

Abravanel Hall Masterplan

Executive Summary

March 15, 2017



This photo shows the 2015 plaza renovations discussed in this document. Refer to this photo when you're reading about the proposed plaza enhancements in Area 4.

Abravanel Hall Master Plan Executive Summary

Opened in 1979, Abravanel Hall is one of the finest concert halls in America, and is internationally recognized for its acoustics. This architectural icon in Salt Lake City has served the people of Utah for 38 years and is a monument to the rich cultural heritage of our community. Salt Lake County owns and operates Abravanel Hall and the Utah Symphony is the Hall's primary resident.

During the lifetime of Abravanel Hall, the Symphony has grown, the event mix has increased, and audience expectations have changed. Primarily a live concert venue, Abravanel Hall has become a prime location for other arts and entertainment events. In 2002, the Hall was a primary location for the Cultural Olympiad. We've hosted the Dalai Lama; comedy acts like Jerry Seinfeld and Brian Regan; the annual Warren Miller ski movie; and pop and rock concerts like Brian Wilson, Howard Jones, and more.

Many of the events we host today, including symphony events, demand more technical support. Often this requires us to come up with short term solutions because the Hall cannot handle these demands in-house.

In 1997, a two-story addition on the northwest side of the building addressed the need for more restrooms, a ticket office, and a reception/hospitality room. While the addition remedied critical needs at the time, it was 20 years ago. Over time, we have identified additional needs, including the need for more physical space in the building and renovations of existing areas to allow for venue flexibility, patron expectations, and future growth.

The space constraints of the existing building have made it difficult for staff and artist growth to match patron expectations of the modern orchestra and its role in the community. These new realities shed a particularly bright light on the limits of the lobby. With the 2002 installation of the Chihuly sculpture, we lost even more space in the lobby which serves as little more than a pass-through for our guests and the lobby congestion problems have added to the generally outmoded feel of Abravanel Hall's front of house experience.

In 2013, CFA contracted with HKS Architects to conduct a Master Plan study of the Hall and provide recommendations to make Abravanel Hall relevant for our community for the next 35 years and beyond. Working with CFA and the Utah Symphony, HKS led a series of walk-throughs, visioning sessions and targeted discussions to identify current usage patterns of the venue as well as service gaps and areas of improvement for users and guests.

We identified that additional space is needed for guest services (concessions, restrooms, merchandise stands), increased lobby and public circulation, rehearsal and smaller performances, offices and workspace, and hospitality space. We also identified key renovation projects that address performer and patron needs as well as safety, deferred capital maintenance projects, and venue accessibility issues.

HKS and their team of industry experts discussed various options to address the facility needs and presented new ideas to invigorate the existing space. Throughout the process, the intent was to stay true to the spirit and iconic architecture of Abravanel Hall, yet provide renovations and enhancements for both the current users and those of the future.

From these discussions, HKS helped codify a clear vision for the future of the Hall and then broke the vision into six individual projects that address the identified needs of the owner and users of the facility. Each project stands on its own and can be undertaken as time and budgets permit; they are not sequential. These six project areas are:

Area 1 – Front of House: Lobby Renovation

Area 2 – Concert Hall: Technical Positions and Equipment Upgrades

Area 3 – Back Stage: Renovation & Expansion of Production Spaces

Area 4 – Plaza Enhancements: Fountain Replacement & Electronic Message Center

Area 5 – Lobby Expansion: New North Building, Three-story Addition

Area 6 – Back of House Expansion: New Musician Workspaces & Symphony Offices

For your reference, in addition to the graphics provided in this narrative, a series of drawings are attached to this document that shows the location of each of the six individual projects.

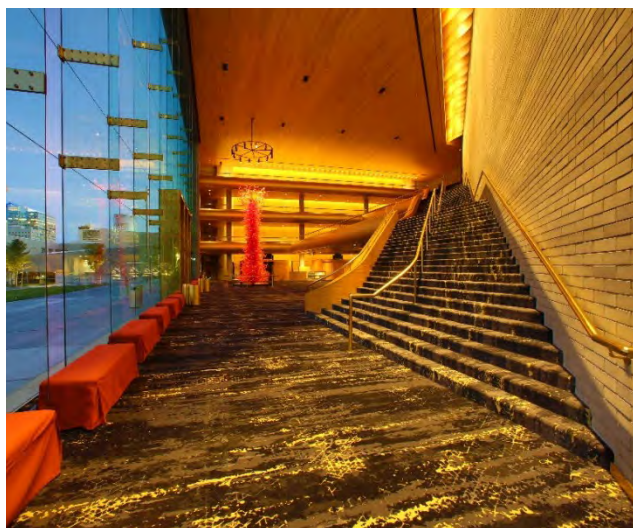
While Seating was discussed at length – ADA seat locations, side and center aisles, sightlines – and we all agreed that a seating study is warranted; we also agreed that it is not a feasible project at this time. We hope to look at a seating study at a future date.

Area 1 – Front of House Lobby Renovation

The lobby is the gathering place for the patrons of Abravanel Hall. While the iconic architecture provides a striking setting for event goers to see and be seen – the patron services and flooring of the lobby have long been in need of renovation and replacement. In 2016, we completed Phase 1 of the Lobby Renovation Project with the \$550,000 lobby carpet replacement.

In 2017 we will begin Phases II & III, including: a new concessions, merchandise and coat check counter to improve patron services; new escalators from the west entrance and ticket office up to the main lobby; and a digital display to advertise upcoming events and services. **COMPLETED IN SEPT. 2017**

Phase IV of the lobby renovation will address lighting in the lobby and a new sculptural base and lighting for the Chihuly sculpture. We have inadequate lighting in our lobby and we will install new fixtures to address low lighting levels. This will improve public safety, the patron experience, concession and merchandise sales and private event rentals in the lobby. The Chihuly is a dramatic part of the lobby and needs to integrate better in the space. A new, complementary base and new lighting will better showcase and display this important public art piece. **TO BE DONE**



Features & Benefits

- Phase II – Renovate and streamline patron services area in lobby. New concessions & merchandise counter, coat check millwork, digital display, and furniture.
- Phase III – New escalator at west entrance. Improve circulation to the lobby from west entrance, which is closest to ticket office and TRAX stop.
- Phase IV – New lobby lighting and sculptural base and for the Chihuly sculpture. Showcase the Chihuly with improved lighting and base with integrated guard rail.

Cost Estimate - \$3.42 million

Area 2 - Concert Hall Technical & Equipment Upgrades

Abravanel Hall is revered as one of the finest concert halls in America. Patrons are continually amazed at the acoustics and beautiful finishes within the hall. The proposed technical and equipment upgrades to the hall will provide new options and opportunities for musicians and performers; “clean up” the visual clutter of existing lighting and technical distractions around the proscenium; save operations costs with new LED illumination over the stage for the musicians and enhance the patrons’ experience while being very sensitive to the acoustics and finishes of the Hall.



Features & Benefits

- Create a new house technical position in the rear of the hall. Improve event management and improve patron experience
- Replace existing stage ceiling lights recessed light fixtures for improved LED stage lighting
- Replace theatrical lights and pipes at the side of the proscenium with new theatrical lights above the side tiers of the house to reduce visual clutter around the stage.
- Add new lighting and technical capabilities to increase flexibility of Abravanel Hall. Intelligent light fixtures at ceiling, new orchestra enclosures, theatrical rigging, theatrical projection, and theatrical dimming and controls.

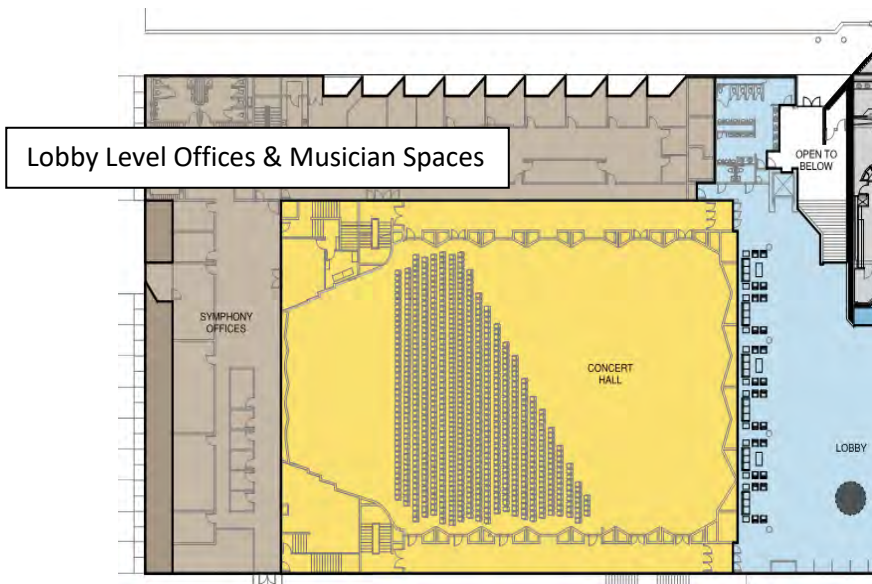
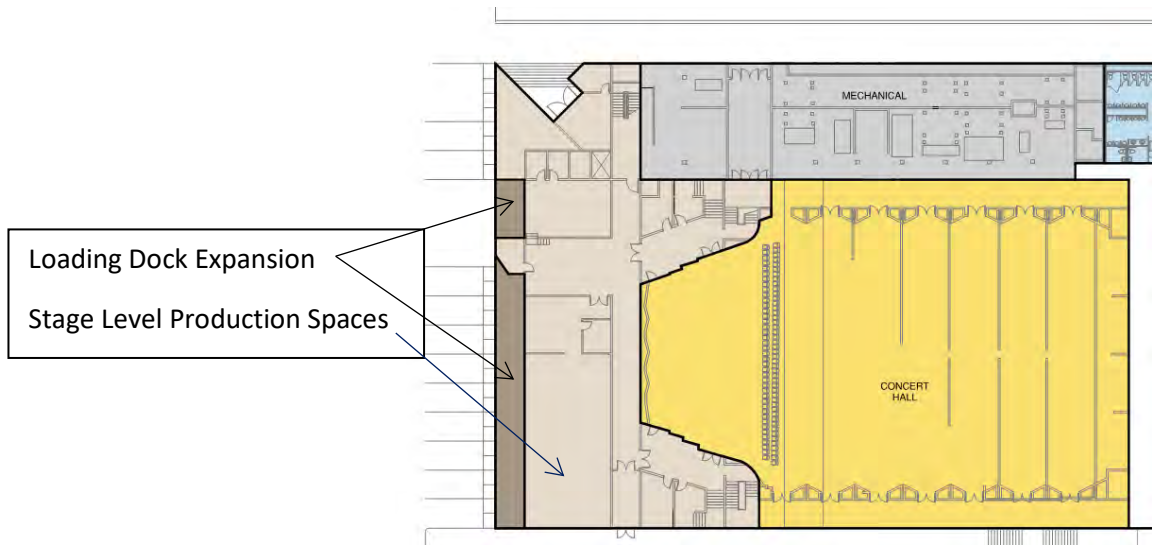
Cost Estimate - \$2.14 million

Area Three – Back Stage Remodel of Production Spaces on Stage & Lobby Levels

As the Symphony’s programming grows and includes more technical elements, and as our product mix at Abravanel Hall grows, the existing back stage production, storage, and office spaces are undersized and inadequate.

On the Stage level, expanding the dock and storage area will increase efficiency and operations and will add desperately needed new storage and works spaces. The loading dock will be more efficient for loading and unloading as the revised ramp will be larger.

The Lobby level renovations will reconfigure the current layout of offices and work spaces into a more efficient space. We will renovate and update Symphony and County offices, musician work spaces, restrooms, conference room, locker and restrooms. We will also fire-proof and expand the Symphony music library, which holds thousands of scores and is a primary asset for the Symphony.



Area Three – Back Stage Remodel of Production Spaces on Stage & Lobby Levels

Features & Benefits

Stage Level Back Stage

- Streamline production and operations back stage by remodeling the back of house at Stage level. Loading dock, storage areas, operations, and office areas
- Add additional storage space for musical instruments, equipment, and theatrical components by extending the back of house building area by 10 feet to the south, gaining 1,500 square feet of usable space.
- Extend dock area to the south to allow for larger trucks and improved production capabilities.

Lobby Level Back Stage

- Efficient design to reconfigure and renovate Symphony and County offices, locker rooms, conference room, dressing rooms, and instrument storage.
- Remodel also includes reconfiguration of music library to accommodate the volume of music the symphony owns.

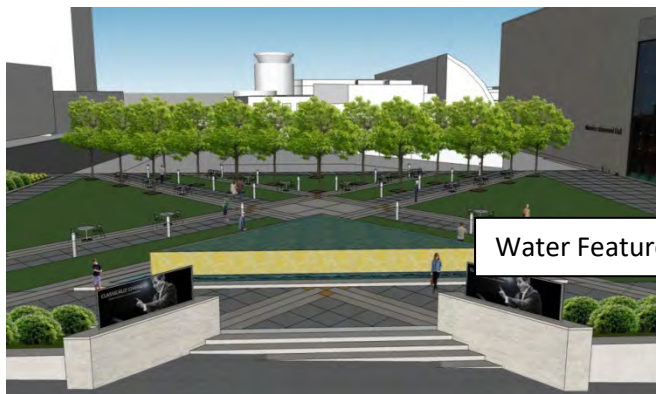
Cost Estimate - **\$6.73 million**

Area 4 – Plaza Enhancements: New Fountain & Electronic Message Center

In 2015, the Abravanel Hall Plaza underwent a \$1.8 million renovation to create a safe and inviting setting for patrons, and the public. The beloved fountain was found to have a number of unreparable leaks and the concrete was buckling and heaving, causing safety concerns.

The new plaza is an exciting public space and entry to the Hall. New landscaping, trees, benches, walkways and gathering areas offers a comfortable place for the community to enjoy and is a beautiful new entrance to Abravanel Hall.

To further enhance this new plaza experience, the master plan identifies new renovation work, including an outdoor water feature, to reference and replace the old fountain. In addition, the installation of a new LED message center will be placed on the northeast corner of the site to inform the public of upcoming events at Abravanel Hall and provide educational opportunities for the public.



Water Feature Location



New LED Message Center

Features & Benefits

- New 1,370 square foot Triangular Reflection Pool with Zero Edge water fall, and gold color edge panel - in concert with the gold elements of Abravanel Hall. Outdoor water feature provides a welcoming gathering element for pedestrians, especially in the summer months when it will act as a cooling space.
- New LED Message Center – designed to match the scale of the new signage elements – to provide visibility from both South Temple Street, and West Temple Street. Advertising for the Symphony and for upcoming events at Abravanel Hall.

Cost Estimate – 1.9 Million

Area 5 – Lobby Expansion

Abravanel Hall’s lobby and patron service components are undersized and do not account for modern audiences and event requirements. While the 1997 addition brought much needed restrooms and a ticket office, it did not address the lobby or patron service areas. And, in 2002, the Chihuly sculpture, *Olympic Spirit*, became a permanent fixture in the lobby. While it is a stunning piece of public art, it takes up valuable circulation space in the lobby.

The Lobby Expansion design is an exciting solution to address the lobby needs, and also provide wonderful new opportunities for both patrons and the Symphony. A new three-story north building expansion will provide a convenient additional main entrance as many patrons arrive to performances via TRAX, and enter the building from this north side. The North Building Expansion will also provide opportunities to improve vertical transportation in the building.

The new addition would significantly enhance the 21st century patron experience. Not only will the increased space create superior concessions and space for pre-performance socializing, but it opens up new opportunities to enliven the building during the daytime. The new Chamber room offers the possibility of lunchtime chamber concerts, and an educational resource and meeting place for school groups and the community. The expanded space also creates room for small exhibitions and digital installations to support artistic programming.



Area 5 – Lobby Expansion

Features & Benefits

- New three level “North Building” addition to lobby providing new main entrance close to TRAX station; social, artistic and educational performing spaces; additional spaces for Patron Services and Concessions, and an exciting new Hosting area.
- Street Level: New main entrance, new symphony store & café, storage, and a food prep area.
Lobby Level: New coat check, greater concessions options, storage, a balcony, and a lounge area for drinks and mingling.
First Tier Level: New Chamber room with adjustable acoustics, theatrical grid, interlocking chairs and theatrical controls. A new hosting area for drinks and mingling, and access to First Tier Room for hospitality space.
- Renovation of existing lobby and circulation bridges, including new flooring, renovation of gold leaf & wood railing, and new lighting.

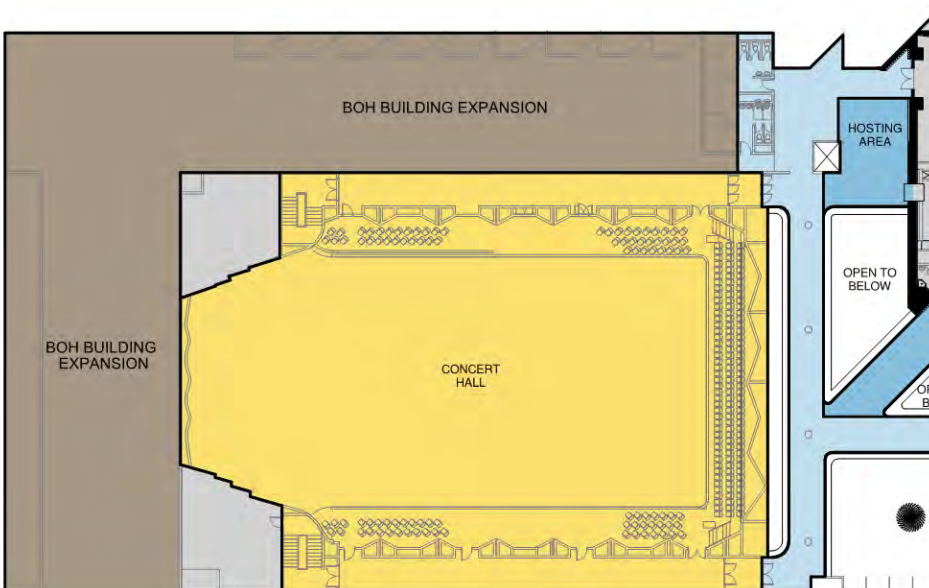
Cost Estimate – \$18.25 Million

Area 6 – Back of House Expansion for Symphony Offices & Musician Spaces

The Symphony has maxed out its use of the offices and its operations and musician spaces and there are several symphony staffers that are located off-site. We have explored several options for expanding the back of house space to accommodate the additional space needs.

The most viable solution for building expansion is to build above the west and south BOH spaces that flank the concert hall. This area will avoid any disruption to the auditorium. The existing structure is adequate to support the addition and the existing stairways and elevators can be extended. The building expansion will allow the Symphony staff to be housed together in one building. The new and improved musician spaces will improve the backstage experience for all performing artists.

Since the 2002 Utah Symphony | Utah Opera merger, the administrative staff has been divided between Abravanel Hall and the Opera's Production Studios. This compromises the effectiveness of the staff. Currently, key departments such as finance and marketing are separated from the executive and development departments. Additionally, the existing office space at Abravanel Hall is fully stretched and will not be able to accommodate additional staff particularly in the fundraising area where there is the greatest need. A fully-integrated staff within the same building will enable any required expansion as well as greater inter-departmental integration, easier communication and less 'silo-ing.'



Area 6 – Back of House Expansion for Symphony Offices & Musician Spaces

Features & Benefits

- New 15,000 square foot building expansion above the current main level back of house space. Includes new elevator stops, stairway circulation, and building infrastructure. Building expansion can be done over existing building without visual disruption of iconic building.
- Building expansion to include spaces for Symphony offices, choral room, restrooms, instrument storage, performers lounge, and quiet lounge. Improved and more adequate space for musicians, guest performers, and staff.
- Ability to consolidate offsite Symphony staff at Abravanel Hall.

Cost Estimate – \$8.59 million

Project Cost Summary

The following cost estimates have been provided by Construction Control Corporation (CCC). These cost estimates are in 2015 dollars (first quarter) and that escalation has not been factored into the amounts. Please also note that the estimates are total project costs; they include the cost of construction as well as the soft costs (design fees, permit fees, FF&E allowances, etc.).

Cost Summary:

Area 1 – Front of House: Lobby Renovation	\$3.42 million
Area 2 – Concert Hall: Technical Positions and Equipment Upgrades.....	\$2.14 million
Area 3 – Back Stage: Renovation & Expansion of Production Spaces.....	\$6.73 Million
Area 4 – Plaza Enhancements: Fountain Replacement & Electronic Message Center.....	\$1.90 Million
Area 5 – Lobby Expansion: New North Building 3 Level Addition.....	\$18.25 Million
Area 6 – Back of House Expansion: New Musician Workspaces & Symphony Offices.....	\$8.59 Million





ABRAVANEL HALL
MASTER PLAN AND PROGRAMING PACKAGE
21 JANUARY 2015



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EXECUTIVE SUMMARY



ABRAVANEL HALL MASTER PLAN EXECUTIVE SUMMARY

Opened in 1979, Abravanel Hall is one of the finest concert halls in America, and is internationally recognized for its acoustics. This architectural icon in Salt Lake City has served the people of Utah for 35 years, and is a monument to the rich cultural heritage of our community. Salt Lake County's Center for the Arts owns and operates Abravanel Hall and the Utah Symphony is the Hall's primary resident.

During the lifetime of Abravanel Hall, the Symphony has grown, the event mix has increased, and audience expectations have changed. Primarily a live concert venue, through the years Abravanel Hall has become a prime location for other arts and entertainment events, including comedy and lectures, the annual Warren Miller movie, and smaller rock and pop concerts.

In 1997, a two-story addition on the northwest side of the building addressed the need for more restrooms, a ticket office, and a reception/hospitality room. While the addition remedied critical needs at the time; that was nearly 20 years ago. Over time, we have identified additional needs, including the need for more physical space in the building and renovations of existing areas to allow for venue flexibility, patron expectations, and future growth.

In the two decades since 1997, the programming of the symphony has become increasingly diverse and complex. Many of today's concerts demand more technical support than ever before, often requiring short term solutions that the hall is not currently designed to handle. Additionally, the space constraints of the existing building have made it difficult for staff and artist growth to match patron expectations of the modern orchestra and its role in the community. These new realities shed a particularly bright light on the limits of the lobby which currently serves as little more than a pass-through for our guests. It is also worth noting that, with the installation of the Chihuly sculpture in 2002, congestion problems have added to the generally outmoded feel of Abravanel Hall's front of house experience.

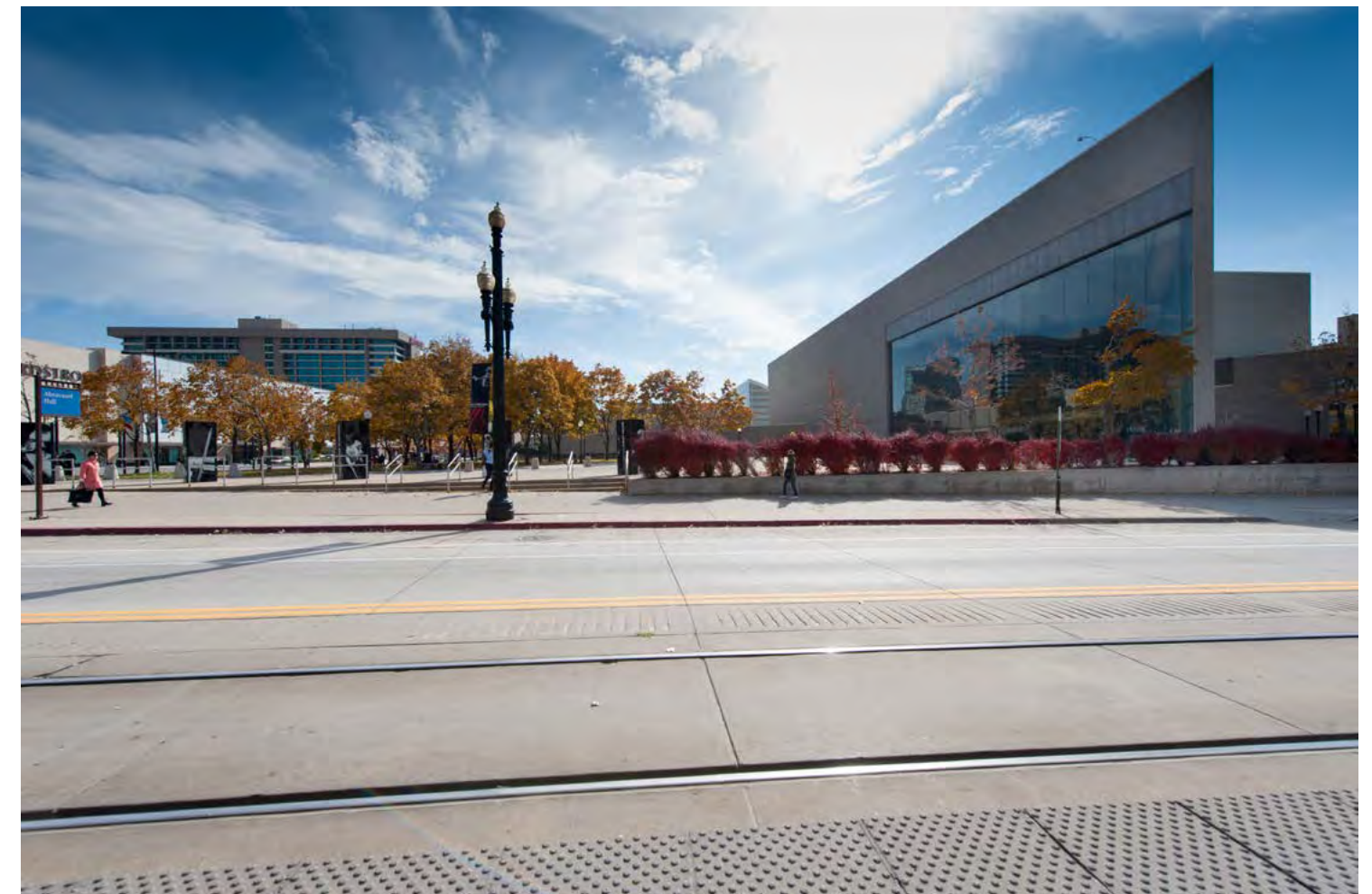
We have identified that additional space is needed for guest services (concessions, restrooms, merchandise stands), increased lobby and public circulation, rehearsal and smaller performances, offices and workspace, and hospitality space. We've also identified key renovation projects that address performer and patron needs as well as safety, deferred capital maintenance projects, and venue accessibility issues. (DG – You may want to re-write this based on what we did above. We tried include coment 1 and 2 in our paragraph.

In 2013, CFA contracted with HKS Architects to conduct a Master Plan study of the Hall and provide recommendations to make Abravanel Hall relevant for our community for the next 35 years and beyond. Working with CFA and the Utah Symphony, HKS led a series of walk-throughs, visioning sessions and targeted discussions to identify current usage patterns of the venue as well as service gaps and areas of improvement for users and guests. HKS and their team of industry experts discussed various options to address the facility needs and presented new ideas to invigorate the existing space. Throughout the process, the intent was to stay true to the spirit and iconic architecture of Abravanel Hall, yet provide renovations and enhancements for both the current users and those of the future.

From these discussions, HKS helped us codify a clear vision for the future of the Hall and then broke the vision into six individual projects that address the identified needs of the owner and users of the facility. Each project stands on its own and can be undertaken as time and budgets permit; they are not sequential. These six project areas are:

- Area 1 - Plaza: Fountain Replacement & Electronic Message Center
- Area 2 - Lobby: Renovation and New Building Expansion
- Area 3 - Concert Hall: Technical and Equipment Upgrades
- Area 4 - Back Stage: Renovation and Loading Dock/Storage Expansion (Stage Level)
- Area 5 - Main Level BOH Areas: Renovation of Symphony Offices & Musician Spaces
- Area 6 - New Bldg Expansion above BOH Areas: Symphony Offices & Musician Spaces

For your reference, in addition to the graphics provided in this narrative, a series of drawings are attached to this document that shows the location of each of the six individual projects.



Area 1 - Plaza: New Fountain & Electronic Message Center

Currently, the Abravanel Hall Plaza is undergoing a series of renovations and is scheduled to re-open in spring 2015. The beloved fountain was found to have a number of unrepairable leaks and the concrete was buckling and heaving, causing safety concerns. The new plaza will provide a new and exciting public space and entry to the Hall. New landscaping, trees, benches, walkways and gathering areas will bring the plaza to a pedestrian scale, and provide a comfortable place to gather for outdoor concerts and other community events.

To further enhance this new plaza experience, the master plan identifies new renovation work, including an outdoor water feature, to reference and replace the old fountain - while providing a serene gathering element for pedestrians. In addition, a new LED Message Center will be placed on the northeast corner of the site to inform the public of upcoming events, and provide educational opportunities as well. To accommodate events and performances on the plaza, a portable stage platform package will be provided, which includes lighting, rigging, and back-drop elements.

Features:

- New 1,370 square foot Triangular Reflection Pool with Zero Edge water fall, and gold color edge panel - in concert with the gold elements of Abravanel Hall.
- New LED Message Center - designed to match the scale of the new signage elements - to provide visibility from both South Temple, and West Temple Street.
- New portable stage platform system with lighting, rigging, and back-drop elements.

Benefits:

- Outdoor water feature provides a welcoming gathering element for pedestrians.
- Advertising for the Symphony and for up coming events at Abravanel Hall.
- New Outdoor performance space for concerts, festivals, and pre-post event gatherings.

Cost estimate: \$2.79 million



Area 2 - Lobby: Renovation and New Building Expansion

While Abravanel Hall is an iconic building in the fabric of downtown Salt Lake City, many of the lobby and patron service components of the building from the original design, are undersized and severely lacking. The 1997 Addition brought much needed additional space for Restrooms and Ticket Offices, yet did not address the needs of the Lobby and Patron Service spaces. In 2002, the Chihuly sculpture, Olympic Spirit, became a permanent fixture of the lobby space. While it is a stunning element for patrons, it takes up valuable space in the Lobby.

The Lobby Renovation and new “North Building Expansion” design is an exciting solution to address the lobby needs, and also provide wonderful new opportunities for both Patrons and the Symphony. The existing lobby will be renovated to replace the flooring and enhance the iconic building elements. The new North Building Expansion will provide a convenient new Main Entrance, Symphony Store and Café, new space for Patron Services, and a new grand Chamber room for concerts, events, and hosting.

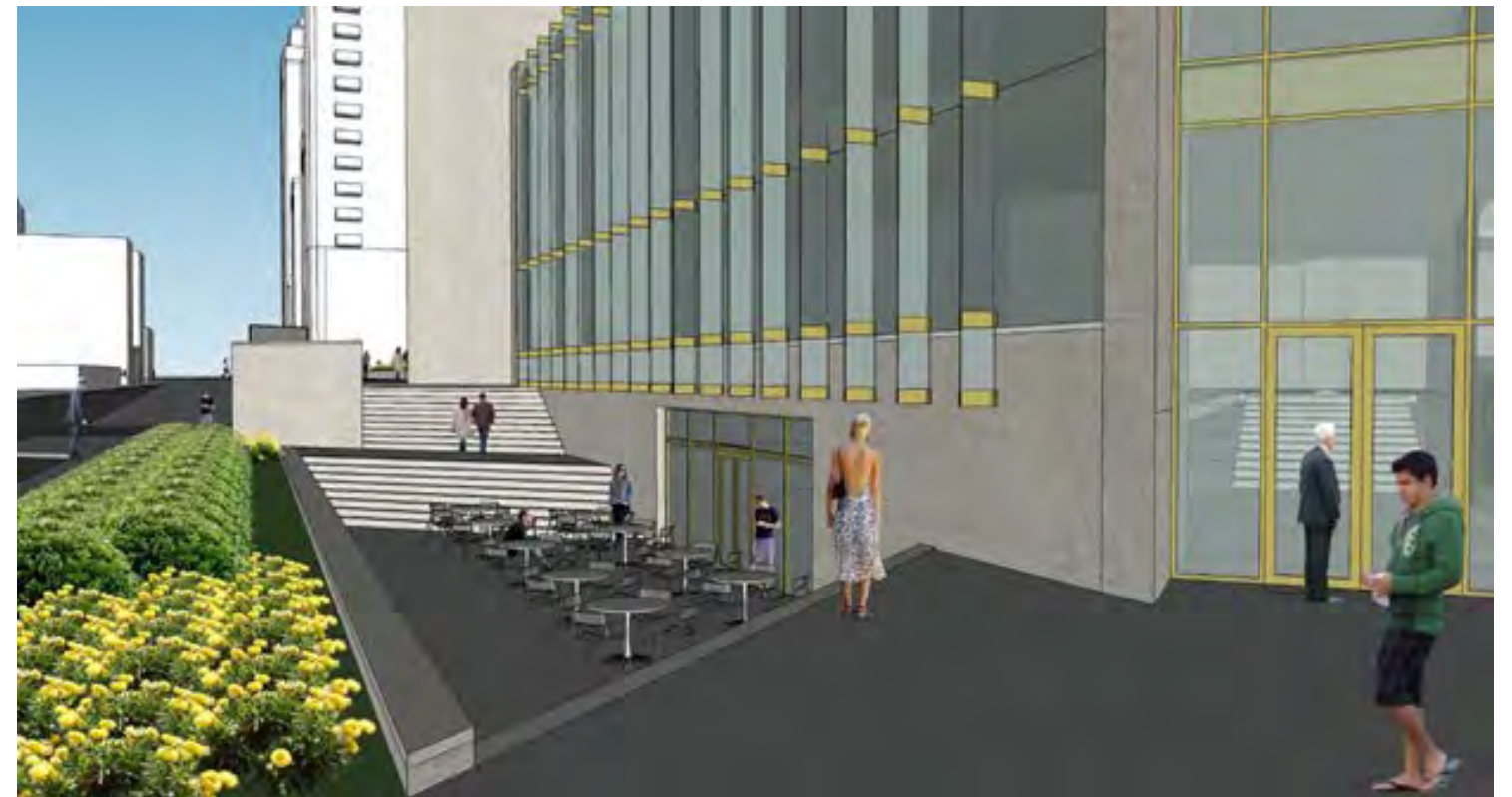
Features:

- Renovation of Existing Lobby and Circulation Bridges - Including new flooring, renovation of gold leaf & wood railing, and new lighting (17,400 sf)
- New 3 Level “North Building” Addition to Lobby (5,200 SF /floor) providing New Main Entrance close to Trax stop, Much needed additional space for Patron Services and Concessions, and exciting New Hosting area. Long lines at concessions and merchandise are eliminated and Lobby Space is increased.
- New Outdoor Seating for Cafe, with interaction to urban streetscape

Benefits:

- Remodeled Lobby brings exciting new spirit and feel to patron experience
- Street Level: New Main Entrance, Access to Ticket Office, New Symphony Store & Cafe, Food Prep Area, and Storage.
- Lobby Level: New Coat Check, greater concessions options, Patron Services, Storage Areas, Balcony, and Lounge Area for drinks and mingling.
- First Tier Level: New Chamber Room with adjustable acoustics, theatrical grid, interlocking chairs and theatrical controls. A new Hosting Area for drinks and mingling, and access to First Tier Room to Hospitality Space
- New space gathers public into building and connects pedestrians to this venue.

Cost estimate: \$19.96 million



Area 3 - Concert Hall: Technical and Equipment Upgrades

Abravanel Concert Hall is revered as one of the finest concert halls in America. Patrons are continually amazed at the acoustics and beautiful finishes within the hall. The proposed technical and equipment upgrades to the hall will provide new options and opportunities for musicians and performers, will “clean up” the existing lighting and technical distractions around the proscenium area, enhance the patrons’ experience, and yet be very sensitive to the acoustics and finishes of the Hall.

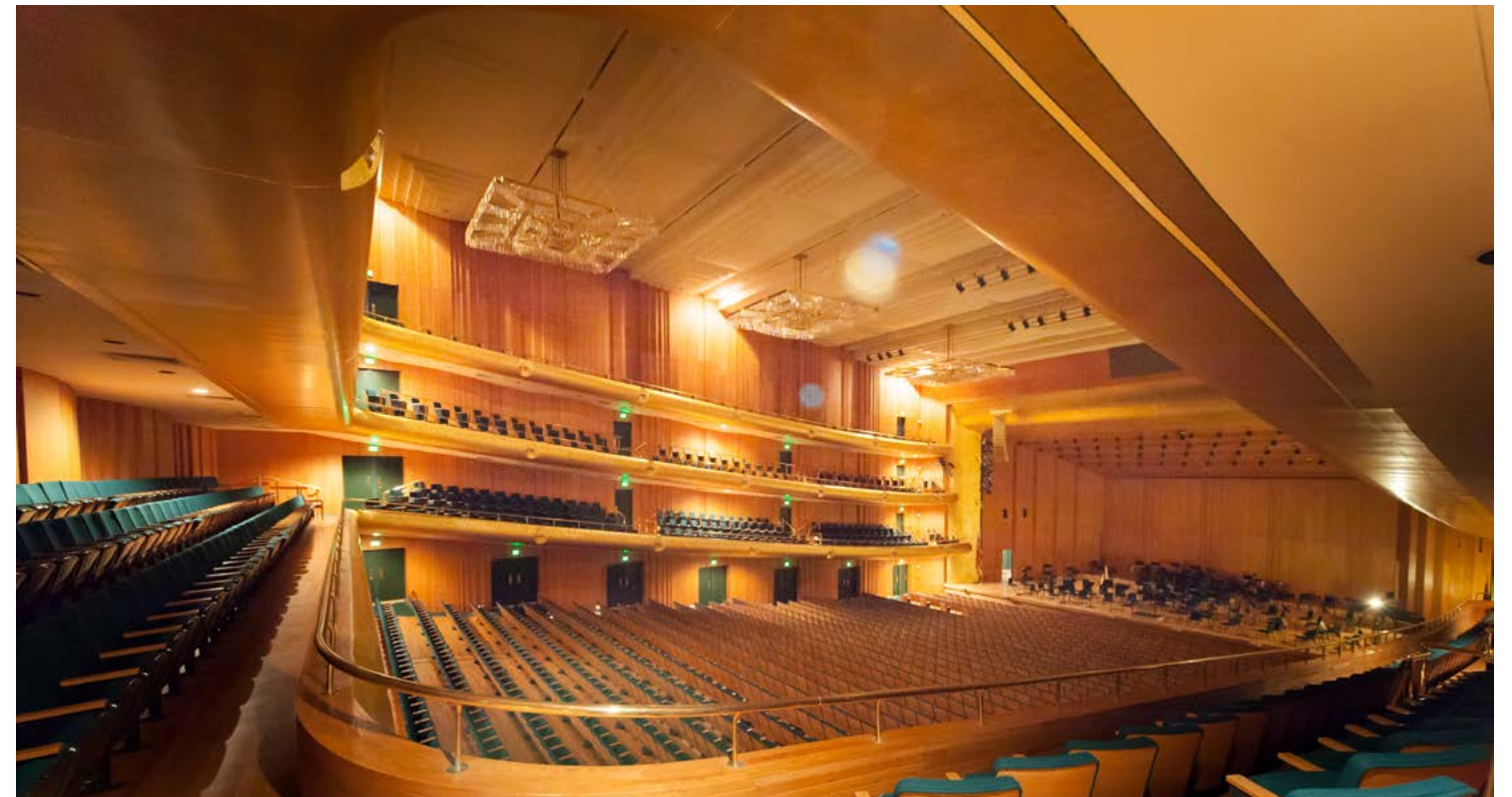
Features:

- Remove Seating at the back of the concert hall – to provide a new house mix position.
- Remove 4-5 seats at the end of every row in Hall.
- Provide a 5 foot Stage Extension to offer needed room for the Orchestra and Chorus.
- Replace existing concert shell ceiling lights over the stage with recessed light fixtures
- Replace theatrical lights and pipes at the side of the proscenium with new theatrical lights above the side tiers of the house.
- Add Intelligent light fixtures at ceiling.
- Add new Orchestra Enclosures, theatrical rigging, theatrical projection, and theatrical dimming and controls.

Benefits:

- New Technical Position for Events at Hall, for better event management and improved patron experience.
- Improved Circulation throughout the Concert Hall.
- Expandable Stage for Large Orchestras and Chorus
- Improved lighting for Musicians on Stage
- Visual Clutter is removed around proscenium.
- Increased theatrical lighting options for Arts and Entertainment Events.
- Additional Theatrical capabilities to improve patron experience.

Cost estimate: \$2.14 million



Area 4 – Back Stage: Renovation and Loading Dock/Storage Expansion (Stage Level)

The existing back stage area houses the loading dock, storage, and operations areas of the building. Over the life of the building it has become evident that these spaces are woefully undersized and inadequate, and need to be renovated and expanded. Expansion of the Dock and Storage area to the south will bring much needed space to these areas. Renovation of the existing areas will improve efficiency and operations, while providing new critical spaces such as quick changing rooms, restrooms, and a laundry Room.

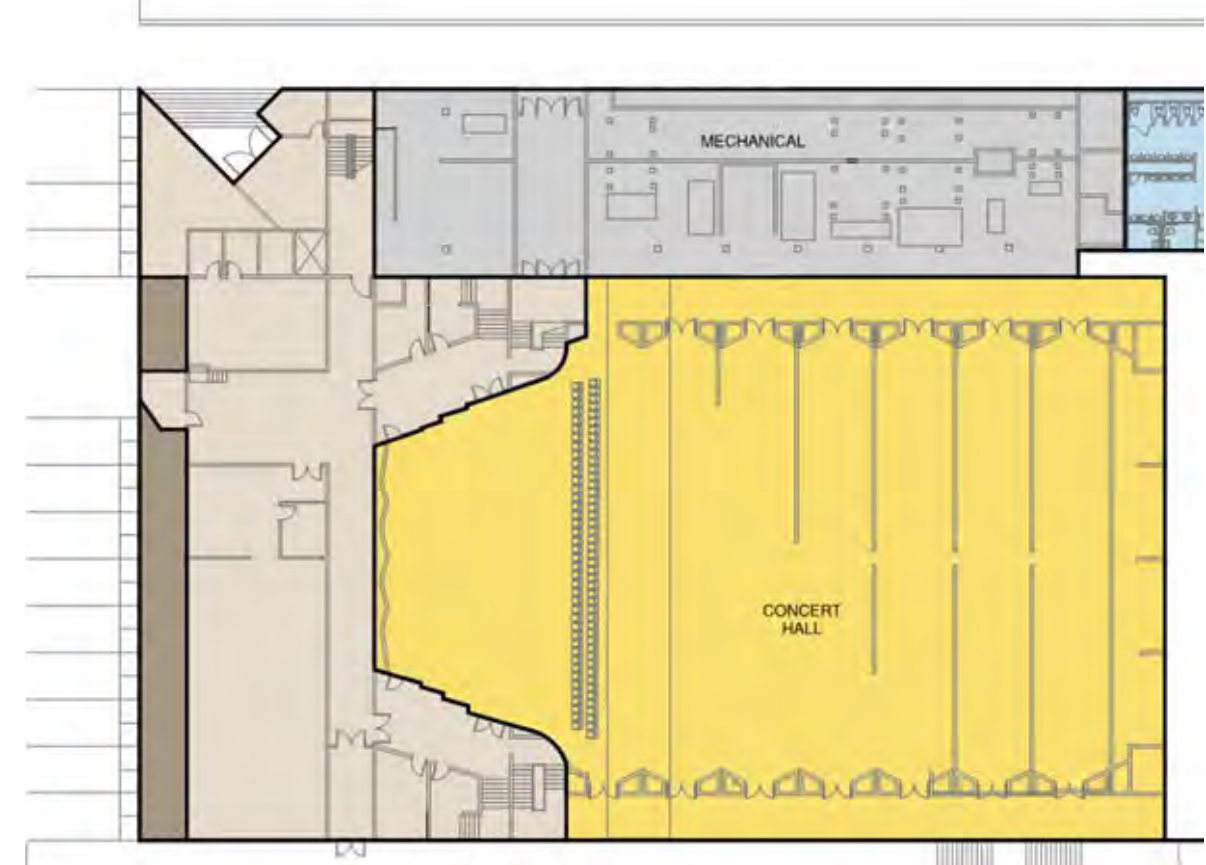
Features:

- Remodel of Back of House at Stage Level, including Dock Areas, Storage Areas, Operations, and Office areas. (8,500 sf)
- Extend Back of House building area to the South – approximately 10 feet.
- Extend Dock Area to the South

Benefits:

- Better Organized Back Stage Area for Production and Operations.
- Additional Storage space for Instruments, Equipment, and Theatrical components.
- Dock is able to fit longer trucks, and improves transportation and production capabilities.

