowing water to infiltrate to the interior finishes of the building. Two window sills are rotted and should be replaced. Additionally, there are water stains on the ceiling tiles in multiple locations along the west wall. See Photographs 10 and 11.



Photograph 10 – Damaged window sill



Photograph 11 – Water stained ceiling tiles

- e. The southwest tower is exhibiting a significant amount of cracking in the plaster finish. At the time of our site visit the tower was closed and it appears that this room is unused and unconditioned. The plaster cracks may be the result of temperature variations throughout the year. See Photograph 12.



Photograph 12 – Plaster cracks in south-west tower

4. Basement

1. The basement appears to be in good condition and no structural deficiencies were observed.

5. Exterior

- a. The exterior walls are multi-wythe brick. Window lintels are flat, stone in the basement and first floor. Arched brick lintels were used on the second floor. The exterior of the building is in generally good condition. It appears that the exterior masonry was re-pointed in the past. No structural deficiencies were observed at the exterior of the building.
- b. The cast-stone stairs that serve the main entrance are beginning to separate at the joints. The horizontal and vertical joints between stair sections have deteriorated or are completely absent. Water can enter the open joints and cause further damage during freeze/thaw cycles. See Photographs 13 and 14.



Photograph 13 – Concrete landing



Photograph 14 – Concrete stairs

- c. The stone entrance slab in front of the main entrance doors is worn and pitted. Additionally, the joints along the east and west walls are significantly deteriorated. It appears that these joints are open to the walls and structure below, allowing water to infiltrate into the building. See Photograph 15.



Photograph 15 – Stone entrance slab

- d. The fire escape on the north elevation of the building is showing signs of age. The paint is deteriorated and missing over a large portion of the fire escape members.
- e. The deterioration of the fire escape has discolored and deteriorated the stone lintel over a window immediately below a fire escape platform. It appears that water has collected on the fire escape and infiltrated the stone lintel. See Photograph 16.
- f. A stone window sill on the west elevation adjacent to the ADA ramp is deteriorated. The stone has delaminated and is allowing water to infiltrate into the building. See Photograph 17.



Photograph 16 – Discolored lintel



Photograph 17 – Spalled stone sill

5.11 Mechanical/Plumbing

The existing building is served by the campus steam heating plant located and associated distribution system. The piping distribution is aged and outdated and will be removed in its entirety. Additionally, the existing building is cooled through a series of split systems. These units and their associated ductwork systems would not be appropriate for the new intended buildings usage and should also be removed in their entirety.

The existing plumbing fixtures and associated components are aged and outdated and should be removed/replaced. Additionally, the existing plumbing distribution systems throughout the building have reached their anticipated life cycle and should be removed and replaced with new piping systems. The existing sanitary and storm water sewer mains serving the building will remain.

5.12 Electrical

The existing electrical system is composed of a variety of outdated and aged components. The majority of existing lighting fixtures are outdated and aged, suspended fluorescents and should be replaced. Due to the architectural layout modifications being proposed throughout Stewart Hall, it will be necessary that all electrical systems, outlets, lighting, fire alarm, security and data systems be removed in their entirety and replaced to accommodate the new use.

6.0 RECOMMENDATIONS/ FINDINGS/ CONCEPT DESIGN

6.0 RECOMMENDATIONS/FINDINGS/CONCEPT DESIGNS

6.1 Featured Concepts Designs

The Murphy & Dittenhafer Architects staff developed a total of five Concept Designs, which were presented to Shippensburg University personnel on February 7, 2014. The five Concept Designs were presented/ reviewed and the following as noted:

Concept Option #1:

This scheme illustrated an approach that attempts to accommodate all program needs and functionality within the current footprint of the existing building. The main entry to the facility is via the First Floor raised main entry. This scheme demonstrated that given the limited available existing space within the historic building, some aspects of the programmatic needs for the University Relations Office work areas, staff restrooms, break room, critical storage rooms and catering areas could not be fully accommodated. It also indicated that Public restrooms could not be located in the desired location of the first floor/ main function room, due to lack of available and properly located space. The restrooms, serving guests at an Alumni public event in the first floor event space, in this option would be required to be located on the lower level, requiring guests to traverse down a level to access restrooms. Handicap accessibility to the building is provided via new (separate from the main entry) exterior ramp to the Lower Level. An exterior stair would be required to provide a second means of egress out of the second floor event space. Only the narrow existing stairs would provide access and egress to the track level, which may not be acceptable to the local Building Code Official.

Concept Option #2:

Similar to Concept Option #1, this scheme illustrates an approach that did also not consider increasing the available area of Stewart Hall. The scheme demonstrated that some aspects of the programmatic needs of the University Relations Office including office/ work areas, staff restrooms, break room, critical storage rooms and catering areas could not be fully accommodated. It also indicated that Public restrooms could not be located in the desired location on the first floor/ main function room, due to the lack of available and properly located space. The restrooms, serving guests at a public event in the first floor event space, in this option would be required to be located on the lower level, requiring guests to traverse down a level to access restrooms. Handicap accessibility to the building is provided via a new exterior ramp to the lower level, located at the front entrance of Stewart Hall. An exterior stair would be required to provide a second means of egress out of the second floor event space. Only the narrow existing stairs would provide access to the track level.

Concept Option #3:

This scheme illustrates an approach that increases the available area of Stewart Hall via an addition to the North side. The addition would include the requested storage and cater/prep areas, at the lower level and also provide restrooms located at the desired first floor/ main level easily accessed from the Main Function Room Space. A new prominent accessible ramp entrance, similar to Concept option #2, would be located near the front entrance of Stewart Hall, while a less prominent ramp would be located near the rear, which would be primarily used for deliveries/catering purposes. The central restrooms in this option would be utilized by University Relations Office personnel. Not all desired programmatic and functionality is achieved in this scheme.

Concept Option #4:

This scheme, illustrates an approach that increases the available area of Stewart Hall via an addition to the North side. In this scheme, a prominent accessible ramp entrance, similar to Concepts #2 and #3, would be located near the front entrance of Stewart Hall. The restrooms in this option would be located at the lowest level, requiring guest at functions on the first floor/ main level to traverse down a level to access the restrooms. The new elevator would be installed within the existing footprint, similar to previous schemes. The addition could accommodate a walk-out terrace/patio accessed from the main level event space. An exterior stair would be required to provide a second means of egress out of the second floor event space.

Concept Option #5:

This option accommodates all programmatic, functional and proper spatial relationships of the important public support spaces and offices for the University Relations Office via an addition to the North side of Stewart Hall. The addition would include all vertical circulation elements such as a new elevator and stair which would also provide access to the track level. A new prominent, accessible entrance would also be included in the addition, and is oriented to the visitors approaching from the “interior” of the Campus. By creating the addition, all current interior spaces on the lower and first floors can be laid out to best accommodate all programmatic needs of the University Relations Office. Public restrooms can be provided at the desired first floor event space. The scheme provides for ramped access to a Catering/Preparation space, and accessibility to all levels. This approach also would allow for a new (second) stair to provide a second means of egress from the track level, which is likely to be a requirement of the building code official.

Concept Option #5B:

Concept 5B is a variation of Concept 5 with one primary modification. In this option, the University Relations Director’s Office has been located at the second level, occupying part of the southeast turret. The lower level conference room has been relocated across the reception/lounge space and a work area, consisting of graduate work areas, has been programmed where the conference room was proposed. Though this scheme provides an additional area for graduate work areas, resulting from the relocation of the director’s office, it does create a disconnected University Relations Department.

Upon various discussion and additional review it was concluded that Shippensburg University found Concept option #5 was the most desirable approach, that best met the desired programmatic needs, functionality and space relationships. As a result, the remainder of this report will use Concept option #5 as the basis for recommendations.

6.2 Additional Featured Elements of the Proposed Concept Layout Rehabilitation/ Restoration & Additions

The proposed concept design for the improvements to Stewart Hall also corrects deferred maintenance items, provides for needed life cycle replacement of specific building components and systems, corrects deficiencies and improves the functionality for housing the University Relations Office and the Alumni Association.

6.3 Recommendations

While the existing Historic Stewart Hall structure appears to be in overall good condition, and there are no obvious signs of aspects such as significant structural failure, the following recommendations have been established to improve the integrity, functionality and energy efficiency of the facility:

Brick and Stone base facades: The deteriorated window heads will require re-building. The cracks in the joints should be raked to remove any loose or deteriorated mortar and re-pointed with a matching mortar of the same/similar hardness mortar as the existing mortar. See the structural evaluation of this study for more information regarding this subject.

Windows: Energy efficiency and occupant comfort would benefit from replacing the windows with modern aluminum clad, wood windows of a similar type/ appearance acceptable to the Pennsylvania Historic and Museum Commission, to match the existing sizes, profiles, and details of the current windows.

Roof & Gutters: This roof system has been replaced with a new slate-look synthetic system with proper underlayment and ice and water shield, historically accurate valley and other flashings and built-in gutter.



Southwest Corner



Southeast Corner - Windows

6.4 Interior Scope of Work

In addition to the proposed circulation, room layout, system improvements, and the addition of needed space, deficient qualitative aspects of the interior finishes and appearance should be addressed as part of a comprehensive adaptive re-use, rehabilitation and restoration. To address the identified deficiencies, the following items should be included with this rehabilitation/ restoration project.

1. Remove all non-historic partitions, finishes, wall, ceilings and etc.
2. Remove suspended ceiling to expose original roof trusses and track.

3. Rehabilitate/ Restore historic features (ie. stairs, suspended track, details, trim, wood floors and etc).
4. Address improved energy-efficiency performance by adding insulation and vapor barrier to the exterior walls (min. R-25 total wall R-value), and min. R-38 at roof level (if possible).

6.5 Structural Scope of Work

1. Roof Framing Recommendations

- a. The wood ceiling should be removed so that the roof framing along the gable walls and dormer can be observed. Based upon those observations, the gable end roof framing may need to be reconnected to the gable end walls.

2. Second Floor and Running Track Recommendations

- a. A portion of the running track framing should be exposed so that a more detailed observation of the framing can be made. The connections of the hanger rods should also be exposed for further observation.
- b. Areas of the running track wood flooring will likely need to be removed and re-installed.
- c. All of the brick window arches on the second floor should be re-pointed.

3. First Floor Framing Recommendations

- a. The mortar surrounding the horizontal cracks in the walls should be removed and the wall should be re-pointed. Additionally, ¼ inch diameter helical ties should be installed in the displaced brick courses to prevent future movement in the wall.
- b. The 1x trim pieces that are displaced should be removed. Additional observations should be made to determine if a problem exists with the existing lintels.
- c. Several damaged window sills should be removed and rebuilt.
- d. A portion of the plaster should be removed in the southwest tower. Specifically, the window head should be exposed to determine if the cracks translate into the structural header above the window. If the cracking is present in the masonry wall, the wall will need to be re-pointed and reinforced with ¼ inch diameter helical ties.

4. Basement Recommendations

- a. There are no structural recommendations at this time – no conditions of concern were observed.

5. Exterior Recommendations

- a. All joints in the entrance stair should be cleaned and re-sealed.

- b. The entrance stone slab should be cleaned. The joints along the east and west walls should be cleaned and resealed.
- c. The entire fire escape should be cleaned to remove any rust or loose paint (if not removed). The entire structure should be repainted.
- d. The stone lintel below the fire escape should be thoroughly cleaned. The lintel should then be evaluated to see if any section loss or significant cracking has occurred.
- e. The stone sill should be cleaned and all loose stone should be removed. In addition, the joint between the window and the sill should be sealed.

6.6 Mechanical/Plumbing Scope of Work

1. Summary

- a. Stewart Hall's mechanical systems are generally comprised of equipment that has been operated beyond the anticipated service life. Additionally, through meetings with university personnel and site observations, it has been determined that the current system would need to be removed and replaced with a new energy efficient system.



Existing Mechanical System

2. Mechanical System Upgrades

- a. The existing building is served by the campus steam heating plant and associated distribution system within the building. The steam service equipment and piping distribution will be removed in its entirety.
- b. The building will be served by heating water and chilled water which will be produced outside of the building. The chilled water will be from the campus chilled water loop system. The heating water will come from the heating water plant located in the Kriner Dining Hall. Heating water supply and return piping from the Kriner system will be extended into Stewart Hall under this project. The chilled water and heating water services will be extended into the Lower Level

mechanical room. Anticipated loads are:

1. Chilled Water: 550 MBH
2. Heating Water: 480 MBH

- c. Provide chilled water and heating water distribution system within the building to serve distributed local fan coil units. The heating water and chilled water plants, which are located outside of Stewart Hall and are not included in this project, will provide adequate pressure/flow as well as associated controls. Pump sets and controls will not be required within Stewart Hall.
- d. The chilled water and heating water piping shall be schedule 40 steel and shall be insulated with 2 inch and 1-1/2 inch thick fiberglass with all service vapor barrier jacket respectively.
- e. An energy recovery ventilator will be utilized to provide tempered ventilation air through distribution ductwork to connect to each of the individual fan coil units. This unit will be located in the Lower Level mechanical room. Fresh air and relief air will be brought into/exchanged out of the building through two new louvers which will replace existing windows in this room.
- f. Fan coils will be provided per the following:

Lower Level

1. Cate Prep/Storage: 1200 CFM
2. Break Room/Two Offices: 650 CFM
3. Two Offices: 400 CFM
4. Main Lobby and Hall: 900 CFM
5. Large Office: 500 CFM
6. Conference Room: 850 CFM
7. Restrooms and Storage: 350 CFM

First Floor

1. Restrooms: 1100 CFM
2. Event Space and Open Space Above: (4) 2400 CFM Units
3. Reception and Lounge: 800 CFM

Second Floor:

1. Lounge: 950 CFM

- g. The exhaust air serving toilet/utility areas as well as building relief air will be brought through the energy recovery unit.
- h. Provide exhaust ventilation for toilet rooms, storage rooms and janitorial areas, consisting of ductwork connected to air devices in the space. Spaces shall be served as follows:
 1. Toilet Rooms – Exhaust at 85 CFM/water closet (or urinal)
 2. Janitor's Closet – 100 CFM
 3. Storage Room – Exhaust at 1.5 CFM/SF
- i. Provide an energy management control system. Provide duct smoke detectors in the supply duct for each unit. Provide for shutdown of the HVAC unit on

sensing improper conditions. Provide a remote switch for fire department use mounted near the entrance to the space. EMS shall be by Automated Logic.

- j. All sheet metal shall be galvanized steel in accordance with SMACNA, except condensate exhaust shall be aluminum.
- k. Each fan coil unit shall be served a secondary drain pan with a water level detector. The drain pan shall also house the associated condensate pumps, where needed.
- l. Supply air ductwork shall be insulated with 1 1/2" fiberglass ductwrap with vapor barrier jacket.
- m. Square supply air devices shall be Titus Model TDC, louvered face, with opposed blade dampers. Devices.
- n. Return air devices shall be Titus Model 350 with opposed blade dampers. Exhaust grilles shall be the same without volume dampers. Devices shall be steel.
- o. Complete air and water testing and balancing services shall be provided in accordance with AABC.

3. Plumbing System Upgrades

- a. Provide a 4" sanitary pipe from the existing main sanitary sewer entering the building and extend new piping to fixtures and appliances requiring connecting within the building. Connection to the existing main will be made just inside of the building. All new sanitary piping is anticipated. Sanitary piping above the floor shall be cast iron. Sanitary piping below grad shall schedule 40 PVC.
- b. Provide domestic water piping from a new water services and extend to new fixtures and appliances requiring connection to a new domestic service. A 3" domestic water service is anticipated for the building (located in a mechanical room in the Lower Level). Cold water, hot water and hot water circulation piping shall be type "L" copper and shall be insulated with 1" thick fiberglass with all service vapor barrier jacket.
- c. Provide an electric storage type water heater to serves as the building's domestic hot water needs. This water will be a 15KW, 80 gallon water heater and will be located in the Lower Level mechanical room.
- d. Recirculation pumps and distribution will be installed to serve the domestic hot water piping system, location within the mechanical room in the Lower Level. The toilet rooms, food service, and janitorial areas shall be served by this water heater plant. 140 degree hot water piping will be extended to food service and janitorial fixtures and 120 degree hot water piping will be extended to the remaining fixtures and appliances requiring connection. A separate hot water circulation piping system for each temperature distribution system will be provided so hot water is circulated within ten feet of the fixtures.

- e. All new plumbing fixtures shall be low flow with flush valves for water closets and urinals.
- f. Provide condensate lines from each of the fan coil units and connect to the storm water main outside of the building. Condensate piping will be type "L" copper and shall be insulated with 1 inch thick fiberglass with all service vapor barrier jacket. Provide condensate pumps where needed.
- g. Provide a new and complete wet/dry pipe sprinkler system in accordance with NFPA 13 to protect the building. The anticipate new fire protection service size for the building is 6".
- h. Sprinkler system zoning shall be coordinate with the Building Code review as well as the fire alarm system.
- i. Provide main, branch sprinkler heads. System shall include main system shut off valve, tamper switches and back flow preventer. Refill and retest as necessary.
- j. Piping to be schedule 10 black steel.
- k. Sprinkler heads shall be fully recessed commercial quick response with white finish.

6.7 Electrical Lighting/Power Scope of Work

1. Summary
 - a. The existing electrical systems in Stewart Hall are in poor condition and consist of outdated components and will need to be replaced.
2. Electrical System Upgrades
 - a. Since major architectural modifications are being proposed throughout Stewart Hall's three levels, the electrical power and outlets, lighting, fire alarm, security and data systems will all be removed as required to accommodate the new architecture.
 - b. Current electrical codes require the installation of arc fault circuit breakers for branch circuits. This new technology provides protection from electrical fires due to arcing within receptacle and outlets boxes. Although not a requirement to upgrade to current standards under renovations, these breakers will be installed as part of this rehabilitation project for their enhanced safety features.



3. Lighting

- a. Single Occupancy Offices: Provide recessed ceiling mounted indirect with perforated center three lamp T8 fluorescent basket fixtures, with step dim electronic ballast. Lights are controlled by wall mounted dual level occupancy sensor controlled switching. Occupancy sensors shall be dual technology wattstopper or equal.
- b. Lounge, Event Space, Reception: Provide with a combination of decorative pendant fixture, wall sconce fixtures and recessed downlighting. Area lighting shall be controlled by a dimming system. System shall have automatic shut off feature and scheduled timer with override.
- c. Restrooms, back of house corridors and large storage spaces: Provide with recess ceiling mounted lensed three lamp T8 fluorescent troffer fixtures. Lights are controlled by local ceiling mounted dual technology line voltage occupancy sensors.
- d. Small storage closets: Provide with surface mounted, fluorescent strip acrylic wrap around fixtures.
- e. Stairs: Provide with decorative fixtures with integral occupancy sensor to reduce lighting level to 50% when unoccupied where required to meet local energy codes.
- f. A combination of specified fixtures with integral emergency option/battery pack, self-contained battery operated emergency lights and LED exit signs shall be installed throughout the building per NFPA 101. Remote emergency lighting heads shall be provided at exterior exit doors. The locations and quantities of exit signs and battery operate emergency lights be per code.

4. Fire Alarm System

- a. The building is to be equipped with a U.L. listed addressable type fire alarm and detection system that will network with the campus system and meets the University Design Guidelines.

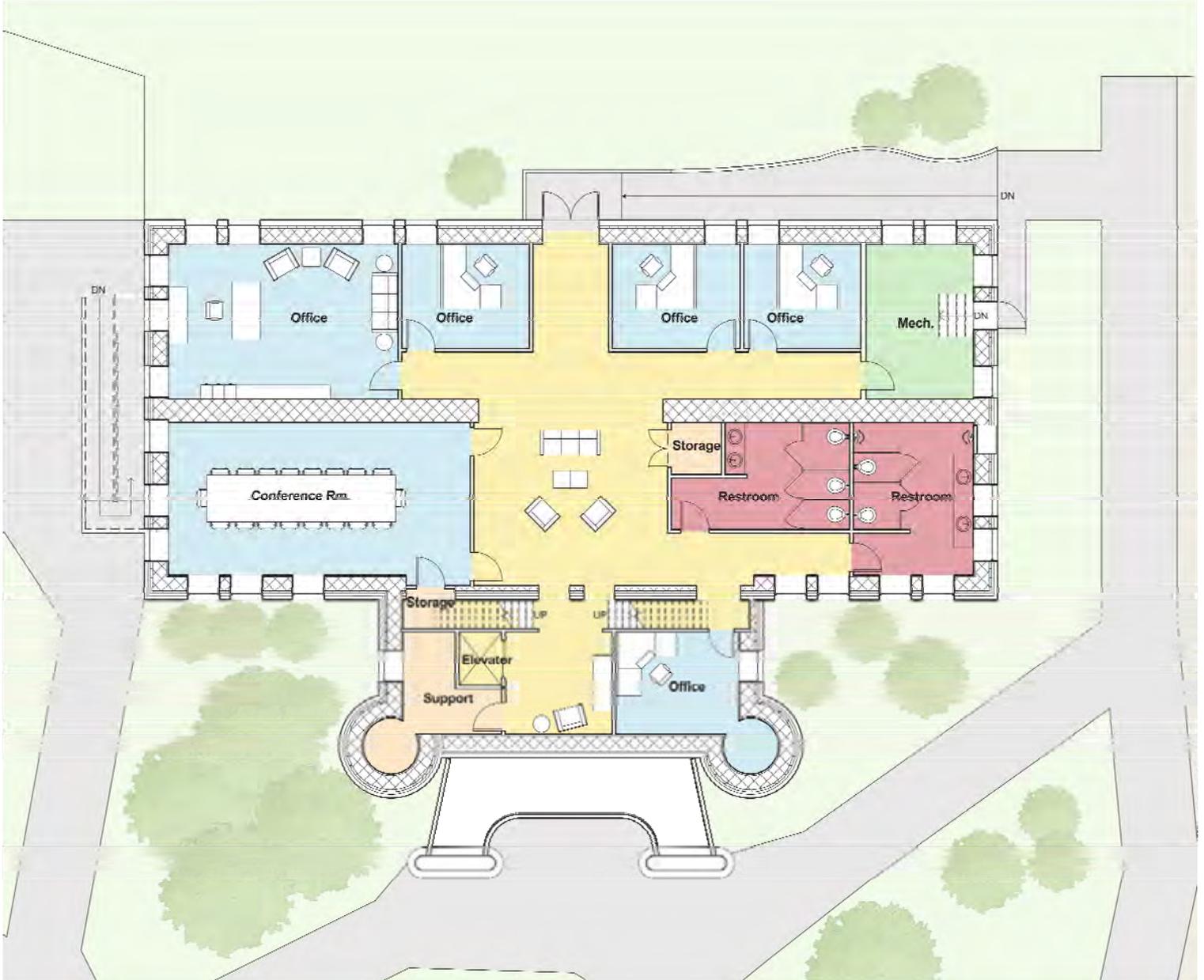
5. Security System and Door Access

- a. The building will be provided with a complete university approved campus security system.
- b. Provide card access at the Lower Level.