Cost estimate: \$3.66 million



Area 5 – Main Level BOH Areas: Renovation of Symphony Offices and Musician Spaces

During the 35 year life of Abravanel Hall, the Symphony’s influence and operations have grown and expanded. Over these years the building users have found ways to make the existing Back of House spaces work, and “make do” with the space available. However – it is now evident that significant renovation and additional space is needed to accommodate the operations that are in the building.

The Main Level BOH Renovation will provide a new efficient design to house Symphony Offices and Musician Spaces. Musician locker rooms, a musician lounge, conference room, dressing rooms, music library and toilet rooms, as well as Salt Lake County offices- which will be right-sized for the associated operations’ needs.

Features:

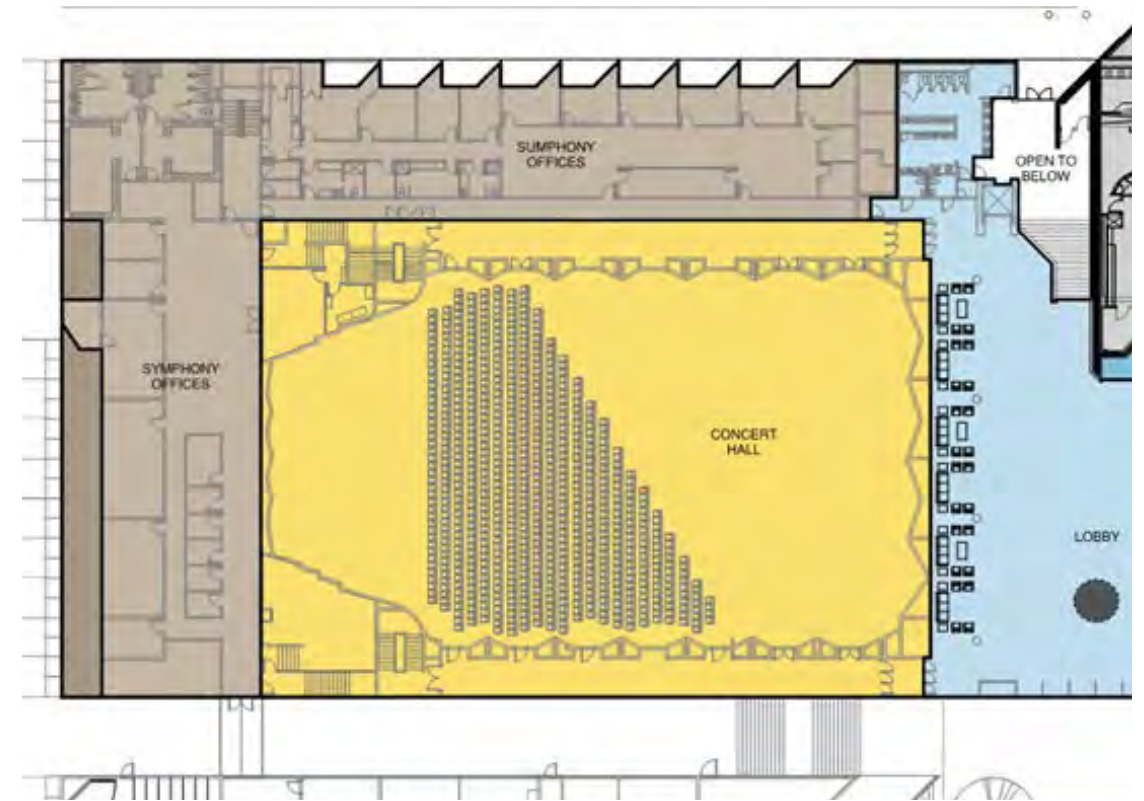
- Remodel of Back of House Space at Main Level, including Symphony and CFA Offices, Locker Rooms, Conference Rooms, Dressing Rooms, the Music Library, and Spaces for Instrument Storage.
- Expansion Space to the South of the Existing Building – to be a part of the Symphony and CFA Spaces.

Benefits:

- New Efficient Design for Offices and Musician Spaces (Dressing Rooms, Instrument Storage spaces, etc.).
- Additional Space to be utilized.
- Increased post concert entertainment options for guests and artists (expanded musicians lounge).

Chorus warm up and rehearsal space???

Cost estimate: \$3.07 million



Area 6 – New Building Expansion above BOH Areas: For Symphony Offices and Musician Spaces

It is clear that the space needs for the Symphony Offices, Operations, and Musicians Areas exceed the space available at the Main Level BOH Areas. Several locations for building expansion have been explored. Disruption of the Concert Hall is to be avoided. The most viable solution for building expansion is to build above the west and south BOH spaces that flank the concert hall. Existing stairways and elevators can be extended, and the existing structure is adequate to support the expansion. The building expansion will allow for more of the Symphony staff to be housed together in one building. The new and improved musician spaces will improve the backstage experience for all artists.

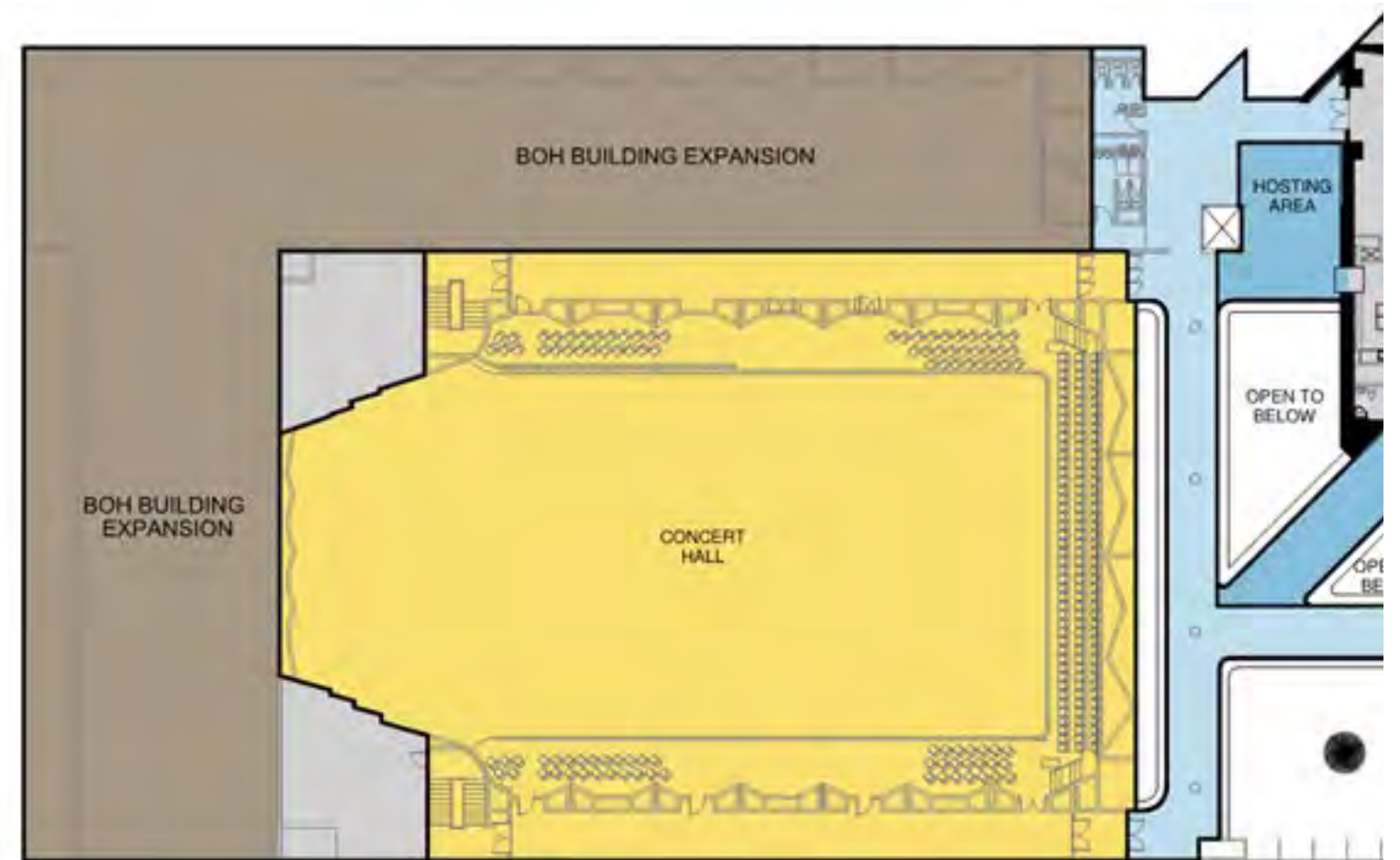
Features:

- New Building Expansion above Back of House Main Office Level – including new Elevator Stops, Stairway Circulation, and Building Infrastructure. (15,000 sf)
- Building Expansion to include Spaces for Symphony Offices, Choral Room, Toilet Rooms, Instrument Storage, Performers Lounge, and Quiet Lounge.

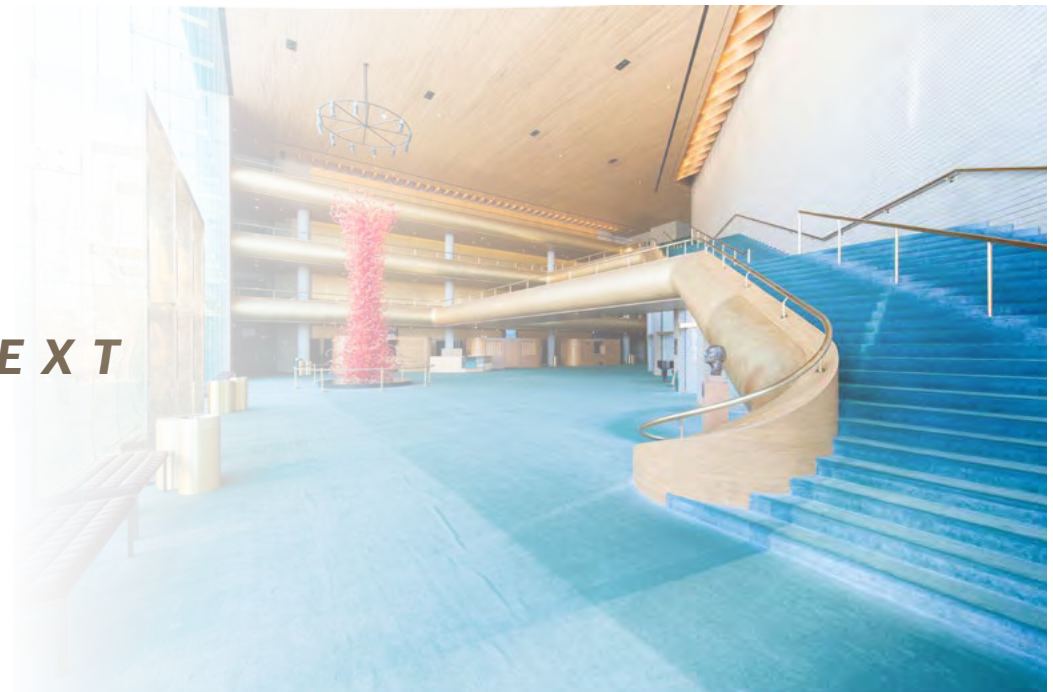
Benefits:

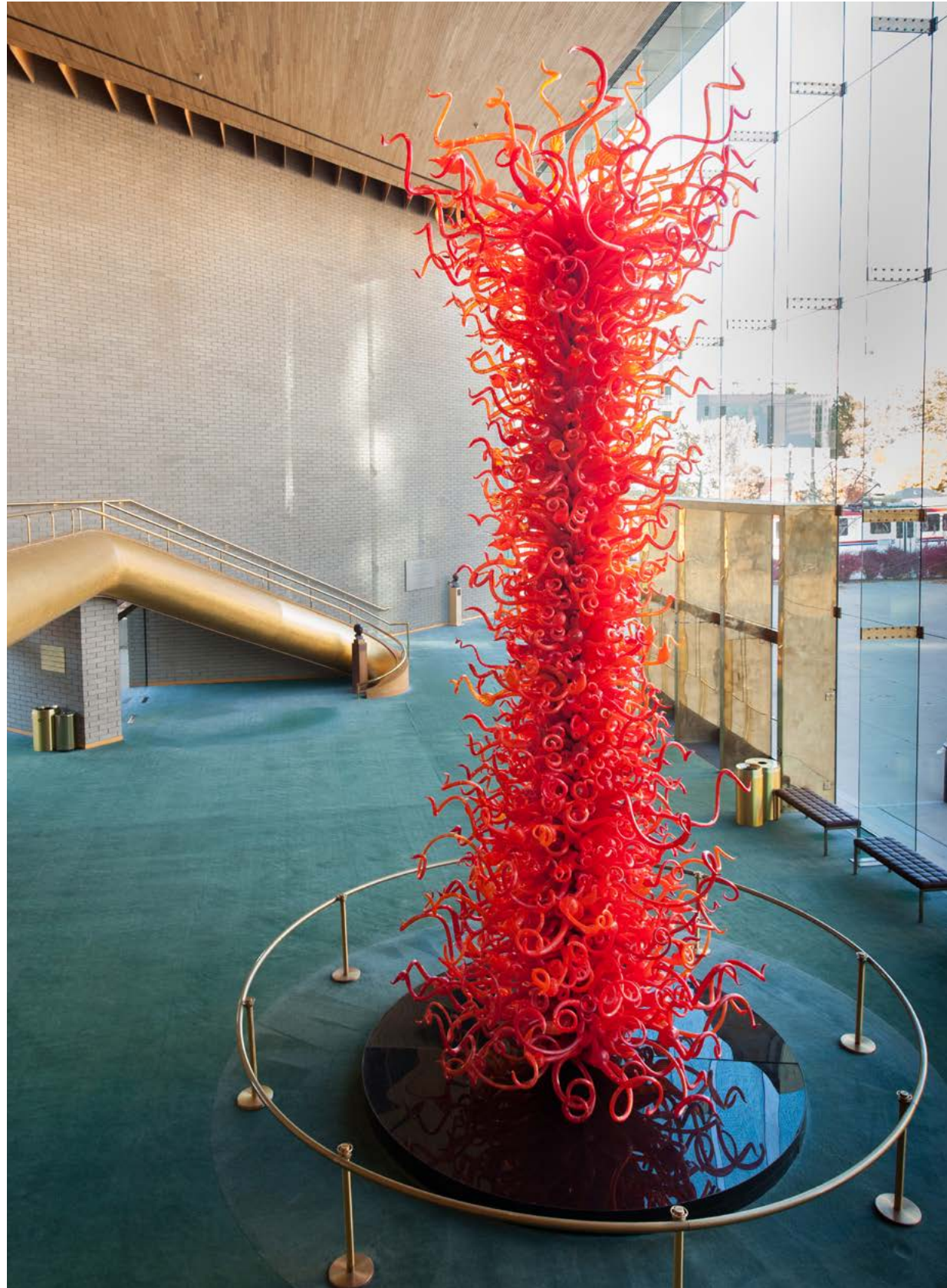
- Building Expansion can be done over existing building without visual disruption of iconic building.
- Improved and more adequate space for musicians, guest performers, and staff.
- Opportunity for offsite symphony staff relocation to Abravanel Hall

Cost estimate: \$8.59 million



C O N T E X T





BUILDING HISTORY

Maurice Abravanel Hall is the home of the Utah Symphony. Opened in 1979, it was originally called Symphony Hall, and was later renamed after the former Music Director of the Utah Symphony. Maurice Abravanel served as Music Director from 1947-1979, helping the Symphony grow from a part-time orchestra to the major orchestra it is today.

The exterior of the building is a massive three-story wedge of glass and granite-like brick, enhanced by a 100-foot long diagonal fountain. The interior is a dramatic combination of brass, gold leaf, natural oak, and forest green carpeting.

In the lobby, floating bridges wrap around each other as they lead visitors into the music hall. These bridges, as well as many surfaces in the hall, are covered with gold leaf. There are over 12,000 square feet of 24-carat gold leaf in Maurice Abravanel Hall. In addition Red Oak wood is used throughout the building.

When Salt Lake City hosted the 2002 Winter Olympics, a glass sculpture by Dale Chihuly was part of the Olympic Arts Festival and was displayed in Abravanel Hall where it remains. The sculpture is titled the Olympic Tower. There are about 1,000 pieces of glass in the sculpture.

Inside the concert hall, the grand orchestra level seating is flanked by three tiers of seating on the sides and back of the hall. The tiers are covered with the gold leaf and are supported solely from outside the hall itself, giving them the appearance of floating. The “column-less” design frees the hall from obstructions, both visually and acoustically.

Six chandeliers which grace the hall’s ceiling, using over 18,000 beads of hand-cut crystal were imported from Austria and Czechoslovakia. These chandeliers, bought in kits and assembled over many hours by Symphony Guild volunteers, are a symbol of the community’s love for the arts.

The acoustical design of the hall is a concrete hull used to block outside noises. The wood interior is acoustically separated from the concrete shell to prevent sounds other than the music of the Symphony to be heard in the hall. The wood vibrates with the sounds of the music; large sections of wood resonate with low frequencies, and small facets resonate with high frequencies.












Back of House Areas at Abravanel Hall include Offices for the Utah Symphony Administration, Salt Lake County Center For the Arts Technical Directors and Staff, as well as support spaces such as locker rooms, musician’s lounge, practice rooms, dressing rooms, instrument and equipment storage rooms, music library, sound and light rooms, and dock areas.

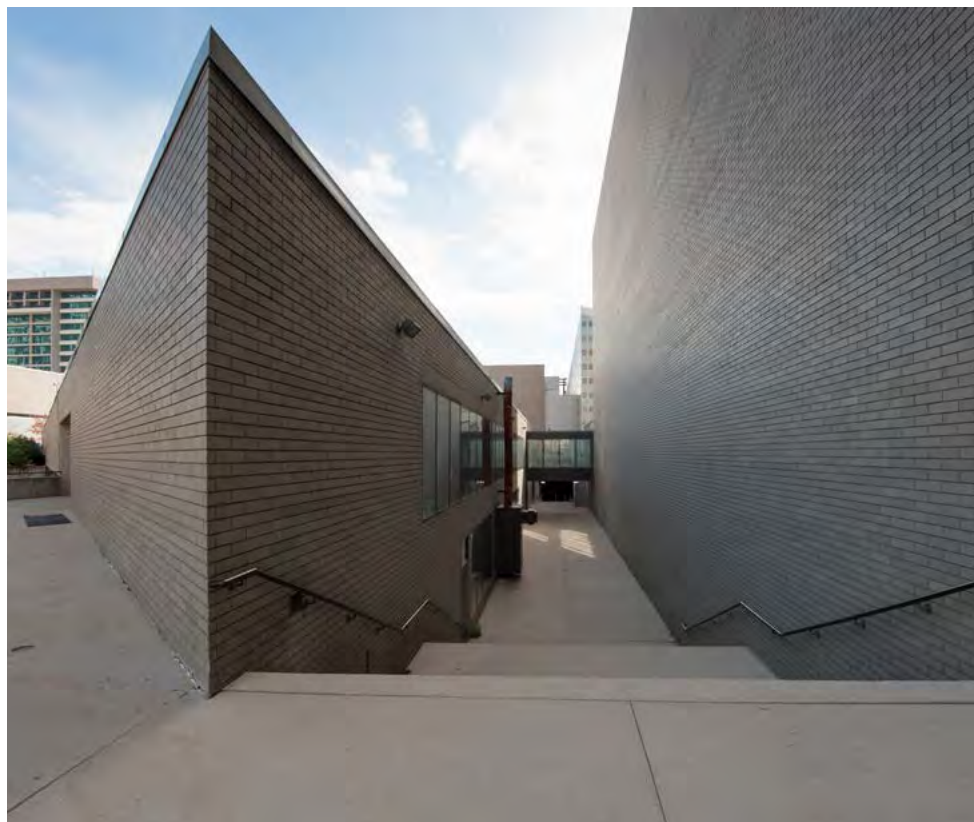
These are just a few features that make Maurice Abravanel Hall one of the finest concert halls in America and a magnificent place for the Utah Symphony to perform. Maurice Abravanel Hall remains an architectural icon in Salt Lake City, and an integral piece of the history and culture of the State of Utah.

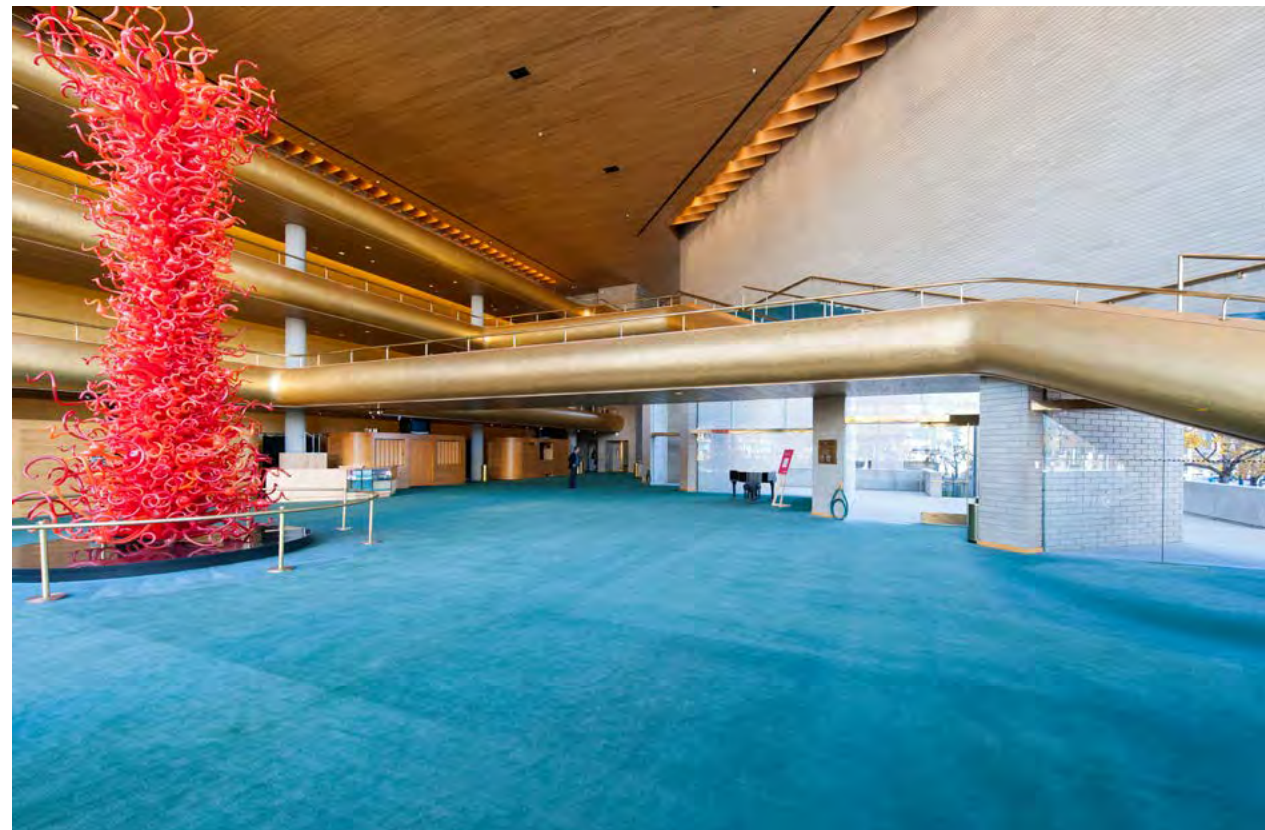
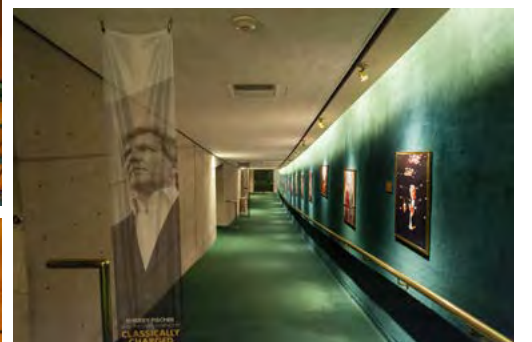
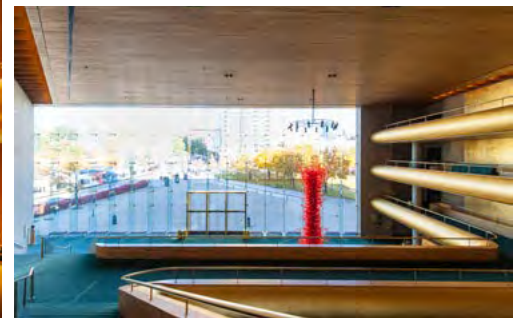
Ticket Office and Banquet Room Addition

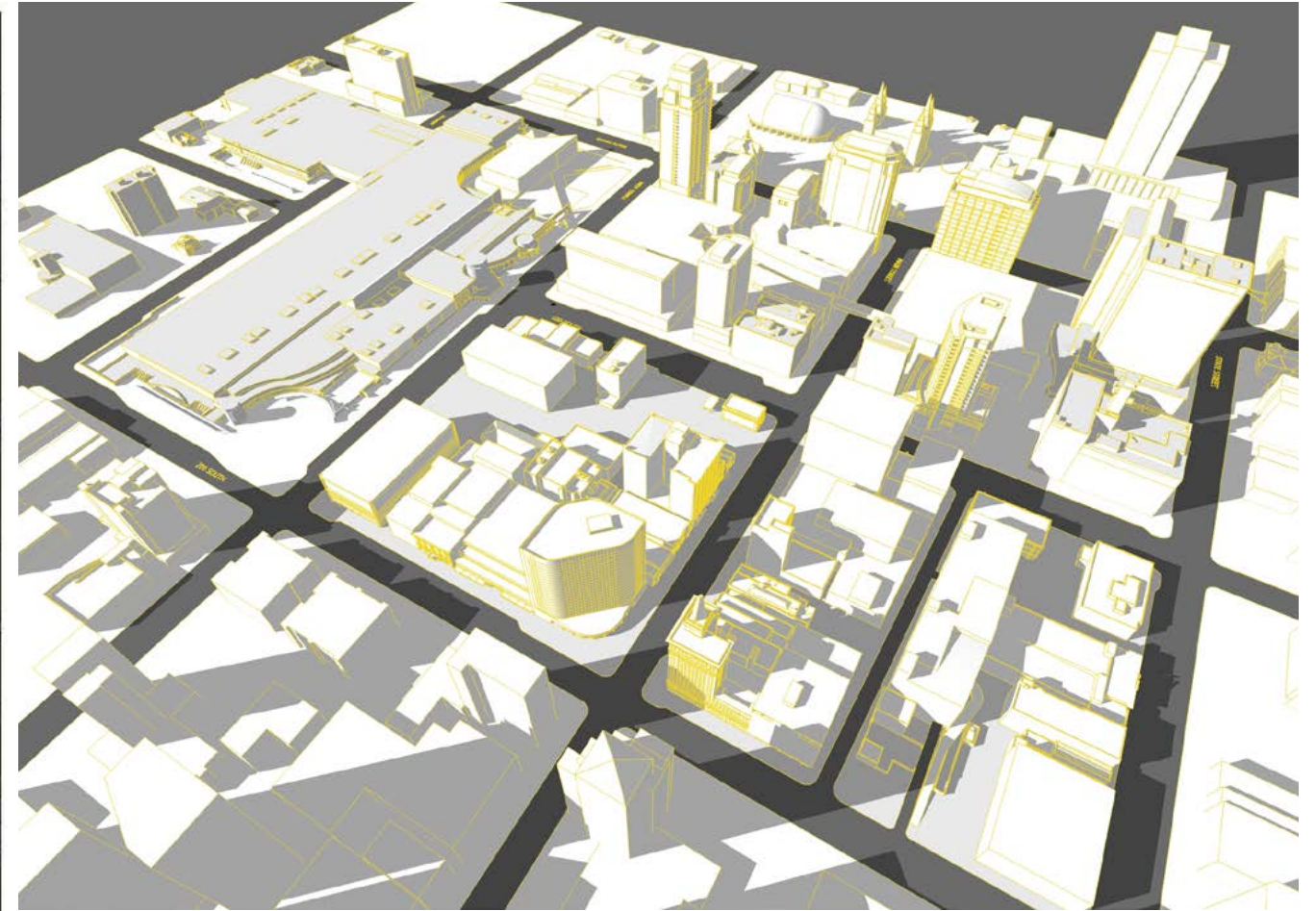
In 1997 an addition was constructed at the northwest area of the building – which included space at the main level for additional restrooms, ticket offices, and a ticket lobby. At the First Tier level, a banquet room was constructed with a support staging kitchen and storage rooms – to be used for hosting pre-performance, intermission, or post-performance events. Care was taken to use the same brick as the original exterior construction, and similar materials – such as structural glass, gold trim, and oak - were employed to marry the new addition to the existing building, and maintain the iconic image of Abravanel Hall.

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	Jason Mathis Downtown Alliance Executive Director			801.333.1101 (office)	jason@downtownslc.org
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	Food Service Systems Design Intl, Inc. (SDI)	Rick Watt Sr Project Manager		5200 DTC Pkwy, Ste. 500 Greenwood Village, CO 80111	303.771.0034 (office)
Acoustics Jaffe Holden	Mark Holden Principal / Project Manager		114-A Washington Street Norwalk, Connecticut 06854	203.838.4167 (office) 203.984.0171 (cell)	mholden@jaffeholden.com www.jaffeholden.com
Fountain Concepts WET Design	Teresa Powell-Caldwell Project Manager		10817 Sherman Way Sun Valley, California 91352	818.769.6200 (office)	teresa.powell@wetdesign.com www.wetdesign.com
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	Greg Boudrero Design Architect		145 West 200 South Salt Lake City, Utah 84101	801.364.9696 (office)	gregb@grassligroup.com www.grassligroup.com
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Structural Engineering BHB Structural Engineers	Don Barker Principal Engineer		2766 S. Main Street Salt Lake City Utah 84115	801.355.5656 (office) 801.608.1847 (cell)	Don.Barker@bhbenigneers.com www.bhbenigneers.com
Lighting Design BNA Consulting	Carol Feldmen Principal-in-charge		635 South State Street Salt Lake City, UT 84111	801.532.2196 (office) 801.554.7787 (Cell)	mark@bnaconsulting.com www.bnaconsulting.com
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Electrical, AV, Security Engineering BNA Consultants	Mark Bryant Principal-in-charge		635 South State Street Salt Lake City, UT 84111	801.532.2196 (office) 801.554.7787 (Cell)	mark@bnaconsulting.com www.bnaconsulting.com
Mech/Plumb/Fire Engineers Van Boerum & Frank	Neil Spencer Principal-in-charge		330 South 300 East Salt Lake City, Utah 84111	801.530.3148 (office) 801.560.4593 (cell)	bdavis@vbfa.com www.vbfa.com/
Project Cost Construction Control Corporation	Kris Larson Sr. Estimator		307 W 200 South Suite 4006 Salt Lake City, UT 84101	801.578.1201 (office) 801.556.1428 (cell)	klarson@cccutah.com www.ccutah.com







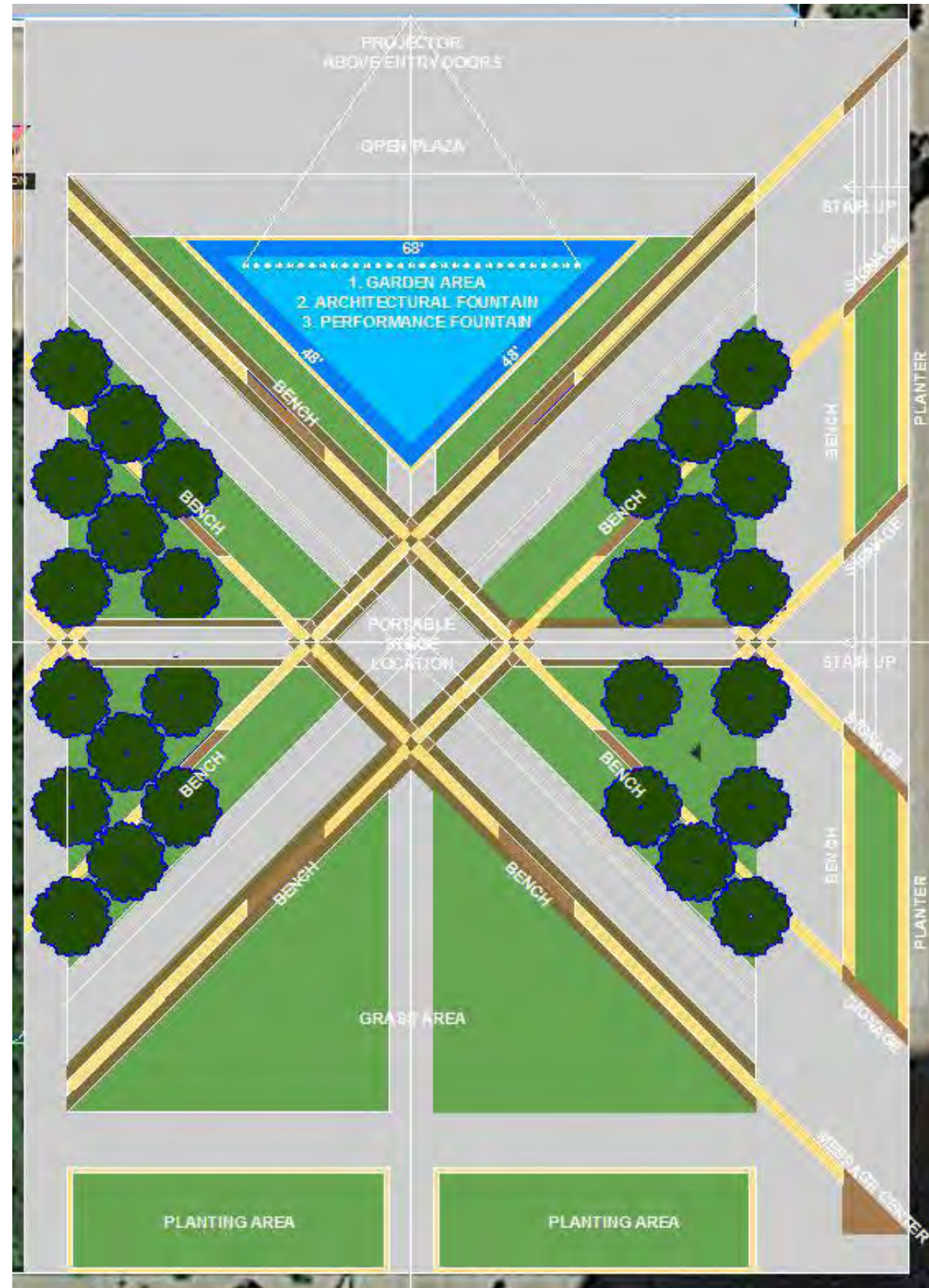
CULTURAL BUILDINGS

1. Church History Museum
2. Salt Lake Tabernacle (home of the Mormon Tabernacle Choir)
3. Assembly Hall
4. Abravanel Hall
5. Utah Museum of Contemporary Art (UMOCA)
6. Jessie Eccles Quinney Center for Dance: A New Home for Ballet West
7. Capitol theatre
8. Utah Theatre (future home of Utah Film and Media Arts Center)
9. Utah Performing Arts Center
10. Rose Wagner Performing Arts Center
11. Off Broadway Theatre Inc
12. Gallivan Center Outdoor Performance Stage
13. Broadway Cinema Theaters (Salt Lake Film Society)



AREA 1 - PLAZA: FOUNTAIN REPLACEMENT AND ELCTRONIC MESSAGE CENTER

1. IDENTITY & PURPOSE	18
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SUMMARY

The Plaza and Fountain Renovation scope has been divided into two separate time-lines – Part A) Immediate Needs, and Part B) Future (Long term) solutions. Salt Lake County has currently received funding of \$1.6 million to address the immediate needs of the Plaza area, and they would like to begin construction on this plaza work in the Summer of 2014. Direction was given to the design team to provide a design that would address both the immediate needs, and also make accommodations for a long term solution for the Plaza. The key Plaza Issues that have been identified are:

- 1) Community Interaction and Involvement – Creating a space to host events, gather the community to the plaza, inform and educate people about the symphony, and a destination spot.
- 2) Replacement of the Fountain - The current fountain is in disrepair, is outdated, is a safety hazard, and needs to be replaced. A new fountain will activate the plaza and draw people in, while providing opportunities for symphony branding and display.
- 3) Landscaping and Pedestrian Comfort – Provide new landscaping and benches, and additional elements at a pedestrian scale to make the plaza a comfortable pleasant place to be.
- 4) Infrastructure and General Repairs - Safety hazards need to be addressed – including tripping hazards, broken handrails, insufficient lighting, plaza drainage and ice melt solutions. A grid of power and communication needs to be provided throughout the plaza to accommodate events.
- 5) Circulation (Both Pedestrian and Vehicular) – Barriers to pedestrian circulation (concrete planters, fountain, etc.) need to be removed to better connect plazas and sidewalks. Vehicular drop offs and ADA parking to be addressed.

Several Plaza schemes were reviewed and discussed by the team. The Scheme that was selected to be used was “Scheme C” – which addresses each of the five key issues. After initial cost estimating was completed on Scheme C, direction was given to the Design Team to proceed with the design of the Plaza, noting that the Fountain replacement would need to occur as part of the long term scope of the project.

Additional Long Term items of the Plaza design include – reconfiguration of the Ticket Plaza – to accommodate Phase 2 needs, as well as reconfiguration of City sidewalks, curbs, and drop off lanes to accommodate vehicular traffic.

Summary

Part A – Immediate Plaza Scope:

12,201 SF Hardscape:
 25,783 SF Green space:
 XXX SF Ice Melt System
 Cost = XXXX

Part B – Future Plaza Scope:

1,700 SF Fountain Replacement
 6,606 SF Ticket Plaza Renovation
 XXX SF Modification to City Sidewalks, drive lanes, vehicular drop off areas.
 Cost = XXXX



1. IDENTITY & PURPOSE

The Abravanel Hall Plaza is a unique setting and a recognizable feature in the downtown Salt Lake City area. While Salt Lake County will maintain the Plaza and Fountain area, there are numerous entities that have a keen interest in the Plaza. These include:

- Salt Lake County Center for the Arts
- Utah Symphony / Utah Opera
- The Church of Jesus Christ of Latter-day Saints (Neighbor and property owner).
- O.C. Tanner Family (Donors of the current water fountain).
- Salt Lake City.
- Utah Museum of Contemporary Arts (UMOCA – Neighbor and sister facility).
- The Salt Palace Convention Center (Neighbor)
- City Creek Retail Development (Neighbor)
- The Downtown Alliance.

During the Plaza programming exercises – input was gathered from many of these entities. Additional input will need to be gathered from these entities as the design progresses. A “Visioning” session was held for the project, and responses were gathered from participants and were documented. The Visioning Responses were grouped into five basic categories:

- 1) Community Interaction and Involvement
- 2) Replacement of the Fountain
- 3) Landscaping and Pedestrian Comfort
- 4) Infrastructure and General Repairs
- 5) Circulation (Both Pedestrian and Vehicular)

Complete visioning responses are documented on the following pages.

These five items became the guiding principles of the project – to reference throughout the course of the project during decision making events. These items are also the conditions of satisfaction for the project– metrics that can be used to measure the success of the project.

VISIONING1) Community Interaction and Involvement:

- Provide Marquee Message Center – Electronic Billboards.
- Post Event Purposes and Special Events.
- Establish a “Holiday Village” at Christmas time. Near Temple Square /Lights/Crowds.
- Kiosk/Signage to Draw Users to the Building.
- Reference to New World Symphony in Miami (Outdoor Café).
- Plaza to Host: Chamber Events, Broadcasts, Café (Outdoor/Indoor), Gathering Area, Christmas Village. A nice place to visit after winter concert.
- Projected Images on Building.
- Using Pandora for Music outside of building.
- Broadcast events going on inside building onto plaza.
- Plaza has direct connection to TRAX (that wasn’t planned for during original design).
- Connect the Plaza to the fact that Abravanel Hall is home of Symphony.
- Break down barriers – cultural walls.
- Establish a Place Making Opportunity (Destination Spot and Gathering Place).
- Other Uses for Plaza (Tent City – Outdoor Retailers), others?
- Concerts on the Plaza.
- Connection to future Convention Center Hotel location.
- Provide better sense of entry at front door of building.
- Plaza becomes “outdoor lobby” or extension of lobby.
- Consider food carts, food venues, and catering.
- Programming of any outdoor space or events needs financial support and cultural support to make it successful.
- Downtown SLC Library is good example of indoor/outdoor café.

2) Fountain Issues:

- Existing Fountain is a Safety Hazard.
- Wind and Water Spray Issues.
- Water is a key Feature. Some element is important. Biological need/draw to.
- Possible fountain activated by live sound on stage.
- Existing fountain is leaking – 10” supply line, 55,000 gallons.
- Possibly provide new, smaller, more active fountain in connection with activating projection on plaza wall.
- We’re not married to having a fountain.
- Fountain needs to add to plaza, even when it isn’t on.
- Change fountain design, but please keep fountain.
- Consider operating fountain in winter. (Currently April Conference to October Conference time frame).
- Review fountain vault location and plumbing issues. Effects of demolition/replacement.
- New or No fountain.
- Water is an Attraction. Simplify the Fountain. Lower Maintenance.

3) Landscaping and Pedestrian Comfort:

- Provide benches and places to sit.
- Does the East Plaza need to be 100% Hard surface? It is a desert that needs to be crossed to get to the building.
- Improve Plaza Comfort – Shade in Summer, shelter in inclement weather.
- Address Cooling the Main Plaza.
- Provide Hardscape or path in the Trees.
- Consider Providing Snow Melt system to reduce ice factor.
- Addition of Lighting to create a safe welcoming area and entry to the plaza space.
- Provide sitting areas at plaza: benches, seat walls.
- Provide water, shade, seating, food.
- Provide statues or sculptures that reflect music – i.e. people playing instruments, etc.
- Can we make the wooded plaza green space bigger? Benches, sitting space.

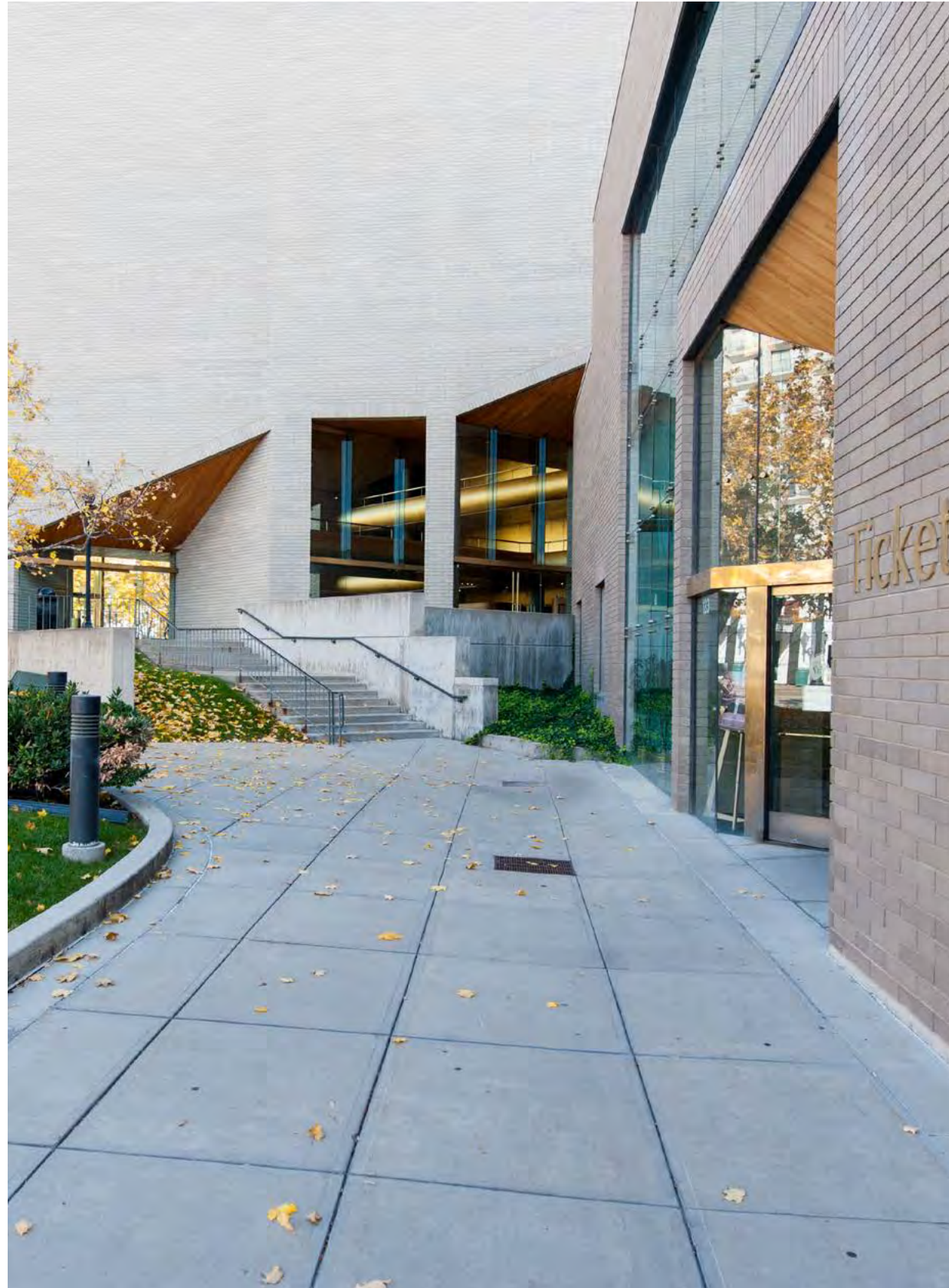
- Provide shade on plaza.