6. Telephone and Data Distribution

- a. Telephone and data outlets shall consist of a single gang outlet boxes and 1" conduits up to a point above an accessible ceiling. Cabling shall be provided from each outlet to the MDF/IDF patch panels and terminated.
- b. Two (2) 4" conduits shall be provide from the utility pole or pedestal to the main telephone demarcation backboard within the building.
- c. An MDF should be provided in the existing lower mechanical room for the data, phone, fire alarm and security systems.
- d. A telephone backboard shall be provided on the wall of the MDF room. The backboard shall consist of 4'x8'x3/4" fire resistant plywood.
- e. Conduit pathways shall be provided to other floors or areas that would not have access via accessible ceiling types.
- f. Telephone and data outlets shall be installed throughout the buildings and at locations determined by owner. As a minimum, telephone/data outlets shall be located within Single occupancy Offices, Conference room, reception and the like
- g. A 120 volt double duplex receptacle shall be provided at the telephone back board. A 120 volt duplex receptacle shall be installed adjacent to each future outlet.

7.0 RECOMMENDATIONS FIGURES AND IMAGES



CONCEPT 1 - LOWER FLOOR

BLDG.
NORTH

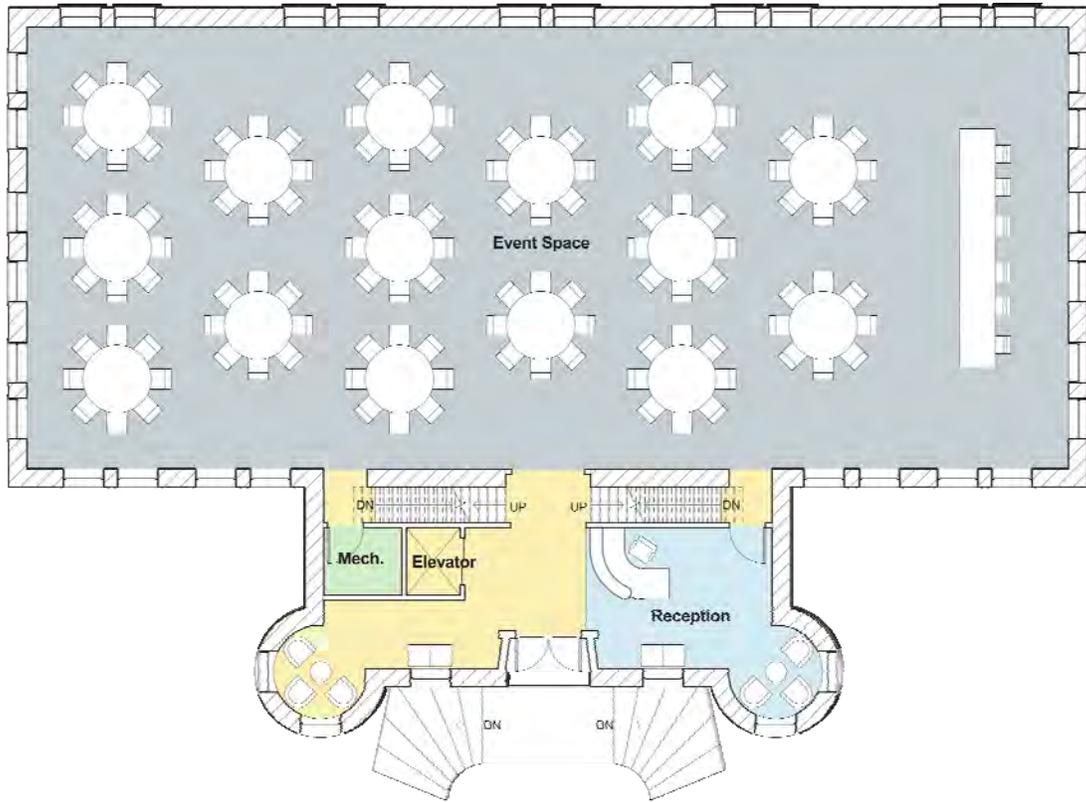


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 1 - FIRST FLOOR

BLDG.
NORTH

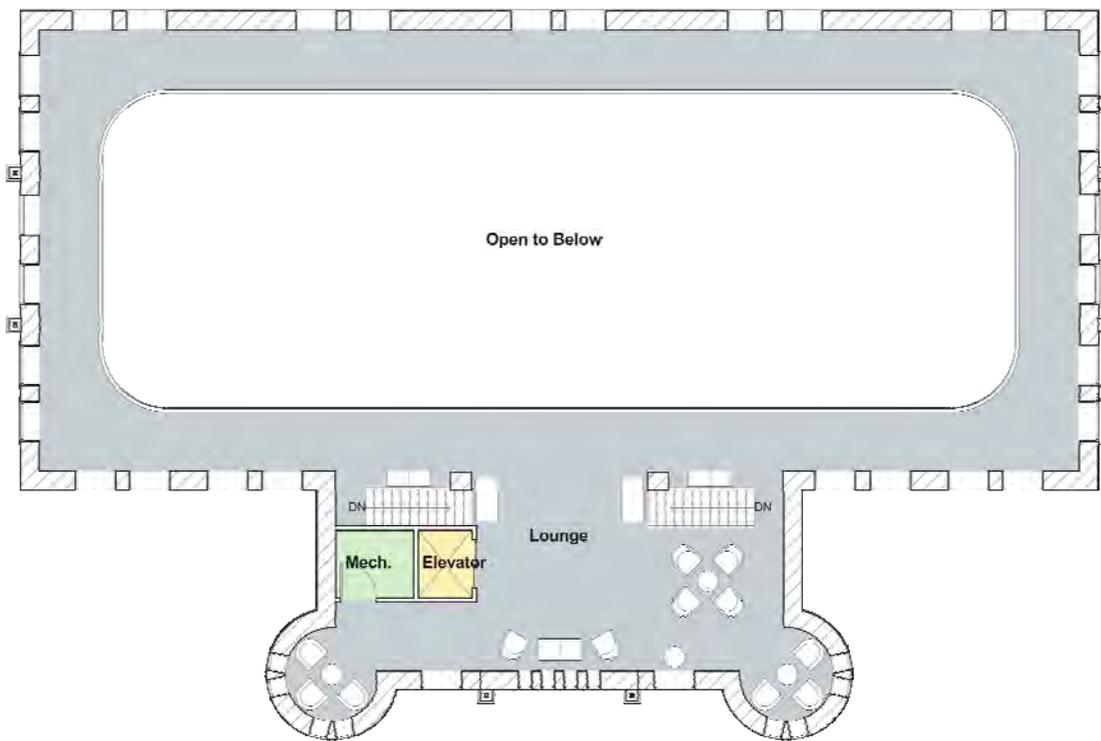


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 1 - SECOND FLOOR

BLDG.
NORTH

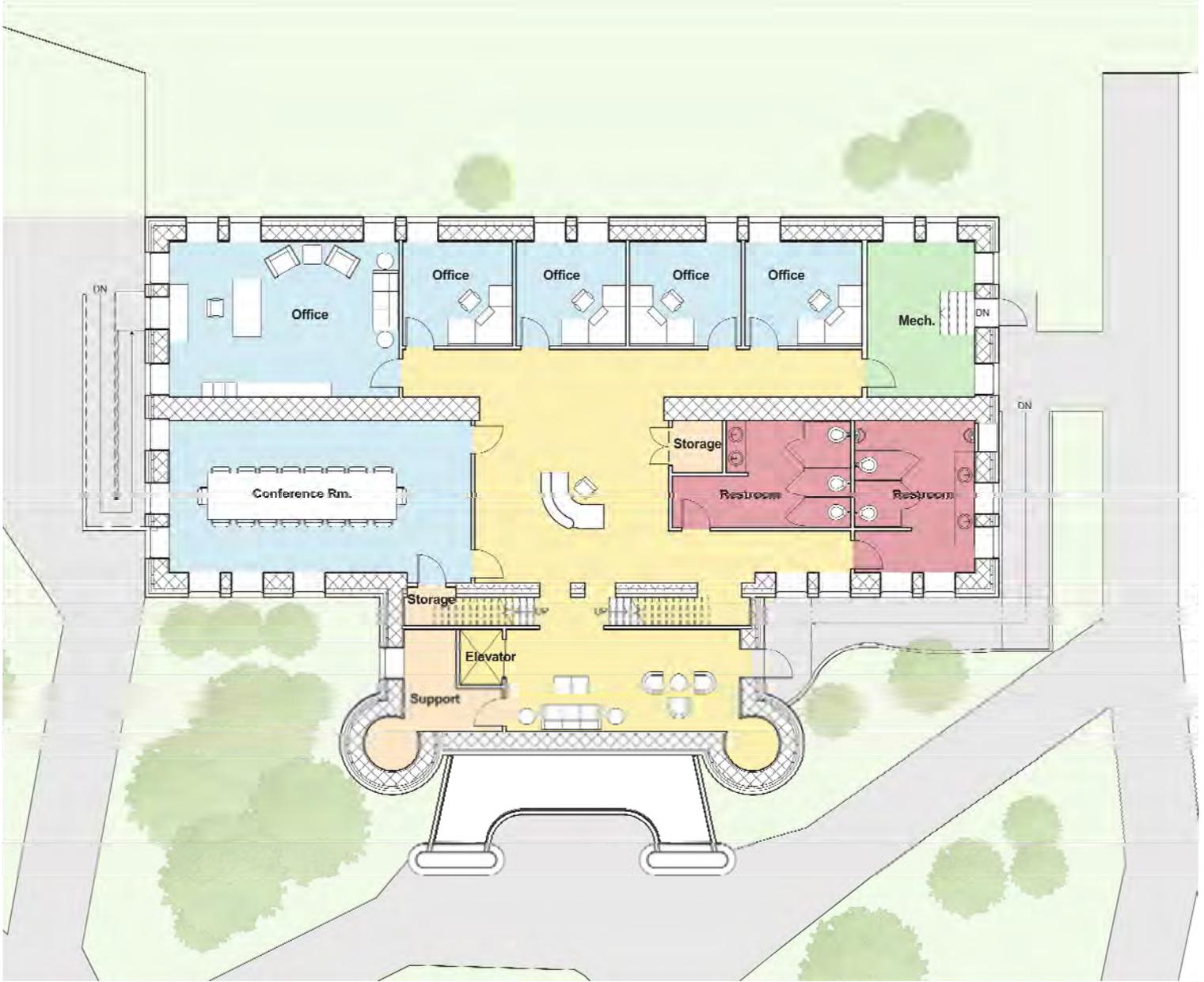


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 2 - LOWER FLOOR

BLDG.
NORTH

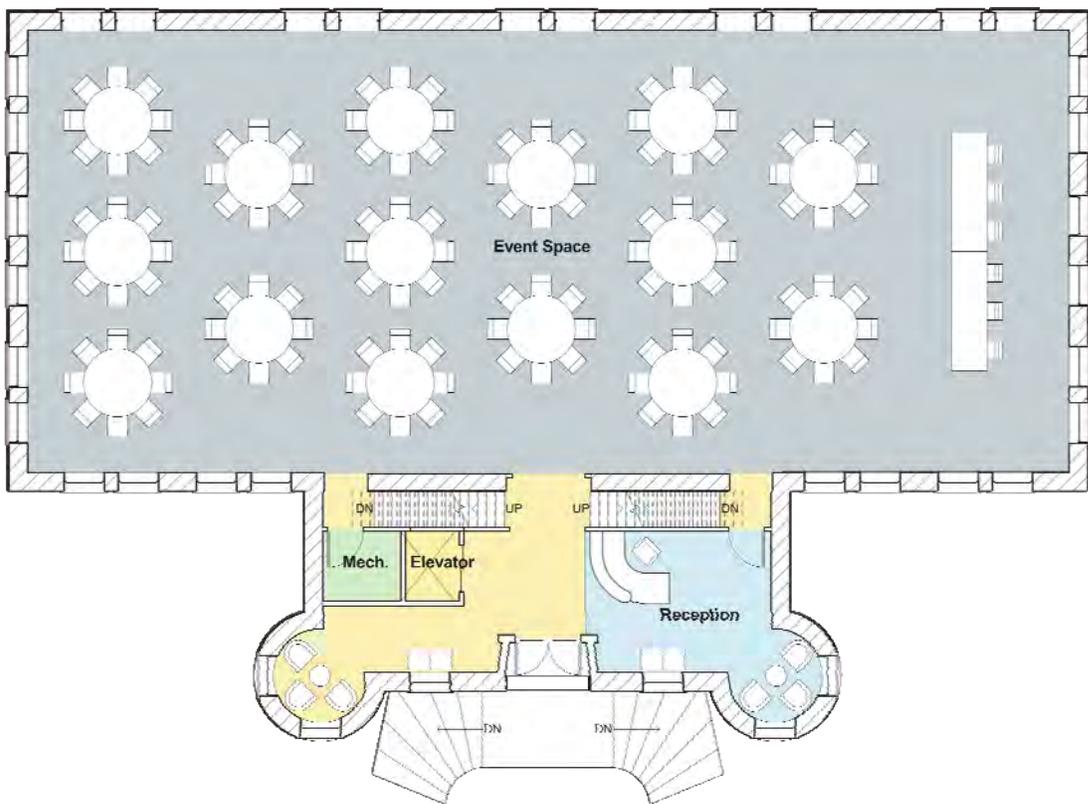


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 2 - FIRST FLOOR

BLDG.
NORTH



0 8' 16' 32'



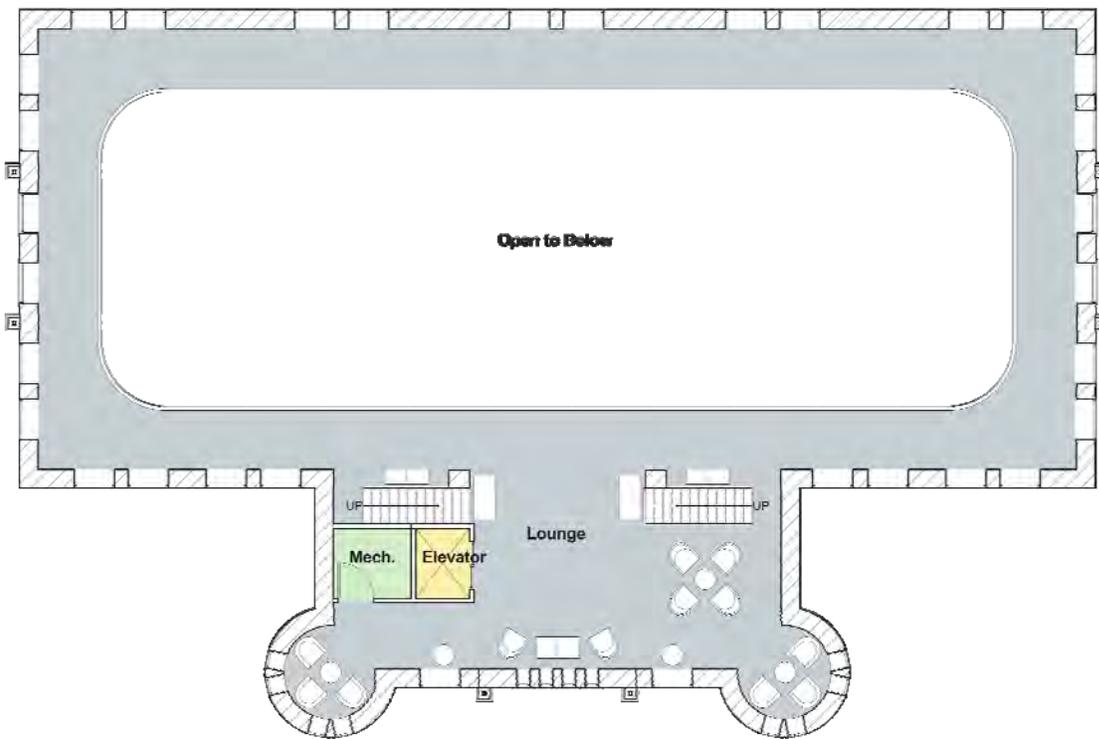
SCALE: 1/16" = 1'-0"



FEASIBILITY STUDY FOR STEWART
HALL - SHIPPENSBURG UNIVERSITY
SHIPPENSBURG, PENNSYLVANIA

DATE: 08/25/14

Murphy & Dittenhafer
ARCHITECTS



CONCEPT 2 - SECOND FLOOR

BLDG.
NORTH

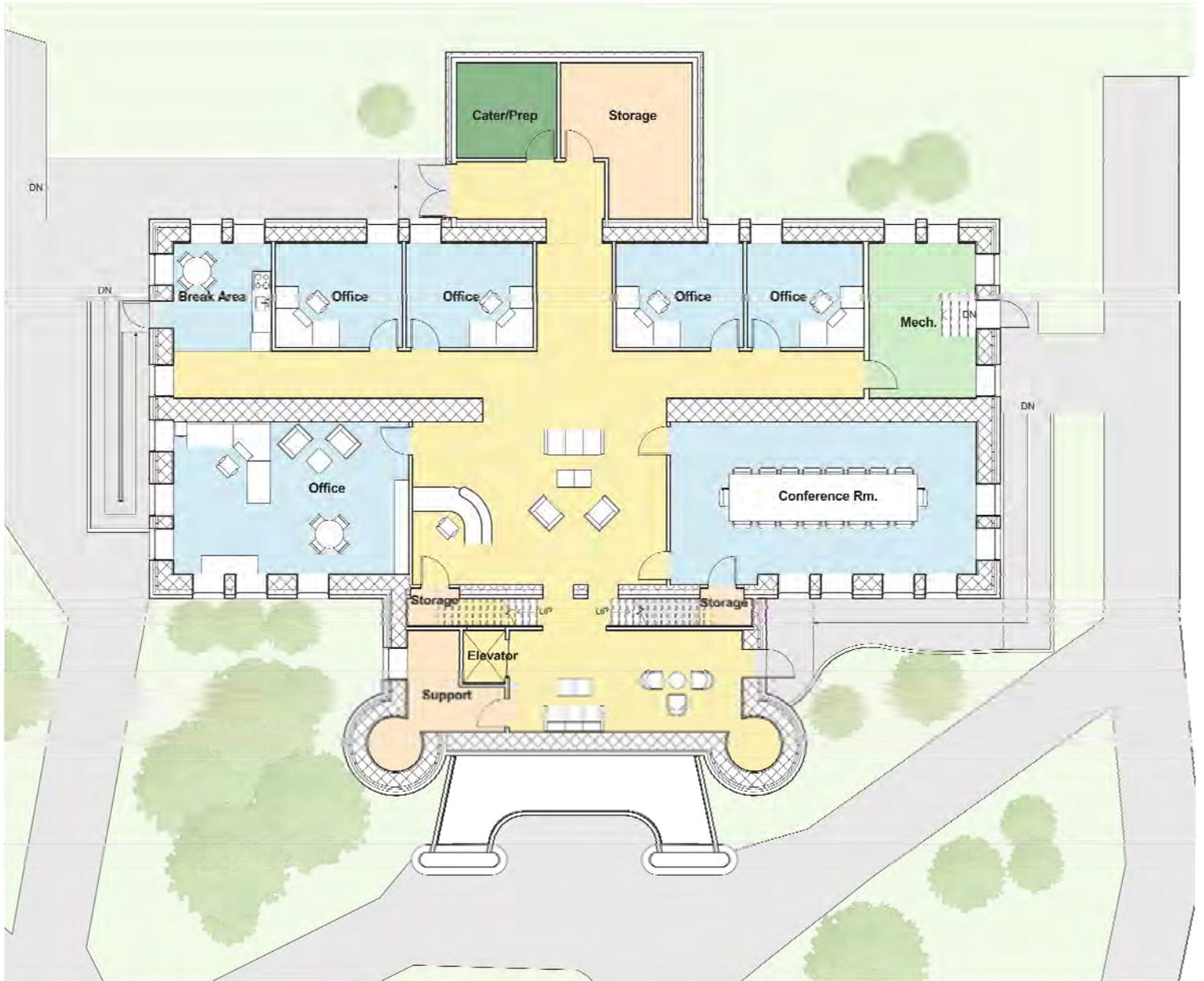


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 3 - LOWER FLOOR

BLDG.
NORTH

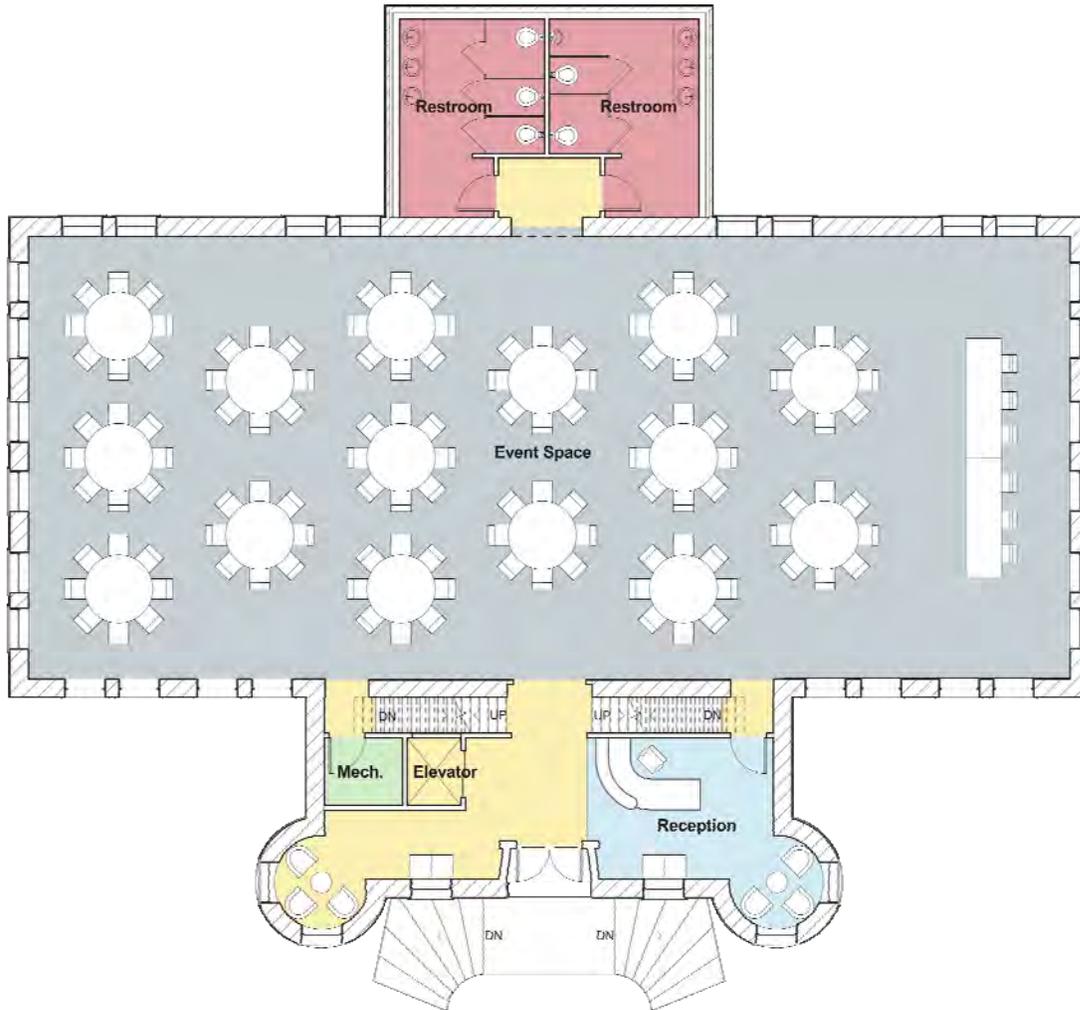


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 3 - FIRST FLOOR

BLDG.
NORTH

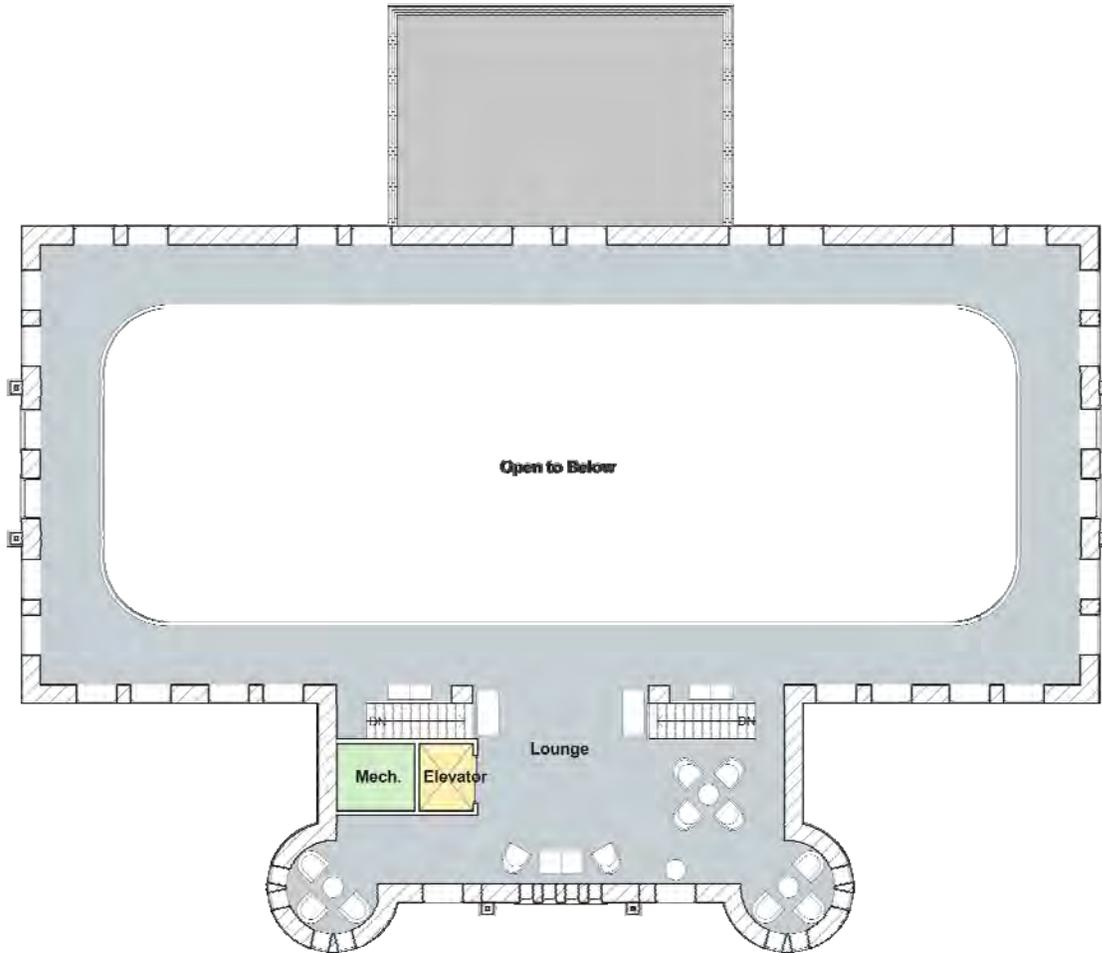


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 3 - SECOND FLOOR

BLDG.
NORTH

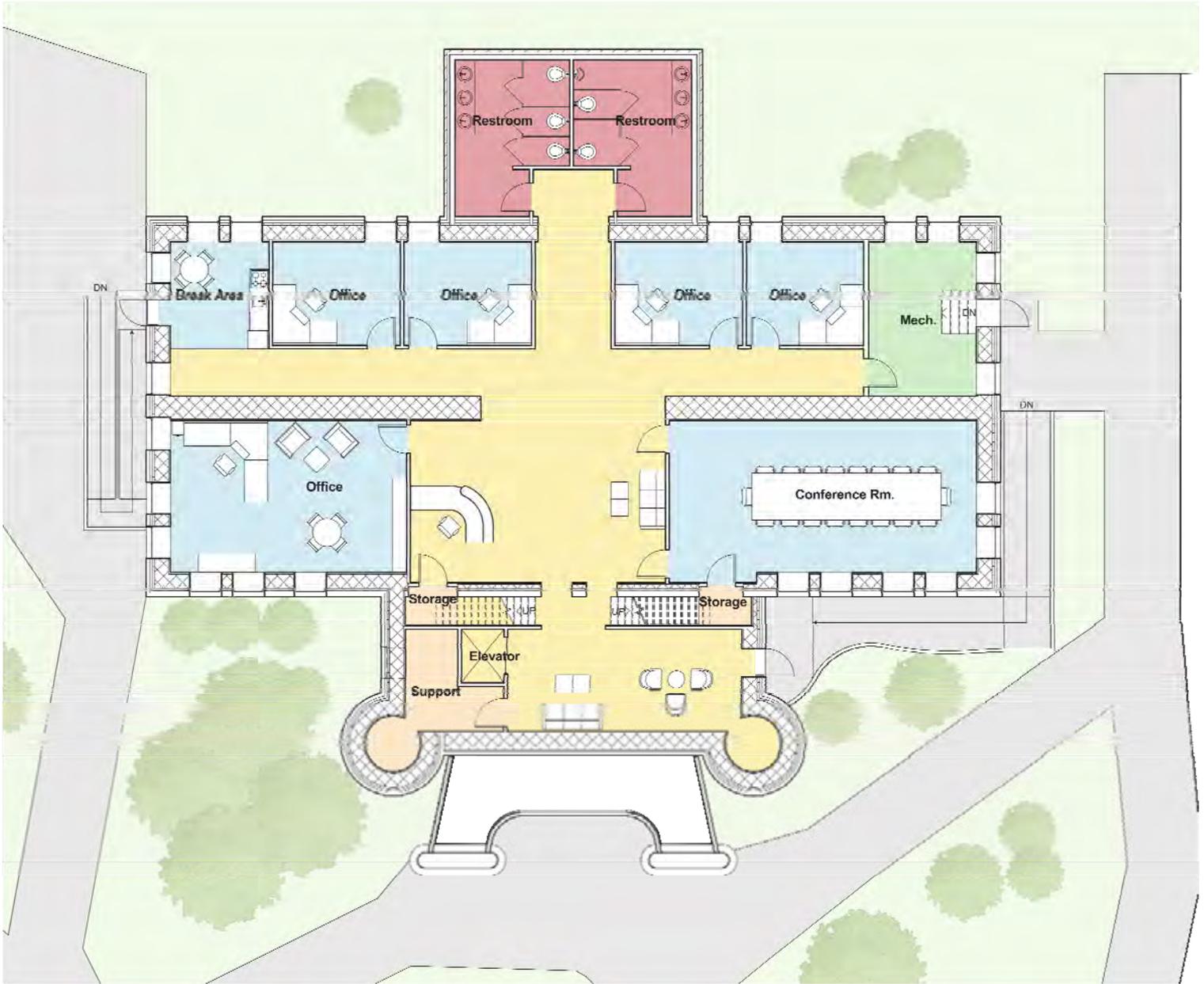


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 4 - LOWER FLOOR

BLDG.
NORTH

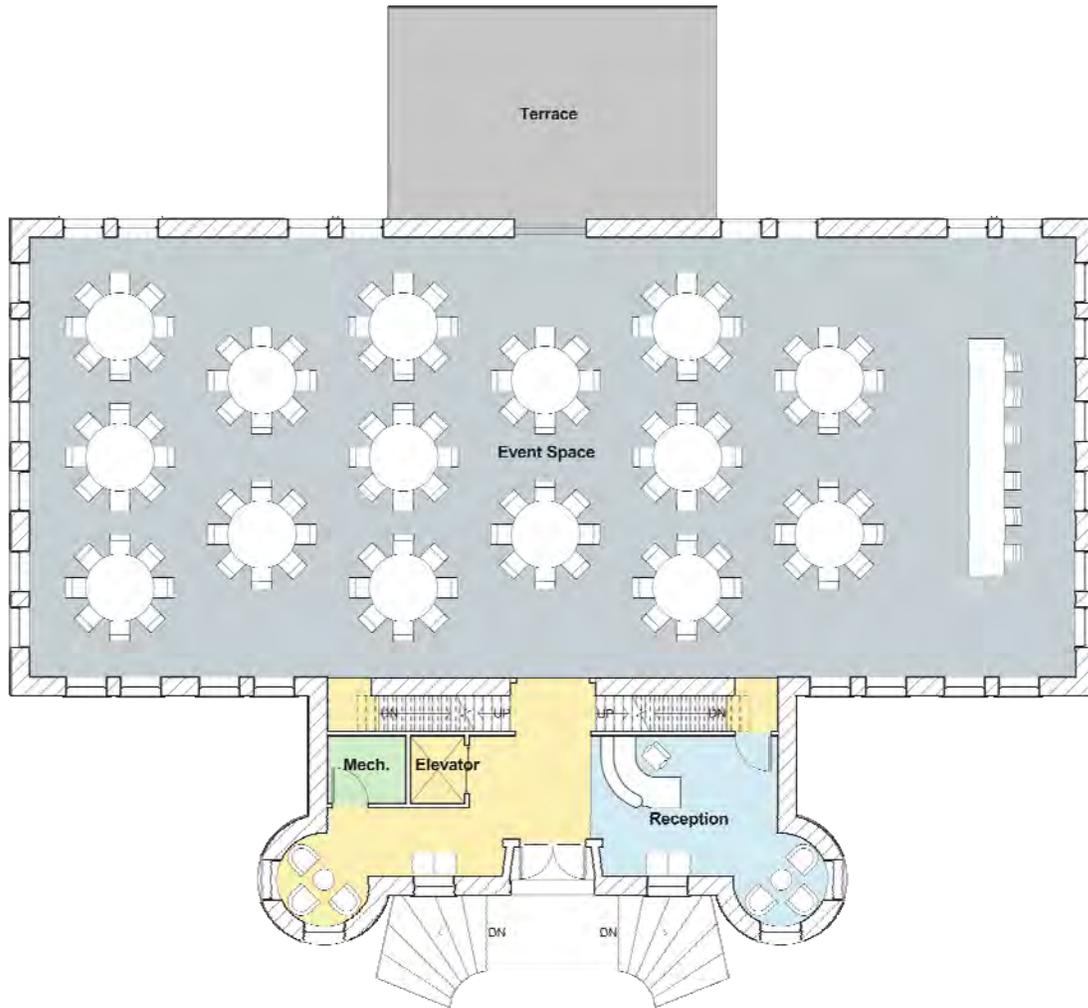


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 4 - FIRST FLOOR

BLDG.
NORTH

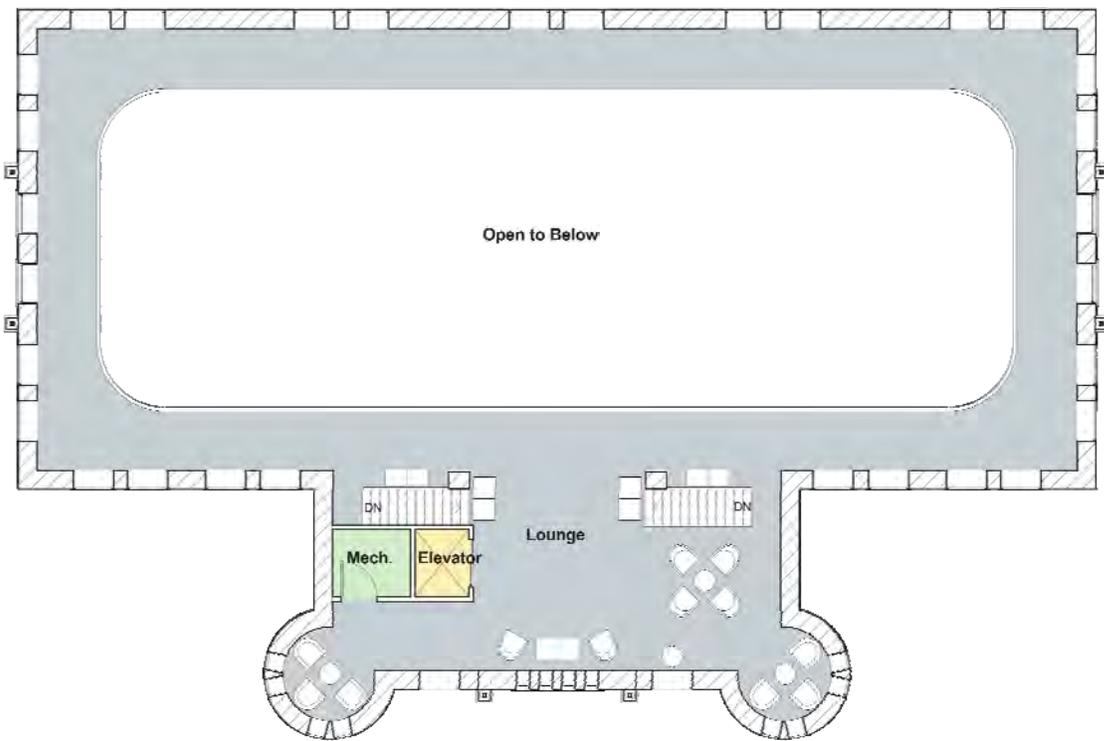


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 4 - SECOND FLOOR

BLDG.
NORTH



0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 5A - LOWER FLOOR

BLDG.
NORTH

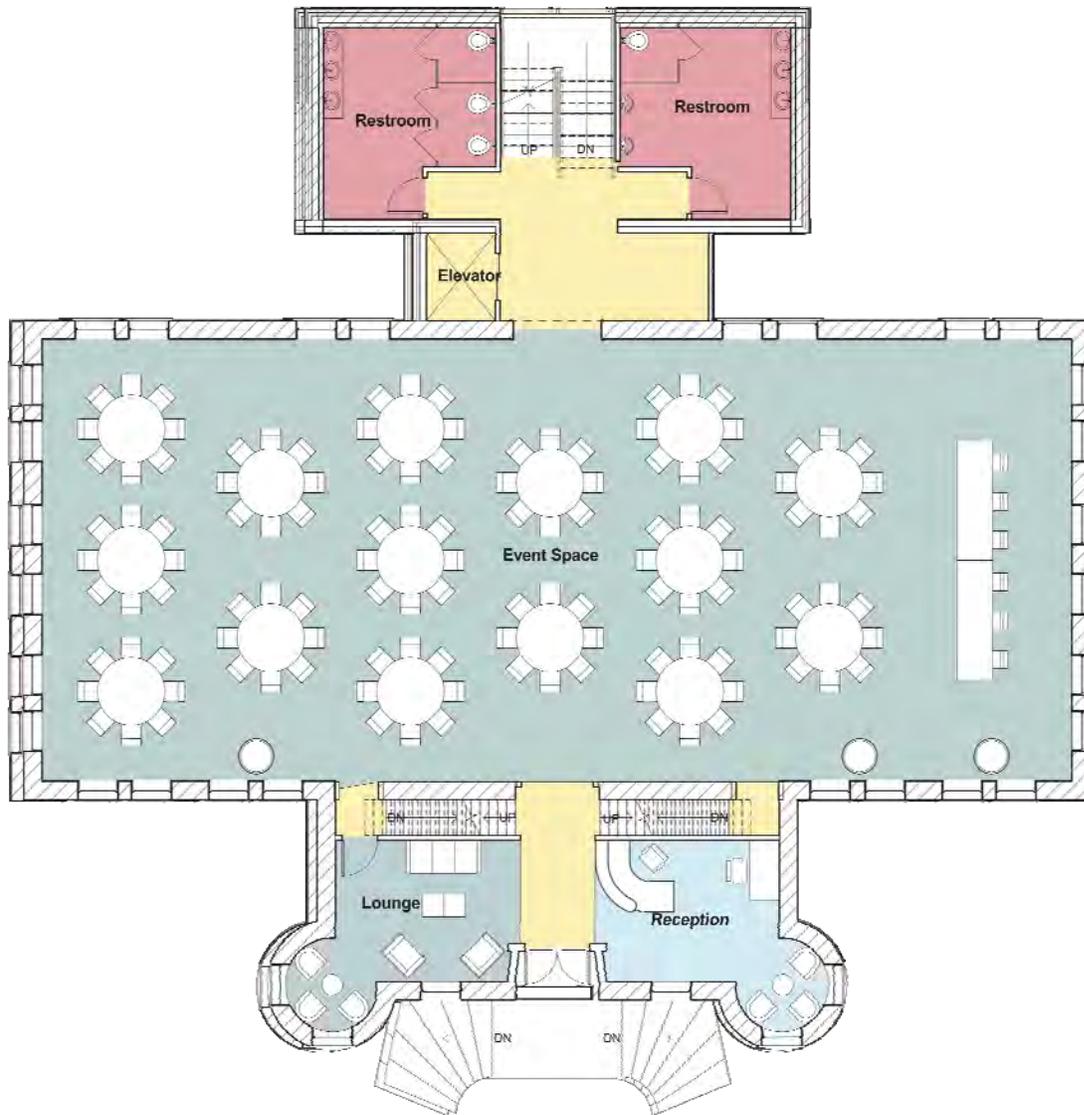


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 5A - FIRST FLOOR

BLDG.
NORTH

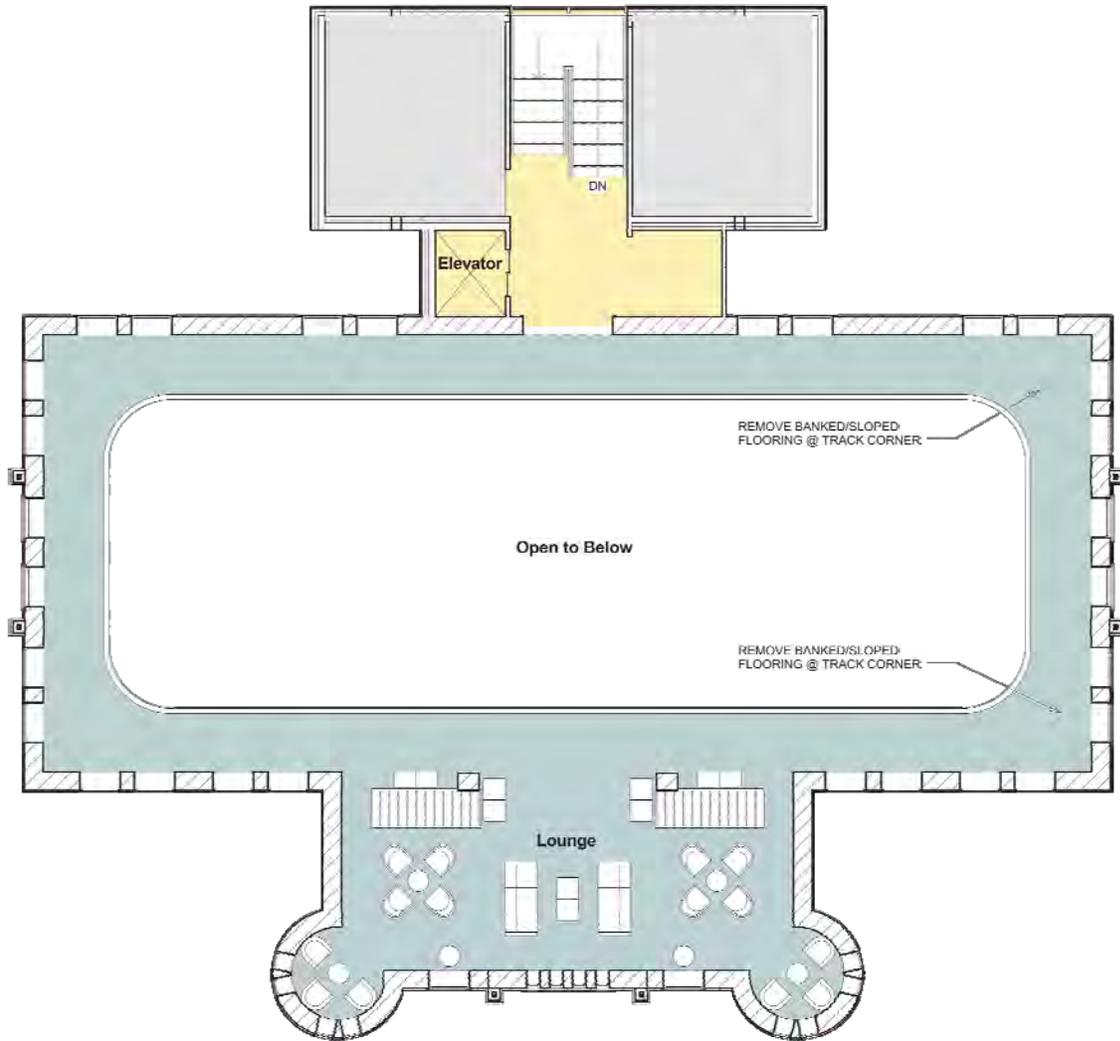


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 5A - SECOND FLOOR

BLDG.
NORTH

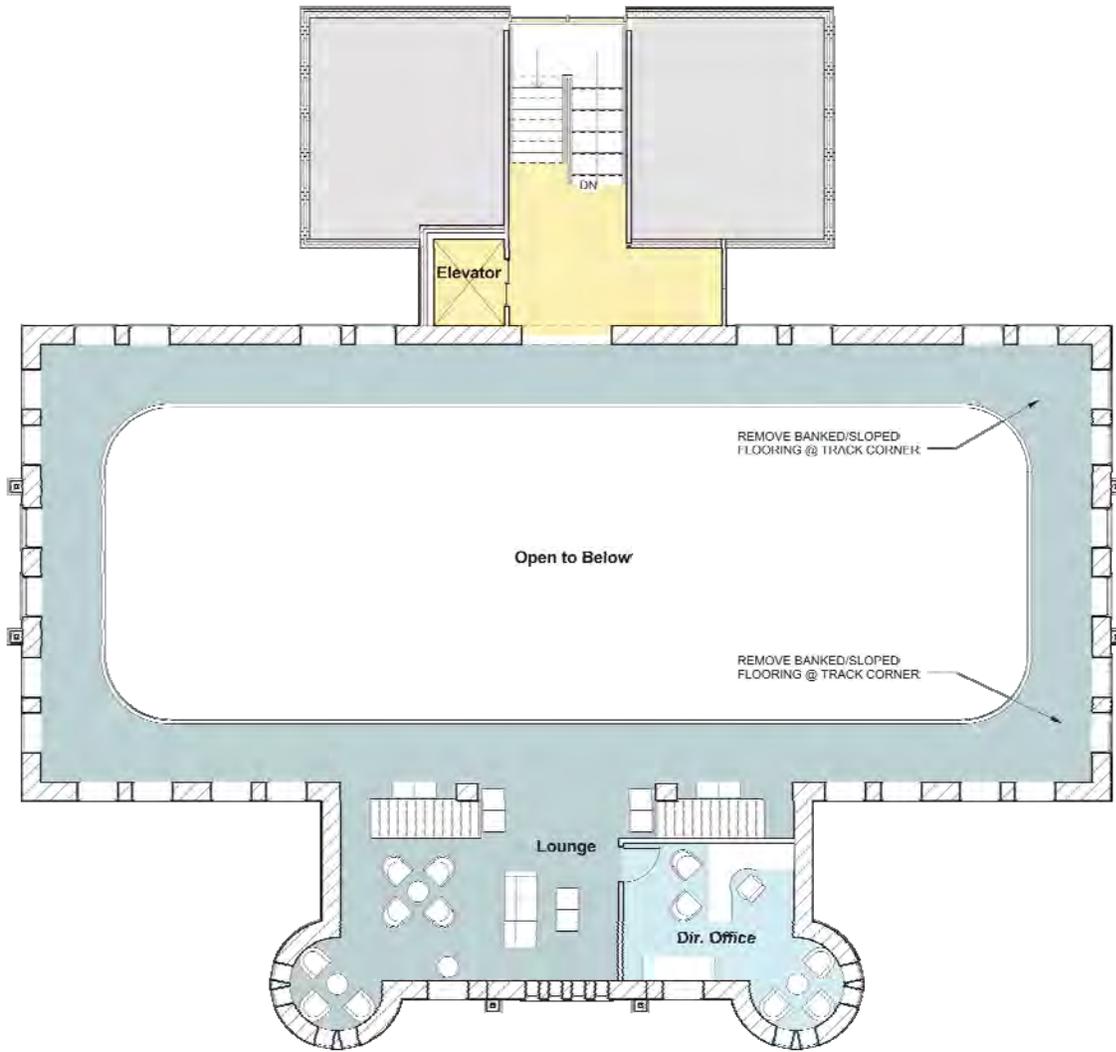


0 8' 16' 32'



SCALE: 1/16" = 1'-0"





CONCEPT 5B - SECOND FLOOR

BLDG.
NORTH



0 8' 16' 32'



SCALE: 1/16" = 1'-0"



8.0 SUMMARY OF BUILDING CODE ANALYSIS

8.0 Summary of Building Code Analysis

Background Data:

Stewart Hall is located on the campus of Shippensburg University in Shippensburg, Pennsylvania. All proposed work at Stewart Hall will require the review and approval by the Pennsylvania Department of Labor and Industry (L&I). Final inspections and issuance of the certificate of occupancy will also be required to be obtained for the Department of Labor and Industry (L&I).