4) Infrastructure and general repair issues:

- Existing concrete is settling and breaking apart and causing tripping hazards.
- Fix pavement and handrails.
- Provide infrastructure (mainly power – but also consider comm/data, and water) in numerous areas on the plaza incorporated into the design – to accommodate events, concerts, retailers, and other gatherings.
- The Plaza is too dark at night, and too dangerous. Provide lighting.
- Use lighting for wayfinding and direction.
- Addition of Lighting to create a safe welcoming area and entry to the plaza space.
- Address Plaza drainage.

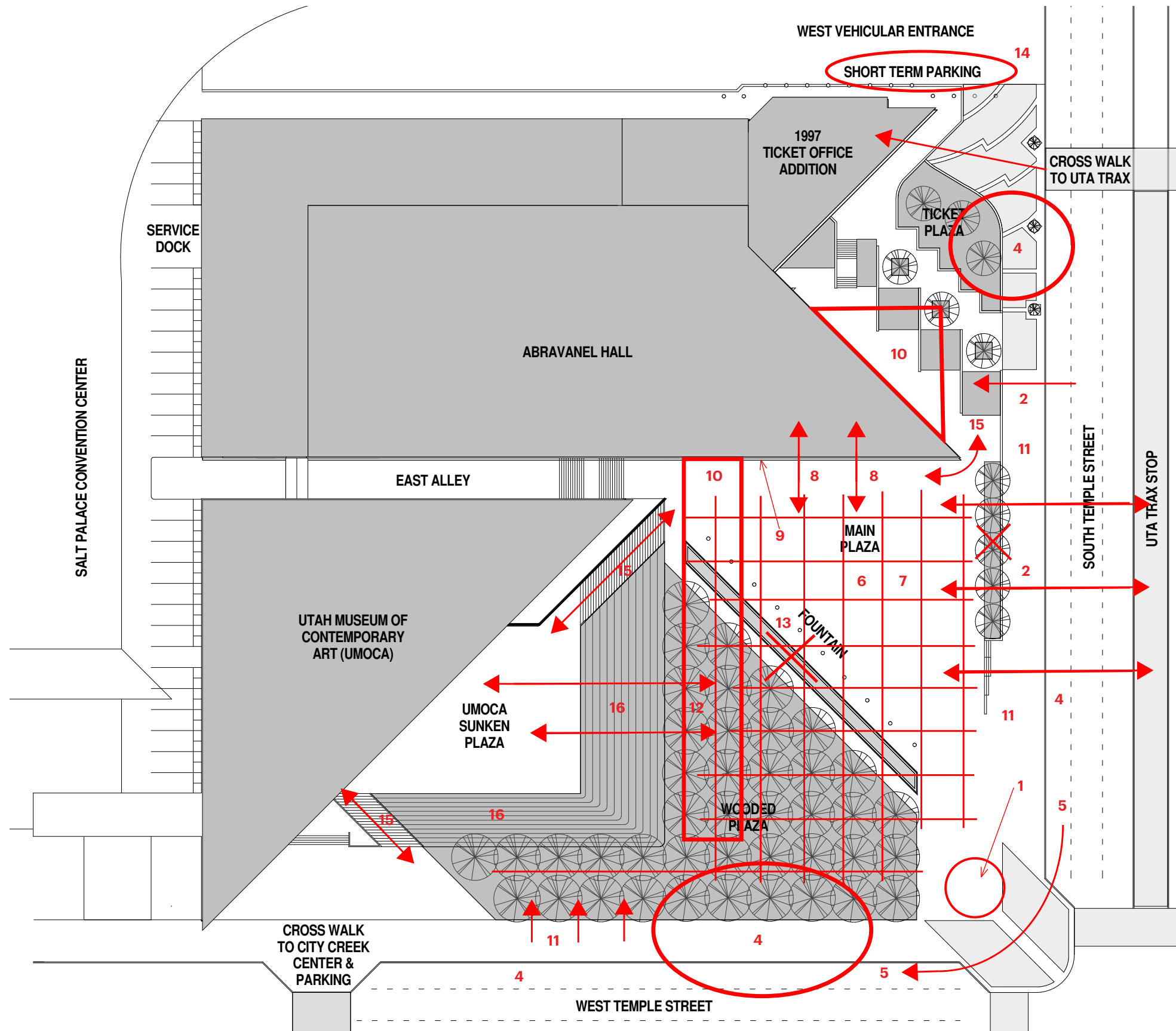
5) Circulation (both Pedestrian and Vehicular):

- There are really 4 plazas on the site. Ticket Plaza, Main Plaza, Wooded Plaza, Lower (sunken) Plaza by UMOCA. Improve Circulation between plazas.
- Remove concrete planter on the north side (consider steps instead) to better connect plazas, sidewalks, and TRAX access.
- Consider Vehicular Parking and Drop Off Area.
- Cut-out bump out at northeast side walk corner to provide vehicular drop off area along West Temple.
- Improve Accessibility throughout site – South Temple, Circulation Between Plazas, and Main Entrance.
- Current ADA and Ticket Office short term parking do not work well.
- Provide welcoming experience along street frontage.



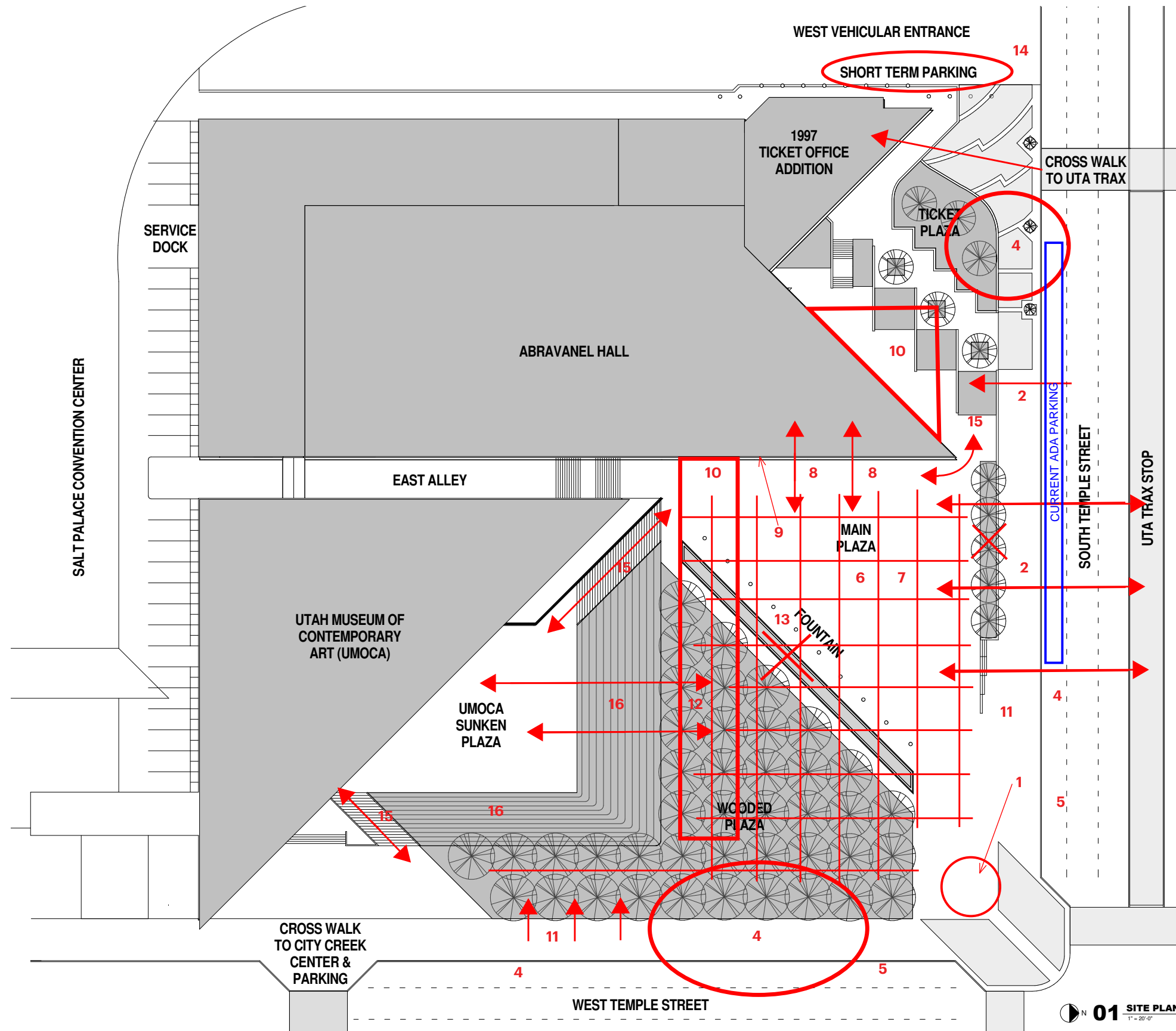
2. ORGANIZATION & SERVICE REQUIREMENTS

The Owner team and Design team participated in several site walk-throughs, to identify the key elements of the Plaza, areas of concern, and opportunities for improvement. These items are documented in the site plans that are below. Site issues and notes were made and reviewed in team meetings. Additional notes were added to the plans in the team meetings - to better understand the issues, and confirm the desired direction.



KEYED NOTES

1. Possible location for new marquee, kiosk or message center to showcase events and home of Symphony.
2. Break down physical and perceptual barriers - social and pedestrian connection to the plaza.
3. Plaza becomes outdoor lobby, or extension of lobby. Connect plaza to Abravanel Hall.
4. Possible drop off location for vehicles
5. Remove bump out at corner to allow for vehicular drop off and turn lane.
6. Plaza to be at pedestrian scale instead of concrete sea. Provide benches, trees, landscaping, lighting, etc.
7. Plaza to host Chamber events, broadcasts, gatherings, Christmas village, food venues, etc. Provide infrastructure to support (electrical, data, water).
8. Provide better sense of entry at front door
9. Project images on east wall of Abravanel Hall. Broadcast music onto plaza - of what's happening inside of building.
10. Possible lobby expansion location - including approach/covering to building entrance.
11. Provide welcoming experience along street frontage.
12. Possible food/retailer location with connection to sunken plaza/UMOCA.
13. Existing fountain is safety hazard and in need of repair. Placement of fountain does not allow for good circulation of plaza. Consider smaller fountain at good location - water is a draw and will activate the plaza.
14. Short term parking and ADA parking do not work well, and need to be addressed.
15. Circulation between plazas needs to be addressed.
16. Slope down to sunken plaza is too steep (is about 30%). Should be closer to 10% slope for amphitheater. Review connection with sunken plaza. Could a building go in this place?

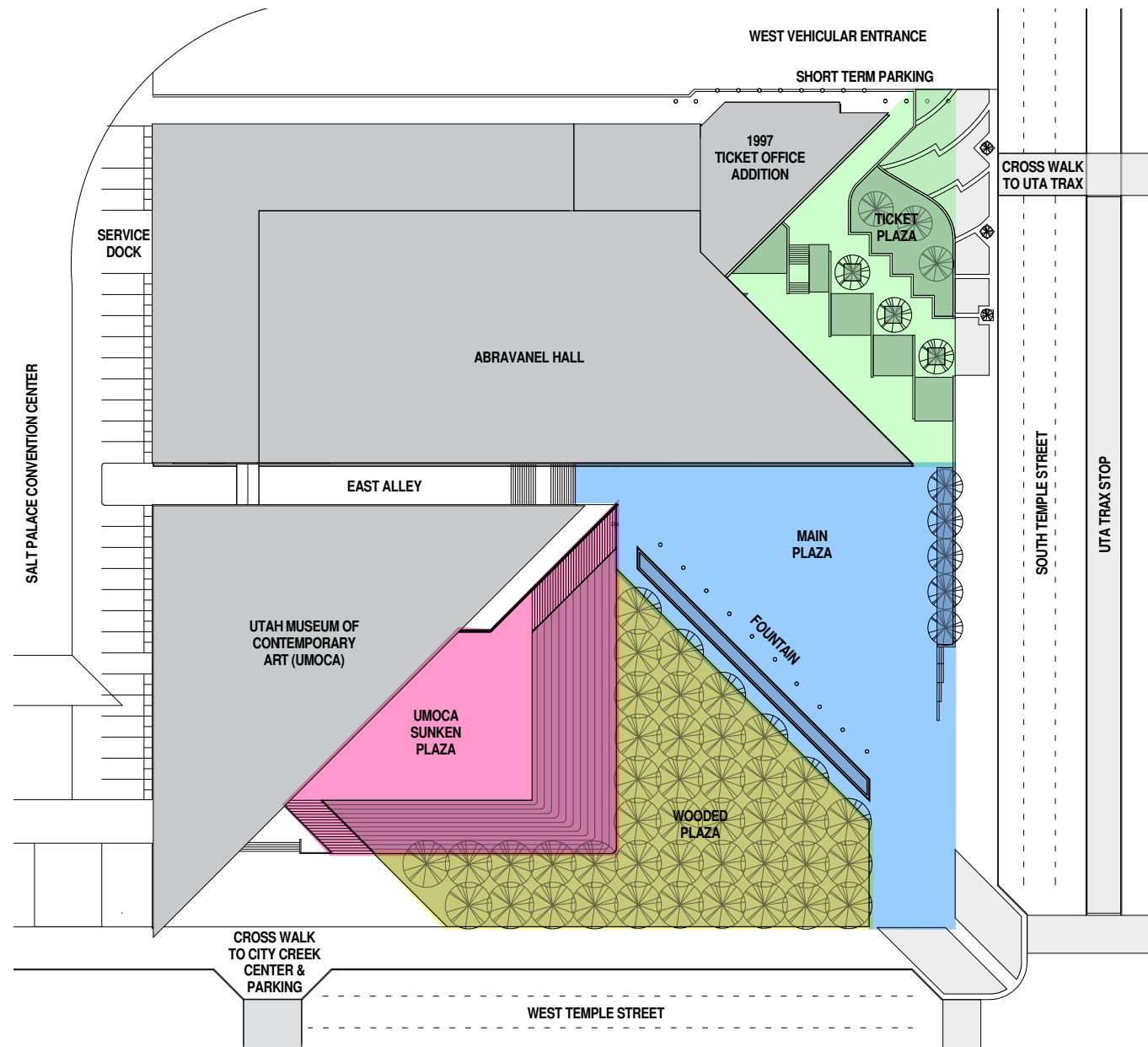


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KEYED NOTES - UPDATED 2/13/14

1. Use marquee to invite people into the space. Needs to have messages both for vehicles (high) and pedestrians (low). Possible WIFI hotspot - with link to homepage?
2. Careful balance of barriers. Want to feel inviting but not exposed. Punched openings to still give sense of place.
4. Drop off could possibly be three to four foot "niche" in curb for cars to pull into to get closer to front door. Does not have to take up the whole right lane.
5. Could possibly provide a different surface at this location. Flush curb with paver's instead of concrete - so cars can turn right, but still maintain pedestrian access.
6. Use different tree instead of maples that are there. Possibly Honey Locust or even conifers. Prepare ground properly so that landscaping will grow.
7. Space needs to be flexible to support a variety of events. Most likely the concerts at this plaza will not be a full orchestra. Utah Symphony has Deer Valley for their outdoor venue. Programming for outdoor events needs planning in order for it to be used and to be successful.
13. Components of the existing fountain are at the end of their useful life. Current pump room is adequate size for new fountain and has power and utilities. Consider historical precedence in design of new fountain - consult with LDS church, OC Tanner for input and donor opportunities. Fountain can be back-droop for performances, respond to music, exhibit what is happening inside hall, reference current design.
16. Sunken plaza should be master planned, but not programmed. Since lower level of UMOCA has windows blacked out and is not currently used, possibly "infill" sunken plaza to: A) reduce size of plaza, and B) Reduce slope to 10%.



3. INDIVIDUAL SPACE DESCRIPTIONS

For reference – the existing plazas on the site contain the following square footages:

- 1 – UMOCA Plaza = 14,666 square feet.
- 2 – Wooded Plaza = 16,580 square feet.
- 3 – Main Plaza = 22,517 square feet.
- 4 – Ticket Plaza = 11,482 square feet.

The Site Evaluation plans shown on the previous pages, note the desire to convert the plazas to a more pedestrian scale. In evaluating the current plaza design - it is not that the total square footages of hardscape vs. green space are wrong, it is more the fact that the hardscape and green space are not distributed throughout the existing site – there are just large areas of hardscape and green space – notably in the Main Plaza and Wooded Plazas. Effort is to be taken to distribute the hardscape and green space throughout the site to create a better pedestrian feel and scale.

Descriptions

The following Phase 1 Space/Element Descriptions were discussed during programming work sessions – and should be incorporated into the design:

- 1) Hardscape: Is to be a combination of concrete and paver’s - organized in a thoughtful design to break up the hardscape into a pedestrian scale (in lieu of a “sea of concrete”). Paver’s could include brick paver’s – to reference the brick of the Abrahavanel Hall building, as well as stone or concrete paver’s to accent the design composition. Hard surfaces shall be designed to accommodate vehicular weight (box trucks) – for event setup and staging.
- 2) Landscaping: The existing Maple trees in the wooded plaza are to be removed. A new tree variety is to be selected to provide more transparency to the building views, but still allow for shade (such as a honey locust). Suitable soil shall be provided and appropriate irrigation to allow the trees to grow and be healthy in this urban environment. Appropriate soil shall also be provided for the grass areas (good drainage mix) to allow grass roots to spread and the grass to adequately grow. Planters shall contain appropriate landscaping to be inviting and pleasant, but with relatively low maintenance. Planter walls can double as seating areas at appropriate places on the Plaza.
- 3) Site Drainage: The existing roof drainage system of Abrahavanel Hall hard pipes under the main plaza and exits at a curb on South Temple Street. This creates ice dams at both the street area, as well as the roof area, and is a safety hazard on the site. This existing condition needs to be addressed. The hardscape areas shall be graded to allow drainage in the green space areas and retention – where possible on the site.
- 4) Plaza Fountain: The existing Plaza fountain shall be removed – including the water supply basin below the fountain. The existing pump room was reviewed by the design team and was found to have adequate space and utility capacity to be re-used for a new fountain. Existing piping and power is to be capped, until a new fountain is installed.

The new fountain shall be an elegant and simple design, which can double as a reflecting pool when not in use.



The fountain itself shall provide spray capabilities for images to be projected onto the water surface. Elegant materials, lighting, and programming shall allow for synchronization with the symphony music. A tunnel, or utilidor shall be constructed between the new fountain location and the existing pump room to provide a chase for utility runs.

5) Plaza Features and Furnishings: Benches shall be provided throughout the site, to provide an inviting place for pedestrians to gather. Power/Data/AV/Lighting could be incorporated into fixed benches on the site. Areas for signage shall also be designed along South Temple, and West Temple – if possible. An electronic message center / marquee is to be included near the street corner with LED display. Trash receptacles shall be placed throughout the plaza.

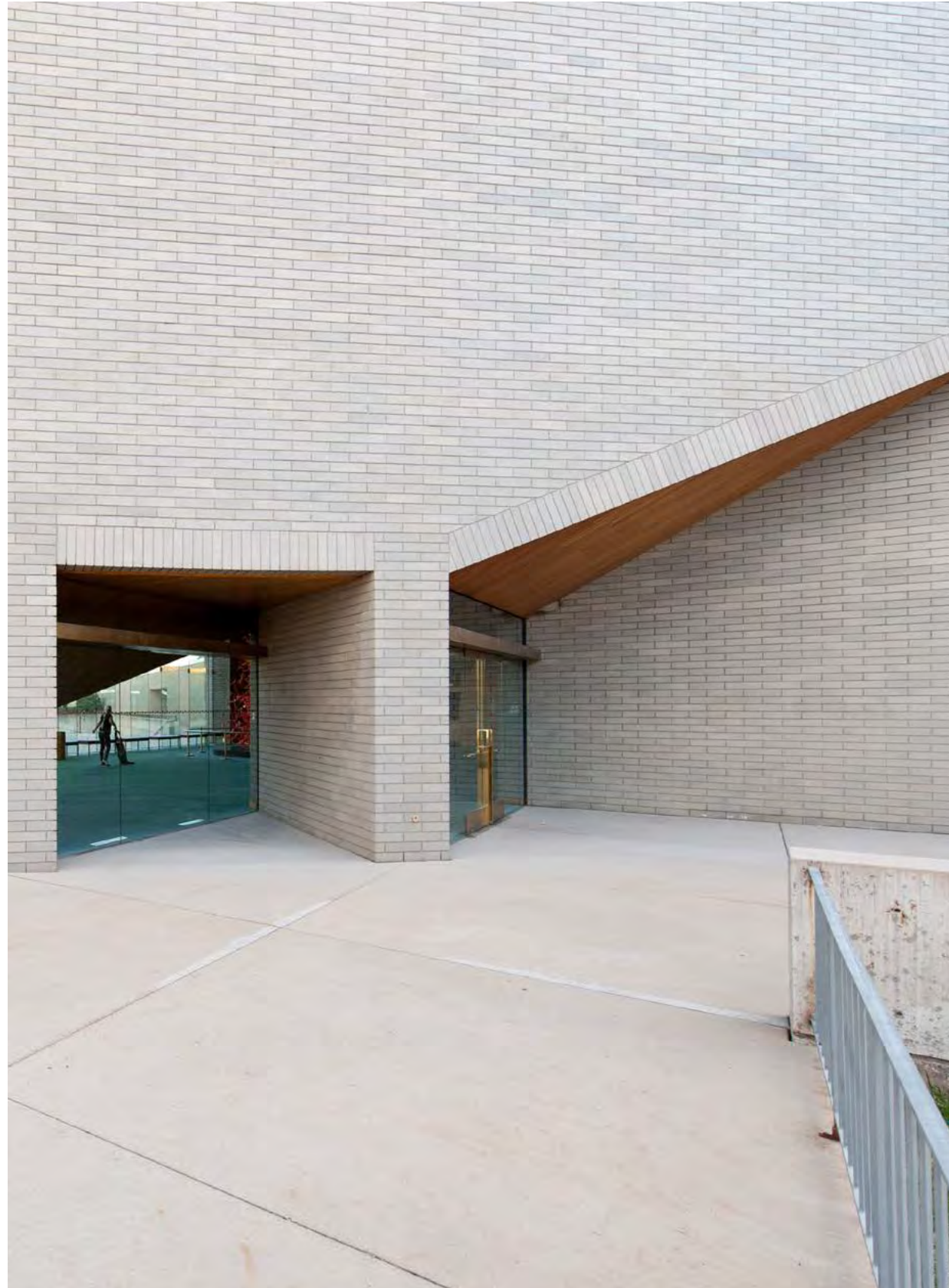
6) Plumbing / Mechanical Items: The plaza shall incorporate a snow/ice melt system via piping under the hardscape surfaces. The intent is that the heat for the system will be obtained by utilizing the existing steam system in the Abravanel Hall mechanical room. A pump and heat exchanger will likely need to be added to the room, and adequate piping from the room to the plaza area.

7) Electrical / Communication Items: An infrastructure grid of power and data shall be located throughout the plaza to accommodate events at multiple locations.

8) Lighting: Lighting shall adequate for to provide security and safety at night. Plaza lighting shall accent specific landscape and design features, such as signage, benches, trees, and plantings.

9) Equipment: A Projector will be required to project images on the fountain surface. The projector will be housed inside the Abravanel Hall Lobby, just above the entrance doors. Speakers will also need to be coordinated with the site amenities – such as placement inside benches. The LED Electronic Message Center / Marquee will need to be provided at the street corner.





4. CONCEPT DEVELOPMENT

During the programming work sessions, several plaza schemes emerged – each incorporating the programming elements in a different way. The following four main schemes were presented and reviewed as a group:

Scheme A – A Field of Fountains and Planters, spread throughout the plaza.

Review comments included:

- Needs more flexibility – is too rigid and doesn't allow for gatherings or events.
- Needs more paths going north to south – for circulation.
- Cost of so many fountains would be a significant issue.

Scheme B – Diagonal Linear Fountain – similar to the existing, but with paths intercepting it to improve circulation.

Review comments included:

- Preserves a similar feel to the existing fountain.
- Grass close to building entrance does not work well for gathering, or cold weather when Symphony is performing.
- Circulation is limited.

Scheme C – Large Triangular Shaped Fountain, with circulation paths separating plaza into four quadrants.

Review comments included:

- Four separate distinct quadrants work well for a water feature, gatherings, events, and circulation.
- Integrate lighting and more circulation paths into the scheme.

Scheme D – Larger Diagonal Linear Fountain – separated by paths.

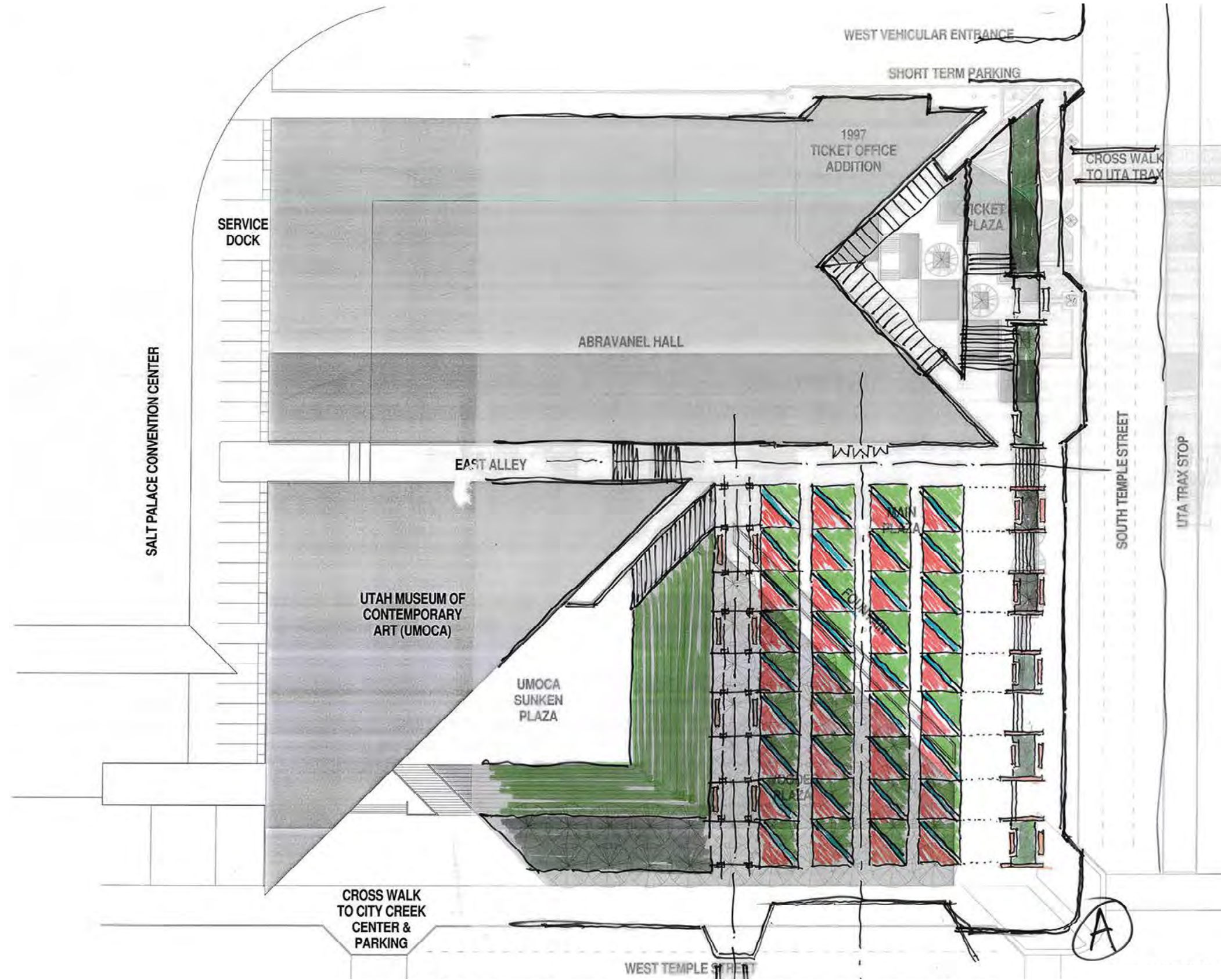
Review comments included:

- Does not have adequate landscaping.
- Circulation is limited.
- Needs further development.

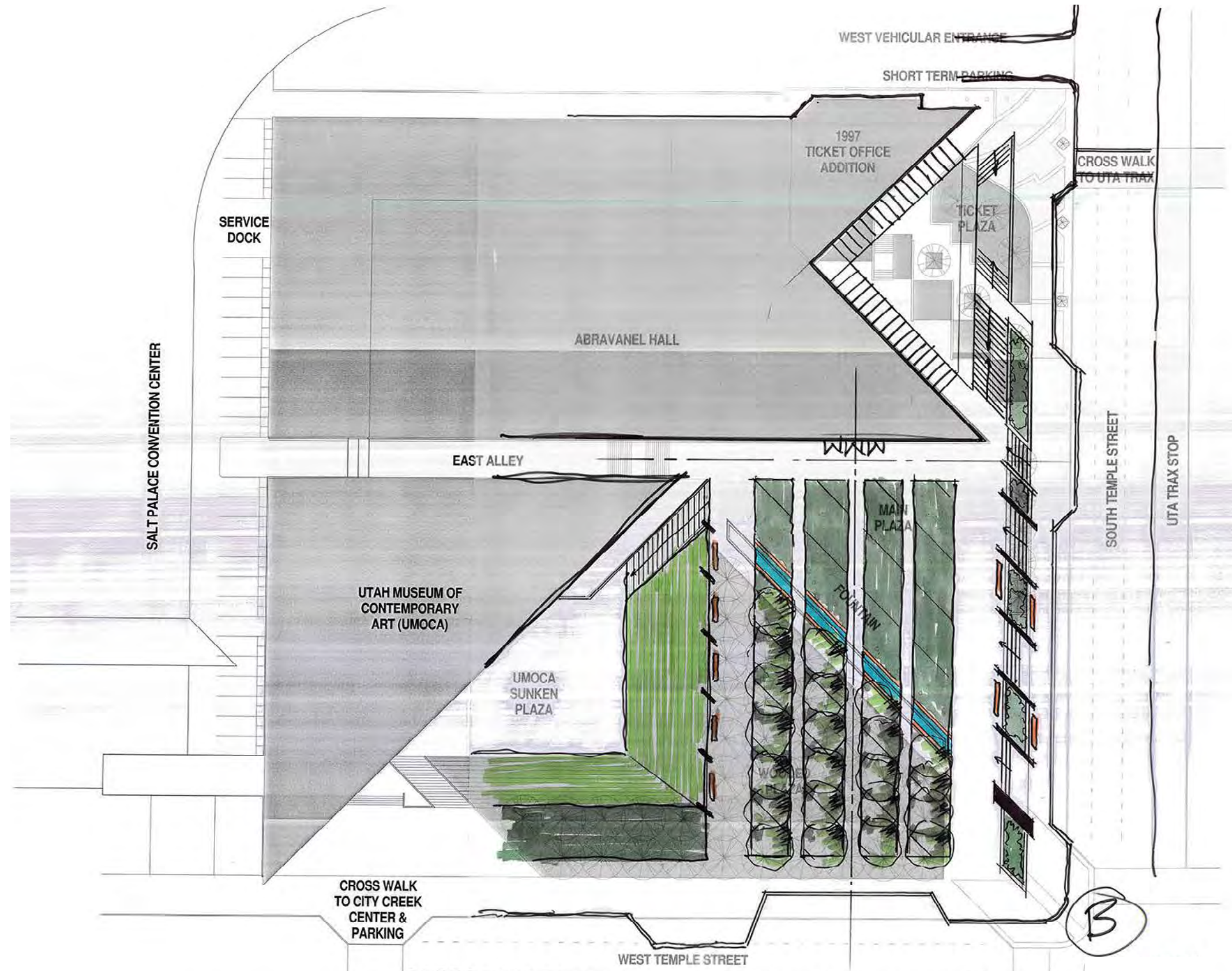
After review, the group chose “Scheme C” as the concept plan to be developed further, for Phase 1 Design - Part A (Immediate Needs).

These Schemes are shown on the following pages, along with further development of Scheme C.

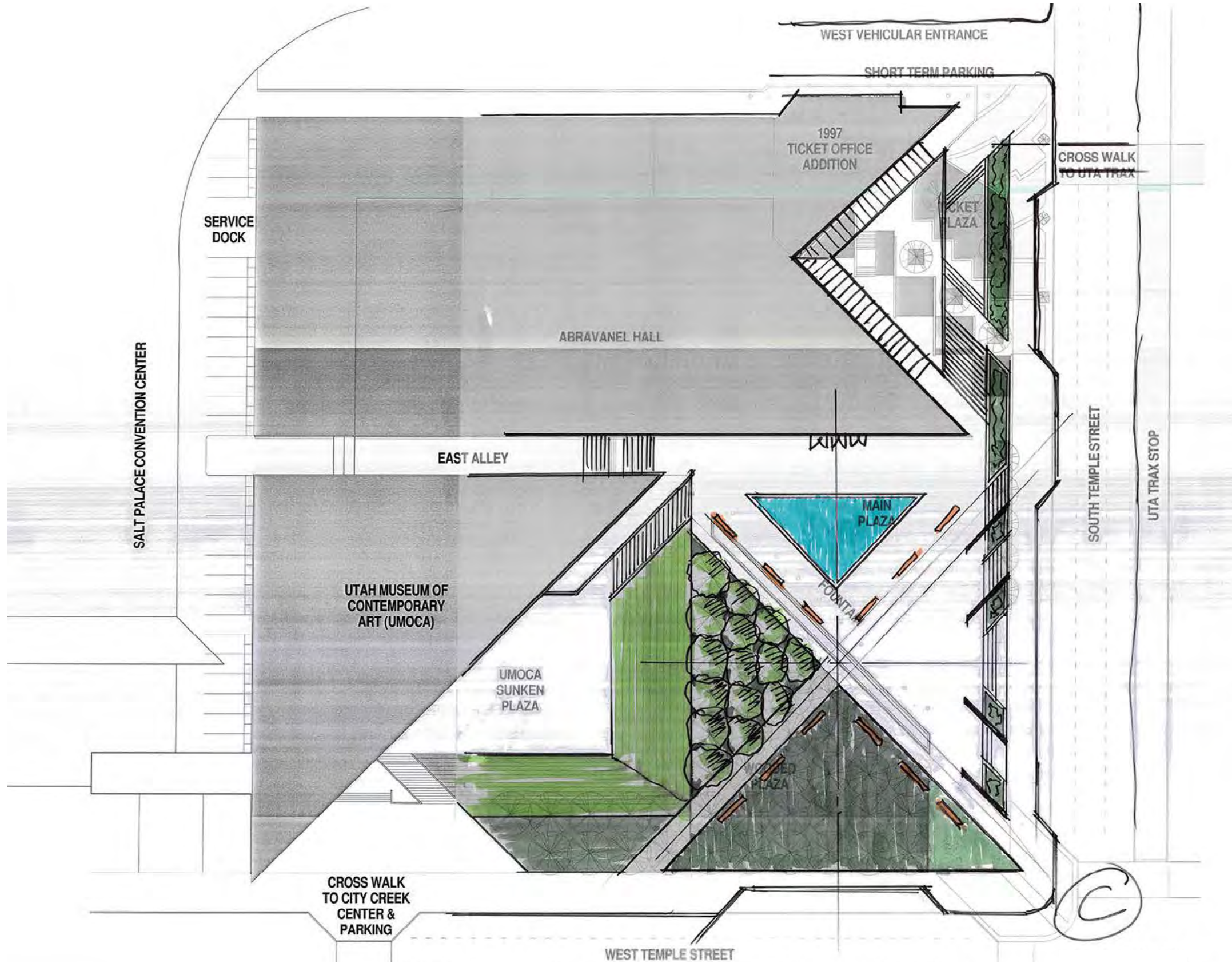
Additional Concept Development was also provided by WET design – relating to the Design Schemes, and is also contained on the following pages.



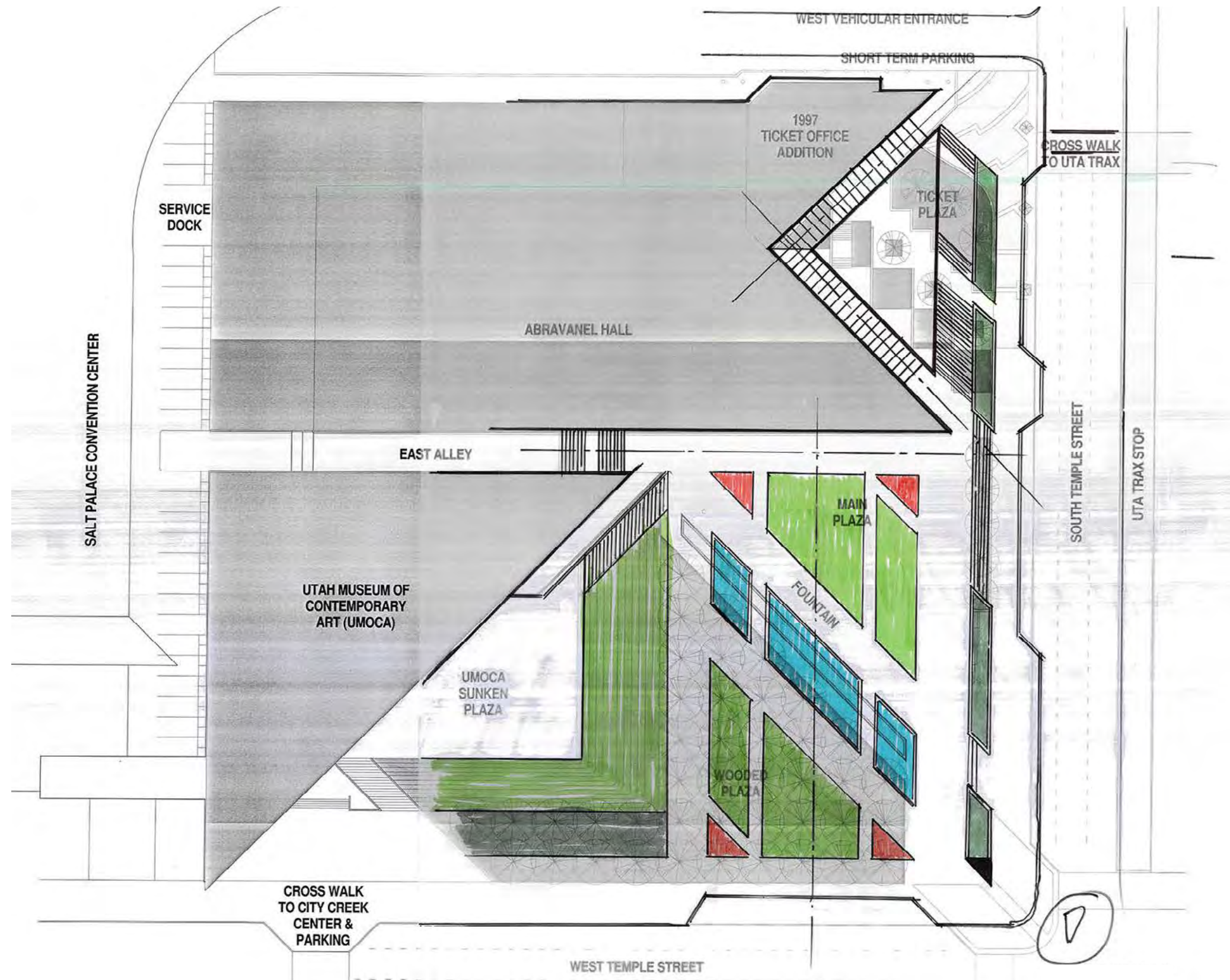
CONCEPT SCHEME 'A'