The rehabilitation/ restoration and repair work and any proposed additions will be required to comply with the provisions of the 2009 edition of the International Building Code (IBC) as adopted by the Commonwealth of Pennsylvania. The rehabilitation work proposed for the historic building components, materials, plumbing, electrical, heating, ventilation and air condition systems, will provide full compliance with all current building code requirements. In addition, any proposed site alterations / modifications and proposed additions may require Land Development approval.

The project plan proposes an adaptive re-use/ conversion of the existing Stewart Hall facility to office space for University Relations and Gallery/ Event space for the Alumni Association and the University. An addition to accommodate entrance and ADA accessibility improvements, which includes an elevator, is included. The project is conceived as an adaptive re-use of an existing building, proposed to be reviewed under the International Existing Building Code (IEBC, 2009 edition, classified as a Level 3 Alteration with major Change of Occupancy and minor addition. The current occupancy class in the historic facility is classified as B (Educational occupancy for students above 12th grade). The planned occupancy classes in the facility are A-3 (Exhibition and Social Hall) and B (Offices).

Due to Stewart Hall's Historic Building designation on the National Register of Historic Places all building alterations, modifications, and proposed additions must be approved by the Pennsylvania Historical & Museum Commission (PHMC).

The existing building is essentially a two-story Type IIIB structure (masonry wall with combustible interior framing) over a full basement, which is partially above grade. The existing facility is not equipped with a fire protection (sprinkler) system. A fire protection (sprinkler) system will be installed as well as an emergency lighting and fire/ smoke alarm system.

Summary of Requirements and Compliance:

As a Level 3 Alteration, the following would apply:

- An elevator would be required and would need to be equipped with emergency fire-fighter service (802.1.2)
- Automatic Sprinkler is required per IEBC 704 due to A-3 occupancy
- Boiler and furnace rooms would not be required to be rated enclosures (802.2)
- Automatic fire alarm system is not required throughout the building (IBC 907.2.1) (unless assembly occupancy is greater than 300). However, automatic detection should be provided in stair towers, corridors and other common spaces (IBC 907.2.8.2 ex).
- A manual fire alarm system is not required in the facility (IBC 907.2.1.) (unless assembly occupancy is greater than 300)
- Means of egress lighting and exit signs shall be provided to the exit discharge
- Accessibility requirements and compliance items:

- Accessible parking, passenger loading (if provided), route to entrance, an accessible entrance (not necessarily the primary entrance), and route to altered or re-assigned primary function areas are required for new and altered elements in common areas (IEBC 605).
- Ramps >6" rise must be max 1/12 slope
- Accessible toilet facilities are required. If not achieved at existing facilities IBC permits unisex facilities within one floor of the function area served, provided there's an accessible route between floors.
- Accessible means of egress are not required in an adaptively re-used existing building
- Compliance with IEBC 605 and 705 are required
- Structural – no applicable provisions (IEBC 807)
- Electrical – New work in accord with the NFPA 70 (ICC EC or NEC)
- Mechanical – New work in accord with IMC. Altered systems to supply min of 5 cfm/person out air and 15 cfm/person ventilation or meet ASHRAE 62.
- Plumbing – No requirements to comply with IPC fixture counts unless occupant load increases more than 20%.
- Energy Conservation – no applicable provisions on existing buildings (IEBC 808)

**9.0 PRELIMINARY STATEMENT OF
PROBALE CONSTRUCTION
COST**

9.0 Preliminary Statement of Probable Construction Cost