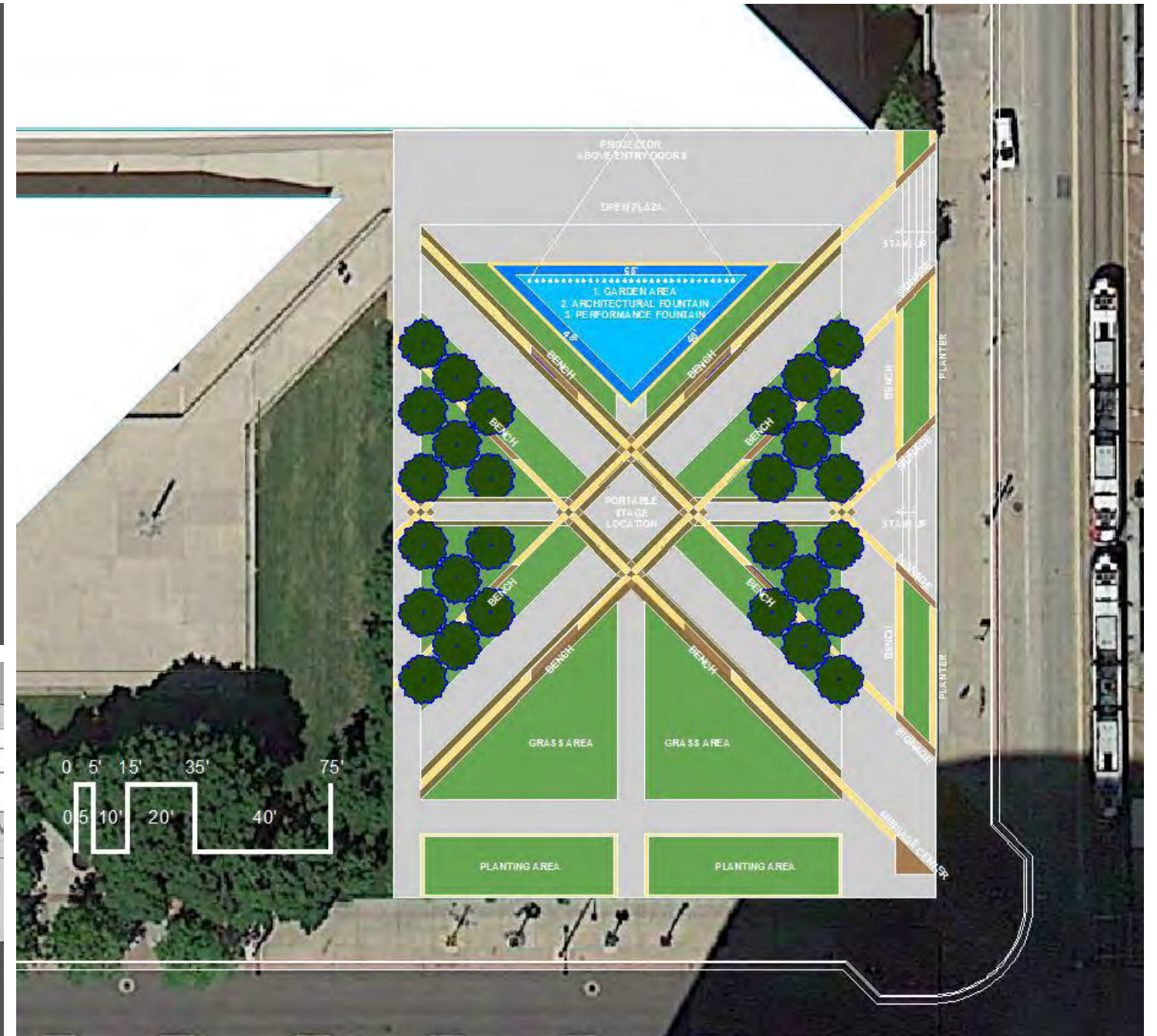
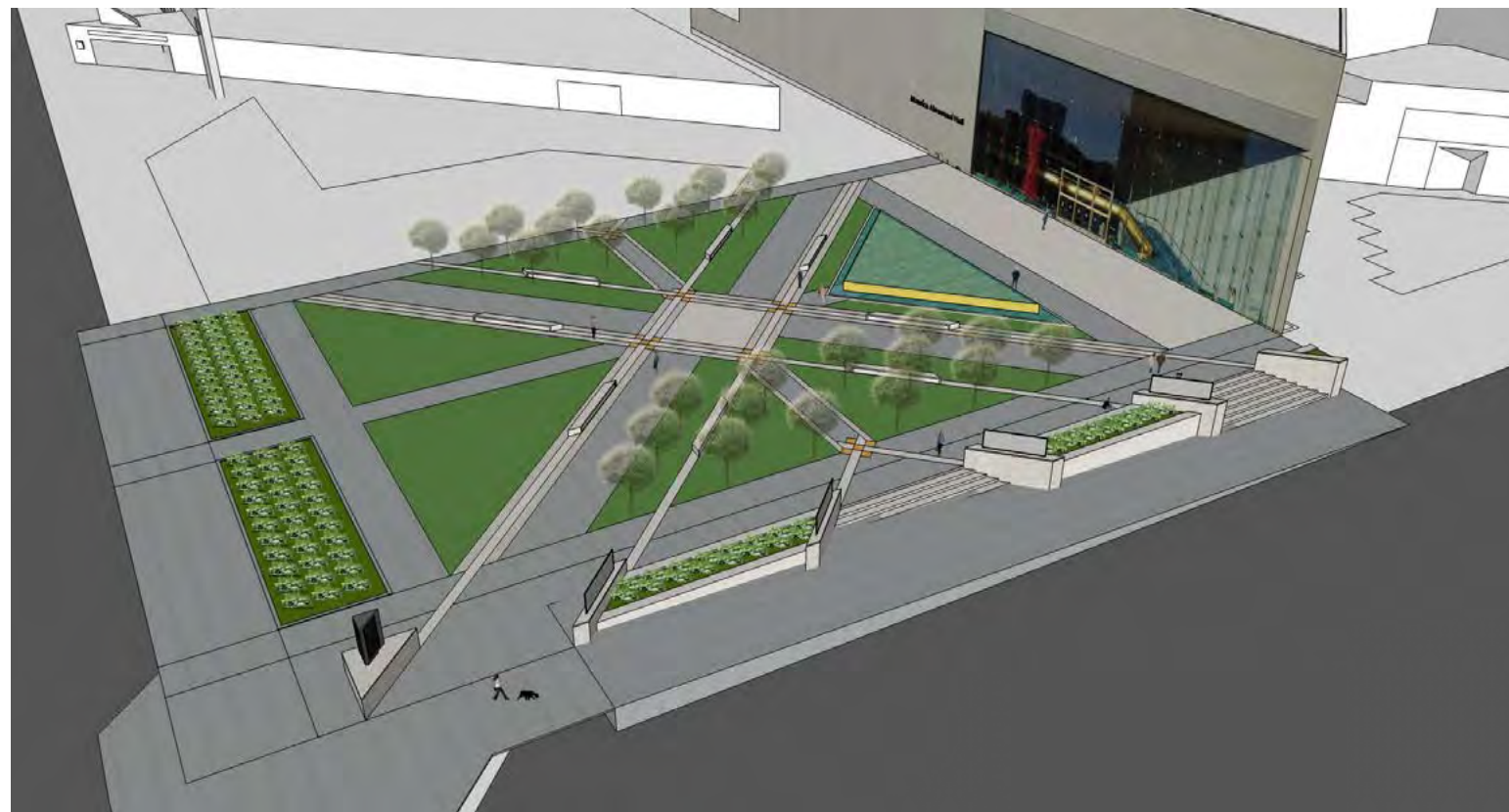
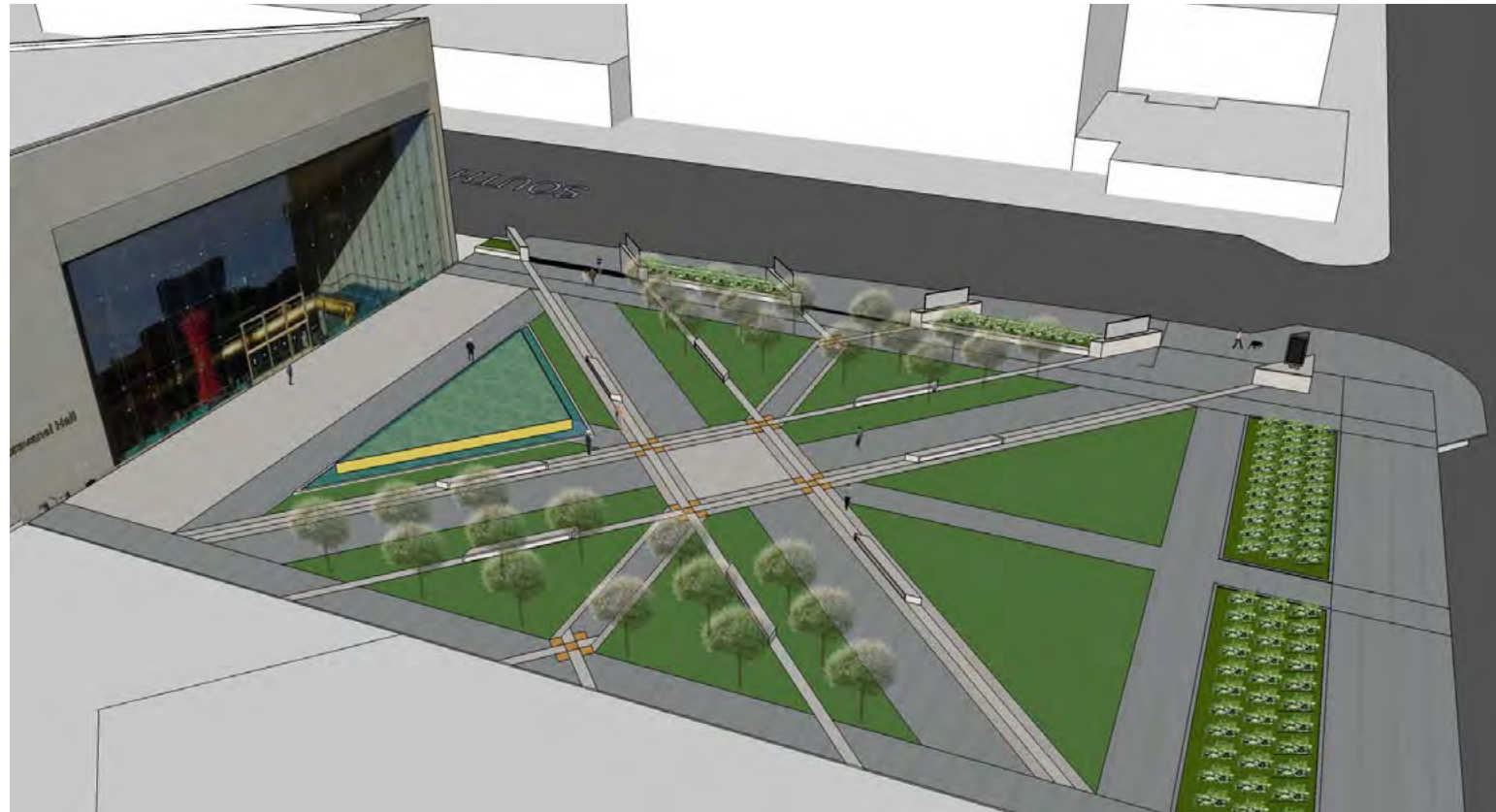
CONCEPT SCHEME 'B'



CONCEPT SCHEME 'C'



CONCEPT SCHEME 'D'



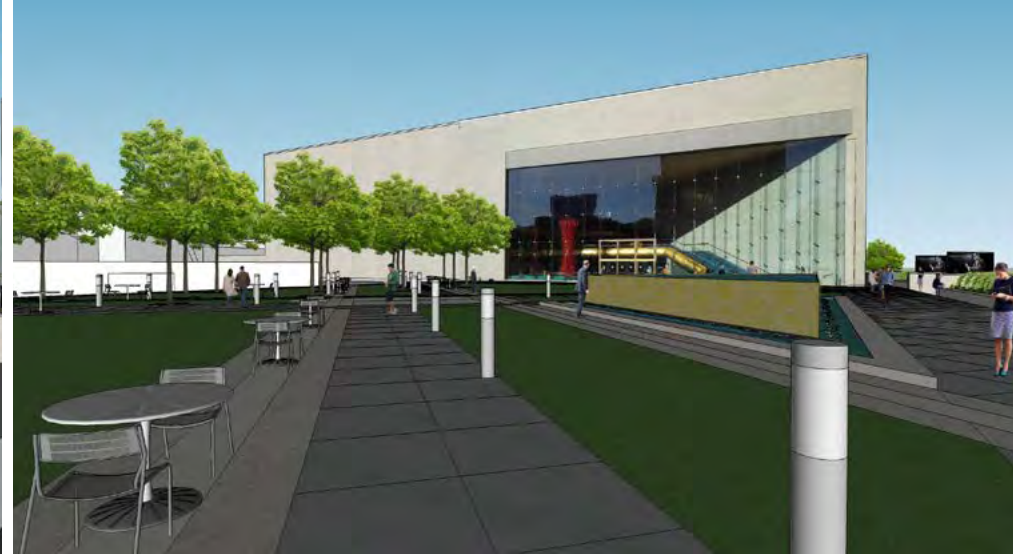
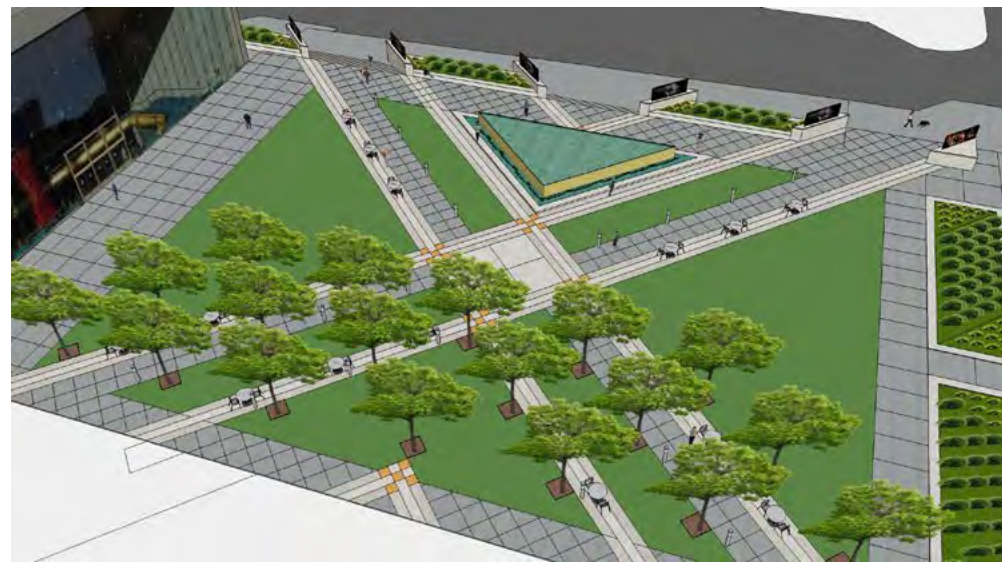
SCHEME 'C' - ADDITIONAL DEVELOPMENT

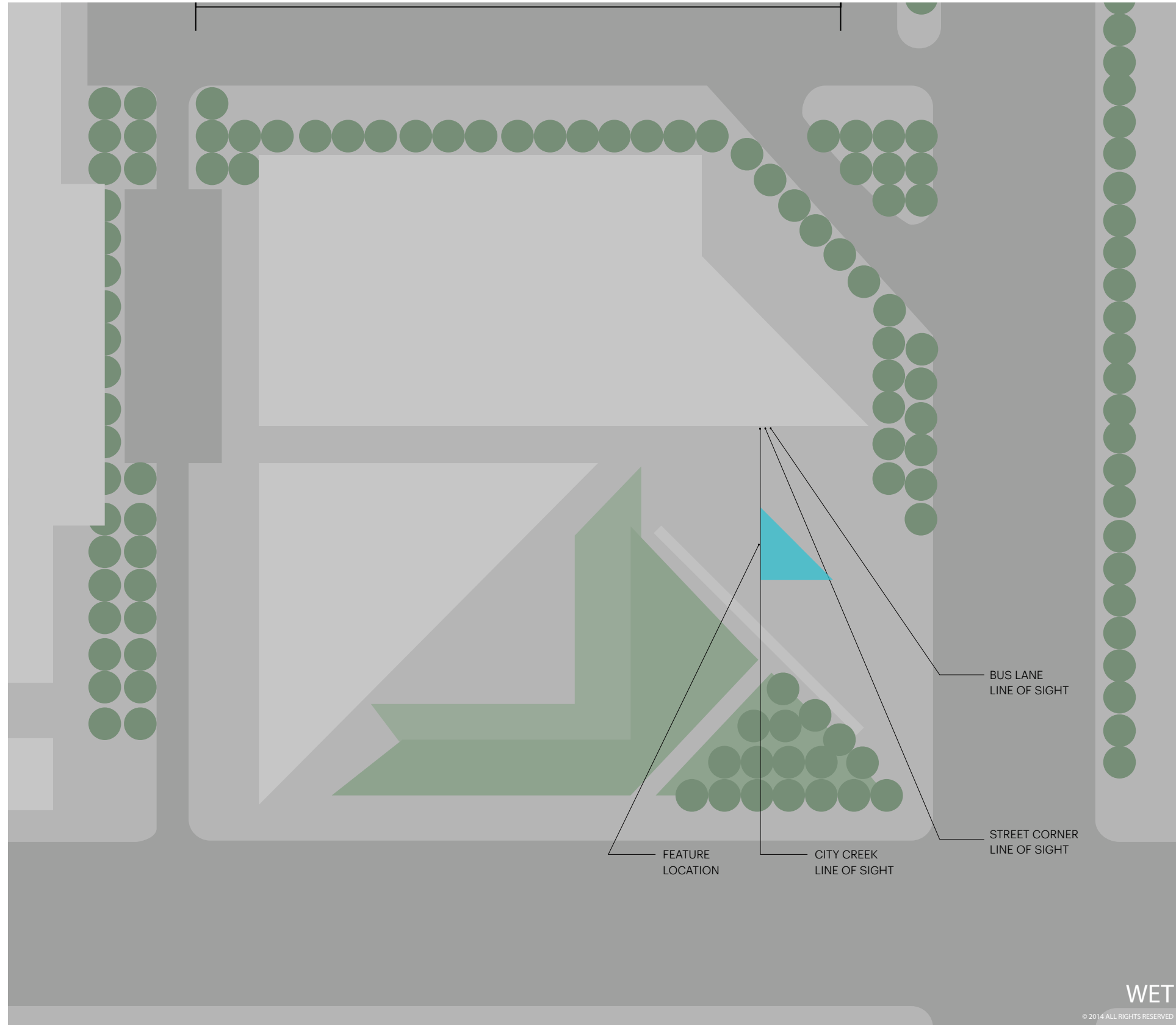


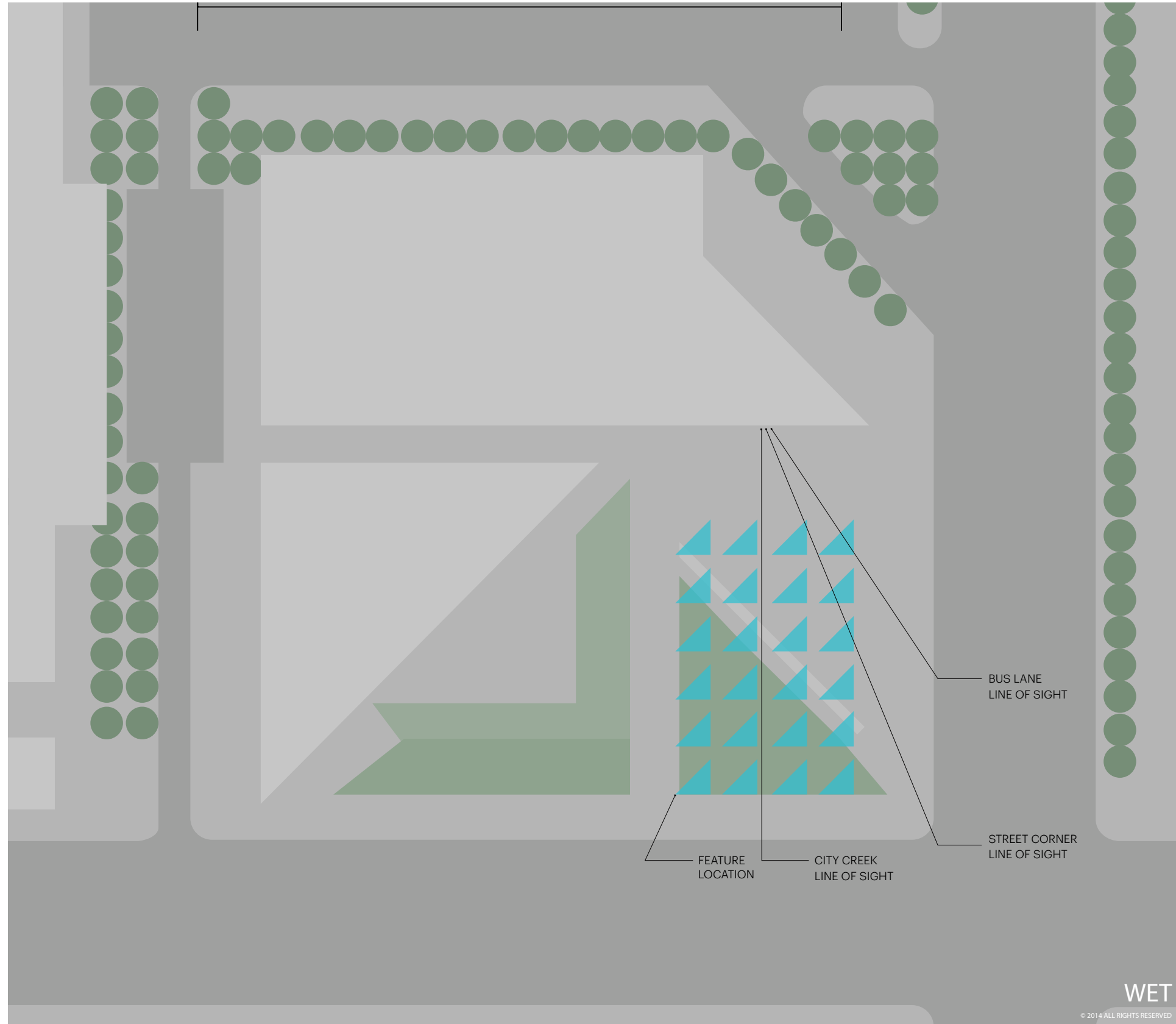
SCHEME 'C' - PLAZA FOUNTAIN PROGRESSION

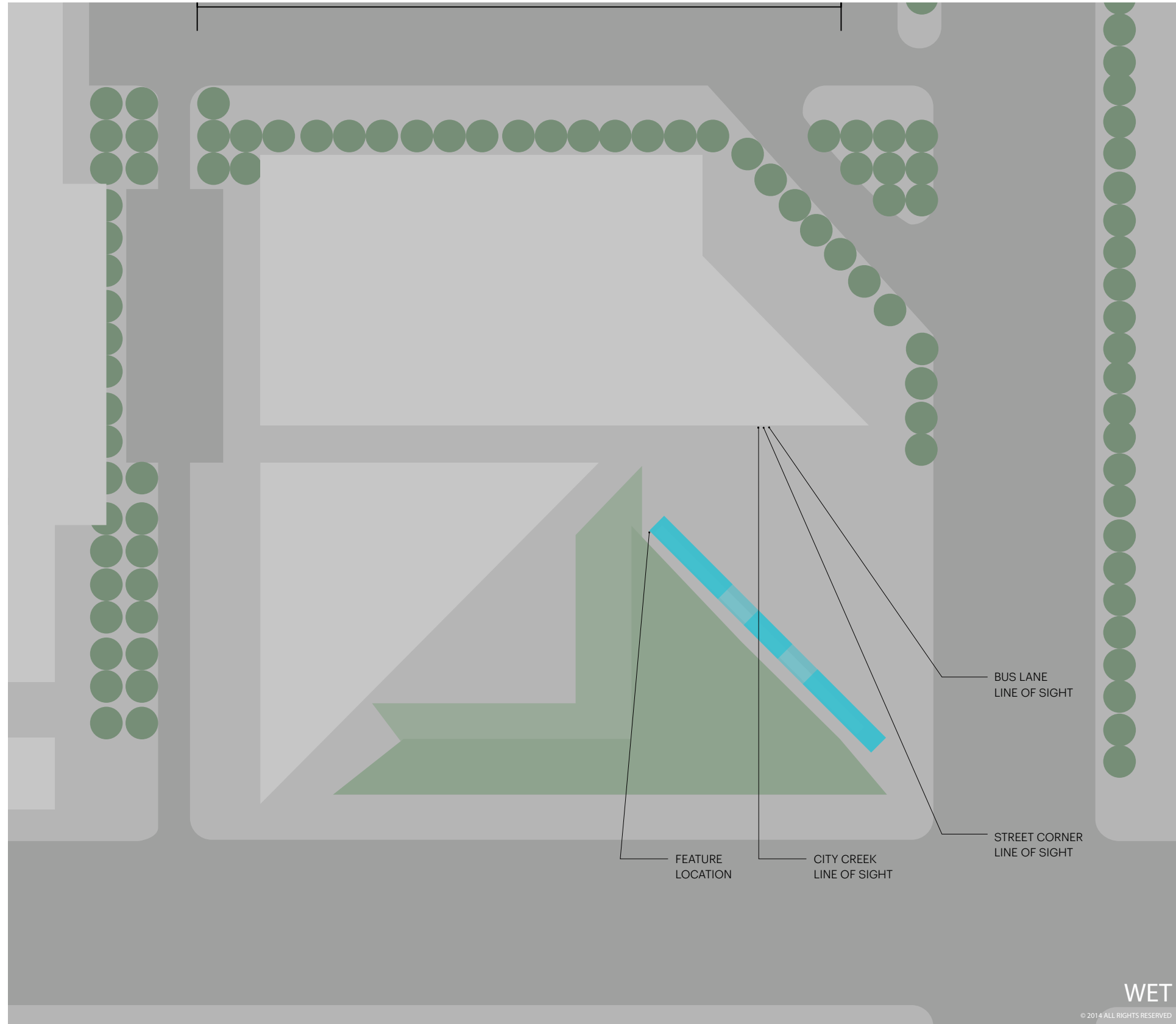


SCHEME 'C' - PLAZA FOUNTAIN PROGRESSION



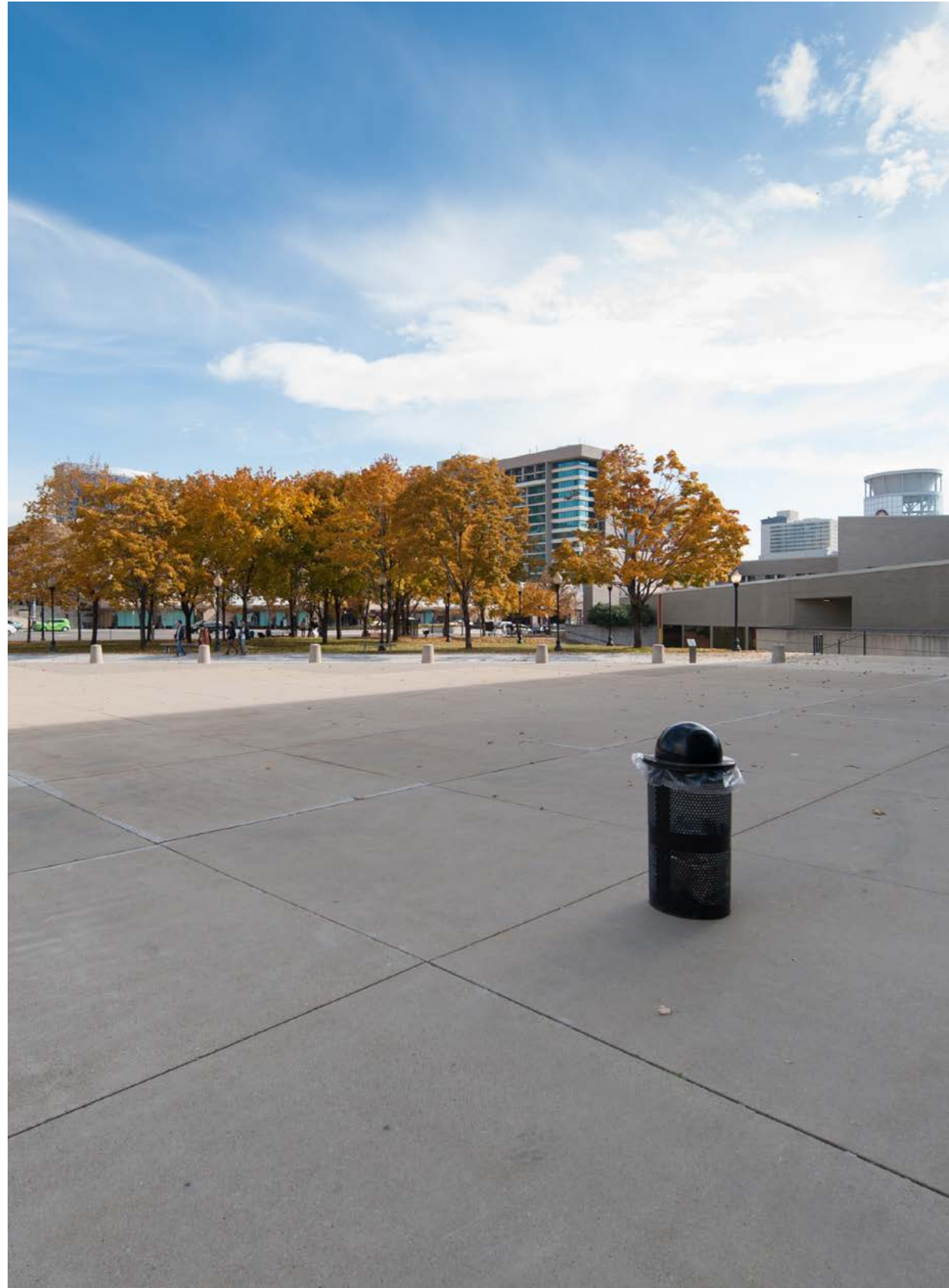






FEBRUARY 2014

All designs, ideas, or concepts that WET develops for the Client will be and remain WET's exclusive property, and neither the Client nor any other party will acquire any copyright or other proprietary rights to those created by WET. The Client agrees WET's work does not constitute a work for hire under U.S. or international copyright laws. The Client agrees that it will not use WET's designs, ideas, or concepts for this or any other project or purpose without a separate written agreement with WET.



5. CONSULTANT NARRATIVES

Abravanel Hall Landscape and Irrigation Narrative

April 30, 2014

Plants and irrigation are critical to the success of the Abravanel Hall Plaza renovations. During brainstorming meetings there was a lot of comments that the plaza is uncomfortable because of the heat in the summer. Comments were also taken about how the plaza needs to be framed with plant material and landscape materials should be able to accommodate activities like tent display and relaxation.

1. Planting

a. Views

- i. Plant material needs to be selected that allows views to and from Abravanel Hall while providing shade during summer months.
- ii. Trees should have an open branching pattern allowing views through the tree and providing filtered shade to users of the plaza in the summer.
- iii. Trees should be deciduous so that warming sun will be present on the plaza in the winter.
- iv. Trees will also provide a pedestrian scale to the plaza.

b. Ground cover

- i. Turf - On the ground plan the heaviest traffic areas will have hardscape. The adjacent pedestrian areas should have turf to provide areas for relaxing and sitting.
 - 1. One of the downsides of turf is the potential for wearing the turf out during high activity periods.
 - 2. The turf should be placed on a root zone mix made of porous sand and organic materials reducing the amount of compaction which prevents air, water and nutrients to root areas.
 - 3. Turf should be aerated during the summer months to continue to open the soil up and reducing compaction. Turf will take more traffic if the proper maintenance takes place.
- ii. Turf areas also need to be able to accommodate the tent city that comes with the Outdoor Retailer show.
- iii. Other perimeter planting should have taller ground cover areas using perennials or shrubs to define spaces and direct users to activity areas.

c. Drainage

- i. Pedestrian hardscape drainage needs to be directed to planting areas where a porous root zone can accommodate storm water. A drainage system needs to be in place to direct excess storm water to the storm water system.

2. Irrigation

a. Turf

- i. Turf areas will be irrigated with an overhead spray or rotor system. The system needs to incorporate a state of the art controller that will monitor rainfall and adjust irrigation run times to conserve as much irrigation water as possible.

b. Plantings

- i. Planting areas will be irrigated with drip irrigation. Trees in turf areas will have their own root watering system so if turf irrigation is limited the trees will continue to thrive.



ABRAVANEL HALL – PHASE 1 PLAZA IMPROVEMENTS

Programming Document

Civil Narrative

April 29, 2014

Summary

The “East Plaza” project involves the replacement of the exterior plaza on the east side of the main access to Abravanel Hall. The boundary of the East Plaza is bounded on West Temple Street on the east, South Temple on the north, the glass exterior wall of Abravanel Hall on the west and the steep landscape grade change on the south. The area of the plaza is approximately 37,500 Sq.Ft.

Demolition & Site Clearing

The project will include demolition and site clearing of the following:

- The concrete plaza within the project boundary;
- The water fountain and associated subsurface piping;
- The trees within the project boundary;
- The steps, handrails and planter walls along South Temple and within project boundary.

Plaza Grading & Drainage

The proposed plaza, consisting of a blend of hardscape and landscape areas is anticipated to have about the same amount of impervious area as the original conditions. A topographic survey of the existing plaza has been completed by Salt Lake County and it appears most of the existing plaza is relatively flat. There are no visible drainage structures on the east plaza and it is unclear where the area drains – it appears that drainage probably infiltrates/evaporates as the primary means of discharge.

The elevation of proposed plaza will be similar to the original plaza. The proposed drainage system has not been determined at this time, but will likely include a combination of infiltration and surface collection.

The roof drain pipe from the existing building is routed north under the existing plaza and daylighted through the face of curb in South Temple Street. This roof drain presents a problem in the winter when the storm water runoff creates ice dams in the drop-off area for people to Abravanel Hall. The plaza project will include relocation of the existing roof drain to a different point of discharge, including connecting to a piped storm drain system, if possible.

ABRAVANEL HALL RENOVATION1. ELECTRICAL SYSTEMS NARRATIVECODES AND STANDARDS

GENERAL

The electrical work will comply with current codes and standards that are applicable:

NEC (National Electrical Code)
 NFC (National Fire Code)
 NFPA (National Fire Protection Association)
 IFC (International Fire Code)
 IBC (International Building Code)
 ASHRAE 90.1 (Energy Code)
 UL (Underwriters Laboratories)
 ASTM (American Society for Testing and Materials)
 ANSI (American National Standards Institute)
 NEMA (National Electrical Manufacturer's Association)
 IEEE (Institute of Electrical and Electronics Engineers)
 EIA/TIA (Electronic Industries Association/Telecommunications Industries Association)
 IESNA (Illuminating Engineering Society of North America)

BUILDING ELECTRICAL SERVICE DISTRIBUTION

POWER DISTRIBUTION

Existing power in the building is 277/480V, 3 phase, 4 wire and 120/208V, 3 phase, 4 wire.

Lighting and Mechanical equipment is served with 277/480V, 3 phase, 4 wire. Receptacles, small motors and miscellaneous equipment is served with 120/208V, 3 phase, 4 wire.

VOLTAGE DROP

The voltage drop for feeders shall be limited to 2 percent. The voltage drop for branch circuits shall be limited to 3 percent.

RACEWAYS

Raceways shall be steel; EMT conduit (Electrical Metallic Tubing) shall be used throughout for branch circuits and feeders. PVC conduit shall be used under slab and below grade with rigid elbows. Final conduit connections for interior lighting fixtures shall be by means of a flexible conduit whip, not exceeding 6 feet in length. Conduit connections to vibrating equipment shall be by means of flexible seal-tite conduit. Conduit fittings shall be malleable steel. Aluminum conduit and conduit fittings shall not be acceptable. Minimum raceway size shall be 3/4 inch.

CONDUCTORS

All conductors shall be copper. Use solid conductor for sizes #12 AWG and smaller; stranded conductor for sizes #10 AWG and larger. Insulation shall be THHN/THWN, rated for 600 volts. Aluminum conductors will not be acceptable. Minimum conductor size for branch circuits shall be #12 AWG. All 20 amp branch circuits over 100 feet in length shall be #10 conductors. All conductors will be color coded according to the NEC.

GROUNDING

Grounding shall be provided for the entire raceway, service entrance, enclosures and equipment system. Grounding shall be provided in accordance with the NEC. A separate grounding conductor shall be provided for all feeders, equipment circuits and branch circuit runs. Grounding conductors shall be sized in accordance with the NEC.

SEISMIC SUPPORT

Electrical Contractor will support and provide seismic bracing for electrical equipment, lighting fixtures, etc. shall be supported from building structural elements, independently from ceilings and ceiling support wires. Attach wall mounted equipment rigidly to wall structure, provide additional wall bracing as required by the application. Attach floor mounted equipment rigidly to floor or structure. Seismically brace all electrical equipment and raceways in accordance with the most recent regulations of UBC or IBC, and the guidelines for Seismic Restraint for Electrical Systems (SMACNA).

WIRING DEVICES

Wiring devices shall comply with NEMA standards Pub. No. WD 1. Switches and receptacles shall be specification grade, and rated at 20 amps and 120 volts AC. Receptacles shall be 3-wire grounding type. GFI (Ground fault circuit interrupter) type receptacles shall be rated 20 amps, 120 volts AC, with solid-state ground fault sensing and 5 milliamp trip levels. Receptacles in toilet rooms, wet areas, or within 6 feet of any sink shall be GFI type. All cover plates shall be stainless steel or otherwise as directed by Architect and/or Owner to match existing conditions.

EMERGENCY POWER

Emergency egress power shall be provided for life safety including exit and egress lighting. Utilize power from existing emergency distribution system. Provide exterior emergency egress illumination per NFPA 101, 7.8 Illumination of Means of Egress.

LIGHTING

All Illumination Levels will be designed per IESNA standards. Point by point foot-candle calculations will be provided in critical areas. 3d modeling will be provided as requested by Owner.

INTERIOR LIGHTING

Interior lighting will be primarily illuminated with LED and Fluorescent lamps. Lighting design criteria and approach will exceed ASHRAE 90.1 and will be as energy efficient as possible.

BNACONSULTING

EXTERIOR LIGHTING

Exterior lighting will complement and enhance the new architectural design features and existing conditions. LED light fixtures will be utilized. Emergency egress lighting will be provided at the building exit.

LIGHTING CONTROLS

Controllability of lighting shall match existing conditions and utilize existing control equipment in all possible locations. Provide occupancy sensing devices in new rooms and/or areas as applicable to the space. Variable light levels and dimming controls will be provided as directed in new developed areas.

FIRE AND LIFE SAFETY

New fire alarm devices will be provided in the renovated space and integrated into existing class A fire alarm loops or new fire alarm class A loop circuits will be added to the existing Fire Alarm System. New battery calculation will be provided and necessary programming for the expansion to the Fire Alarm Control Panel. Update to the fire alarm annunciator, the fire alarm drawing and building floor plan will be provided. The Fire Alarm System will be designed to meet all applicable codes.

All new devices will match the existing fire alarm system in the building.

TELECOMMUNICATIONS

New tele/data receptacles shall extend to existing Tele/Comm equipment rooms. Provide conduit and conductor as required per Owner standards and existing conditions. Wireless Access Points will be designed in the space by Owner.

SECURITY SYSTEMS

A raceway only design system shall be provided for security as directed by Owner. This will include Video Surveillance and CCTV.

AUDIO/VISUAL

An audio visual system shall be provided and will be designed with input from the Owner. Provide equipment rough-in and raceway to accommodate design intent. Coordination of A/V headend equipment and controls shall be coordinated with the Architect and Owner.

SUSTAINABLE DESIGN

ENERGY UTILIZATION

The standard that governs the requirements for energy utilization is ASHRAE 90.1. This standard outlines the power density requirements for electrical lighting systems as well as energy related to mechanical cooling and heating.

As it applies to electrical lighting systems, ASHRAE 90.1 limits the power density that can be used for interior and exterior lighting. The lighting design will exceed minimum requirements.

PHASE ONE

Exterior plaza
Site demolition
New lighting and control
Provide power and data on the plaza
Sign illumination
Power to snowmelt equipment
Future rough-in for fountain and plaza audio

BNACONSULTING

ABRAVANEL HALL MECHANICAL PROGRAM**PHASE 1 PLAZA****GENERAL**

The mechanical work involved with the Plaza involves snow melting of the sidewalks, providing a heating system for the future Fountain, and providing makeup water supply to the Fountain. A tunnel will need to be provided from the Fountain to the existing Pump Room, to house the future pipes and electrical service conduits.

SNOW MELT

The snow melt heat source will be the steam service provided to Abravanel Hall from the Salt Palace Central Plant. A new steam-to-water heat exchanger and pumps would be installed in the existing basement mechanical room. New glycol piping would run in the existing tunnel to the Plaza.

FOUNTAIN

The fountain will operate in the winter and will be heated. A new steam-to-water heat exchanger and pumps will be provided in the existing basement mechanical room. Water from the fountain pump room would be piped in the existing tunnels from the basement mechanical room to the fountain pump room.

The existing fountain pump and piping will be removed. The pump and piping for the future fountain will be housed in the existing fountain pump room.

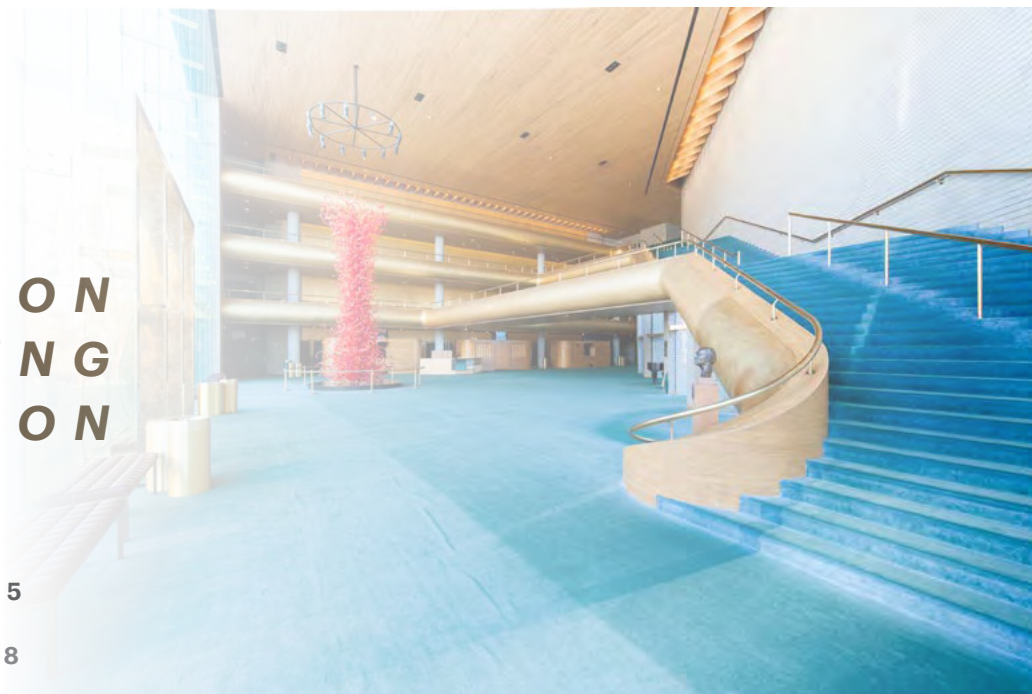


6. PRELIMINARY COST ESTIMATE

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014
PROJECT NAME.....ABRAVANEL HALL PLAZA FOUNTAIN AND ELECTRONIC MESSAGE CENTER				
LOCATION.....SALT LAKE CITY, UT				
ARCHITECT.....HKS				
STAGE OF DESIGN.....DESIGN DEVELOPMENT				
	DESCRIPTION	UNIT QTY	UNIT COST	TOTAL
TRIANGULAR REFLECTION POOL WITH ZERO EDGE FALL				
	Triangular Reflection Pool with Zero Edge Fall	1 LS	\$ 1,111,000.00	\$ 1,111,000
	Waterfall Edge Paneling	410 SF	\$ 200.00	\$ 82,000
	Water Heating Boiler & Heat Exchanger	1 LS	\$ 50,000.00	\$ 50,000
	Site Repair	10000 SF	\$ 7.50	\$ 75,000
	SUBTOTAL REFLECTION POOL			\$ 1,318,000
	LED MESSAGE CENTER	1 Allow	\$ 500,000.00	\$ 500,000
PLAZA THEATRICAL EQUIPMENT				
	Theatrical Platforms	1 LS	\$ 53,000.00	\$ 53,000
	Theatrical Rigging	1 LS	\$ 104,000.00	\$ 104,000
	Theatrical Lighting	1 LS	\$ 70,000.00	\$ 70,000
	Theatrical Draperies	1 LS	\$ 5,700.00	\$ 5,700
	SUBTOTAL PLAZA THEATRICAL			\$ 232,700
TOTAL CONSTRUCTION COST				\$ 2,050,700
	Plan Check Fees			\$ 8,157
	Building Permit			\$ 12,549
	1% State Permit Fee			\$ 125
	Utility Connection Fees and Impact Fees			\$ 50,000
	Furniture Fixtures & Equipment	9%		\$ 184,563
	A/E Fees	8%		\$ 164,056
	Programming Study Fees			NIC
	Reimbursables			\$ 6,562
	Geotechnical			\$ 5,000
	Commissioning Agent			\$ -
	Survey			\$ 5,000
	County Administration Fees	1.5%		\$ 30,761
	Project Management Fees	1.5%		\$ 30,761
	Owner's Construction Contingency	10%		\$ 205,070
	Special Inspections & Testing	1%		\$ 20,507
	Energy Modeling			\$ -
	LEED Documentation A/E			\$ -
	LEED Registration			\$ -
	Art	1%		\$ 20,507
TOTAL PROJECT COST				\$ 2,794,318
ESTIMATE IS BASED UPON 2015 DOLLARS ESCALATION HAS NOT BEEN FACTORED IN				

AREA 2 - LOBBY: RENOVATION AND NEW BUILDING EXPANSION

1. IDENTITY & PURPOSE	4 5
2. ORGANIZATION & SERVICE DESCRIPTIONS	4 8
3. INDIVIDUAL & SPACE DESCRIPTIONS	5 3
4. CONCEPT DEVELOPMENT	5 5
5. CONSULTANT NARRATIVES	6 2
6. PRELIMINARY COST ESTIMATE	6 7





SUMMARY

The Abravanel Concert Hall is revered as one of the finest concert halls in America. Yet many of the lobby and patron service components of the building from the original design, are undersized and severely lacking. The 1997 Addition to Abravanel Hall brought much needed additional space for more Restrooms and Ticket Offices. Yet it is evident that additional lobby space and spaces for patron services and ticketing are required.

The key Lobby & ArtTix Issues that have been identified are:

- 1) Additional Space for Patron Services, Staff Support and Storage
- 2) Additional Space for Coat Check Area and Assisted Listening Device Distribution Area
- 3) Additional Space for Concessions, Merchandise, Food & Beverage Services and Distribution, and associated storage.
- 4) Additional Space for Ticket Offices, and Technical Support.
- 5) Renovation of Lobby Finishes including carpeting, gold leaf restoration, and providing adequate furniture for seating.

Several locations for building expansion were reviewed. The team decided that building expansion to the east would severely disrupt the iconic image of the Main Entrance / East Façade of the building. The best location was determined to be at the Ticket Plaza area – between Abravanel Hall, and the 1997 Ticket Office addition. A new 3 level building addition northwest to the existing lobby will provide adequate space to house the needed program elements, is directly adjacent to the lobby, and also provides opportunities for interaction with the urban streetscape.