This Statement of Probable Construction Cost reflects preliminary cost parameters for consideration and use in determining basic feasibility, initial budgets, and financial strategies for the rehabilitation/ renovation of Stewart Hall based on the scope of work as developed and presented in this study.

Existing: 11,021 s.f.

Addition: 2,800 s.f.

DESCRIPTION	SUMMARY COST
Division 02 - Demolition/Sitework	\$170,000.00
Division 03 - Concrete	\$48,000.00
Division 04 - Masonry	\$84,000.00
Division 05 - Metals	\$58,000.00
Division 06 - Wood, Plastics & Composites	\$55,000.00
Division 07 - Thermal & Moisture Protection	\$106,000.00
Division 08 - Windows and Doors	\$320,000.00
Division 09 - Finishes	\$295,000.00
Division 10 - Specialties	\$14,000.00
Division 11 - Miscellaneous Equipment	\$5,000.00
Division 12 - Mat/Window Treatment	\$10,000.00
Division 14 - Conveying Equipment	\$115,000.00
Divisions 22, 23 & 26 - MEP/FP	\$870,000.00
Subtotal #1	\$2,150,000.00
Design Contingency @ 10% of subtotal	\$215,000.00
Subtotal #2	\$2,365,000.00
Construction Contingency @ 15% of work subtotal	\$355,000.00
Subtotal #3	\$2,720,000.00
General Conditions @ 15% of subtotal	\$408,000.00
Subtotal #4	\$3,128,000.00
Escalation 3 yrs @ 2.75%	\$87,000.00
Subtotal #5	\$3,214,000.00
FF&E (lump sum)	\$300,000.00
Subtotal #6	\$3,514,000.00
A/E Design Fee @ 10% of subtotal	\$352,000.00
Subtotal #7	\$3,866,000.00
Permit/Approvals	\$25,000.00
Subtotal #8	\$3,891,000.00
Bonds @ 1%	\$39,000.00
Subtotal #9	\$3,930,000.00
Haz Mat	\$260,000.00
TOTAL	\$4,190,000.00

10.0 CONCLUSION

10.0 NEXT STEPS

10.1 Conclusion

Based on the information and material presented in this report, Murphy & Dittenhafer concludes that the Feasibility Study successfully confirms the program accommodation and scope of work, and presents financial parameters of the renovation under consideration by Shippensburg University to renovate Stewart Hall to properly accommodate the needs of the University Relations Office and the Alumni Association.

The project team has reached this conclusion of feasibility in consultation after consideration of a wide range of issues including:

- Architectural
- Structural
- Mechanical/ Plumbing
- Electrical
- Program Accommodation
- Site
- Appropriate Exterior Appearance/ image
- Historic Appropriateness
- Energy Efficiency
- Lifecycle Costs

APPENDICES

State System of Higher Education Office Space Planning Guidelines						
120 - STEWART HALL						
Category Code	Category Name	Existing SF	Proposed SF	Net Difference	Excess/Shortfall as of March 2014	Excess/ Shortfall
110/115	Classroom	2238	0	-2238	8602	6364
210/215/220/225	Class Laboratories/ Open Laboratories	3243	0	-3243	-24753	-27996
300/365	Office Facilities/ Conference Room	376	2068	1692	29682	31374
620/625	Exhibition/ Exhibition Service	0	3940	3940	-621	3319
635	Food Facility Service	0	245	245	-536	-5115
680/685	Meeting Room/ Meeting Rm. Service	0	3681	3681	-3996	-315
WW	Circulation	2499	2072	-427		
XX	Building Systems	483	592	109		
YY	Mechanical	318	322	4		
ZZ	Structural	1864	901	-963		
Gross SQFT (Existing)		11021	13821			
Assignable SQFT		5857	9934			
Non-Assignable SQFT		5164	3887			
Gross SQFT Factor		1.88	1.39			
Assignable SQFT Percentage		53.14	71.87			



Project Name: Shippensburg University – Rehabilitation of Stewart Hall
As the new home of Alumni Affairs

Project Number: 13132

Meeting: President Meeting

Meeting Date: February 7, 2014

Meeting Location: Shippensburg University, 1871 Old Main Dr., Shippensburg, PA

Team Attendees:

Dr. Jody Harpster	Interim President of Shippensburg University
Dr. Denny Terrell	Shippensburg University
Lance Bryson	Shippensburg University
Terry Starr	Shippensburg University
Frank Dittenhafer II	Murphy & Dittenhafer, Inc.
Todd Grove	Murphy & Dittenhafer, Inc.

Discussion:

FD began the discussion by noting the concept options to be reviewed were the result of a progression of elevations of the evaluations of the available square feet in Stewart Hall, compared to the program needs desired by Alumni Affairs, and other stated project objectives.

Five concept designs were presented/ reviewed and the following was noted:

Concept Options #1:

This scheme illustrates an approach that attempts to accommodate all program needs and functionality within the current footprint of the existing building Hall. A new elevator would be installed within the existing building footprint. It demonstrated that aspects of the programmatic needs of Alumni Affairs including office/ work areas, staff restrooms, break room and critical storage rooms/ areas could not be accommodated. It also indicated that Public Restrooms could not be located on the second floor/ main function room, due to lack of available and properly located square footage. The restrooms in this option would be required to be located on the lowest level, requiring guests at functions to traverse down a level to access restrooms. Handicap accessibility to the building is provided via new exterior ramp to the lower level. An exterior stair would be required to provide a second means of egress out of the second floor event space. Only the narrow existing stairs would provide access and egress to the track level, which may not be acceptable to the Building Code Official.



Concept Option #2:

Similar to Concept #1 this scheme illustrates an approach that did not consider increasing the available area of Stewart Hall, and indicates the new elevator being installed within the existing footprint. The scheme demonstrated that aspects of the programmatic needs of Alumni Affairs including office/ work areas, staff restrooms, break room and critical storage rooms/ areas could not be accommodated. It also indicated that Public Restrooms could not be located on the second floor/main function room, due to lack of available and properly located square footage. The restrooms in this option would also be required to be located on the lowest level, requiring guest at functions to traverse down a level to access restrooms. Handicap accessibility to the building is provided via a new exterior ramp to the lower level, located at the front entrance of Stewart Hall. An exterior stair would be required to provide a second means of egress out of the second floor event space. Only the narrow existing stairs would provide access to the track level.

Concept Option #3:

This scheme illustrates an approach that increases the available area of Stewart Hall via an addition to the North side. The addition would include at the lower level the requested storage and cater/prep areas and also providing restrooms located at the main level easily accessed from the Main Function Room Space. A new prominent accessible ramp entrance, similar to Concept Option #2, would be located near the front entrance of Stewart Hall, while a less prominent ramp would be located near the rear, which would be primarily used for deliveries/ catering purposes. The Restrooms in this option would be shared by Alumni Affairs personnel as well. Not all desired programmatic and functionality is achieved in this scheme.

Concept Option #4:

This scheme, illustrates an approach that increases the available area of Stewart Hall via an addition to the North side. In this scheme, a prominent accessible ramp entrance, similar to Concepts #2 & #3, would be located near the front entrance of Stewart Hall. The restrooms in this option would be located at the lowest level, requiring guest at functions on the main level to traverse down a level to access the restrooms. The new elevator would be installed within the existing footprint, similar to previous schemes. The addition could accommodate a walk-out terrace/patio for the main level event space. An exterior stair would be required to provide a second means of egress out of the second floor event space.

Concept Options #5:



This option accommodates all programmatic, functional and proper relationships of the important public support spaces via an addition to the North side of Stewart Hall. The addition would include all vertical circulation elements such as a new elevator and stairs which would also access the track level. A new prominent accessible entrance would also be included in the addition and is oriented to the visitors approaching from the interior of the Campus. A step-out room deck looking could also be included in the new additions. By creating the additions, all current interior spaces on the first and second floors can be laid out to best accommodate all programmatic needs of Alumni Affairs, as well as provide public restrooms at the second floor event space, provide for ramped access to a Catering/ Preparation space, and accessibility to all levels. This approach also would allow for a new (second) stair to be provided a second means of egress off of the track level which is likely to be a requirement of the building code official.

It was noted that all attendees found Concept Option #5 the most desirable, as it met most of the desired programmatic needs, functionality and space relationships of all of the concepts reviewed.

Other miscellaneous items discussed:

1. The MEP engineers for the project have evaluated the existing systems and concluded that existing systems would not be appropriate for the new planned used of the facility and that new updated/ code compliant and energy efficient MEP systems will be required.
2. The Structural engineers for the project have visited the site and their preliminary findings are that the building appears structurally sound with only minor/ local aspects which can be easily addressed as part of a comprehensive rehabilitation of Stewart Hall. The track level was found to be sound and able to adequately support the load of visitors.
3. Due to the building being listed on the National Register, all proposed work and any new additions, will be required to be reviewed and obtain the approval of the Pennsylvania Historic Museum Commission.
4. Murphy & Dittenhafer presented the following very preliminary "Budget/ Ballpark" Construction Cost information regarding the scope of proposed work:
 - a. Renovation/ rehabilitation of existing spaces $\pm 10,400$ S.F. x \$250/S.F. = \$2,600,000
 - b. New Addition space $\pm 1,750$ S.F. x \$350/S.F. = \$ 612,500
 - c. Sitework/ Landscaping/ utilities = \$ 250,000
 - d. Hazmat work = \$ 260,000

Approximate Total

\$3,722,500

End of Notes

Information contained in this meeting report will be considered complete and accurate unless written corrections are received by Murphy & Dittenhafer, Inc. within five days after your receipt of this report.

Prepared by: Murphy & Dittenhafer, Inc.

Distribution: All Attendees



Project Name: Shippensburg University – Rehabilitation of Stewart Hall
As the new home of Alumni Affairs
Project Number: 13132

Meeting: President Meeting

Meeting Date: August 1, 2014

Meeting Location: Shippensburg University, 1871 Old Main Dr., Shippensburg, PA

Team Attendees:

Tim Ebersole	Executive Director, University Relations
Terry Starr	Shippensburg University
Frank Dittenhafer II	Murphy & Dittenhafer, Inc.
Todd Grove	Murphy & Dittenhafer, Inc.

Purpose of Meeting: To review the proposed, Concept plan for the Rehabilitation and Addition to Stewart Hall to identify and confirm layout needs for Alumni Affairs

Discussion:

The following needs and comments by TE were discussed/ determined:

1. TE requested that the lower level four offices shown, be combined such that two offices become one resulting in two total large offices (vs. four total as shown). TS noted that the size of the offices is dictated by University/ System Standards, and would not be in compliance if that was done. The four offices as shown are to remain.
2. More area is desired for Students/ Graduate Students to use and work. TE suggested moving Director's office to Third/ track level floor and assigning Student work areas where the Director's office is shown.
3. TE noted that the second floor level appears functional and acceptable as is. Reception desk to have a 4'2" h, walk up style, counter.
4. Perhaps "flip/ swap" the location of the Director's office (now Student work room) with the conference room, so it could have access to the adjacent break/ coffee area.
5. It was confirmed that the storage room in the new addition at the lower level is for use by Alumni Affairs (in addition to the other new storage rooms provided within the existing Stewart Hall plan). TS noted that other, off-site storage areas will



also be utilized for AA Storage needs. It was confirmed that it appeared that storage needs have been/ can be addressed.

6. At the lower level, add a secure entry (doors) at the connection to the new addition/ new entry area from the Addition. Provide for a reception/ student work station immediately inside AA central space.

Next Steps: M&D will incorporate these comments into the plans and re-issue for final review and approval/ comment.

End of Notes

Information contained in this meeting report will be considered complete and accurate unless written corrections are received by Murphy & Dittenhafer, Inc. within five days after your receipt of this report.

Prepared by: Murphy & Dittenhafer, Inc.

Distribution: All Attendees

Project Name: Shippensburg University – Stewart Hall Feasibility Study
Project Number: 13132

Meeting: Food Service Review

Meeting Date: August 1, 2014

Meeting Location: Shippensburg University

Team Attendees:

Nick Iula	Chartwells, Campus Food Service Provider
Terry Starr	Shippensburg University
Frank Dittenhafer II	Murphy & Dittenhafer, Inc.
Todd Grove	Murphy & Dittenhafer, Inc.

Purpose of Meeting: To review the proposed preferred Concept Plan for the rehabilitation and addition to Stewart Hall, to identify and confirm that Food Services/ Event Space needs (at this Conceptual Stage) will be met.

Discussion:

The following needs and comments were discussed/ determined:

1. The lower level space provided in the plans for use as a Catering/ Preparation space and accessed via a ramp, appears more than adequately sized.
2. Use of the stair and/or elevator to take food up to the main event space floor is workable.
3. The room shall accommodate the following per NI:
 - a. Small, ± 6'-0" long section of base and wall cabinet storage with countertop.
 - b. Ice machine
 - c. Coffee machine on counter; twin 3-gallon
 - d. (2) roll-in refrigerators
 - e. Hand sink; consider 2 compartment sink if possible
 - f. Electrical outlets on walls dispersed around the room
4. A portable bar (±2'x5') will be utilized and may be stored either in the Catering/ Prep. Room, in the event space, or perhaps in an adjacent alcove on the second floor.



Meeting Minutes

5. Tables and chairs may likely be racked and stored in one of the corners of the main event space, but could be stored in the new lower level storage room if desired.
6. NI noted that since Stewart Hall is so closely located to Kriner Hall, that food may be prepared there and brought over to Stewart Hall.

Next Steps: These comments will be incorporated into the final Feasibility Report and Concept Drawings.

End of Notes

Information contained in this meeting report will be considered complete and accurate unless written corrections are received by Murphy & Dittenhafer, Inc. within five days after your receipt of this report.

Prepared by: Murphy & Dittenhafer, Inc.

Distribution: All Attendees