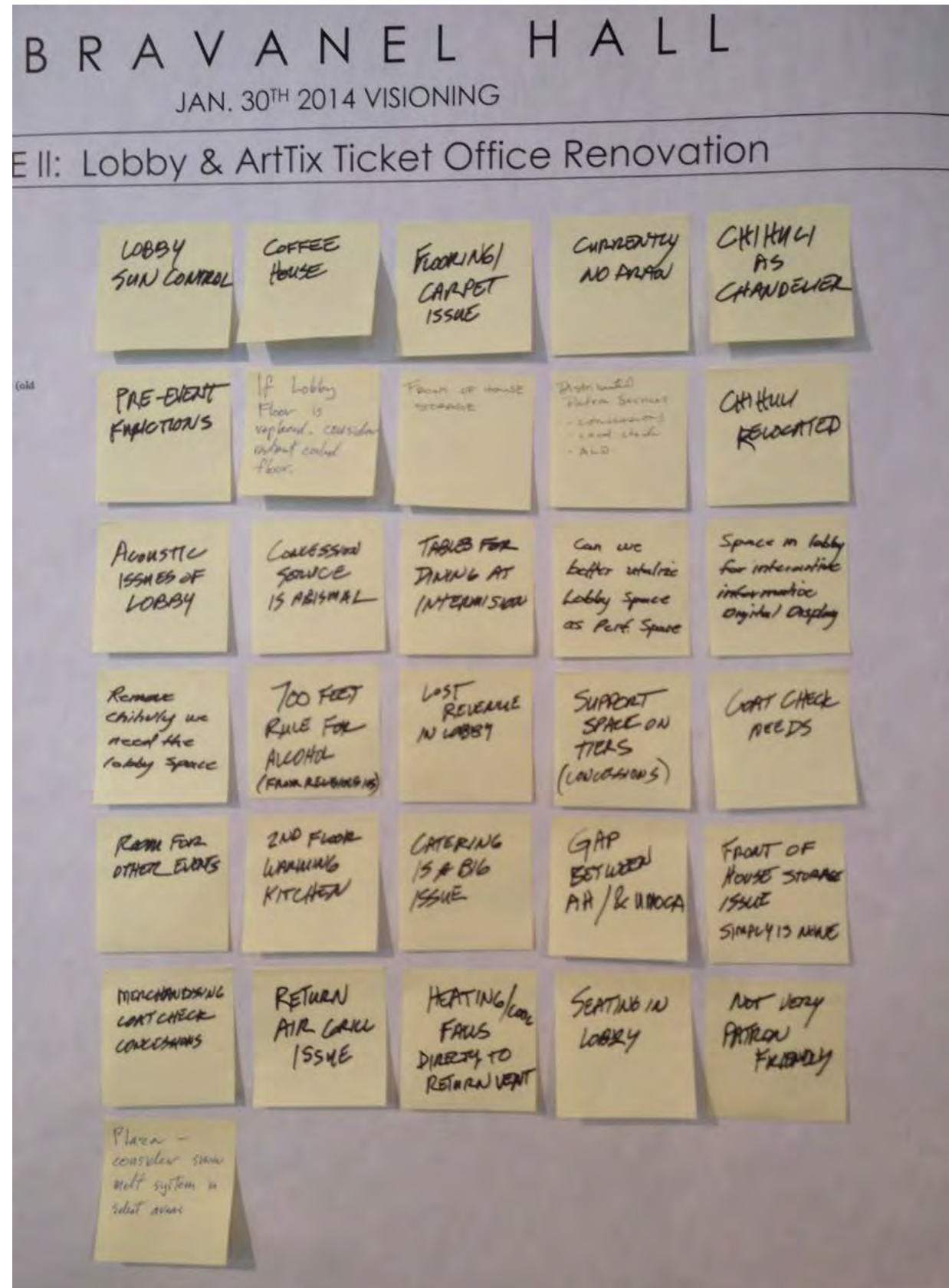
Summary

Lobby Building Addition

- 5,120 SF Ticket Office Level
- 700 SF Outdoor Cafe
- 5,120 SF Lobby Level
- 5,070 SF First Tier Level
- Cost = XXXX

Lobby & ArtTix Renovation

- 8,521 SF Lobby Renovation
- 2,415 SF ArtTix Office Renovation
- Cost = XXXX



1. IDENTITY & PURPOSE

The Abravanel Hall Lobby is a space where thousands of people gather – before events, at intermission, and after performances. There are numerous opportunities and ways this lobby space can be used – yet currently it is severely underutilized. Patron service opportunities and revenue generating possibilities include:

- Coat Check
- Assisted Listening Device Distribution
- Concessions Distribution
- Merchandizing
- Café / Food and Beverage Distribution
- Utah Symphony Branding
- Pre-Event Lectures
- Lobby Rental (Weddings, Business Events, etc.)
- Community gatherings.
- V.I.P. Events

During the programming exercises – input was gathered from the stakeholder to find out what the vision is of the lobby. A “Visioning” session was held for the project, and responses were gathered from participants and were documented. The Visioning Responses were grouped into three basic categories:

- 1) Lobby Utilization
- 2) Concessions, Patron Services, and Storage
- 3) Food & Beverage / First Tier Room / Box Office

Complete visioning responses are documented on the following page.

PHASE II LOBBY & ARTTIX TICKET OFFICE - VISIONING1) Lobby Utilization:

- Improve Lobby to be more patron friendly.
- Improve Lobby Space – Currently there is no draw.
- Design to accommodate Pre-Event Functions.
- Consider hanging the Chihuly sculpture to free up floor space (similar to chandelier).
- Provide Opportunities for Revenue in Lobby (wedding receptions, events, etc.)
- Provide Seating in Lobby.
- Provide Space in Lobby for Interactive informative digital display.
- Design lobby to accommodate performance space.
- Heating and Cooling in Lobby does not work well – Glass does not work to reduce heat, and warm/cool air falls directly to return air vents, without adequate circulation.
- Address the return air grille location – consider relocating to north area for better circulation.
- Consider Replacing Carpet – would hard floor be appropriate? Extension of Plaza, or just border. Acoustic issues would need to be evaluated.
- If Lobby Floor is to be replaced – consider radiant cooled floor.
- Improve Lobby Sun Control.
- Lobby area is too small. Consider outdoor area to the west of the current lobby to expand lobby area and services.

2) Concessions, Patron Services, & Storage:

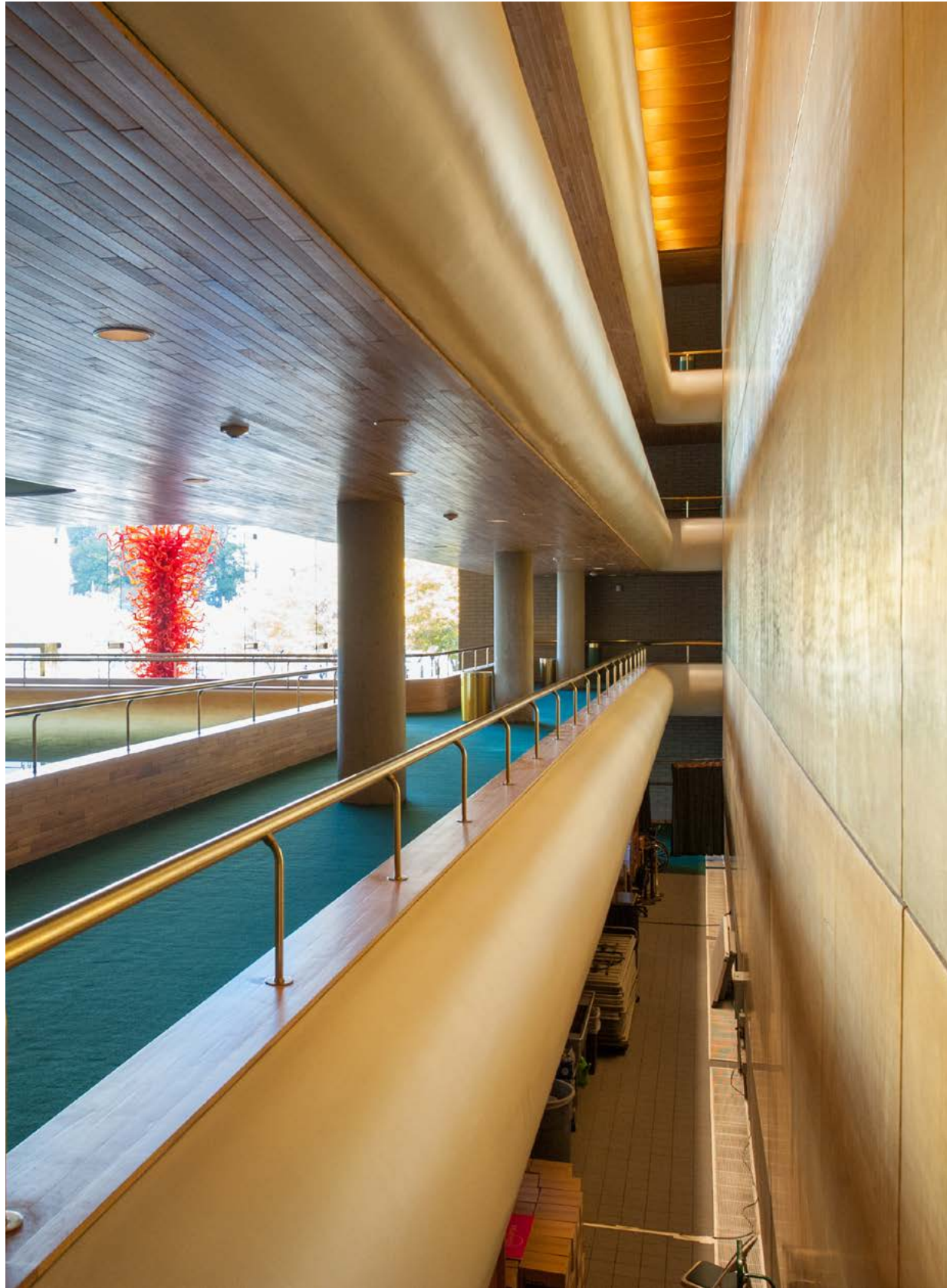
- Consider Café or Coffee House.
- Provide Space for front of House Storage – Currently there is no place.
- Provide design for Concession Services – current service is abysmal.
- Provide design for distributed Patron Services: Concessions, coat check, ALD.
- Consider tables for dining at intermission.
- Review 700 foot rule for alcohol from religious buildings, with AHJ.
- Provide support space on tiers for concessions.
- Improve Catering services.
- Provide space for coat check.
- Provide space for merchandizing.
- Consider infilling the “slot” at the south side of the lobby – at each of the tiered levels to utilize space for storage and services.
- Consider 2nd floor warming kitchen.
- Consider outdoor “slot” between Abravanel and UMOCA for possible concessions or other patron services.

3) Food & Beverage / First Tier Room / Box Office:

- Reconfigure first tier space for added concessions near first tier room.
- Add floor area at first tier for concessions.
- Convert warming area at first tier room to restroom and concessions.
- First Tier Room kitchen reduced to be more useful and increase the size of the first tier room.
- More box office space. Need room for more employees. 10 employees are in Bountiful Office location because offices are too small.
- Counter tops at Box Office are too cold.
- Alley Way – Outside artist doors – soften space for sitting, remove smell.
- Don't forget the Alley Way.

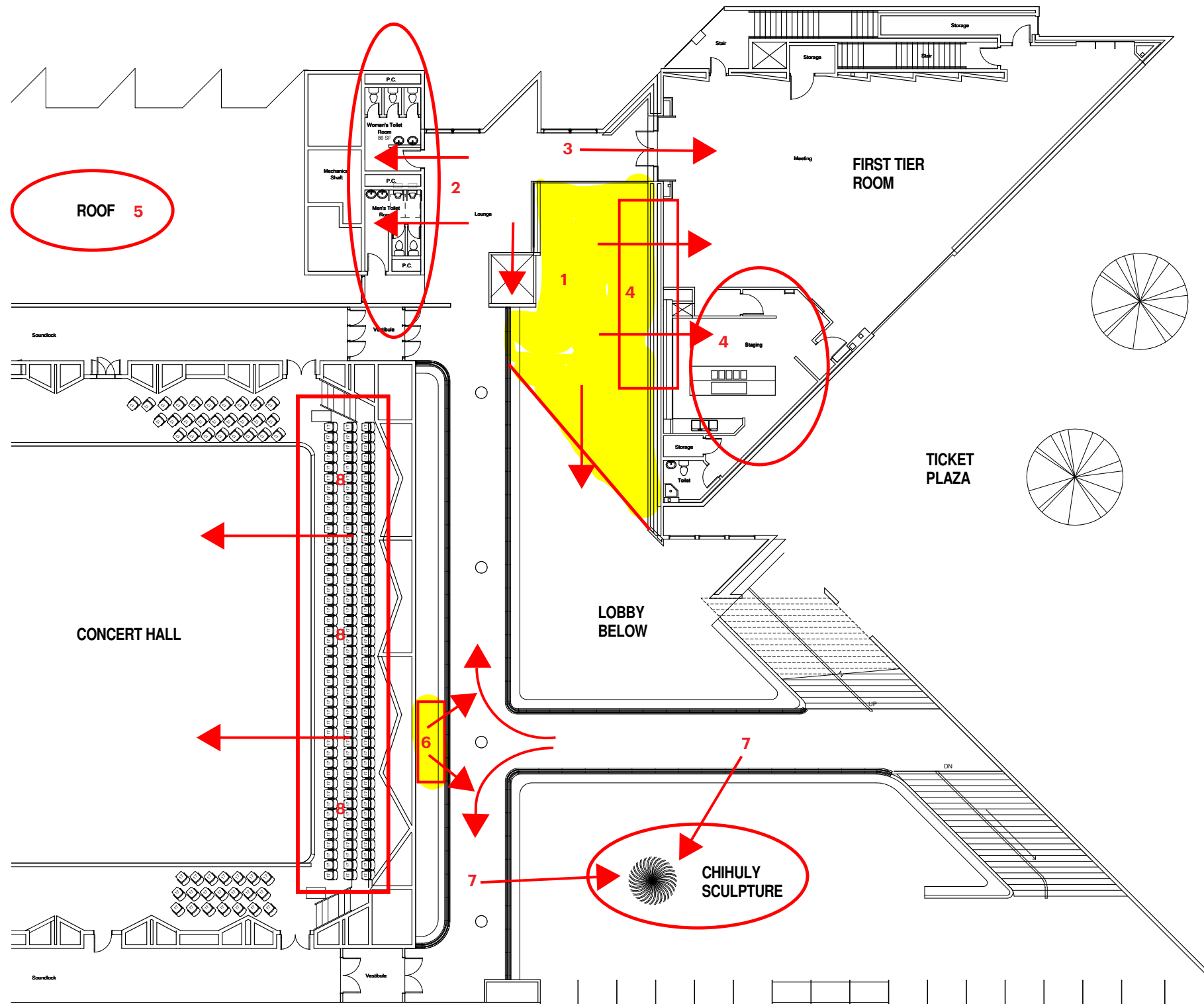
2. ORGANIZATION & SERVICE REQUIREMENTS

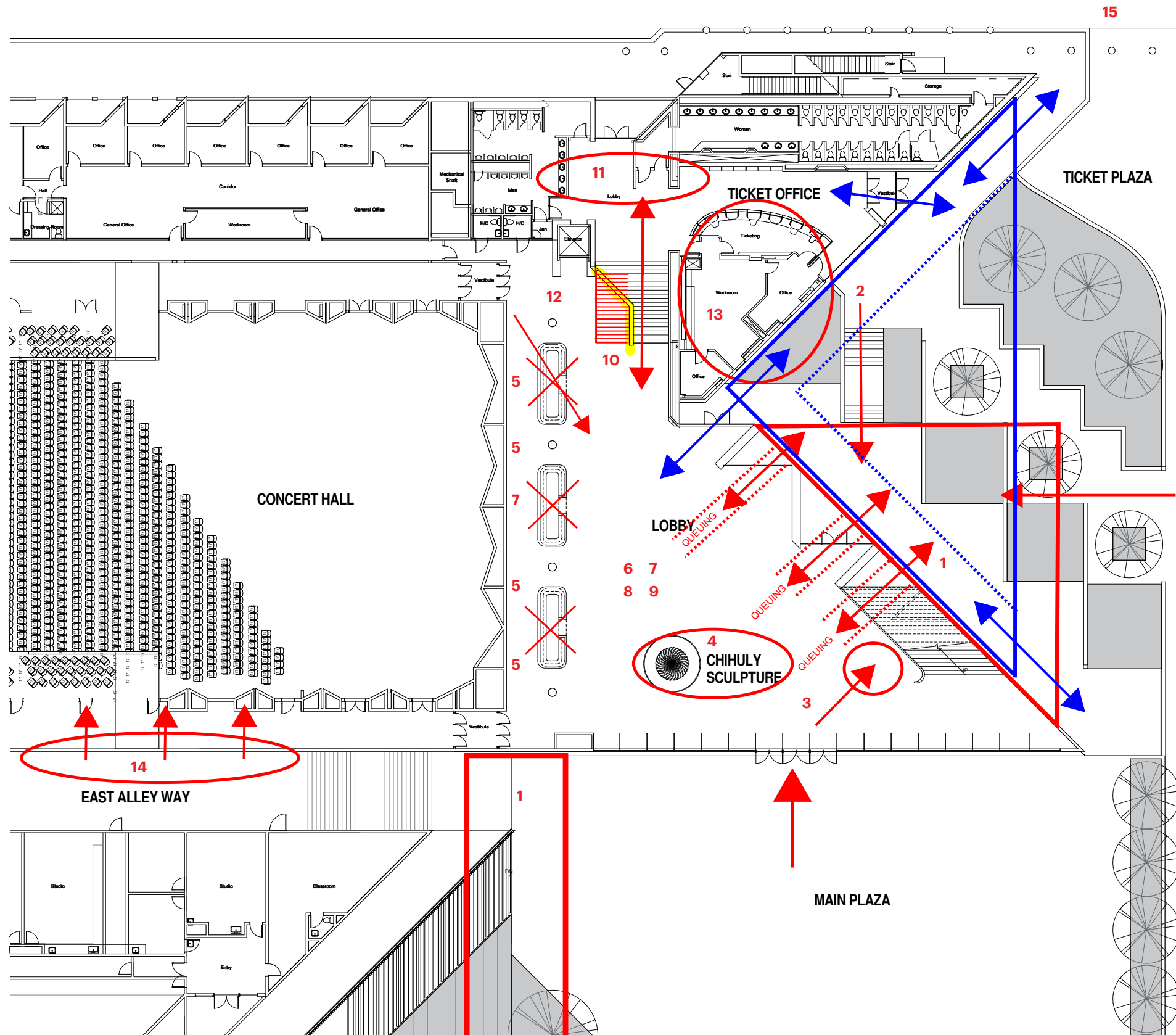
The Owner Team and Design Team participated in several building walk-throughs, to identify the key elements of the Lobby, areas of concern, and opportunities for improvement. These items are documented in the floor plans that are below. Notes were also made and reviewed in team meetings. Additional notes were added to the plans in the team meetings - to better understand the issues, and confirm the desired direction.



KEYED NOTES

1. Consider possible floor infill area between first tier room and elevator. This would improve circulation and provide additional opportunities for concessions/bar areas as well as relocation of, or expansion of restrooms. Area could have drink rails on east side and maintain current view of lobby.
2. Current restroom location could be used for new concession or bar location. This area is beyond the 700 foot distance from Temple Square buildings. Concern is that area becomes tight and impedes circulation to first tier room.
3. Maintain current access for VIP's to first tier room.
4. Current warming kitchen could be converted to expanded restrooms, or to concessions area. Warming kitchen/food prep would be housed in lower level of expanded lobby area.
5. Could roof area be considered for concessions/bar/or expanded restrooms?
6. Infill "gap" at circulation node for possible new location for concessions stand.
7. Hanging Chihuly sculpture would maintain views of piece and experience from different levels.
8. Convert area at back of first tier in the hall into a club seating or "suite" environment - for VIP's to have food and drinks, and special amenities. Noise is a concern.



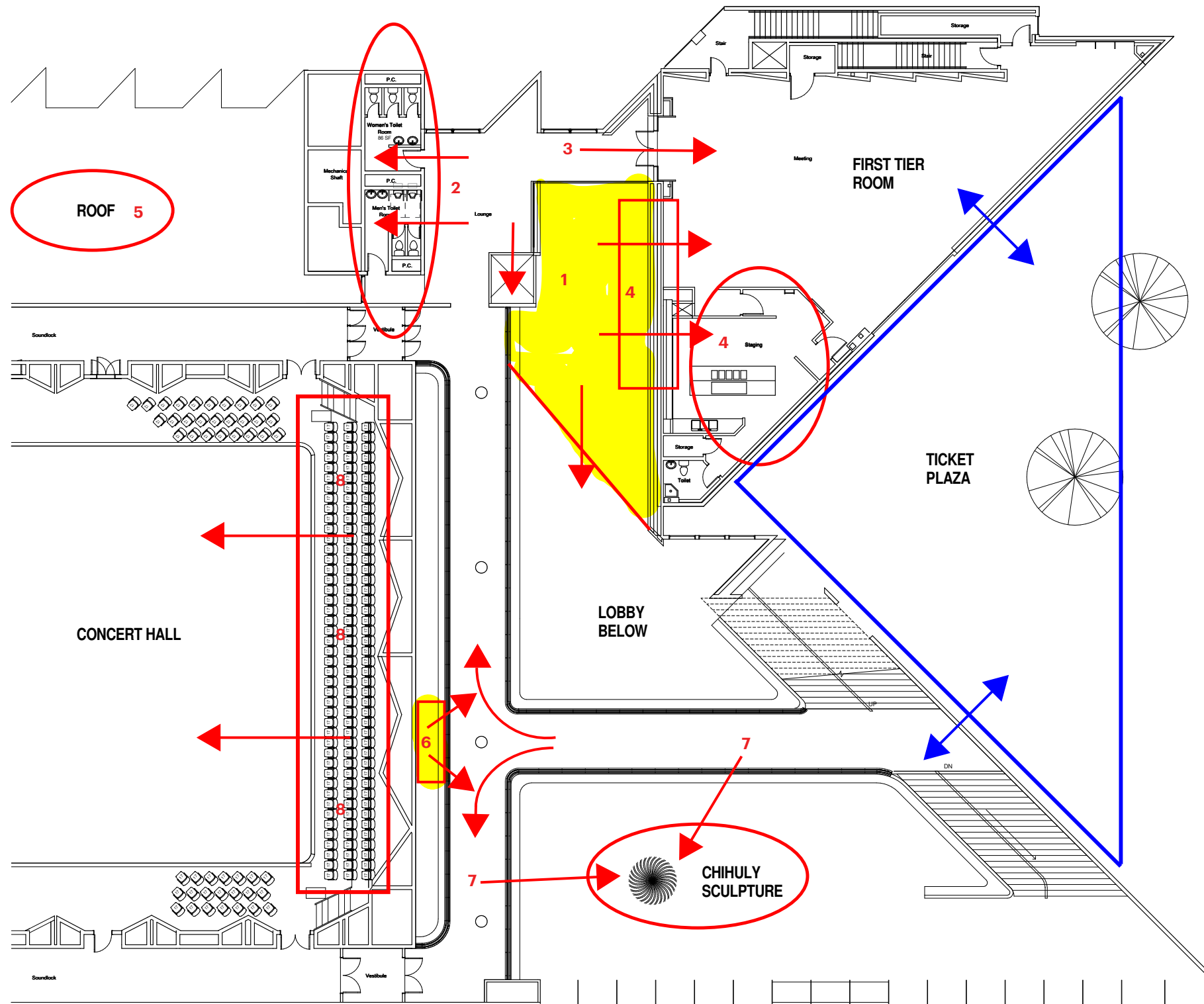


KEYED NOTES

1. Possible expansion at lobby area for needed services. Needs strong connection to lobby. Lobby level could house coat check, merchandise, concessions, ticket will call - with separate queuing areas. Area could be used for needed storage too.
2. Lower level of expansion could house food and beverage prep and additional ticket office.
3. Possible "roaming" or mobile ticket area near main entry, with will call capabilities.
4. Chihuly sculpture could either be hung from ceiling (like chandelier) or suspended on glass platform - to free up much needed lobby floor space.
5. Remove wooden kiosks. Services to relocate in lobby expansion area. This area becomes seating for patrons.
6. Lobby lighting needs to be improved to make space feel more alive and brighter.
7. TV screens are very important in the lobby. Possibly wall mount the screens, or think about how to "hide" them during the day. Would like them to be bigger.
8. Keep carpet at lobby for acoustics. New carpet needed.
9. Wayfinding in lobby is currently very difficult. Needs to be improved.
10. Expand stairs between lobby area and restrooms for better visual connection and circulation.
11. Better signage at restrooms for wayfinding (possibly locate above restroom doors?)
12. Be careful not to create bottle neck at tight area between vestibule/elevator/and lobby.
13. Ticket offices are too small. Possibly add more at lower level or new lobby expansion. Replace cold counter tops?
14. Possible concessions area off of east corridor of concert hall - to bump out into east alley space?
15. Short term parking and ADA parking do not work well, and need to be addressed.

KEYED NOTES - UPDATED 2/19/14

1. Lobby level at new north building mainly for concessions, patron services, and storage. Ticketing to remain at current area.
2. Lower level of expansion is good place for combined cafe and symphony store. Good street exposure for branding. Deliveries at curbside. Possible warming kitchen adjacent or storage. New fan room to be considered per mechanical review.
3. Roaming/mobile ticket area does not make sense. Keep ticketing at current area.
4. Listed options will be explored. Keep at current location for now.
5. Remember that storage areas at kiosks need to find home in the new north building.
6. Lighting report needs to be reviewed. Also - other opportunities include: down/up lights at glass fins along east wall, recessed can lights at south first tier overhang, in-line floor lites, lighter carpet color.
7. Hang TV's from underside of first tier.
8. Consider UV factor at carpet. Provide mock-up, capture ice melt at first 8 ft of exterior, with tile at first 8 ft of interior. Remember HVAC registers at east wall.
9. To be addressed during project design.
10. New stairway at new north building may ease congestion at existing stairs. However, widening stairs does improve circulation.
11. To be addressed during project design.
12. Noted.
13. It was discussed to leave the ticket area as currently located. The additional offices, and off-site offices could be located in the new back of house space. Not all offices need to be adjacent to the ticket counter.
14. This option was reviewed and does not appear to be feasible, due to amount of construction and ADA compliance requirements.
15. ADA parking to remain at south temple. Request that bus stops be removed.

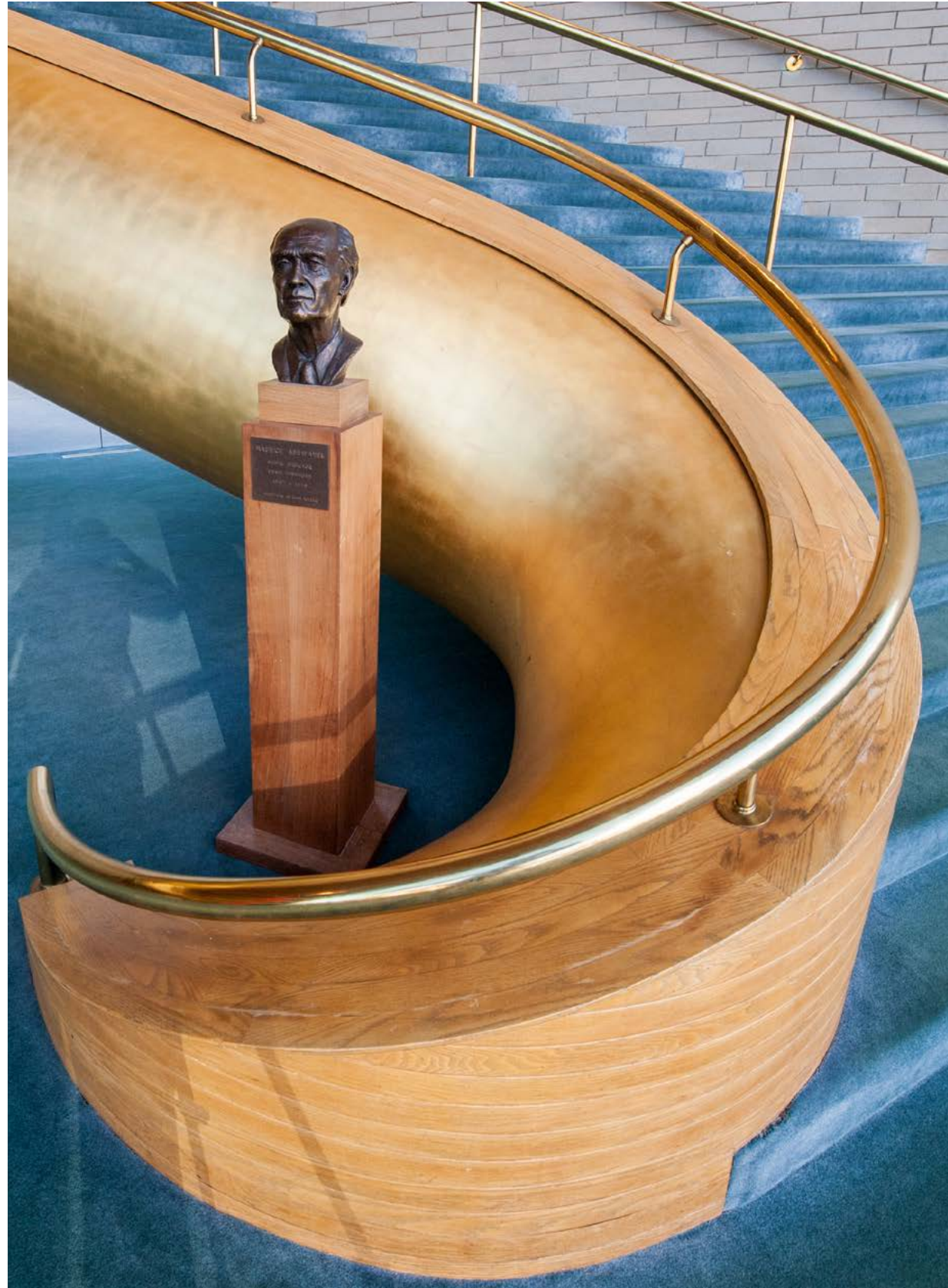


KEYED NOTES

1. Consider possible floor infill area between first tier room and elevator. This would improve circulation and provide additional opportunities for concessions/bar areas as well as relocation of, or expansion of restrooms. Area could have drink rails on east side and maintain current view of lobby.
2. Current restroom location could be used for new concession or bar location. This area is beyond the 700 foot distance from Temple Square buildings. Concern is that area becomes tight and impedes circulation to first tier room.
3. Maintain current access for VIP's to first tier room.
4. Current warming kitchen could be converted to expanded restrooms, or to concessions area. Warming kitchen/food prep would be housed in lower level of expanded lobby area.
5. Could roof area be considered for concessions/bar/or expanded restrooms?
6. Infill "gap" at circulation node for possible new location for concessions stand.
7. Hanging Chihuly sculpture would maintain views of piece and experience from different levels.
8. Convert area at back of first tier in the hall into a club seating or "suite" environment - for VIP's to have food and drinks, and special amenities. Noise is a concern.

KEYED NOTES - UPDATED 2/19/14

1. A better location for a floor infill and for concessions may be on the second tier lobby. Keep the first tier lobby for the VIP's and not have to worry about "separating" VIP's from concessions patrons.
2. Still under consideration, especially for VIP area.
3. Noted.
4. Space could become shared area for both the first tier room and for what is decided for the first tier level of the new north building. Access for this area could be provided from both the first tier room, and from the grand staircase.
5. Roof area could also be used for needed space for back of house offices, symphony program, or other functions.
6. This was reviewed by the group and did not seem to be a viable solution for concessions. The second tier option for concessions was preferred.
7. Noted.
8. Needs further discussion.



3. INDIVIDUAL SPACE DESCRIPTIONS

The Phase 2 Lobby and ArtTix Spaces can be organized into the following five areas:

1. Lobby Addition – Ticket Office Level.
2. Lobby Addition – Lobby Level.
3. Lobby Addition – First Tier Level
4. Lobby Renovation
5. ArtTix Office Renovation

Descriptions

The design intent of the Phase 2 Spaces is to maintain the look and feel of the iconic Abravanel Hall design. Complementary finishes should be selected to marry the Lobby Addition Building to the existing Abravanel Hall – similar to the way the 1997 Ticket Office Addition did. The following Phase 2 Space/Area Descriptions were discussed during programming work sessions – and should be incorporated into the design:

1) Lobby Addition Ticket Office Level:

- A. Entrance Vestibule – including escalators:
- B. Symphony Store & Café:
- C. Kitchen & Food Prep Area:
- D. Outdoor Café:
- E. Café, Store, and Ticket Office Storage:

5) ArtTix Office Renovation:

- A. Counter tops

2) Lobby Addition Lobby Level:

- A. Patron Services / Coat Check:
- B. Concessions:
- C. Storage:
- D. Lounge Area:

3) Lobby Addition First Tier Level:

- A. Chamber Room:
- B. Shared Terrace:
- C. New Hosting Area:

4) Lobby Renovation:

- A. Flooring:
- B. Gold Leaf Restoration:
- C. Wood Restoration:
- D. Chihuly Sculpture Stanchions:

ABRAVANEL HALL - PHASE 2 ROOM PROGRAM DATA

EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
TICKET LEVEL			
VESTIBULE	97		
TICKET LOBBY	1307	-	
TICKETING	485	-	
WORKROOM	406	-	
OFFICE	120	-	
WOMENS RESTROOM	997	-	
MENS RESTROOM	609	-	
H/C RESTROOM	39	-	
H/C RESTROOM	39	-	
STORAGE	197		
		STORAGE	1000
		SYMPHONY STORE & CAFÉ	1474
		KITCHEN	900
		OUTDOOR CAFÉ	700
TOTAL ROOM SQ FT - TICKET	4296	ADDED ROOM SQ FT - STAGE LEVEL	4074
CIRCULATION/BLDG STRUCTURE	514	CIRCULATION/BLDG STRUCTURE	1746
	11.96%		
TOTAL SQ FT - TICKET LEVEL	8496	TOTAL ADDED SQ FT - TICKET LEVEL	5820
		TOTAL SQ FT NEEDED AT TICKET LEVEL	14316

EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
LOBBY AREA			
LOBBY	7347	-	
CONCESSION	1174	-	
		STORAGE	360
		COAT CHECK	510
		CONCESSION	510
		LOUNGE	1424
		ATRIUM	890
TOTAL ROOM SQ FT - LOBBY AREA	8521	ADDED ROOM SQ FT - LOBBY AREA	3694
CIRCULATION/BLDG STRUCTURE	1335	CIRCULATION/BLDG STRUCTURE	1426
	15.67%		
TOTAL SQ FT - LOBBY AREA	13683	TOTAL ADDED SQ FT - LOBBY AREA	5120
		TOTAL SQ FT NEEDED AT LOBBY AREA	18803

EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
FIRST TIER LEVEL			
FIRST TIER ROOM	2505	-	
STORAGE	62	-	
STAGING	586	-	
TOILET	56	-	
LOUNGE	640	-	
MEN'S RESTROOM	137	-	
WOMEN'S RESTROOM	134	-	
		CHAMBER ROOM	4190
		SHARED TERRACE	880
TOTAL ROOM SQ FT - FIRST TIER	4120	ADDED ROOM SQ FT - FIRST TIER AREA	5070
CIRCULATION/BLDG STRUCTURE	2048	CIRCULATION/BLDG STRUCTURE	0
	49.71%		
TOTAL SQ FT - FIRST TIER	13683	TOTAL ADDED SQ FT - FIRST TIER AREA	5070
		TOTAL SQ FT NEEDED AT LOBBY AREA	18753



4. CONCEPT DEVELOPMENT

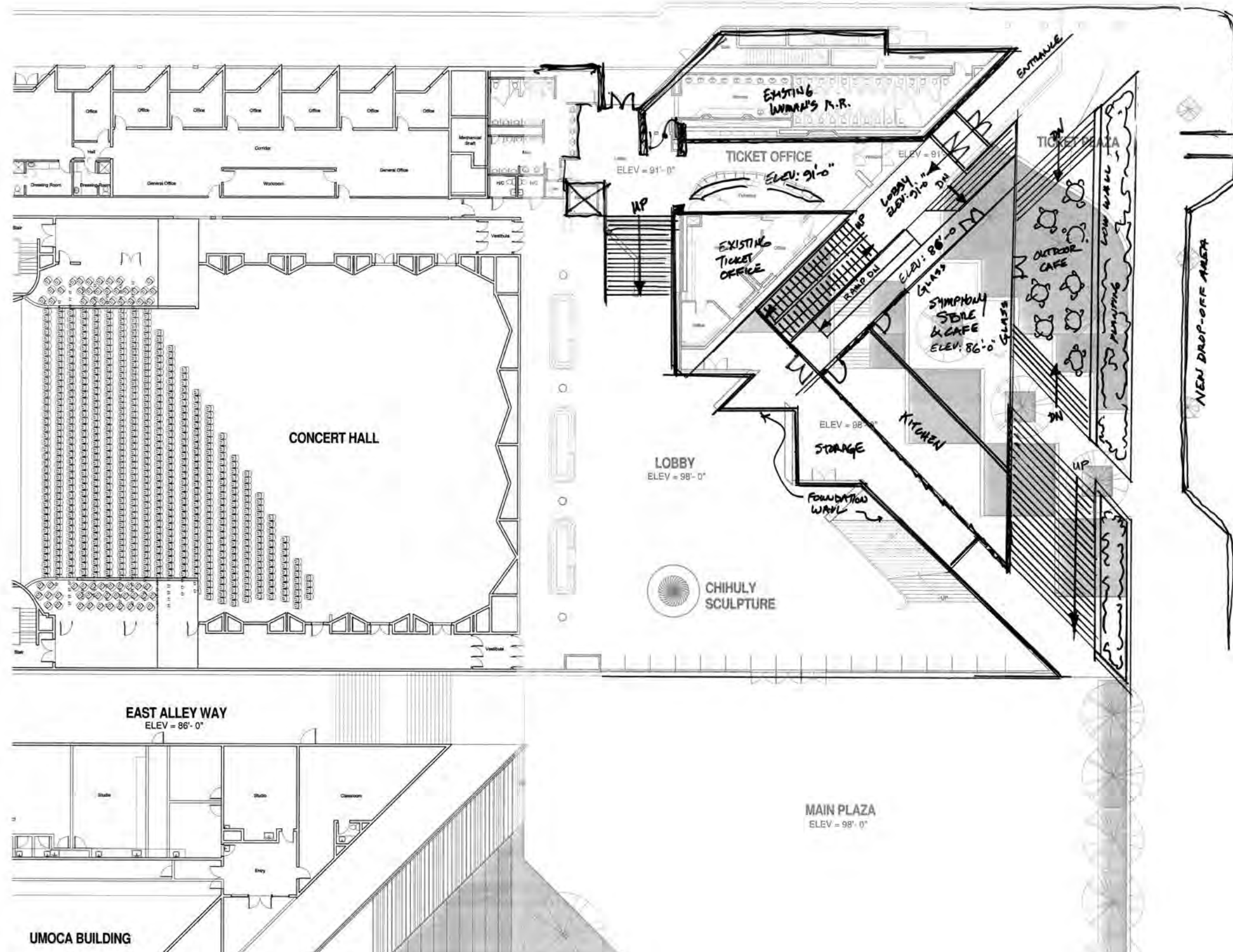
During the programming work sessions, floor plan schemes for the Phase 2 Lobby Addition Building were explored. The following pages show the layouts reviewed and discussed.

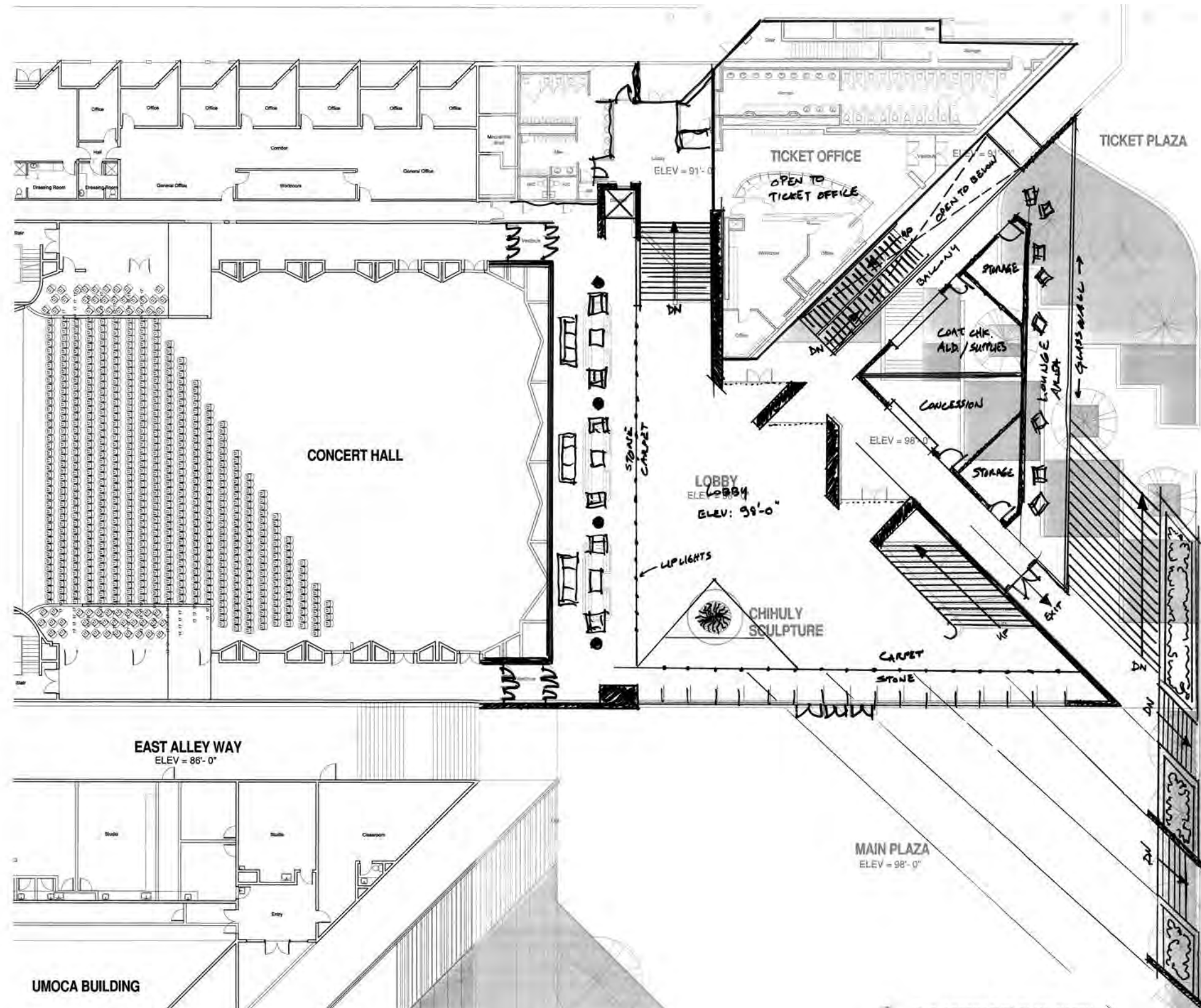
For the First Tier Level – Two Options were explored:

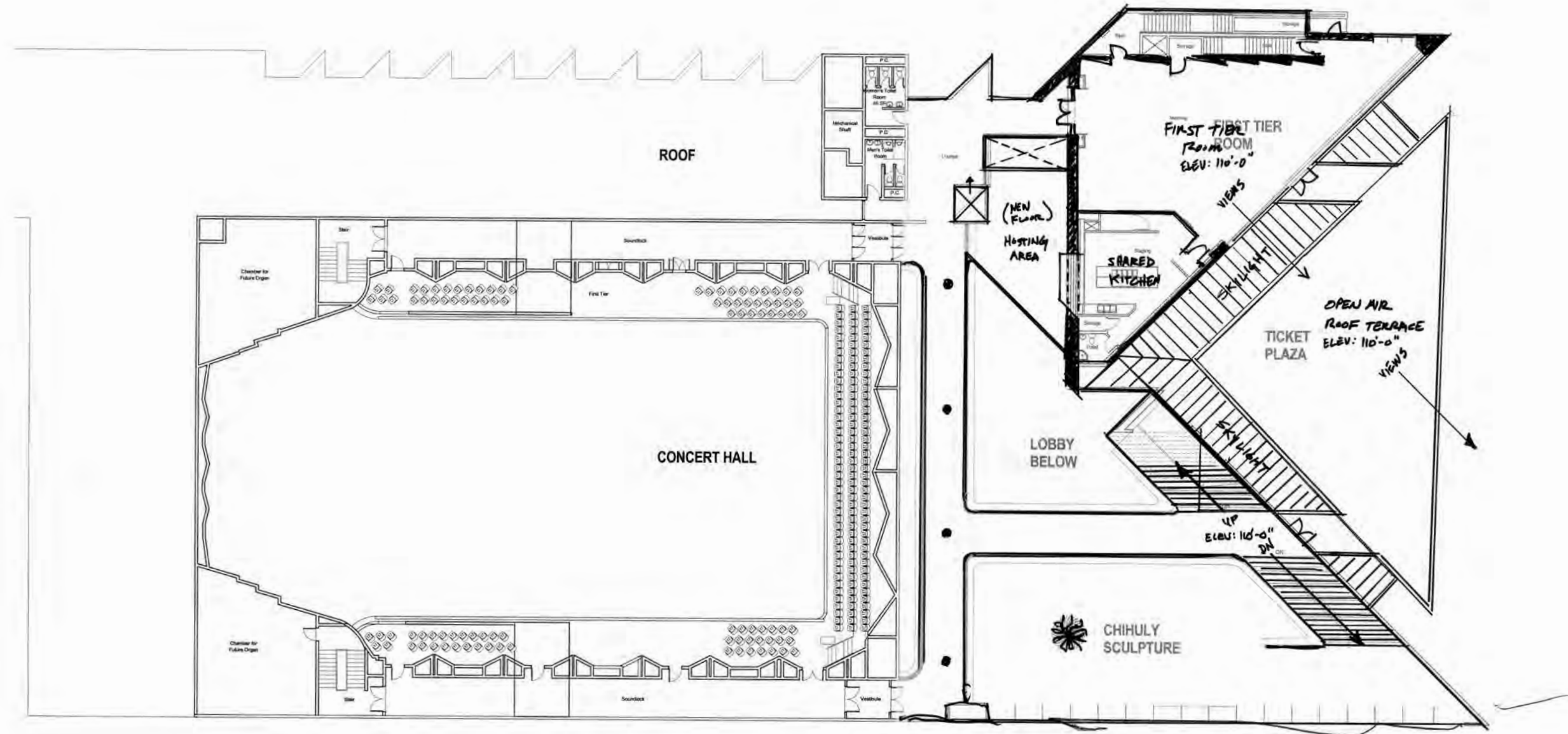
Option 1 – Has an Open Air Roof Terrace – to be used for hosting events, and outdoor gatherings. This Option also includes a new Hosting Area to the South of the First Tier Room, which could utilize the adjacent Shared Kitchen. This space could be utilized during pre-performance events, or intermission – for food and beverage services.

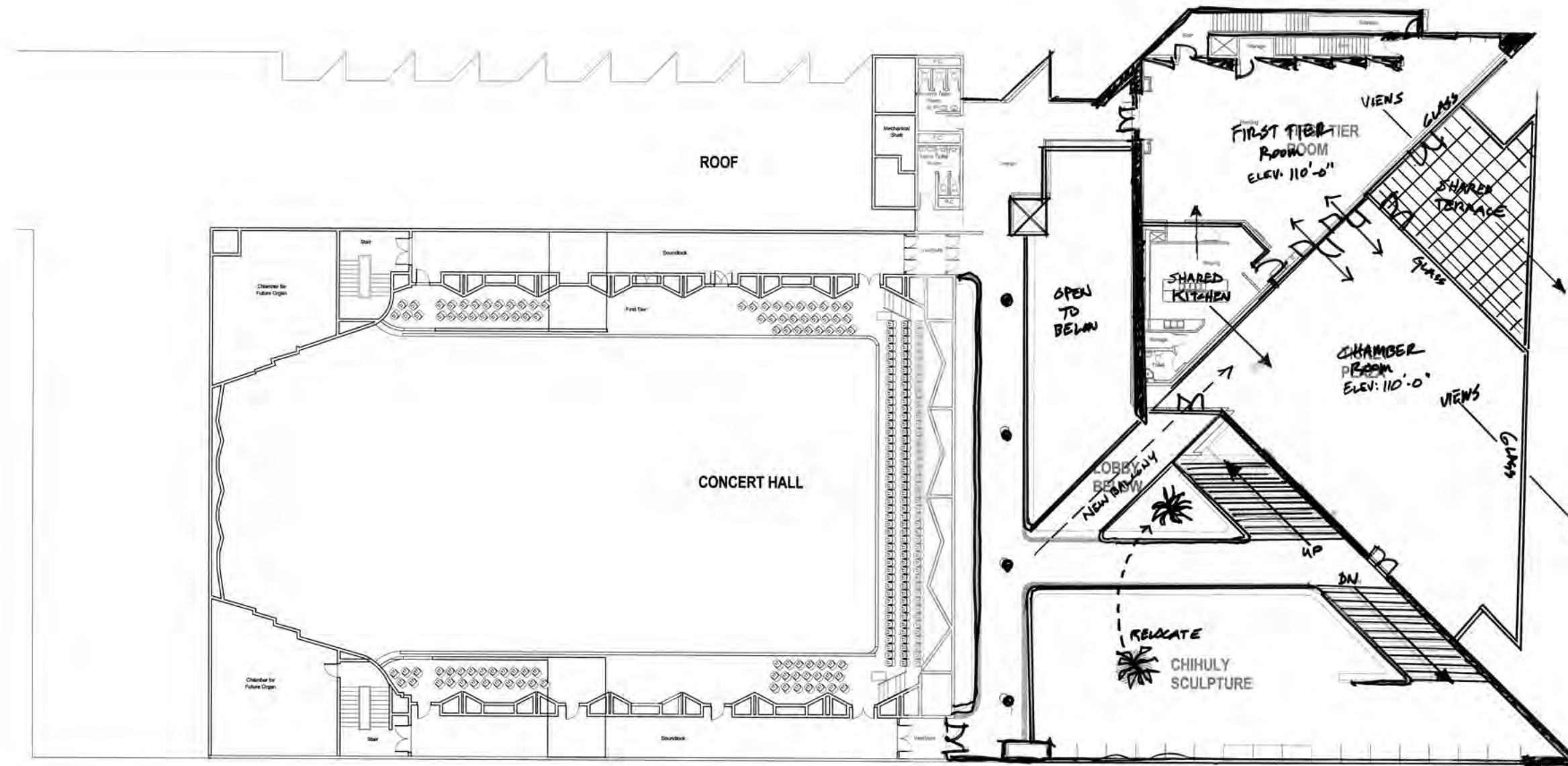
Option 2 – Shows a Chamber Room at the First Tier level – with a smaller outdoor terrace included.

After reviewing both options – it was discussed that the open air roof terrace would not be utilized as often with inclement weather occurring during much of the Symphony's season. Thus it was decided that Option #2 – with the Chamber Room, would be more useful, and better utilized for the Symphony.

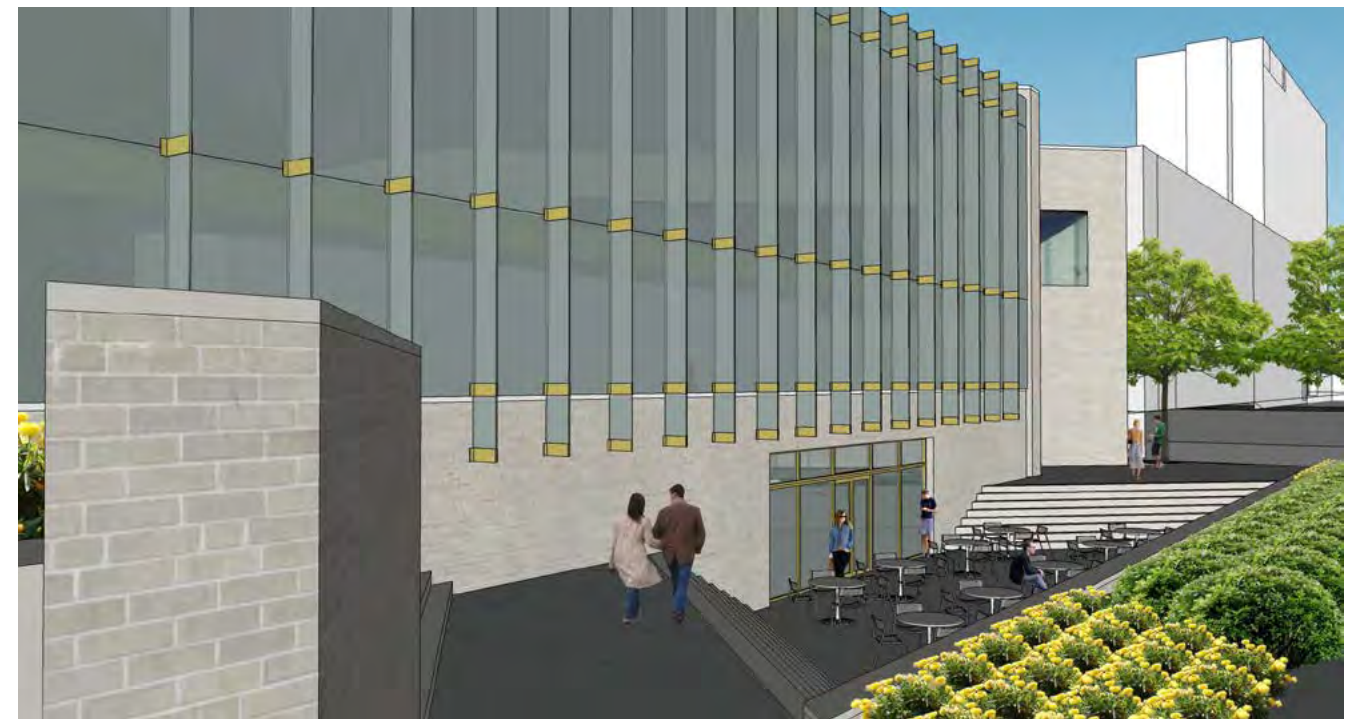
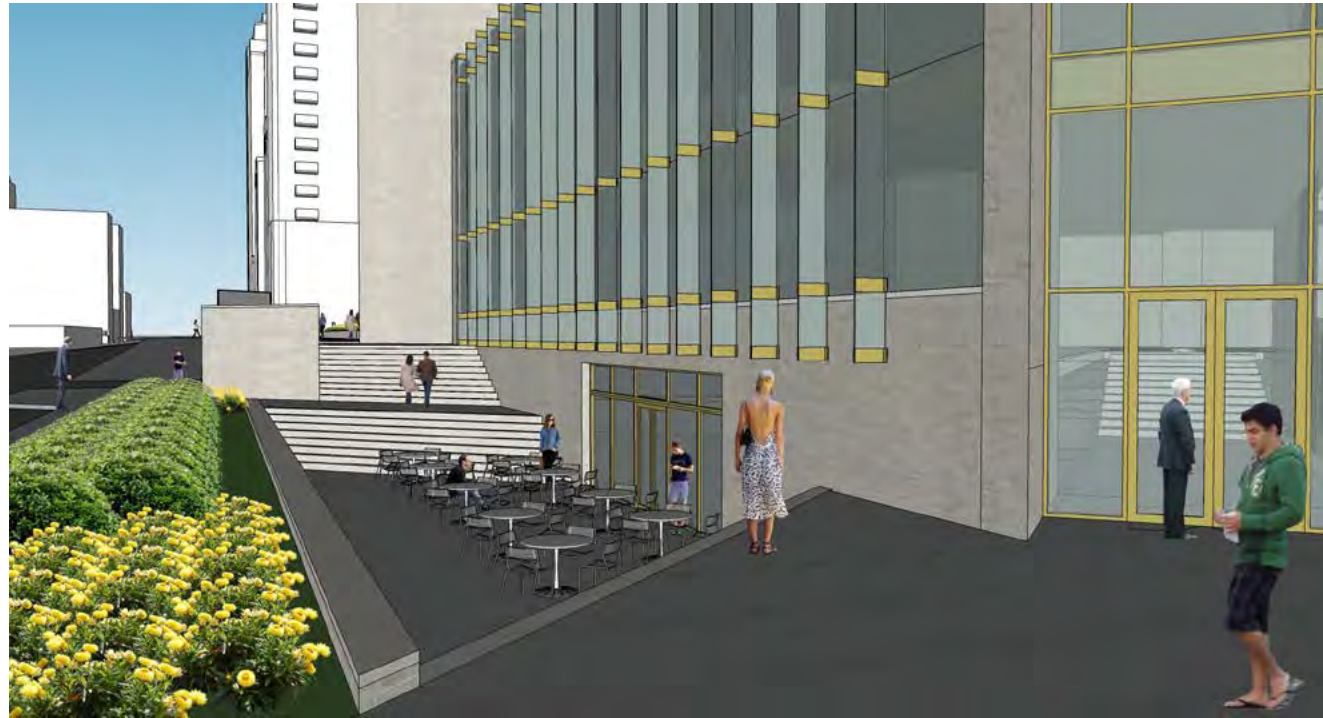












5. CONSULTANT NARRATIVES



ABRAVANEL HALL RENOVATION1. ELECTRICAL SYSTEMS NARRATIVECODES AND STANDARDS

GENERAL

The electrical work will comply with current codes and standards that are applicable:

NEC (National Electrical Code)
 NFC (National Fire Code)
 NFPA (National Fire Protection Association)
 IFC (International Fire Code)
 IBC (International Building Code)
 ASHRAE 90.1 (Energy Code)
 UL (Underwriters Laboratories)
 ASTM (American Society for Testing and Materials)
 ANSI (American National Standards Institute)
 NEMA (National Electrical Manufacturer's Association)
 IEEE (Institute of Electrical and Electronics Engineers)
 EIA/TIA (Electronic Industries Association/Telecommunications Industries Association)
 IESNA (Illuminating Engineering Society of North America)

BUILDING ELECTRICAL SERVICE DISTRIBUTION

POWER DISTRIBUTION

Existing power in the building is 277/480V, 3 phase, 4 wire and 120/208V, 3 phase, 4 wire.

Lighting and Mechanical equipment is served with 277/480V, 3 phase, 4 wire. Receptacles, small motors and miscellaneous equipment is served with 120/208V, 3 phase, 4 wire.

VOLTAGE DROP

The voltage drop for feeders shall be limited to 2 percent. The voltage drop for branch circuits shall be limited to 3 percent.

RACEWAYS

Raceways shall be steel; EMT conduit (Electrical Metallic Tubing) shall be used throughout for branch circuits and feeders. PVC conduit shall be used under slab and below grade with rigid elbows. Final conduit connections for interior lighting fixtures shall be by means of a flexible conduit whip, not exceeding 6 feet in length. Conduit connections to vibrating equipment shall be by means of flexible seal-tite conduit. Conduit fittings shall be malleable steel. Aluminum conduit and conduit fittings shall not be acceptable. Minimum raceway size shall be 3/4 inch.

CONDUCTORS

All conductors shall be copper. Use solid conductor for sizes #12 AWG and smaller; stranded conductor for sizes #10 AWG and larger. Insulation shall be THHN/THWN, rated for 600 volts. Aluminum conductors will not be acceptable. Minimum conductor size for branch circuits shall be #12 AWG. All 20 amp branch circuits over 100 feet in length shall be #10 conductors. All conductors will be color coded according to the NEC.

GROUNDING

Grounding shall be provided for the entire raceway, service entrance, enclosures and equipment system. Grounding shall be provided in accordance with the NEC. A separate grounding conductor shall be provided for all feeders, equipment circuits and branch circuit runs. Grounding conductors shall be sized in accordance with the NEC.

SEISMIC SUPPORT

Electrical Contractor will support and provide seismic bracing for electrical equipment, lighting fixtures, etc. shall be supported from building structural elements, independently from ceilings and ceiling support wires. Attach wall mounted equipment rigidly to wall structure, provide additional wall bracing as required by the application. Attach floor mounted equipment rigidly to floor or structure. Seismically brace all electrical equipment and raceways in accordance with the most recent regulations of UBC or IBC, and the guidelines for Seismic Restraint for Electrical Systems (SMACNA).

WIRING DEVICES

Wiring devices shall comply with NEMA standards Pub. No. WD 1. Switches and receptacles shall be specification grade, and rated at 20 amps and 120 volts AC. Receptacles shall be 3-wire grounding type. GFI (Ground fault circuit interrupter) type receptacles shall be rated 20 amps, 120 volts AC, with solid-state ground fault sensing and 5 milliamp trip levels. Receptacles in toilet rooms, wet areas, or within 6 feet of any sink shall be GFI type. All cover plates shall be stainless steel or otherwise as directed by Architect and/or Owner to match existing conditions.

EMERGENCY POWER

Emergency egress power shall be provided for life safety including exit and egress lighting. Utilize power from existing emergency distribution system. Provide exterior emergency egress illumination per NFPA 101, 7.8 Illumination of Means of Egress.

LIGHTING

All Illumination Levels will be designed per IESNA standards. Point by point foot-candle calculations will be provided in critical areas. 3d modeling will be provided as requested by Owner.

INTERIOR LIGHTING

Interior lighting will be primarily illuminated with LED and Fluorescent lamps. Lighting design criteria and approach will exceed ASHRAE 90.1 and will be as energy efficient as possible.

BNACONSULTING

EXTERIOR LIGHTING

Exterior lighting will complement and enhance the new architectural design features and existing conditions. LED light fixtures will be utilized. Emergency egress lighting will be provided at the building exit.

LIGHTING CONTROLS

Controllability of lighting shall match existing conditions and utilize existing control equipment in all possible locations. Provide occupancy sensing devices in new rooms and/or areas as applicable to the space. Variable light levels and dimming controls will be provided as directed in new developed areas.

FIRE AND LIFE SAFETY

New fire alarm devices will be provided in the renovated space and integrated into existing class A fire alarm loops or new fire alarm class A loop circuits will be added to the existing Fire Alarm System. New battery calculation will be provided and necessary programming for the expansion to the Fire Alarm Control Panel. Update to the fire alarm annunciator, the fire alarm drawing and building floor plan will be provided. The Fire Alarm System will be designed to meet all applicable codes.

All new devices will match the existing fire alarm system in the building.

TELECOMMUNICATIONS

New tele/data receptacles shall extend to existing Tele/Comm equipment rooms. Provide conduit and conductor as required per Owner standards and existing conditions. Wireless Access Points will be designed in the space by Owner.

SECURITY SYSTEMS

A raceway only design system shall be provided for security as directed by Owner. This will include Video Surveillance and CCTV.

AUDIO/VISUAL

An audio visual system shall be provided and will be designed with input from the Owner. Provide equipment rough-in and raceway to accommodate design intent. Coordination of A/V headend equipment and controls shall be coordinated with the Architect and Owner.

SUSTAINABLE DESIGN

ENERGY UTILIZATION

The standard that governs the requirements for energy utilization is ASHRAE 90.1. This standard outlines the power density requirements for electrical lighting systems as well as energy related to mechanical cooling and heating.

As it applies to electrical lighting systems, ASHRAE 90.1 limits the power density that can be used for interior and exterior lighting. The lighting design will exceed minimum requirements.

PHASE TWO

Lobby utilization
Concessions, patron services and storage

BNACONSULTING

PHASE 2 LOBBY AND TICKET OFFICE

GENERAL

The mechanical system will provide heating, ventilation and air conditioning required for the new building functions.

The mechanical system will be designed to provide a safe, economical, energy efficient, low maintenance type system that is balanced with the projects sustainability goals. All mechanical systems will have a proven track record of high quality, energy efficiency and environmental control.

HVAC DESIGN CRITERIA

Comply with the 2012 edition of the International Codes:

- International Building Code (IBC),
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Fuel Gas Code (IFGC)
- International Energy Conservation Code (IECC)
- International Fire Code (IFC)
- National Electric Code (NEC)
- All state amendments.

Comply with all applicable local, state, and federal codes and regulations.

HVAC system to comply with the following standards, most current edition:

- ANSI/ASHRAE Standard 62-2010: Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy
- ANSI/ASHRAE 90.1-2010: Energy Standard for Buildings
- SMACNA Sheet Metal and Air Conditioning Contractor's National Association standards
- Industrial Ventilation: A Manual of Recommended Practice
- Heating and Cooling Load Calculations: Size the building heating and cooling systems based on undiversified calculated loads for space and process equipment. Include 10% safety factor for the heating load calculations and no safety factor for the cooling load calculations.

Infiltration: Design for 30 MPH wind when calculating infiltration loads and building pressurization controls.

Design for Environmental Awareness. The built environment has a profound impact on our natural environment, economy, health, and productivity. Incorporate environmentally friendly solutions in the building design.

DESIGN CONDITIONS

Outside Design Conditions: Use the following climate data from ASHRAE Fundamental Handbook for Salt Lake City, Utah

Elevation	4226 FT	
Summer Design Dry Bulb Temp. (ASHRAE 0.4%)	96 deg. F	
Summer Mean Coincident Wet Bulb (ASHRAE 0.4%)	62 deg. F	
Cooling Tower Wet Bulb Temp. (ASHRAE 0.4%)	66 deg. F	
Winter Design Dry Bulb Temp. (ASHRAE 99%)	6 deg. F	
Winter Design Dry Bulb Temp. (VBFA Standard)	0 deg. F	

Indoor Design Conditions: AHSRAE Standard 55

Interior occupied spaces:

Summer	75 deg. F	50% RH Maximum
Winter	72 deg. F	No Minimum

Mechanical Rooms, Electrical Rooms, and Elev. Equip. Rooms:

Summer	80 deg. F	No humidity control
Winter	60 deg. F	No humidity control

Telephone/Data/Communication:

Year Round	75 deg. F max.	No humidity control
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Noise Criteria: Design the heating, ventilating and air conditioning systems to meet the acoustical design criteria

Pressure Relationships: Design the heating, ventilating and air conditioning systems to meet the following:

Building:	Positive to outside
Toilet Rooms:	Negative to adjacent spaces

VENTILATION REQUIREMENTS

Ventilation will comply with the IMC and ASHRAE Standard 62.1.

Provide a building relief air system to maintain the building to be +0.03-0.05 in. W.G. building static pressure.

HEAT SOURCE

The heat source will be from the existing high pressure steam system that currently serves Abravanel Hall. The central plant is located in the Salt Palace. Abravanel Hall is served by an 8" medium pressure steam line and a 2" pumped condensate line. The proposed additional building space will require additional heat. The proposed Plaza snow melt system will require up to 3,000,000 BTU/H of additional. The proposed future fountain will be heated; the current fountain is not heated. A study will need to be done to determine if the existing central heating plant and steam and condensate main lines have adequate capacity for the future requirements.

COOLING SOURCE

The cooling source will be from the existing chilled water plant that currently serves the Abravanel Hall. The central cooling plant is located in the Salt Palace. Abravanel Hall is served by 8" chilled water supply and return pipes. There will be some additional cooling required for the propose additional building space. A study may need to be done to determine if the existing central heating plant and main lines have adequate capacity for the future.

AIR HANDLERS

Central air handlers will be required for the proposed additional building spaces. Fan rooms will have to be provided to accommodate indoor handlers. Approximately 5% of the proposed additional space will be required for fan rooms. The existing building has indoor air handlers. Air handlers will be factory custom built type for better sound performance.



PROGRAMMING PACKAGE
04.30.2014
HKS #17350.001

ABRAVANEL HALL RENOVATION
Salt Lake City, Utah



VAN BOERUM & FRANK ASSOCIATES, INC.
CONSULTING ENGINEERS



Multiple fan arrays (fan walls) will be used for supply air fans and return/relief air fans in the air handlers serving sound critical areas. Multiple fan arrays also provide better redundancy. The smaller fans in the multiple fan arrays are also easier to replace. The air handlers should be located remotely from sound sensitive areas for acoustical reasons, similar to the existing design.

The air handlers will have outside air intake and dampers, return air dampers, filters, relief or return air fans, supply air fans, glycol preheat coils, chilled water cooling coils, and direct evaporative cooling sections. All pre-filters shall be MERV 8 and all final filters shall be MERV 13.

The air handlers will be sized for a coil face velocity of 400 feet per minute, in lieu of the standard 500 feet per minute in order to save fan energy.

All fans will have variable frequency drives (VFD's). VFD's are required for multiple zone variable air volume (VAV) systems. VFD's will also be provided on single zone systems, such as the, in order to reduce the air flow (and fan energy) when these spaces are not occupied or only partially occupied.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

The ATC system will comply with the Salt Lake County Design Guidelines. The Salt Lake City approved controls manufacturer is: Alerton. Approved installers are D&L Controls and Alliance Energy and Integration.

Controls will have the capability of trend logging specific parameters in order to Commission the system and track energy costs.

DOMESTIC WATER SERVICE

New plumbing fixtures will connect into the existing domestic hot and cold water lines

BUILDING SEWER

New plumbing fixtures will connect into the existing waste and vent system.

ROOF DRAINAGE SYSTEM

A primary and overflow roof drainage system will be provided for new roof areas. The overflow roof drains will daylight

PLUMBING FIXTURES

The following low flow fixtures will be used for water savings:

- Manual flush valve water closets at 1.28 gal/flush
- Sensor actuator urinals at 1 pt/flush
- Sensor actuator lavatories at 0.5 gpm
- Showers at 1.5 gpm

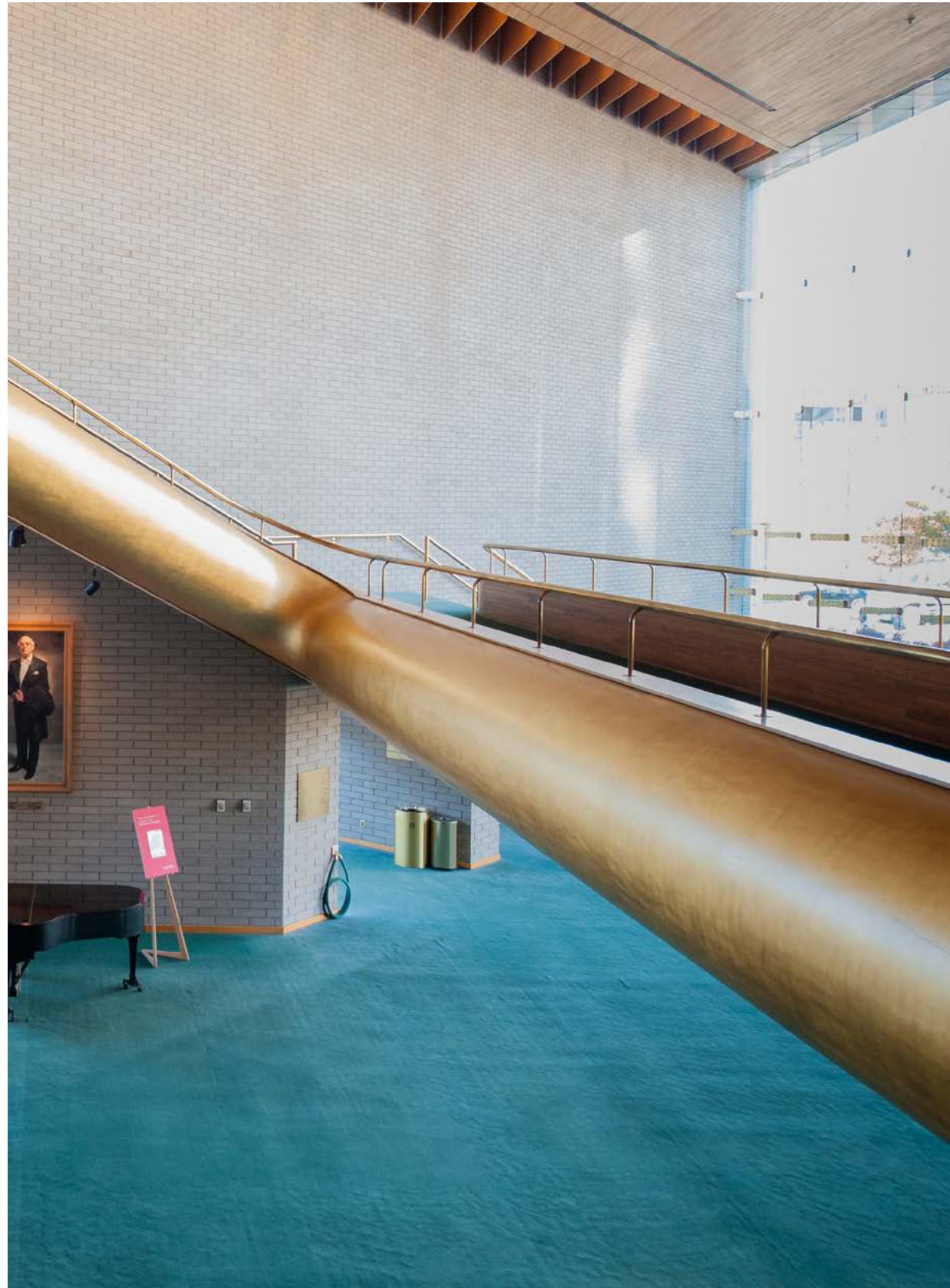
The lavatories and urinals shall have hard-wired sensors.

GREASE WASTE

Grease waste from kitchen and food service areas will be processed using local point of use grease interceptors.

FIRE SUPPRESSION SYSTEMS

The proposed additional spaces will connect into the existing wet pipe fire sprinkler system.



6. PRELIMINARY COST ESTIMATE

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014	
PROJECT NAME.....ABRAVANEL HALL LOBBY RENOVATION AND NEW BUILDING EXPANSION					
LOCATION.....SALT LAKE CITY, UT					
ARCHITECT.....HKS					
STAGE OF DESIGN.....MASTERPLANNING					
DESCRIPTION		QTY	UNIT	UNIT COST	TOTAL
PLAZA					
DEMOLISH EXISTING PLAZA		14,000	SF	\$ 2.65	\$ 37,100
NEW PLAZA FINISHES		14,000	SF	\$ 45.00	\$ 630,000
SUBTOTAL PLAZA					\$ 667,100
LOBBY ENHANCEMENTS					
RENOVATE GOLD LEAFING AT LOBBY		3,062	SF	\$ 75.00	\$ 229,613
REFINISH WOOD RAILING AT LOBBY		325	LF	\$ 120.00	\$ 39,000
SUBTOTAL LOBBY ENHANCEMENTS					\$ 268,613
EXISTING SPACE RENOVATION					
TICKET LEVEL					
VESTIBULE		97	SF	\$ 190.00	\$ 18,430
TICKET LOBBY		1307	SF	\$ 190.00	\$ 248,330
TICKETING		485	SF	\$ 190.00	\$ 92,150
WORKROOM		406	SF	\$ 155.00	\$ 62,930
OFFICE		120	SF	\$ 135.00	\$ 16,200
WOMENS RESTROOM		997	SF	\$ 225.00	\$ 224,325
MENS RESTROOM		609	SF	\$ 225.00	\$ 137,025
H/C RESTROOM		39	SF	\$ 225.00	\$ 8,775
H/C RESTROOM		39	SF	\$ 225.00	\$ 8,775
STORAGE		197	SF	\$ 80.00	\$ 15,760
CIRCULATION/BLDG STRUCTURE		514	SF	\$ 135.00	\$ 69,390
SUBTOTAL TICKET LEVEL		4810	SF	\$ 187.54	\$ 902,090
LOBBY AREA REMODEL					
LOBBY REMODEL		9297	SF	\$ 255.00	\$ 2,370,735

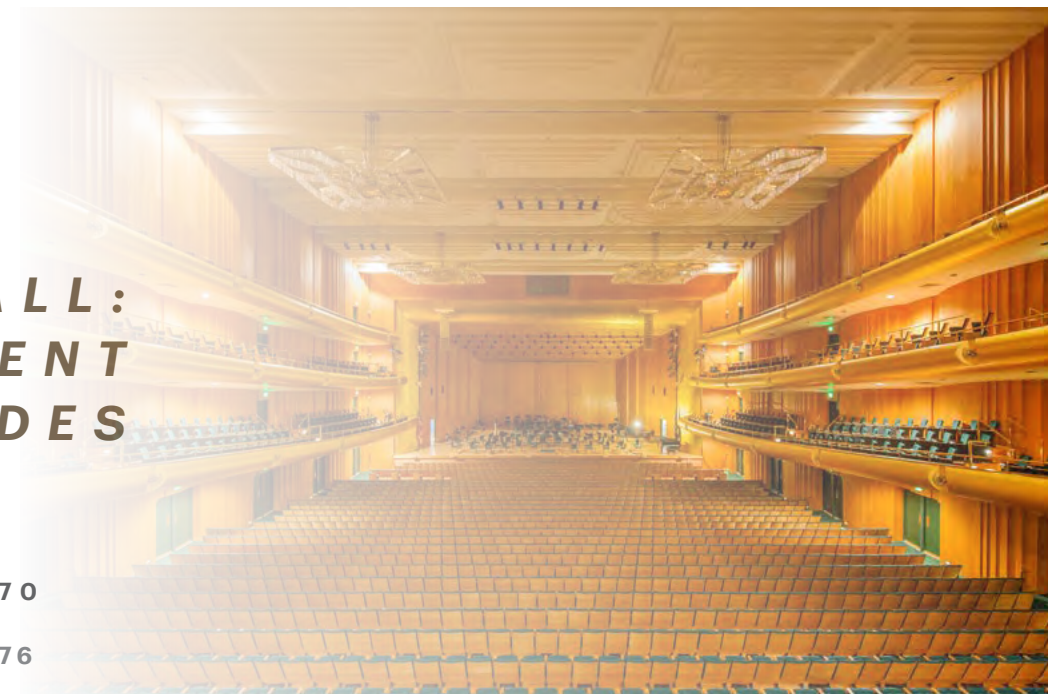
6. PRELIMINARY COST ESTIMATE

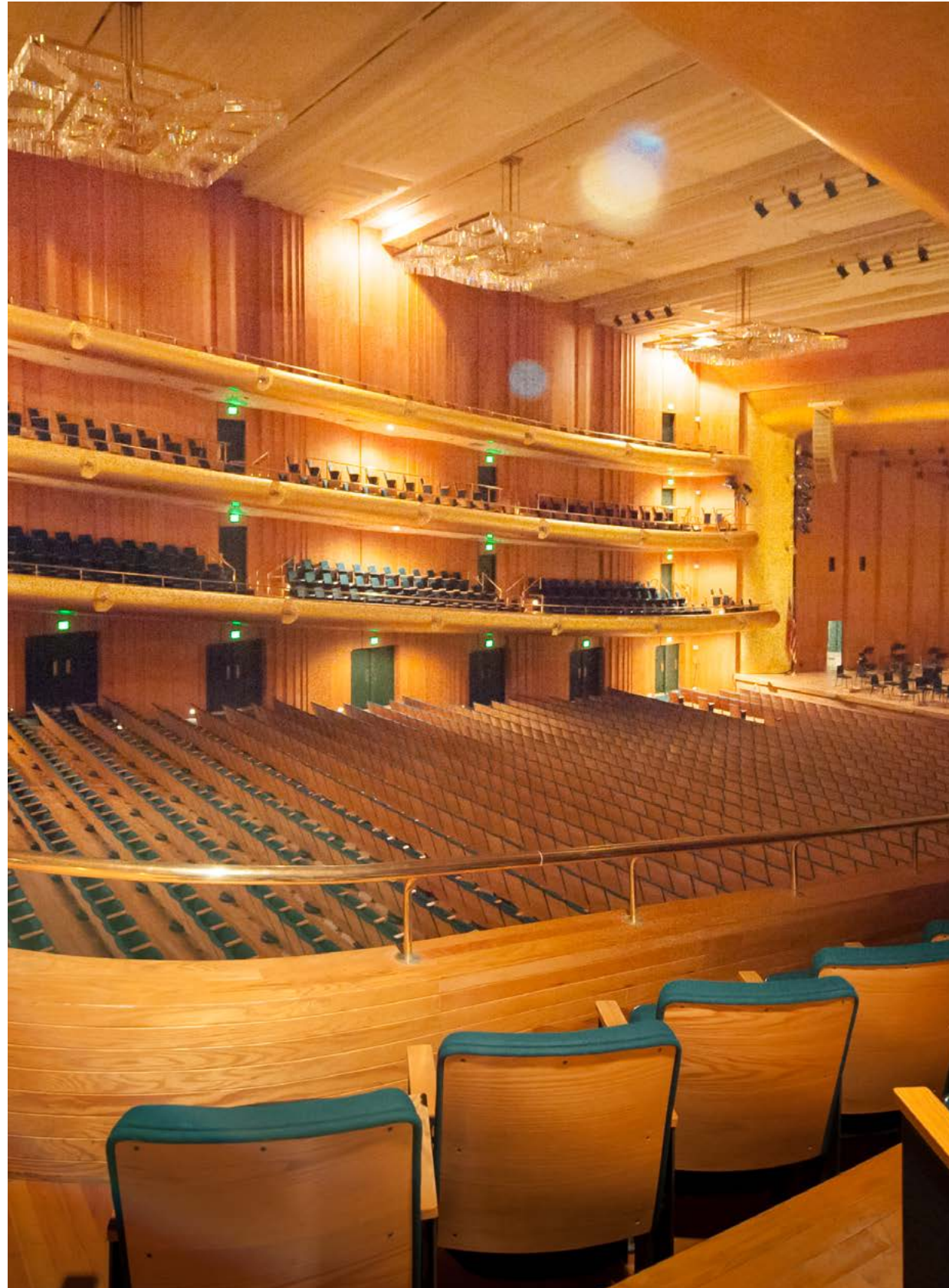
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
CIRCULATION/BLDG STRUCTURE REMODEL	1335 SF		\$ 135.00	\$ 180,225
SUBTOTAL LOBBY AREA	11224 SF		\$ 240.73	\$ 2,701,920
FIRST TIER LEVEL RENOVATION				
FIRST TIER ROOM RENOVATION	2505 SF		\$ 255.00	\$ 638,775
STORAGE RENOVATION	62 SF		\$ 80.00	\$ 4,960
STAGING RENOVATION	586 SF		\$ 120.00	\$ 70,320
TOILET RENOVATION	56 SF		\$ 225.00	\$ 12,600
LOUNGE RENOVATION	640 SF		\$ 135.00	\$ 86,400
MEN'S RESTROOM RENOVATION	137 SF		\$ 225.00	\$ 30,825
WOMEN'S RESTROOM RENOVATION	134 SF		\$ 225.00	\$ 30,150
CIRCULATION/BLDG STRUCTURE RENOVATION	2048 SF		\$ 225.00	\$ 460,800
SUBTOTAL FIRST TEIR LEVEL	6168 SF		\$ 216.41	\$ 1,334,830
TOTAL EXISTING SPACE RENOVATION	22202 SF		\$ 264.60	\$ 5,874,553
LOBBY ADDITION				
CORE & SHELL CONSTRUCTION	16,596 SF		\$ 225.00	\$ 3,734,100
FOOD SERVICE ELEVATOR 3 STOP	1 EA		\$ 75,000.00	\$ 75,000
ESCALATORS	2 FLIGH		\$ 230,500.00	\$ 461,000
STORAGE	1,035 SF		\$ 155.00	\$ 160,425
SYMPHONY STORE & CAFÉ	1,474 SF		\$ 165.00	\$ 243,210
KITCHEN	900 SF		\$ 185.00	\$ 166,500
CAFÉ EQUIPMENT	900 SF		\$ 100.00	\$ 90,000
STORAGE	360 SF		\$ 80.00	\$ 28,800
COAT CHECK	510 SF		\$ 175.00	\$ 89,250
CONCESSION	510 SF		\$ 225.00	\$ 114,750
LOUNGE	1,424 SF		\$ 155.00	\$ 220,720
ATRIUM	890 SF		\$ 175.00	\$ 155,750
BALCONY	300 SF		\$ 135.00	\$ 40,500

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
ATRIUM	890 SF		\$ 175.00	\$ 155,750
BALCONY	300 SF		\$ 135.00	\$ 40,500
CHAMBER ROOM	4,420 SF		\$ 175.00	\$ 773,500
Chamber Theatrical Pipe Grid per Theater Projects	1 LS		\$ 60,000.00	\$ 60,000
Chamber Adjustable Acoustics per Theater Projects	1 LS		\$ 33,000.00	\$ 33,000
Chamber Theatrical Dimming & controls	1 LS		\$ 150,970.00	\$ 150,970
FIRST TIER ADDED FLOOR (BRIDGE)	673 SF		\$ 225.00	\$ 151,425
CIRCULATION/BLDG STRUCTURE	3,197 SF		\$ 120.00	\$ 383,640
SHARED TERRACE	880 SF		\$ 80.00	\$ 70,400
TOTAL LOBBY ADDITION	16,596 SF		\$ 434.02	\$ 7,202,940
TOTAL CONSTRUCTION COST	38,798 SF		\$ 361.18	\$ 14,013,205
Plan Check Fees				\$ 45,869
Building Permit				\$ 70,567
1% State Permit Fee				\$ 706
Utility Connection Fees and Impact Fees				\$ 100,000
Furniture Fixtures & Equipment		9%		\$ 1,261,188
A/E Fees Inc. lighting des. Theatrical & Acoustic consultant		15%		\$ 2,101,981
Programming Study Fees				NIC
Reimbursables				\$ 84,079
Geotechnical				\$ 5,000
Commissioning Agent				\$ 50,000
Survey				\$ 5,000
County Administration Fees		1.5%		\$ 210,198
Project Management Fees		1.5%		\$ 210,198
Owner's Construction Contingency		10%		\$ 1,401,321
Special Inspections & Testing		1%		\$ 140,132
Energy Modeling				\$ 45,000
LEED Documentation A/E				\$ 45,000
LEED Registration				\$ 35,000
Art		1%		\$ 140,132
TOTAL PROJECT COST				\$ 19,964,576
ESTIMATE IS BASED UPON 2015 DOLLARS ESCALATION HAS NOT BEEN FACTORED IN				

AREA 3 - CONCERT HALL: TECHNICAL AND EQUIPMENT UPGRADES

1. IDENTITY & PURPOSE	70
2. ORGANIZATION & SERVICE DESCRIPTIONS	76
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6. PRELIMINARY COST ESTIMATE	90





SUMMARY

During the 35 year life of Abravanel Hall, the Symphony’s influence and operations have grown and expanded. Over these years the building users have found ways to make the existing Back of House spaces work, and “make do” with the space available. However – it is evident now that significant renovation and additional space is needed to accommodate the operations that are in this building.

Additionally, there are items within the Concert Hall itself that need to be addressed – specifically theatrical lighting and lighting positions, A/V modifications, and Stage/Seating issues

The Phase 3 Issues that need to be addressed have been organized into four areas in the building:

- 1) BOH Stage Level Renovations
- 2) BOH Lobby Level Renovations
- 3) BOH First Tier Level New Construction
- 4) Abravanel Concert Hall – Lighting, A/V, and Stage/Seating modifications.

Several locations for building expansion were explored. It was clear that disruption to the concert hall was to be avoided. It was decided that the most optimal expansion for the back of house spaces was to build above the west and south BOH spaces that flank the concert hall. This will require significant demolition and renovation of existing spaces on the stage level and lobby level, as well as new construction at the first tier level.

The work to be done in the Concert Hall is not as significant. This will consist of new lighting above the stage and new lighting positions, removing seats at the back of the hall to create a house sound mix position, possible stage extension and removal of seats at sides of hall – depending upon mock-up review.

Summary

BOH Stage Level Renovations

9,667 SF Stage Level

Cost = XXXX

BOH Lobby Level Renovations

15,533 SF Lobby Level

Cost = XXXX

BOH First Tier Level New Construction

15,533 SF First Tier Level

Cost = XXXX



1. IDENTITY & PURPOSE

The Abravanel Hall Back of House Spaces provide essential areas for the Symphony and CFA operations to exist and function properly. Over the years – with the growth of the organization’s operations – the existing back of house spaces have become inadequate in size and function to accommodate the needs of the organizations. Several of the spaces appear to have been inadequate when the building was first opened in 1979.

To better understand the Back of House needs of the Utah Symphony Utah Opera organization, as well as Salt Lake County Center for the Arts organization – the design team distributed a Questionnaire – that was circulated for responses. Questions were also asked about the Concert Hall, as well as Mechanical Items and Food & Beverage Services.

The questions that were asked are:

- Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.
- Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.
- As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?
- Please list the three things that you think are in the most need of improvement inside the Concert Hall. Please explain why.
- Please list three things about the Concert Hall that you would not want to change. Please explain why.
- As the Concert Hall moves into its next 40 years, What items do you think are missing – that need to be added.
- In the RFP there is a note: “Renovations to Boiler Room-safety issues”. In the site visit, we observed a Steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?
- Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.
- If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?
- Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what to you see as the food menu offering?
- What do you see as the schedule and hours of operation?
- What do you see as the source for the menu offering (who cooks and preps)?



- Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

The responses that were provided to the questionnaire are listed on the following pages.

In addition to the questionnaire - a "Visioning" session was held for the Phase 3 areas, and responses were gathered from participants and were documented. The Visioning Responses were grouped into three basic categories:

- 1) Concert Hall and Stage
- 2) Back of House / Offices

CONCERT HALL - VISIONING1) Concert Hall and Stage:

- Revise light fixtures at stage to be recessed in shell.
- Address Theatrical Side lighting positions in shell.
- Address Theatrical High Side lighting positions behind pivoting panels (doors).
- Possible Spot booth at ceiling coffers between chandeliers to move fallow spot from top tier location.
- Remove black steel, hide lighting on stage.
- Clean up “gack” of lights, bars, cables at proscenium.
- Hide-able theatrical lighting.
- Smart lighting to remove spots lights back stage.
- Quiet, intelligent, full chromatic lighting.
- Cameras installed in symphony hall to record and access event.
- Provide broad scope study about 2 isles.
- Provide broad scope document for changing main hall seating for ingress/egress. (Possibly lose 700 seats to 1900 seats?)
- ADA Compliance. Currently whole hall is non-compliant.
- Provide Design for new seating with isles.
- Master plan concert hall.
- Club Seating / Suite environment for high rollers.
- Food & Beverage Experience in Hall.
- Provide good sound mix position – visually.

2) Back of House / Offices:

- More Artist Suites.
- More storage for musician instrument cases.
- Back of house artist lounge needs more efficient use of space.
- Provide guest artist dressing room with shower, sink & toilet.
- Reconfigure back stage space for 1 added star dressing room.
- More useful lockers / dressing rooms. Women’s locker room space is not adequate. Lockers need to be wider and deeper (possibly “Z-Lockers”?)
- More storage in loading dock with A/C.
- Improve conference room space back stage to be bigger – for 20 people.
- Provide choir space.
- More restrooms.
- Fix musician’s lounge.
- Shrink musician’s lounge.
- Back of house star dressing rooms reconfigures and renovated.
- Smaller tanner lounge, added larger lockers, table space for instruments.
- Look at different space for library and increased storage.
- Fix the ugly.
- Grow the conference room.
- Add floor above or off back of building for office space / back of house needs.
- Add floor for chorus room and small performance room.
- Explore adding entire floor at back of house area.

SUMMARY OF RESPONSES:

- Most popular responses are listed first, with number of responses in parenthesis at end.
- Responses that appear to contradict are tagged with two asterisks (**)

2. Concert Hall (Stage, Seating, Finishes, etc)

A. Please list the three things that you think are in the most need of improvement inside the Concert Hall. Please explain why.

1. **Center aisle / cross aisles to improve patron comfort, egress, and late seating (2)
2. More, varied, and improved ADA seating options (2)
5. Front of House area needs a permanent sound board location. (2)
3. Stage doors need to be adjusted for sound proofing
4. Improved amplified sound.
6. **It would be helpful if the stage was approx. 5 feet deeper.
7. New upholstery & cushions – currently 15 years old and failing.
8. **Refurbish/Replace wood on stage floor, stage walls & auditorium main floor.
9. Ability to hang scenic elements.

B. Please list three things about the Concert Hall that you would not want to change. Please explain why.

1. Acoustics. The unamplified acoustics for full orchestra is outstanding (3)
2. The chandeliers – iconic to the space, patrons often comment on them (2)
3. **Size of Stage (2).
4. **Seating (2)
5. The gold trim – iconic to space, wonderful connection to OC Tanner.
6. Walls and Doors – Hall does not need any removed, added or changed.
7. The new sound system seems to be perfect.
8. **Wood finishes.

C. As the Concert Hall moves into its next 40 years, What items do you think are missing – that need to be added.

1. Dependable and faster elevators / additional elevator in lobby (2).
2. More modular hydraulic risers – multiple sections per area. (2)
3. Flexible seating possibilities – ability to remove seats to create dance floor, or cabaret set-up
4. Sound insulation / absorption back stage.
5. Additional Green Room space and warm up rooms.
6. Functional sound curtains for rehearsals
7. Projection Systems.
8. Hospitality areas for catering.
9. Bars – liquor services.

3. Concert Hall (Equipment, Lighting, Sound)

A. Please list the three things that you think are in the most need of improvement inside the Concert Hall. Please explain why.

1. Stage and FOH theatrical lighting needs to be updated – more flexible/usable front light and/or positions. LED and movers to add to conventional lighting. (4)
2. Stage lifts – they don't stay level. Hydraulic risers need to be rebuilt or better yet replace with a more versatile configuration (3).
3. Rigging points need permanent chain motors
4. Sound curtains for rehearsals
5. Video Projection Equipment.
6. Over stage shell down lights.

B. As the Concert Hall moves into its next 40 years, What items do you think are missing – that need to be added.

1. A recording studio
2. A front of house electric for stage lighting
3. Permanent Sound Board location at FOH.
4. Piano storage & lift under the stage.
5. Re-evaluate technology every 10 years and make adjustments.
6. Wireless audio technologies.
7. Advanced QUIET theatrical lighting.
8. Projection.

4. Mechanical Equipment Questions

A. In the RFP there is a note: "Renovations to Boiler Room-safety issues". In the site visit, we observed a steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?

1. Access / No Elevators to Level.
2. Dryer does not vent outside.
3. Air Compressor for HVAC Controls is failing.

B. Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.

- levels
1. The HVAC system is generally difficult to adjust and would benefit from more local control to adjust in different rooms (especially dressing rooms and offices)
 2. Improved electrical capacity – breakers are frequently tripped
 3. Fumes from loading dock and back-up generators get circulated into offices.
 5. Replace ALL VAV's and change to electronic controls.
 6. Old Ceiling Tiles are falling, we are out of attic stock and we are out of fire code.
 7. Would like to have our own chiller, so that we are not so dependent on the Salt Palace's maintenance issues.

C. If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?

1. Break through the basement – like in the 1997 addition.

5. Food Service Questions

A. Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what do you see as the food menu offering?

1. Café style lunch – coffee, sandwiches/Panini, crepes, salads, fruit, pastries
2. Add tapas prior to performances
3. Wine/beer service.
4. Hot and cold caffeine.
5. Pastries.
6. Ice Cream.
7. Bistro food menu – research other Orchestras.

B. What do you see as the schedule and hours of operation?

1. Weekdays without concerts – office hours
2. Flexibility to remain open during and after late concerts
3. ** 7 am to 7 pm & events.
4. ** Pre-event / Post Event only.

C. What do you see as the source for the menu offering (who cooks and preps)?

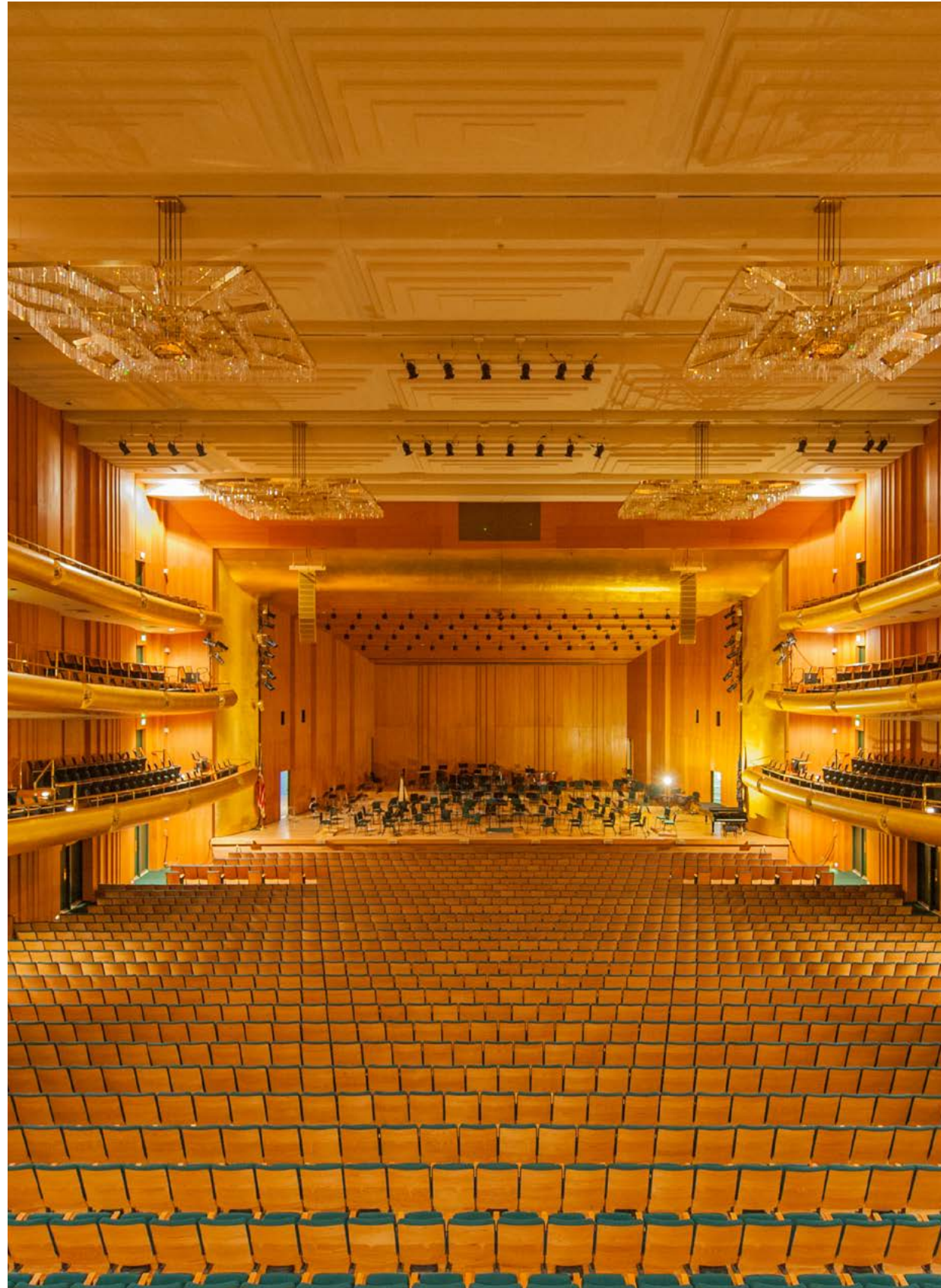
1. Off-site delivery except for coffee, and on-site storage (2)
2. Local collaboration? -Perhaps ask The Pub Group (Martine/Desert Edge/Red Butte) to consult

D. Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

1. Orchestra and staff would make use of it weekdays
2. Pre-concert, intermission, and post-concert activity would be profitable if quality is good (i.e. museum cafes in many cities that are known for their food)
3. Useful for development events and receptions.
4. ** Do not think it would be a profit center.
5. ** Yes – Profit –for it to last.

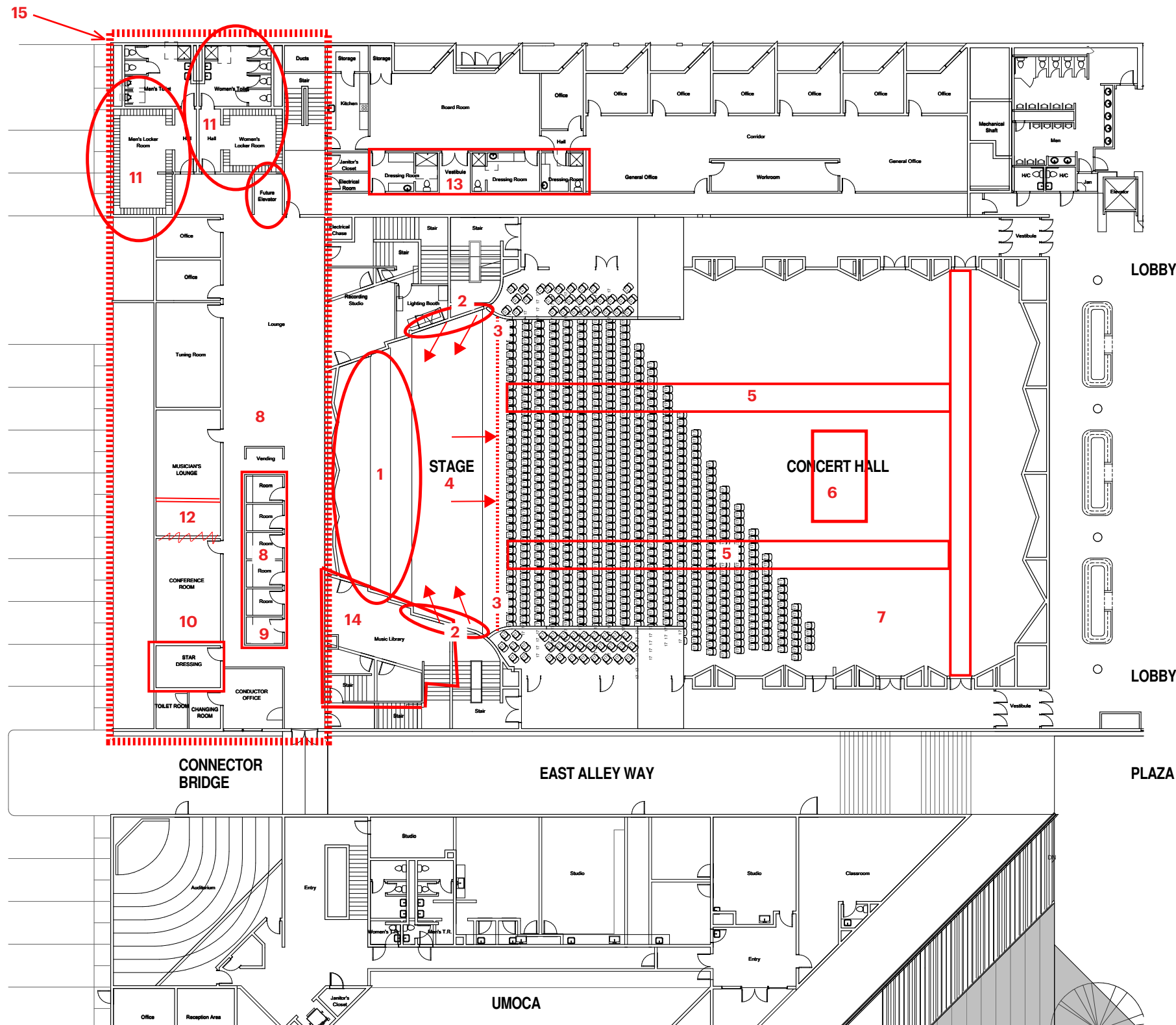
2. ORGANIZATION & SERVICE REQUIREMENTS

The Owner Team and Design Team participated in several building walk-throughs, to identify the key elements of the Back of House and Concert Hall areas of concern, and opportunities for improvement. These items are documented in the floor plans that are below. Notes were also made and reviewed in team meetings. Additional notes were added to the plans in the team meetings - to better understand the issues, and confirm the desired direction.



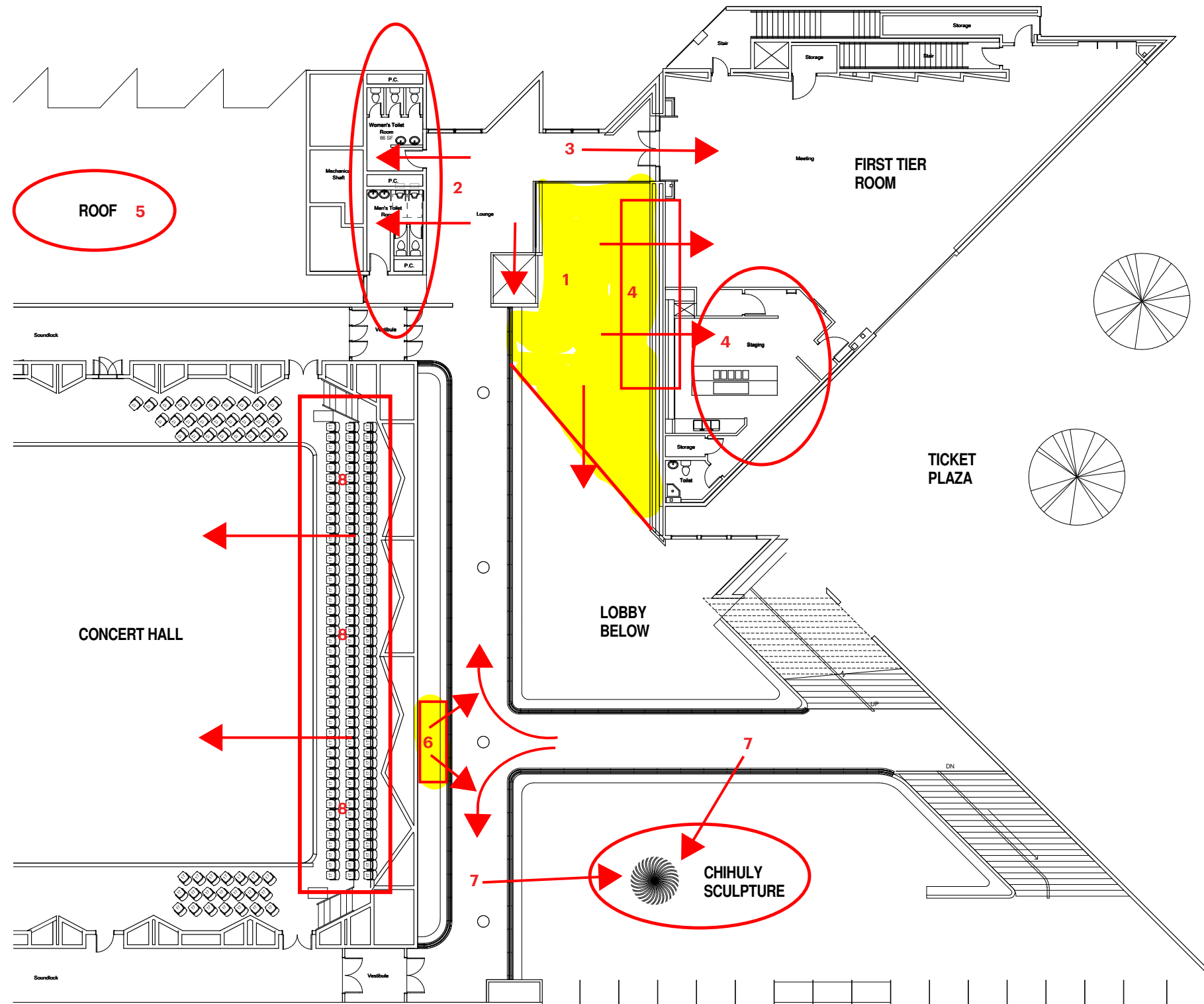
KEYED NOTES

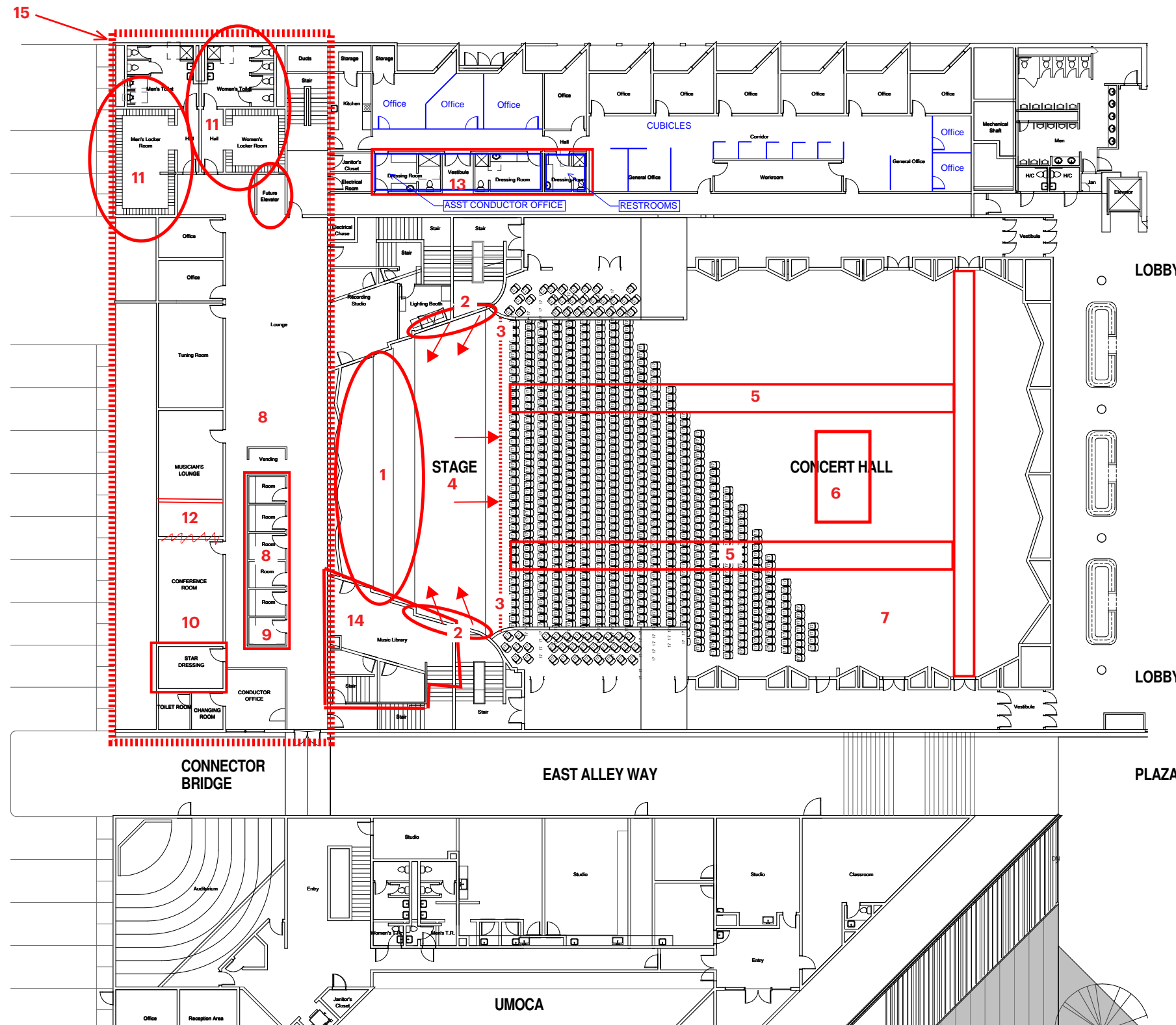
1. At stage area revise light fixtures in shell to be recessed full chromatic light.
2. Address theatrical side lighting positions to be behind pivoting panels at stage sides?
3. Clean up lighting bars, cables, steel around proscenium area.
4. Current stage is too shallow - needs to be deeper. Possible stage extension/lose first row at hall?
5. Possible broad scope study of hall to remove continental seating and provide two aisles for circulation. Hall is currently not ADA compliant. Redo of concert hall would be large scope, to completely redo slope of hall and access aisles and associated sight line study.
6. Possible hidden spot booth in ceiling coffer between chandeliers - to move fallow spot from top tier location.
7. Review position for sound mix - for better integration with seating and better visual.
8. Back of house artist lounge needs more efficient use of space, and more artistic suites.
9. Provide guest artist dressing room with shower, sink, & toilet.
10. Reconfigure to add additional star dressing room.
11. More useful men's and women's locker rooms and restrooms. Women's needs to be bigger. Lockers need to be wider and deeper.
12. Conference room needs to be bigger, and musician's lounge can be smaller.
13. Back of house star dressing rooms need to be reconfigured and renovated.
14. Current library is too small and non accessible. Look for new location. Current location could be good technical booth.
15. Consider adding additional floor on top of this back of house musician suite - to accommodate all of the additional space needs. Confirm space is available for new elevator. Could possibly house chorus room and possible small performance room.
16. Look at adding A/C to service dock area.
17. Address issues at mechanical room area (storage, leaks, repair, etc.)



KEYED NOTES

1. Consider possible floor infill area between first tier room and elevator. This would improve circulation and provide additional opportunities for concessions/bar areas as well as relocation of, or expansion of restrooms. Area could have drink rails on east side and maintain current view of lobby.
2. Current restroom location could be used for new concession or bar location. This area is beyond the 700 foot distance from Temple Square buildings. Concern is that area becomes tight and impedes circulation to first tier room.
3. Maintain current access for VIP's to first tier room.
4. Current warming kitchen could be converted to expanded restrooms, or to concessions area. Warming kitchen/food prep would be housed in lower level of expanded lobby area.
5. Could roof area be considered for concessions/bar/or expanded restrooms?
6. Infill "gap" at circulation node for possible new location for concessions stand.
7. Hanging Chihuly sculpture would maintain views of piece and experience from different levels.
8. Convert area at back of first tier in the hall into a club seating or "suite" environment - for VIP's to have food and drinks, and special amenities. Noise is a concern.



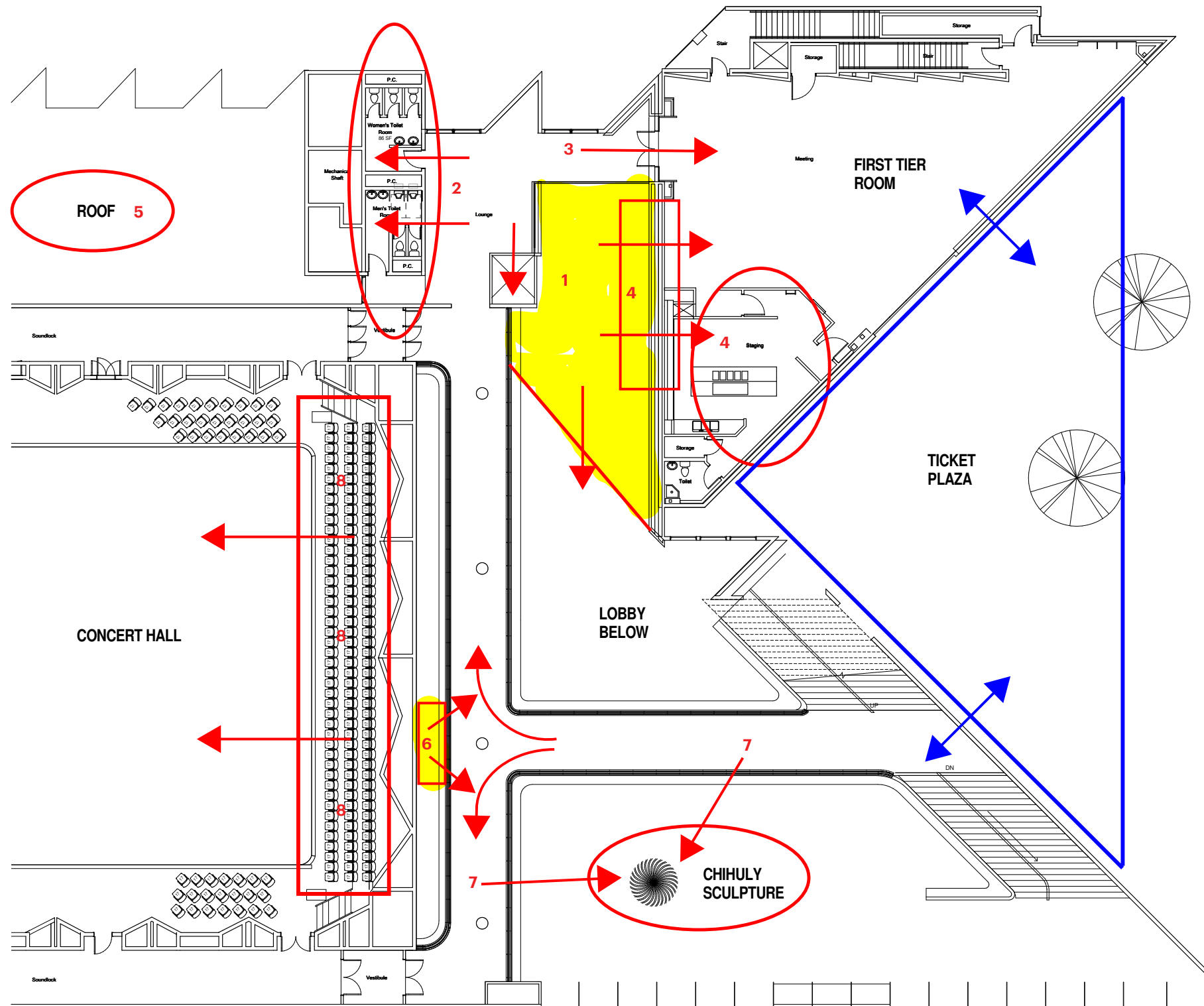


KEYED NOTES

1. At stage area revise light fixtures in shell to be recessed full chromatic light.
2. Address theatrical side lighting positions to be behind pivoting panels at stage sides?
3. Clean up lighting bars, cables, steel around proscenium area.
4. Current stage is too shallow - needs to be deeper. Possible stage extension/lose first row at hall?
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14. Current library is too small and non accessible. Look for new location. Current location could be good technical booth.
15. Consider adding additional floor on top of this back of house musician suite - to accommodate all of the additional space needs. Confirm space is available for new elevator. Could possibly house chorus room and possible small performance room.
16. Look at adding A/C to service dock area.
17. Address issues at mechanical room area (storage, leaks, repair, etc.)

KEYED NOTES - UPDATED 3/20/14

1. OK but be careful - per Mark Holden. Use fixtures engineered for concert shells. Consider also catwalks above for rigging.
2. It was determined that lighting positions behind panels would disrupt acoustics. Do not pursue.
3. Relocate light positions to side tier - up high. Any positions near proscenium paint to be inconspicuous.
4. Four ft stage extension would be appropriate. Look at with TPC and Holden. Have test fit with rehearsal.
5. Discussed at length. Redo of hall seating triggers major issues, namely: Acoustics, re-slope of concert hall floor, sight-lines, and added ADA ramps and seating. It was questioned whether this is money well spent, when there are many other vital areas in the building where renovation/construction is needed.
6. Valid option. Drop down spot booth area could also house projector. It was discussed that the current projection screen needs to be replaced. Aspect ratio is off. It is too short & too wide.
7. Sound mix should be at back of hall. Remove seating in area of 9 ft x 20 ft. (approx 20 seats removed)
8. Need space for performers lounge for 100 people. Comfortable seating, kitchen, adjacent to quiet lounge (Tanner Lounge) for 30 people.
9. Need 2 additional conductor suites similar to existing, for a total of 3.
10. Confirmed. Add additional star dressing for a total of 2.
11. Confirmed.
12. Confirmed.
13. Correction - This space is currently assistant conductor room, offices, and shared restroom. Needs to be reconfigured with adjacent offices. Additional office needs to be provided by Utah Symphony for further programming and design studies.
14. Confirmed.
15. Confirmed. Chorus warm up room to be for 150 people, could possibly double as conference room. Restrooms to be adjacent to room, and kitchenette. Space is available for elevator extension and stair extension.
16. Confirmed. Refer to sheet 78 for additional notes.
17. Confirmed. Refer to sheet 78 for additional notes.



KEYED NOTES

1. Consider possible floor infill area between first tier room and elevator. This would improve circulation and provide additional opportunities for concessions/bar areas as well as relocation of, or expansion of restrooms. Area could have drink rails on east side and maintain current view of lobby.
2. Current restroom location could be used for new concession or bar location. This area is beyond the 700 foot distance from Temple Square buildings. Concern is that area becomes tight and impedes circulation to first tier room.
3. Maintain current access for VIP's to first tier room.
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5. Could roof area be considered for concessions/bar/or expanded restrooms?
6. Infill "gap" at circulation node for possible new location for concessions stand.
7. Hanging Chihuly sculpture would maintain views of piece and experience from different levels.
8. Convert area at back of first tier in the hall into a club seating or "suite" environment - for VIP's to have food and drinks, and special amenities. Noise is a concern.

KEYED NOTES - UPDATED 2/19/14

1. A better location for a floor infill and for concessions may be on the second tier lobby. Keep the first tier lobby for the VIP's and not have to worry about "separating" VIP's from concessions patrons.
2. Still under consideration, especially for VIP area.
3. Noted.
4. Space could become shared area for both the first tier room and for what is decided for the first tier level of the new north building. Access for this area could be provided from both the first tier room, and from the grand staircase.
5. Roof area could also be used for needed space for back of house offices, symphony program, or other functions.
6. This was reviewed by the group and did not seem to be a viable solution for concessions. The second tier option for concessions was preferred.
7. Noted.
8. Needs further discussion.



3. INDIVIDUAL SPACE DESCRIPTIONS

For the Phase 3 Areas – Room Data Sheets were distributed to the CFA and USUO representatives, to understand the needs for Individual Spaces within the building. The Room Data Sheets were filled out for both the existing spaces, as well as new spaces to be added to the program. These room data sheets are provided in Appendix A – at the End of the Program booklet.

The Room Data Sheets were organized and compiled into the Room Data Spreadsheet on the following pages.

Mechanical Items:

Plumbing Items:

Electrical / Communication Items:

Lighting:

Fixtures, Furnishings & Equipment:

4. CONCEPT DEVELOPMENT

Add summary here.



5. CONSULTANT NARRATIVES



Acoustic Discussion and Review of Abravanel Hall – 4/22/2014

Present: Phil Jordan – Salt Lake County CFA
 David Green – USUO
 Nicole Briggs – CFA – Abravanel Hall TD
 James Boggus – CFA – Abravanel Hall TD
 Mark Holden – Jaffe Holden
 Roger Phillips – HKS Architects

Items of Discussion:

1. The Symphony is concerned that the depth of the stage (39') limits flexibility to present larger works, especially with chorus. A permanent stage extension of 4-8 feet into the hall would allow for larger orchestras to be more comfortably seated, and chorus accommodated without the cost, hassle and unsightliness of temporary stage extension.
2. The stage extension would need to have the same acoustic response for the musicians on the stage, and couple effectively the existing timber audience floor to maintain the excellent sound in the hall.
3. We discussed the possibility of a stage extension "mock-up", as was done at both Avery Fisher Hall for the NY Phil before the Mostly Mozart concerts, and at Alice Tully to confirm the effectiveness of the new stage extension. This was suggested as a way to get orchestra, management and board member by-in before the work was done. A musician and audience survey was performed in a professional way so that the data gathered was supportable. Sightline issues can also be explored for the balconies
4. Excessive sound levels from the Tympani to other musicians downstage of them was discussed as an issue. Portable sound shields, earplugs and rearranging the musicians has not helped the situation much. The stage extension might help move the Tympani off the back wall reducing levels somewhat.
5. There was discussion of the look and use of temporary risers now in use to augment the hydraulic riser system.
6. The proposed addition and improvements to the stage lighting was discussed in regard to the acoustic impact:
 - a. The new Stage lighting recessed in the ceiling may need glass covers to block sound from leaking into large attic above if the holes are large. The Cyril Harris acoustic design relies on a "sealed" stage enclosure.
 - b. Access to these lights will be an issue from the ceiling above. Any openings and access ways in the ceiling would need doors of equivalent acoustic response to the existing,
 - c. Adding new lighting pipes, bars, or outlets on the side walls should be studied for acoustic impact. We expect only minor negative effects, if any.
 - d. Adding "intelligent" light fixtures in the ceiling must be done carefully with regard to fan noise of both the unit and the movement noise. Passive cooled, or very low noise fixtures should be used and ultimately measured in our acoustic lab for impact.
 - e. Spot operators talking disturbs patrons seated near them. A possible spot booth was discussed, but the location was not clear. We cautioned against opening holes or drop panels or moving ceiling elements, as the ceiling is thick (2-3") thick heavy plaster and would require significant structural work and the mass must be maintained.
7. Creating an "island" of seating by removing 4-5 seats on the end of every row was discussed as a way to make the hall more friendly for audience circulation inside the room. With carpeted aisles around the perimeter of the hall inside the walls, the acoustics would be altered in only a minor way, but should be studied and modeled. Again this could be "mocked-up" for evaluation in a rehearsal or concert.
8. A permanent house mix position at the rear of the hall was discussed and removing seats for the position was considered acoustically neutral in its impact. Details would need to be studied of course.

Mock-Up Examples:

Alice Tully Hall:



Avery Fisher Hall:



March 5, 2014

Mr. Jack Madsen
HKS Architects, Inc.
90 South 400 West #110
Salt Lake City, UT 84101

RE: Abravanel Hall Renovation Programming Study

Jack:

BHB Consulting Engineers' scope of work as we understand it for the above- mentioned study is:

1. Do an on-site observation of the building to observe the structural condition of the building.
2. Review available existing structural drawing of the building.
3. Provide input to the structural implications of proposed renovations to the building.
4. Write a brief report.

The renovations, as we understand it, that are being considered in this program study that affects the structure of the building are as follows:

1. Build an addition on the northwest side of the building.
2. Hang the Chihuly Sculpture from the roof structure.
3. Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.
4. Increase storage space at back of house for instruments by adding onto the south.
5. Add another story on the south and west side of building. This additional story will but up against the south and west of the auditorium.
6. Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.
7. Add needed structure at the coffers between chandeliers in order to move the follow spot from its present location at the top of tier

Quite a few of the items above have one thing in common. This is that a full seismic evaluation will need to be done for the existing building in conjunction with the proposed modifications and additions. Providing a full seismic evaluation of the existing building with the alterations and additions are not part of our scope-of-work.

The 2012 International Building Code (IBC) requires that if the lateral load capacity of any element is decreased by more than 10% due to alterations, the lateral load capacity of the element needs to be shown to meet present day lateral load design forces per the 2012 IBC. If this altered element is shown not to meet these required lateral load design forces, the element is to be strengthened in order to so.

Also the 2012 IBC requires that if a proposed addition to an existing building will not be structurally independent of the existing building and the addition's portion of the lateral load forces on the existing element is more than 10% of that element, the lateral load capacity of the element needs to be shown to meet 2012 IBC lateral load design forces. If the element is shown not to meet these required lateral load design forces the element is to be strengthened in order to do so.

For information, the present day code design seismic lateral forces have increased by about 45% since this building and its addition were constructed. This means that if an element is found to be inadequate with the addition and the addition provides more than 10% of the lateral load to the element, the element will need to be strengthened to account for the 45% increase due to code modifications since the time when the building was built plus the lateral load that would come from the addition.

Finally, the 2012 International Building Code requires that if the gravity load on an element is increased by more than 5%, the element shall be strengthened, supplemented or replace unless it can be shown the element has the gravity load capacity to carry present day design loads including the increased load.

It is our feeling that the modifications and additions above are all structurally possible; however some structural upgrade may be required.

1. **Build an addition on the northwest side of the building.** If the addition has a seismic expansion joint between it and the existing building the code doesn't require any strengthening of the existing building for later al loads due to the addition. In reviewing the existing drawings we were provided it appears the top of existing footings are low enough that the addition's floor elevation can be at 91'-0" right up to the existing building. Per the existing drawings of this area the top of footings carrying the existing load bearing walls varies from 76'-0" to 83'-4". The ticket lobby floor elevation is at 91'-0". The footings at the glass walls at this area however are at 96'-6". We are assuming these glass walls will be removed in this area when the addition is built.
2. **Hang the Chihuly Sculpture from the roof structure.** If the member of roof structure where it is proposed to hang this sculpture is inadequate, the member can be strengthened, supplemented or replaced as needed.
3. **Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.** This will require punching a hole in the existing exterior concrete wall. It appears there is adequate concrete wall on the south building to allow this. Also a "dog house" will need to be built in order to be able to park the truck inside.
4. **Increase storage space at back of house for instruments by adding onto the south.** The roof at the south end of the building cantilevers out beyond the south wall of the building. A wall could be added to line-up with this roof in order to enclose the space in below the cantilevered roof. Openings could be punched through the existing south concrete wall in select locations in order to access this space.
5. **Add another story on the south and west side of building.** Don Barker with BHB Consulting Engineers did a feasibility study of this about 15 to 20 years ago that showed this is possible. This additional story would need to be constructed with a light weight steel structure. Since that time however, the lateral design forces have increased by 45%. The existing structural would need to be investigated to see if it has the lateral capacity to resist the additional seismic loads caused by this additional story. If it doesn't, parts of the existing lateral system would be to be strengthened or addition lateral resisting elements added.
6. **Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.** It would need to be verified that te existing structure has the capacity to carry the additional gravity loads and lateral loads generate by the infill. If it doesn't the existing structure would need to be strengthened.
7. **Add needed structure at ceiling coffers between chandeliers in order to move the follow spot from its present location at the top of tier.** The same would need to be done at this location as at the proposed location where the Chihuly Sculpture would be hung.

If you have any questions, please feel free to call.

Sincerely,

BHB Consulting Engineers
Don W. Barker SE Principal



ABRAVANEL HALL RENOVATION1. ELECTRICAL SYSTEMS NARRATIVECODES AND STANDARDS

GENERAL

The electrical work will comply with current codes and standards that are applicable:

NEC (National Electrical Code)
 NFC (National Fire Code)
 NFPA (National Fire Protection Association)
 IFC (International Fire Code)
 IBC (International Building Code)
 ASHRAE 90.1 (Energy Code)
 UL (Underwriters Laboratories)
 ASTM (American Society for Testing and Materials)
 ANSI (American National Standards Institute)
 NEMA (National Electrical Manufacturer's Association)
 IEEE (Institute of Electrical and Electronics Engineers)
 EIA/TIA (Electronic Industries Association/Telecommunications Industries Association)
 IESNA (Illuminating Engineering Society of North America)

BUILDING ELECTRICAL SERVICE DISTRIBUTION

POWER DISTRIBUTION

Existing power in the building is 277/480V, 3 phase, 4 wire and 120/208V, 3 phase, 4 wire.

Lighting and Mechanical equipment is served with 277/480V, 3 phase, 4 wire. Receptacles, small motors and miscellaneous equipment is served with 120/208V, 3 phase, 4 wire.

VOLTAGE DROP

The voltage drop for feeders shall be limited to 2 percent. The voltage drop for branch circuits shall be limited to 3 percent.

RACEWAYS

Raceways shall be steel; EMT conduit (Electrical Metallic Tubing) shall be used throughout for branch circuits and feeders. PVC conduit shall be used under slab and below grade with rigid elbows. Final conduit connections for interior lighting fixtures shall be by means of a flexible conduit whip, not exceeding 6 feet in length. Conduit connections to vibrating equipment shall be by means of flexible seal-tite conduit. Conduit fittings shall be malleable steel. Aluminum conduit and conduit fittings shall not be acceptable. Minimum raceway size shall be 3/4 inch.

CONDUCTORS

All conductors shall be copper. Use solid conductor for sizes #12 AWG and smaller; stranded conductor for sizes #10 AWG and larger. Insulation shall be THHN/THWN, rated for 600 volts. Aluminum conductors will not be acceptable. Minimum conductor size for branch circuits shall be #12 AWG. All 20 amp branch circuits over 100 feet in length shall be #10 conductors. All conductors will be color coded according to the NEC.

GROUNDING

Grounding shall be provided for the entire raceway, service entrance, enclosures and equipment system. Grounding shall be provided in accordance with the NEC. A separate grounding conductor shall be provided for all feeders, equipment circuits and branch circuit runs. Grounding conductors shall be sized in accordance with the NEC.

SEISMIC SUPPORT

Electrical Contractor will support and provide seismic bracing for electrical equipment, lighting fixtures, etc. shall be supported from building structural elements, independently from ceilings and ceiling support wires. Attach wall mounted equipment rigidly to wall structure, provide additional wall bracing as required by the application. Attach floor mounted equipment rigidly to floor or structure. Seismically brace all electrical equipment and raceways in accordance with the most recent regulations of UBC or IBC, and the guidelines for Seismic Restraint for Electrical Systems (SMACNA).

WIRING DEVICES

Wiring devices shall comply with NEMA standards Pub. No. WD 1. Switches and receptacles shall be specification grade, and rated at 20 amps and 120 volts AC. Receptacles shall be 3-wire grounding type. GFI (Ground fault circuit interrupter) type receptacles shall be rated 20 amps, 120 volts AC, with solid-state ground fault sensing and 5 milliamp trip levels. Receptacles in toilet rooms, wet areas, or within 6 feet of any sink shall be GFI type. All cover plates shall be stainless steel or otherwise as directed by Architect and/or Owner to match existing conditions.

EMERGENCY POWER

Emergency egress power shall be provided for life safety including exit and egress lighting. Utilize power from existing emergency distribution system. Provide exterior emergency egress illumination per NFPA 101, 7.8 Illumination of Means of Egress.

LIGHTING

All Illumination Levels will be designed per IESNA standards. Point by point foot-candle calculations will be provided in critical areas. 3d modeling will be provided as requested by Owner.

INTERIOR LIGHTING

Interior lighting will be primarily illuminated with LED and Fluorescent lamps. Lighting design criteria and approach will exceed ASHRAE 90.1 and will be as energy efficient as possible.

BNACONSULTING

EXTERIOR LIGHTING

Exterior lighting will complement and enhance the new architectural design features and existing conditions. LED light fixtures will be utilized. Emergency egress lighting will be provided at the building exit.

LIGHTING CONTROLS

Controllability of lighting shall match existing conditions and utilize existing control equipment in all possible locations. Provide occupancy sensing devices in new rooms and/or areas as applicable to the space. Variable light levels and dimming controls will be provided as directed in new developed areas.

FIRE AND LIFE SAFETY

New fire alarm devices will be provided in the renovated space and integrated into existing class A fire alarm loops or new fire alarm class A loop circuits will be added to the existing Fire Alarm System. New battery calculation will be provided and necessary programming for the expansion to the Fire Alarm Control Panel. Update to the fire alarm annunciator, the fire alarm drawing and building floor plan will be provided. The Fire Alarm System will be designed to meet all applicable codes.

All new devices will match the existing fire alarm system in the building.

TELECOMMUNICATIONS

New tele/data receptacles shall extend to existing Tele/Comm equipment rooms. Provide conduit and conductor as required per Owner standards and existing conditions. Wireless Access Points will be designed in the space by Owner.

SECURITY SYSTEMS

A raceway only design system shall be provided for security as directed by Owner. This will include Video Surveillance and CCTV.

AUDIO/VISUAL

An audio visual system shall be provided and will be designed with input from the Owner. Provide equipment rough-in and raceway to accommodate design intent. Coordination of A/V headend equipment and controls shall be coordinated with the Architect and Owner.

SUSTAINABLE DESIGN

ENERGY UTILIZATION

The standard that governs the requirements for energy utilization is ASHRAE 90.1. This standard outlines the power density requirements for electrical lighting systems as well as energy related to mechanical cooling and heating.

As it applies to electrical lighting systems, ASHRAE 90.1 limits the power density that can be used for interior and exterior lighting. The lighting design will exceed minimum requirements.

PHASE THREE

Back of house
 Concert hall
 Stage

PHASE 3 BOH TYPICAL

GENERAL

The mechanical system will provide heating, ventilation and air conditioning required for the new building functions.

The mechanical system will be designed to provide a safe, economical, energy efficient, low maintenance type system that is balanced with the projects sustainability goals. All mechanical systems will have a proven track record of high quality, energy efficiency and environmental control.

HVAC DESIGN CRITERIA

Comply with the 2012 edition of the International Codes:

- International Building Code (IBC),
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Fuel Gas Code (IFGC)
- International Energy Conservation Code (IECC)
- International Fire Code (IFC)
- National Electric Code (NEC)
- All state amendments.

Comply with all applicable local, state, and federal codes and regulations.

HVAC system to comply with the following standards, most current edition:

- ANSI/ASHRAE Standard 62-2010: Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy
- ANSI/ASHRAE 90.1-2010: Energy Standard for Buildings
- SMACNA Sheet Metal and Air Conditioning Contractor's National Association standards
- Industrial Ventilation: A Manual of Recommended Practice
- Heating and Cooling Load Calculations: Size the building heating and cooling systems based on undiversified calculated loads for space and process equipment. Include 10% safety factor for the heating load calculations and no safety factor for the cooling load calculations.

Infiltration: Design for 30 MPH wind when calculating infiltration loads and building pressurization controls.

Design for Environmental Awareness. The built environment has a profound impact on our natural environment, economy, health, and productivity. Incorporate environmentally friendly solutions in the building design.

DESIGN CONDITIONS

Outside Design Conditions: Use the following climate data from ASHRAE Fundamental Handbook for Salt Lake City, Utah

Elevation	4226 FT	
Summer Design Dry Bulb Temp. (ASHRAE 0.4%)	96 deg. F	
Summer Mean Coincident Wet Bulb (ASHRAE 0.4%)	62 deg. F	
Cooling Tower Wet Bulb Temp. (ASHRAE 0.4%)	66 deg. F	
Winter Design Dry Bulb Temp. (ASHRAE 99%)	6 deg. F	
Winter Design Dry Bulb Temp. (VBFA Standard)	0 deg. F	

Indoor Design Conditions: AHSRAE Standard 55

Interior occupied spaces:		
Summer	75 deg. F	50% RH Maximum
Winter	72 deg. F	No Minimum

Mechanical Rooms, Electrical Rooms, and Elev. Equip. Rooms:		
Summer	80 deg. F	No humidity control
Winter	60 deg. F	No humidity control

Telephone/Data/Communication:		
Year Round	75 deg. F max.	No humidity control

Noise Criteria: Design the heating, ventilating and air conditioning systems to meet the acoustical design criteria

Pressure Relationships: Design the heating, ventilating and air conditioning systems to meet the following:

Building:	Positive to outside
Toilet Rooms:	Negative to adjacent spaces

VENTILATION REQUIREMENTS

Ventilation will comply with the IMC and ASHRAE Standard 62.1.

Provide a building relief air system to maintain the building to be +0.03-0.05 in. W.G. building static pressure.

HEAT SOURCE

The heat source will be from the existing high pressure steam system that currently serves Abravanel Hall. The central plant is located in the Salt Palace. Abravanel Hall is served by an 8" medium pressure steam line and a 2" pumped condensate line. The proposed additional building space will require additional heat. The proposed Plaza snow melt system will require up to 3,000,000 BTU/H of additional. The proposed future fountain will be heated; the current fountain is not heated. A study will need to be done to determine if the existing central heating plant and steam and condensate main lines have adequate capacity for the future requirements.

COOLING SOURCE

The cooling source will be from the existing chilled water plant that currently serves the Abravanel Hall. The central cooling plant is located in the Salt Palace. Abravanel Hall is served by 8" chilled water supply and return pipes. There will be some additional cooling required for the propose additional building space. A study may need to be done to determine if the existing central heating plant and main lines have adequate capacity for the future.

AIR HANDLERS

Central air handlers will be required for the proposed additional building spaces. Fan rooms will have to be provided to accommodate indoor handlers. Approximately 5% of the proposed additional space will be required for fan rooms. The existing building has indoor air handlers. Air handlers will be factory custom built type for better sound performance.

Multiple fan arrays (fan walls) will be used for supply air fans and return/relief air fans in the air handlers serving sound critical areas. Multiple fan arrays also provide better redundancy. The smaller fans in the multiple fan arrays are also easier to replace. The air handlers should be located remotely from sound sensitive areas for acoustical reasons, similar to the existing design.

The air handlers will have outside air intake and dampers, return air dampers, filters, relief or return air fans, supply air fans, glycol preheat coils, chilled water cooling coils, and direct evaporative cooling sections. All pre-filters shall be MERV 8 and all final filters shall be MERV 13.

The air handlers will be sized for a coil face velocity of 400 feet per minute, in lieu of the standard 500 feet per minute in order to save fan energy.

All fans will have variable frequency drives (VFD's). VFD's are required for multiple zone variable air volume (VAV) systems. VFD's will also be provided on single zone systems, such as the, in order to reduce the air flow (and fan energy) when these spaces are not occupied or only partially occupied.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

The ATC system will comply with the Salt Lake County Design Guidelines. The Salt Lake City approved controls manufacturer is: Alerton. Approved installers are D&L Controls and Alliance Energy and Integration.

Controls will have the capability of trend logging specific parameters in order to Commission the system and track energy costs.

DOMESTIC WATER SERVICE

New plumbing fixtures will connect into the existing domestic hot and cold water lines

BUILDING SEWER

New plumbing fixtures will connect into the existing waste and vent system.

ROOF DRAINAGE SYSTEM

A primary and overflow roof drainage system will be provided for new roof areas. The overflow roof drains will daylight

PLUMBING FIXTURES

The following low flow fixtures will be used for water savings:

- Manual flush valve water closets at 1.28 gal/flush
- Sensor actuator urinals at 1 pt/flush
- Sensor actuator lavatories at 0.5 gpm
- Showers at 1.5 gpm

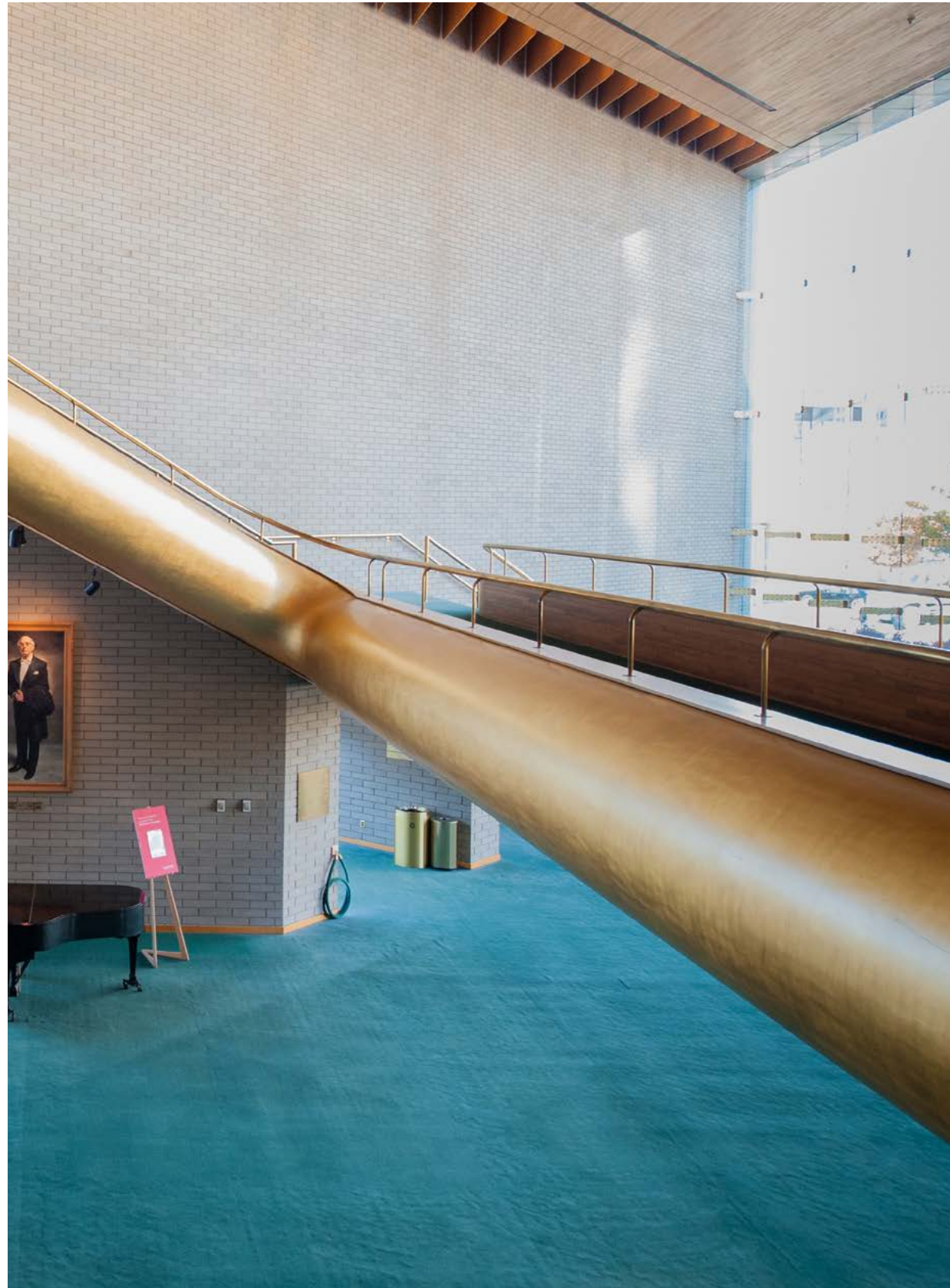
The lavatories and urinals shall have hard-wired sensors.

GREASE WASTE

Grease waste from kitchen and food service areas will be processed using local point of use grease interceptors.

FIRE SUPPRESSION SYSTEMS

The proposed additional spaces will connect into the existing wet pipe fire sprinkler system.

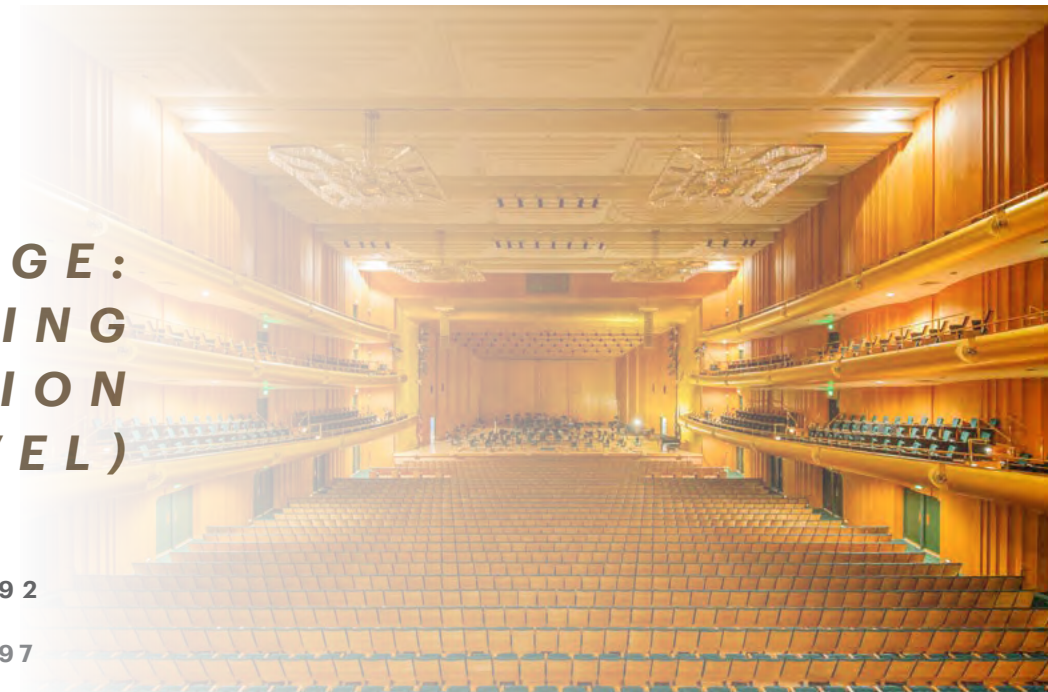


6. PRELIMINARY COST ESTIMATE

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014
PROJECT NAME.....ABRAVANEL HALL CONCERT HALL TECHNICAL AND EQUIPMENT UPGRADES				
LOCATION.....SALT LAKE CITY, UT				
ARCHITECT.....HKS				
STAGE OF DESIGN.....MASTERPLANNING				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
STAGE EXTENSION				
Reflector Upgrade	1	LS	\$ 25,000.00	\$ 25,000
Fixed Audience Seating	1	LS	\$ 5,000.00	\$ 5,000
Replace Stage Floor	2,145	SF	\$ 50.00	\$ 107,250
Remove Seating	84	EA	\$ 95.00	\$ 7,980
Stage Extension	500	SF	\$ 225.00	\$ 112,500
Removable Seats	84	EA	\$ 468.00	\$ 39,312
SUBTOTAL STAGE EXTENSION				\$ 297,042
HOUSE LIGHTING				
Replace Ceiling lights at house with recess fixtures	1	LS	\$ 75,000.00	\$ 75,000
Orchestra Enclosures per Theater Projects	1	LS	\$ 76,800.00	\$ 76,800
Theatrical Rigging per Theater Projects	1	LS	\$ 399,000.00	\$ 399,000
Theatrical Projection Screens per Theater Projects	1	LS	\$ 119,500.00	\$ 119,500
Add Theatrical Lights at sides	1	LS	\$ 75,000.00	\$ 75,000
Add Intellegent Light Fixtures per Theater Projects	1	LS	\$ 302,820.00	\$ 302,820
Theatrical Dimming and Controls per Theater Projects	1	LS	\$ 3,250.00	\$ 3,250
Structural Modifications at new rigging	1	Allow	\$ 75,000.00	\$ 75,000
Remove Seats at back row	45	EA	\$ 95.00	\$ 4,275
Removable Seats at back row	45	SF	\$ 468.00	\$ 21,060
SUBTOTAL HOUSE LIGHTING				\$ 1,151,705
TOTAL CONSTRUCTION COST				\$ 1,448,747
Plan Check Fees				\$ 6,259
Building Permit				\$ 9,630
1% State Permit Fee				\$ 96
Utility Connection Fees and Impact Fees				\$ 50,000
Furniture Fixtures & Equipment				\$ 130,387
A/E Fees				\$ 115,900
Programming Study Fees				NIC
Reimbursables				\$ 4,636
Geotechnical				\$ 5,000
Commissioning Agent				\$ 25,000
Survey				\$ 5,000
County Administration Fees				\$ 21,731
Project Management Fees				\$ 21,731
Owner's Construction Contingency				\$ 144,875
Special Inspections & Testing				\$ 14,487
Energy Modeling				\$ 45,000
LEED Documentation A/E				\$ 45,000
LEED Registration				\$ 35,000
Art				\$ 14,487
TOTAL PROJECT COST				\$ 2,142,967
ESTIMATE IS BASED UPON 2015 DOLLARS ESCALATION HAS NOT BEEN FACTORED IN				

AREA 4 - BACK STAGE: RENOVATION AND LOADING DOCK/STORAGE EXPANSION (STAGE LEVEL)

1. IDENTITY & PURPOSE	9 2
2. ORGANIZATION & SERVICE DESCRIPTIONS	9 7
3. INDIVIDUAL & SPACE DESCRIPTIONS	1 0 4
4. CONCEPT DEVELOPMENT	1 0 5
5. CONSULTANT NARRATIVES	1 0 6
6. PRELIMINARY COST ESTIMATE	1 1 2





SUMMARY

During the 35 year life of Abravanel Hall, the Symphony's influence and operations have grown and expanded. Over these years the building users have found ways to make the existing Back of House spaces work, and "make do" with the space available. However – it is evident now that significant renovation and additional space is needed to accommodate the operations that are in this building.

Additionally, there are items within the Concert Hall itself that need to be addressed – specifically theatrical lighting and lighting positions, A/V modifications, and Stage/Seating issues

The Phase 3 Issues that need to be addressed have been organized into four areas in the building:

- 1) BOH Stage Level Renovations
- 2) BOH Lobby Level Renovations
- 3) BOH First Tier Level New Construction

Several locations for building expansion were explored. It was clear that disruption to the concert hall was to be avoided. It was decided that the most optimal expansion for the back of house spaces was to build above the west and south BOH spaces that flank the concert hall. This will require significant demolition and renovation of existing spaces on the stage level and lobby level, as well as new construction at the first tier level.

The work to be done in the Concert Hall is not as significant. This will consist of new lighting above the stage and new lighting positions, removing seats at the back of the hall to create a house sound mix position, possible stage extension and removal of seats at sides of hall – depending upon mock-up review.

Summary

BOH Stage Level Renovations

9,667 SF Stage Level

Cost = XXXX



1. IDENTITY & PURPOSE

The Abravanel Hall Back of House Spaces provide essential areas for the Symphony and CFA operations to exist and function properly. Over the years - with the growth of the organization's operations - the existing back of house spaces have become inadequate in size and function to accommodate the needs of the organizations. Several of the spaces appear to have been inadequate when the building was first opened in 1979.

To better understand the Back of House needs of the Utah Symphony Utah Opera organization, as well as Salt Lake County Center for the Arts organization - the design team distributed a Questionnaire - that was circulated for responses. Questions were also asked about the Concert Hall, as well as Mechanical Items and Food & Beverage Services.

The questions that were asked are:

- Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.
- Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.
- As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?
- Please list the three things that you think are in the most need of improvement inside the Concert Hall. Please explain why.
- Please list three things about the Concert Hall that you would not want to change. Please explain why.
- As the Concert Hall moves into its next 40 years, What items do you think are missing - that need to be added.
- In the RFP there is a note: "Renovations to Boiler Room-safety issues". In the site visit, we observed a Steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?
- Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.
- If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. - Likely a basement location; comments?
- Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule - what to you see as the food menu offering?
- What do you see as the schedule and hours of operation?
- What do you see as the source for the menu offering (who cooks and preps)?



- Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

The responses that were provided to the questionnaire are listed on the following pages.

In addition to the questionnaire - a "Visioning" session was held for the Phase 3 areas, and responses were gathered from participants and were documented. The Visioning Responses were grouped into three basic categories:

1) Back of House

BACK STAGE- VISIONING

1) Back of House / Offices:

- More Artist Suites.
- More storage for musician instrument cases.
- Back of house artist lounge needs more efficient use of space.
- Provide guest artist dressing room with shower, sink & toilet.
- Reconfigure back stage space for 1 added star dressing room.
- More useful lockers / dressing rooms. Women's locker room space is not adequate. Lockers need to be wider and deeper (possibly "Z-Lockers"?)
- More storage in loading dock with A/C.
- Improve conference room space back stage to be bigger - for 20 people.
- Provide choir space.
- More restrooms.
- Fix musician's lounge.
- Shrink musician's lounge.
- Back of house star dressing rooms reconfigures and renovated.
- Smaller tanner lounge, added larger lockers, table space for instruments.
- Look at different space for library and increased storage.
- Fix the ugly.
- Grow the conference room.
- Add floor above or off back of building for office space / back of house needs.
- Add floor for chorus room and small performance room.
- Explore adding entire floor at back of house area.

SUMMARY OF RESPONSES:

- Most popular responses are listed first, with number of responses in parenthesis at end.
- Responses that appear to contradict are tagged with two asterisks (**)

1. Back of House Spaces (Offices, Lockers, Lounge, Instrument Storage, General Storage, etc.)

A. Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.

1. Instrument storage room: Lack of safe space to store instruments. (5)
2. Locker room: need larger lockers (for instruments) and more mirrors. (5)
3. Tanner Lounge – needs updated furniture / décor to serve a useful purpose. (3)
4. “Star” dressing rooms – need roomy, comfortable spaces our guest artists can use. Currently cramped and stark. The walls are very thin- if someone is playing at full volume in the room next-door it makes it near impossible to focus. (2)
5. First Tier Room kitchen – no functioning ovens, leaking sinks
6. Loading dock / truck parking bay – need a longer internal bay so we can house a larger truck inside.
7. The inside loading dock does not allow for a 26 foot truck with standard cab to be stored inside with the door closed, and still allow for foot traffic between the door and the truck. This will likely become a problem during the upcoming year as the symphony is looking to acquire a new truck.
8. Equipment Storage (house equipment).
9. Production Conference Room.

B. Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.

1. Security Office and reception works well. (3)
2. Artist Lounge & Kitchen – furniture upgrade has improved look; kitchen is a functional space (2)
3. Maestro Suite – the natural light is lovely; functional and comfortable space for conductors (2)
4. Technical Director Office – Good location. (2).
5. ** Conference Room – recently renovated and constantly used.
6. Offices – location and size.

C. As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?

1. Choral Room / Rehearsal Space (with service areas – restrooms, lockers, kitchenette) (4)
2. Larger Music library with more storage capacity. (4)
3. Noise isolated grand piano practice room, additional noise isolated warm up rooms, at least one that can accommodate groups larger than two (2)
4. Event space with functioning kitchens and prep. Space (ideally, located with easy access to lobby so lobby can function as event space) (2)
5. Additional conference room.
6. One fancy suite for CFA use for other clients besides the symphony.
7. More Offices for USUO.
8. IT Tech Room.

4. Mechanical Equipment Questions

A. In the RFP there is a note: “Renovations to Boiler Room-safety issues”. In the site visit, we observed a steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?

1. Access / No Elevators to Level.
2. Dryer does not vent outside.
3. Air Compressor for HVAC Controls is failing.

B. Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.

1. The HVAC system is generally difficult to adjust and would benefit from more local control to adjust levels in different rooms (especially dressing rooms and offices)
2. Improved electrical capacity – breakers are frequently tripped
3. Fumes from loading dock and back-up generators get circulated into offices.
5. Replace ALL VAV’s and change to electronic controls.
6. Old Ceiling Tiles are falling, we are out of attic stock and we are out of fire code.
7. Would like to have our own chiller, so that we are not so dependent on the Salt Palace’s maintenance issues.

C. If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?

1. Break through the basement – like in the 1997 addition.

5. Food Service Questions

A. Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what to you see as the food menu offering?

1. Café style lunch – coffee, sandwiches/Panini, crepes, salads, fruit, pastries
2. Add tapas prior to performances
3. Wine/beer service.
4. Hot and cold caffeine.
5. Pastries.
6. Ice Cream.
7. Bistro food menu – research other Orchestras.

B. What do you see as the schedule and hours of operation?

1. Weekdays without concerts – office hours
2. Flexibility to remain open during and after late concerts
3. ** 7 am to 7 pm & events.
4. ** Pre-event / Post Event only.

C. What do you see as the source for the menu offering (who cooks and preps)?

1. Off-site delivery except for coffee, and on-site storage (2)
2. Local collaboration? -Perhaps ask The Pub Group (Martine/Desert Edge/Red Butte) to consult

D. Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

1. Orchestra and staff would make use of it weekdays
2. Pre-concert, intermission, and post-concert activity would be profitable if quality is good (i.e. museum cafes in many cities that are known for their food)
3. Useful for development events and receptions.
4. ** Do not think it would be a profit center.
5. ** Yes – Profit –for it to last.

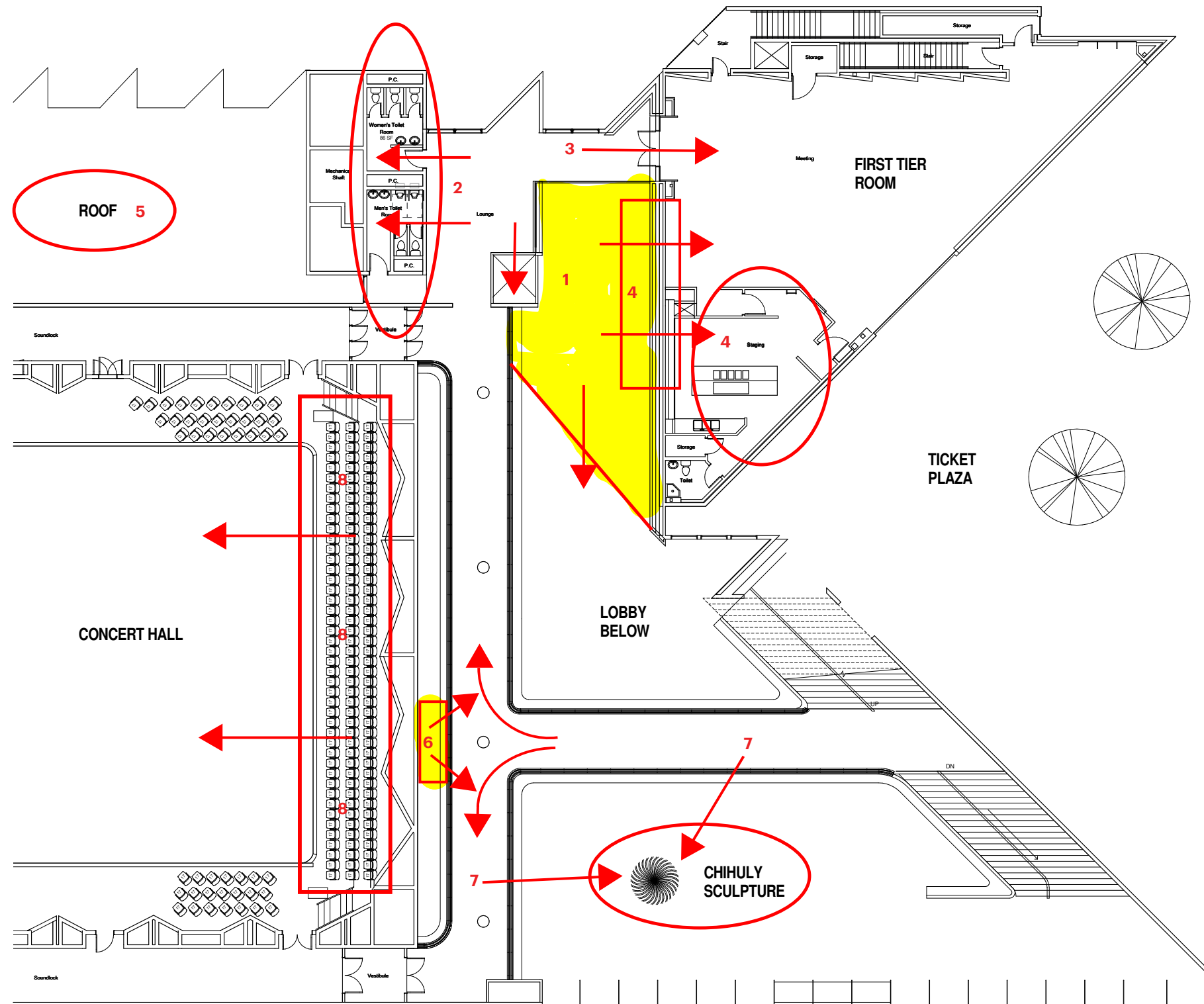
2. ORGANIZATION & SERVICE REQUIREMENTS

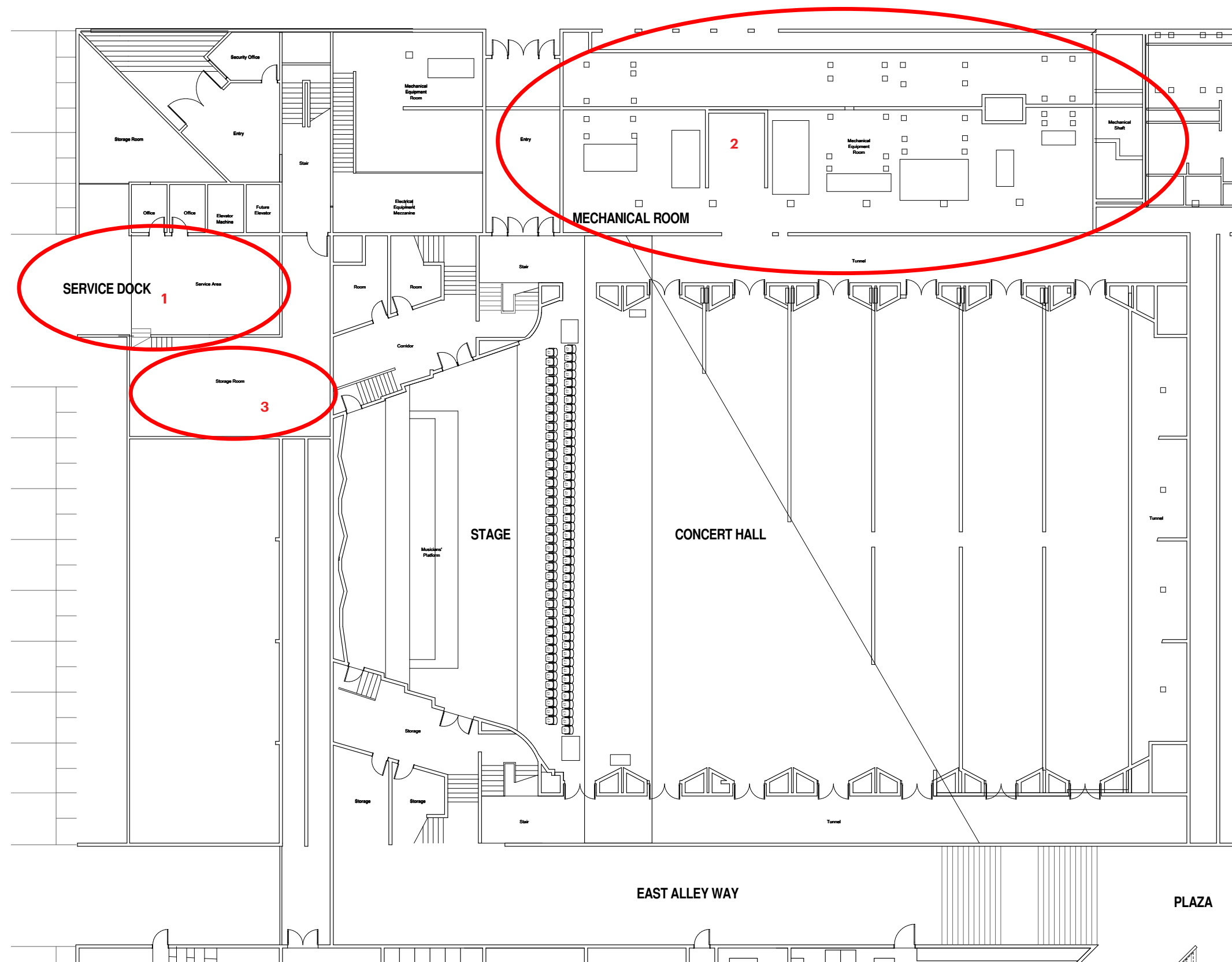
The Owner Team and Design Team participated in several building walk-throughs, to identify the key elements of the Back of House and Concert Hall areas of concern, and opportunities for improvement. These items are documented in the floor plans that are below. Notes were also made and reviewed in team meetings. Additional notes were added to the plans in the team meetings - to better understand the issues, and confirm the desired direction.



KEYED NOTES

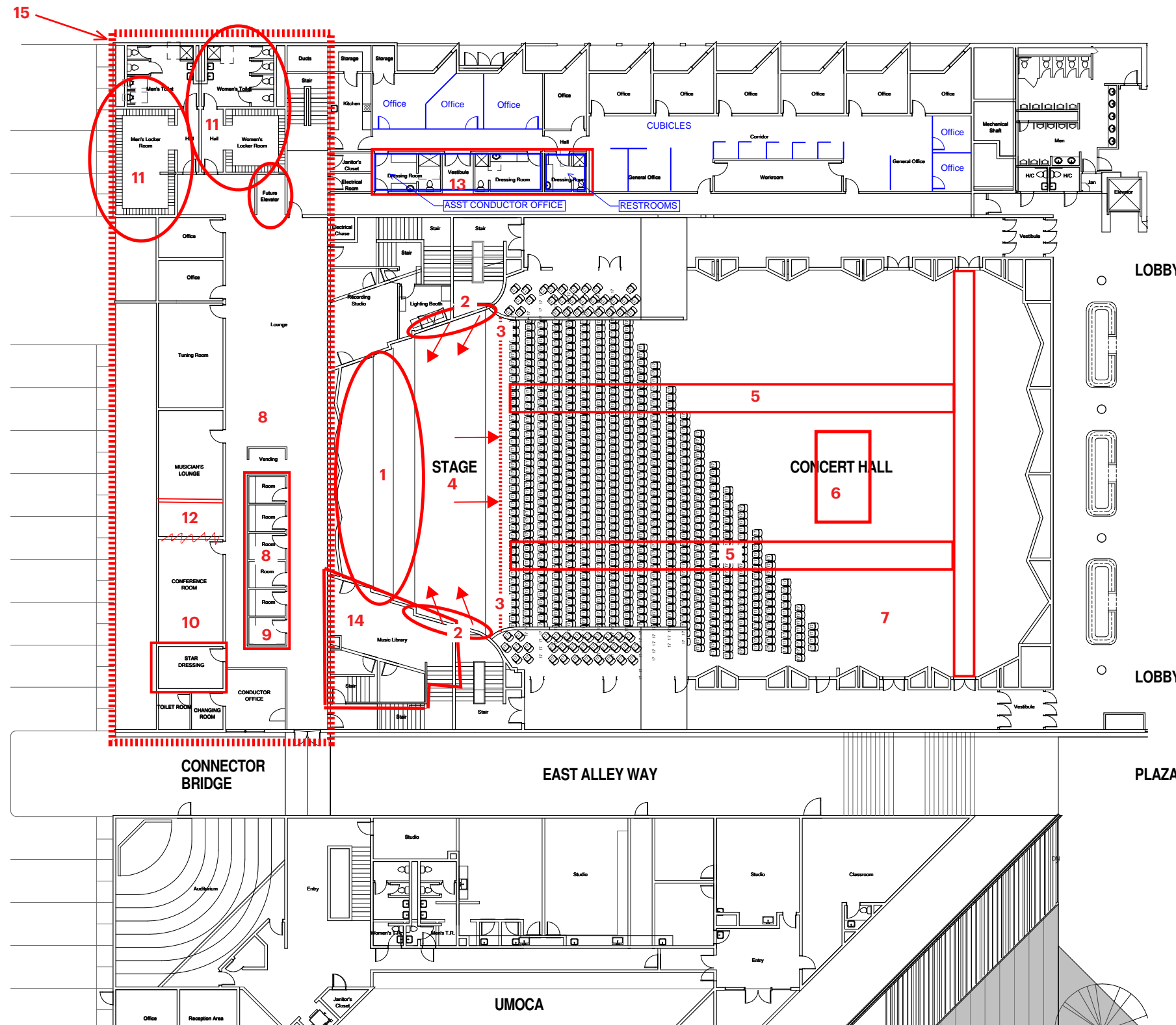
1. Consider possible floor infill area between first tier room and elevator. This would improve circulation and provide additional opportunities for concessions/bar areas as well as relocation of, or expansion of restrooms. Area could have drink rails on east side and maintain current view of lobby.
2. Current restroom location could be used for new concession or bar location. This area is beyond the 700 foot distance from Temple Square buildings. Concern is that area becomes tight and impedes circulation to first tier room.
3. Maintain current access for VIP's to first tier room.
4. Current warming kitchen could be converted to expanded restrooms, or to concessions area. Warming kitchen/food prep would be housed in lower level of expanded lobby area.
5. Could roof area be considered for concessions/bar/or expanded restrooms?
6. Infill "gap" at circulation node for possible new location for concessions stand.
7. Hanging Chihuly sculpture would maintain views of piece and experience from different levels.
8. Convert area at back of first tier in the hall into a club seating or "suite" environment - for VIP's to have food and drinks, and special amenities. Noise is a concern.





KEYED NOTES

1. Look at adding A/C to service dock area.
2. Address issues at mechanical room area (storage, leaks, repairs, etc).
3. Organization of storage areas, and adjacent areas.

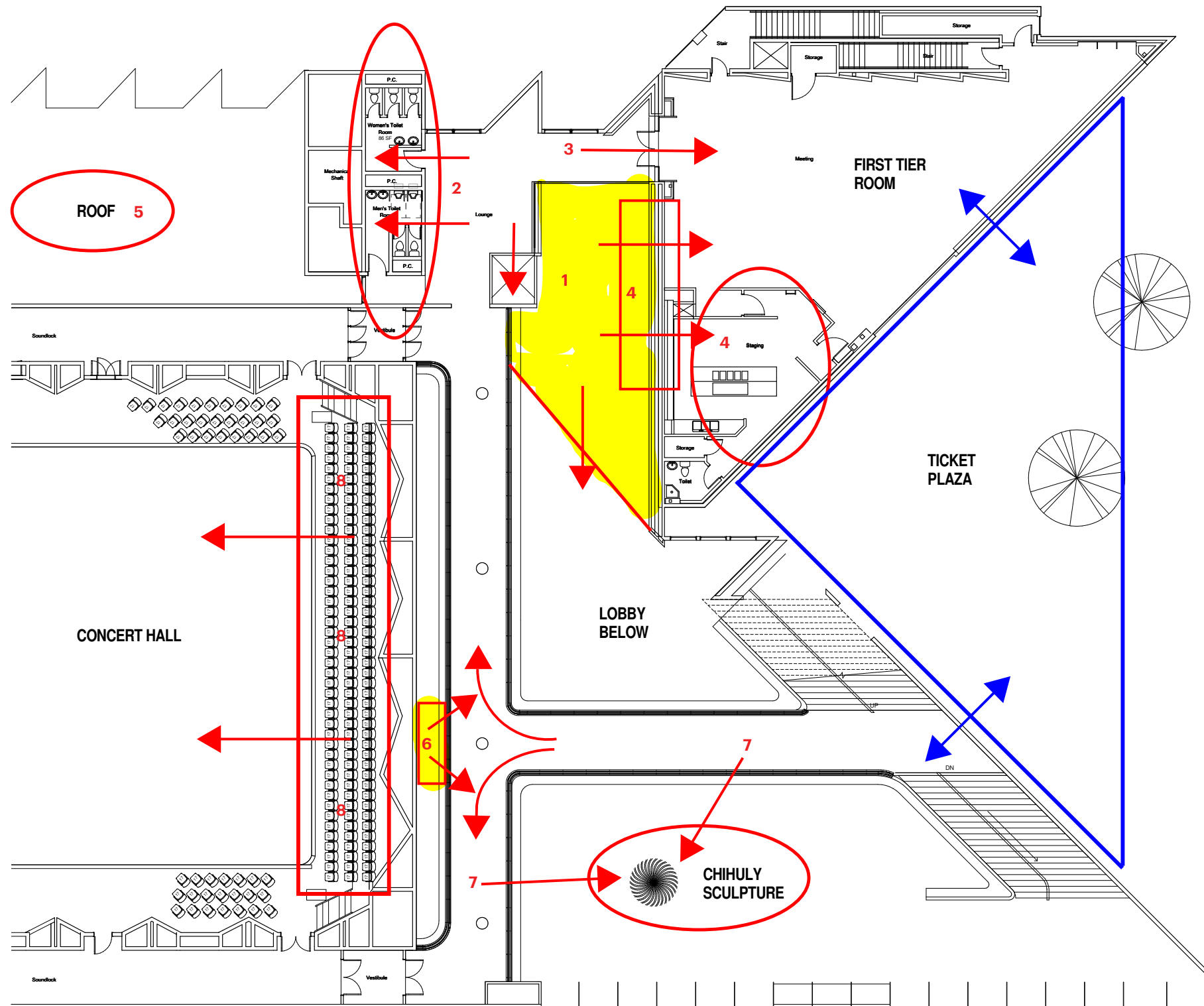


KEYED NOTES

1. At stage area revise light fixtures in shell to be recessed full chromatic light.
2. Address theatrical side lighting positions to be behind pivoting panels at stage sides?
3. Clean up lighting bars, cables, steel around proscenium area.
4. Current stage is too shallow - needs to be deeper. Possible stage extension/lose first row at hall?
5. Possible broad scope study of hall to remove continental seating and provide two aisles for circulation. Hall is currently not ADA compliant. Redo of concert hall would be large scope, to completely redo slope of hall and access aisles and associated sight line study.
6. Possible hidden spot booth in ceiling coffer between chandeliers - to move fallow spot from top tier location.
7. Review position for sound mix - for better integration with seating and better visual.
8. Back of house artist lounge needs more efficient use of space, and more artistic suites.
9. Provide guest artist dressing room with shower, sink, & toilet.
10. Reconfigure to add additional star dressing room.
11. More useful men's and women's locker rooms and restrooms. Women's needs to be bigger. Lockers need to be wider and deeper.
12. Conference room needs to be bigger, and musician's lounge can be smaller.
13. Back of house star dressing rooms need to be reconfigured and renovated.
14. Current library is too small and non accessible. Look for new location. Current location could be good technical booth.
15. Consider adding additional floor on top of this back of house musician suite - to accommodate all of the additional space needs. Confirm space is available for new elevator. Could possibly house chorus room and possible small performance room.
16. Look at adding A/C to service dock area.
17. Address issues at mechanical room area (storage, leaks, repair, etc.)

KEYED NOTES - UPDATED 3/20/14

1. OK but be careful - per Mark Holden. Use fixtures engineered for concert shells. Consider also catwalks above for rigging.
2. It was determined that lighting positions behind panels would disrupt acoustics. Do not pursue.
3. Relocate light positions to side tier - up high. Any positions near proscenium paint to be inconspicuous.
4. Four ft stage extension would be appropriate. Look at with TPC and Holden. Have test fit with rehearsal.
5. Discussed at length. Redo of hall seating triggers major issues, namely: Acoustics, re-slope of concert hall floor, sight-lines, and added ADA ramps and seating. It was questioned whether this is money well spent, when there are many other vital areas in the building where renovation/construction is needed.
6. Valid option. Drop down spot booth area could also house projector. It was discussed that the current projection screen needs to be replaced. Aspect ratio is off. It is too short & too wide.
7. Sound mix should be at back of hall. Remove seating in area of 9 ft x 20 ft. (approx 20 seats removed)
8. Need space for performers lounge for 100 people. Comfortable seating, kitchen, adjacent to quiet lounge (Tanner Lounge) for 30 people.
9. Need 2 additional conductor suites similar to existing, for a total of 3.
10. Confirmed. Add additional star dressing for a total of 2.
11. Confirmed.
12. Confirmed.
13. Correction - This space is currently assistant conductor room, offices, and shared restroom. Needs to be reconfigured with adjacent offices. Additional office needs to be provided by Utah Symphony for further programming and design studies.
14. Confirmed.
15. Confirmed. Chorus warm up room to be for 150 people, could possibly double as conference room. Restrooms to be adjacent to room, and kitchenette. Space is available for elevator extension and stair extension.
16. Confirmed. Refer to sheet 78 for additional notes.
17. Confirmed. Refer to sheet 78 for additional notes.

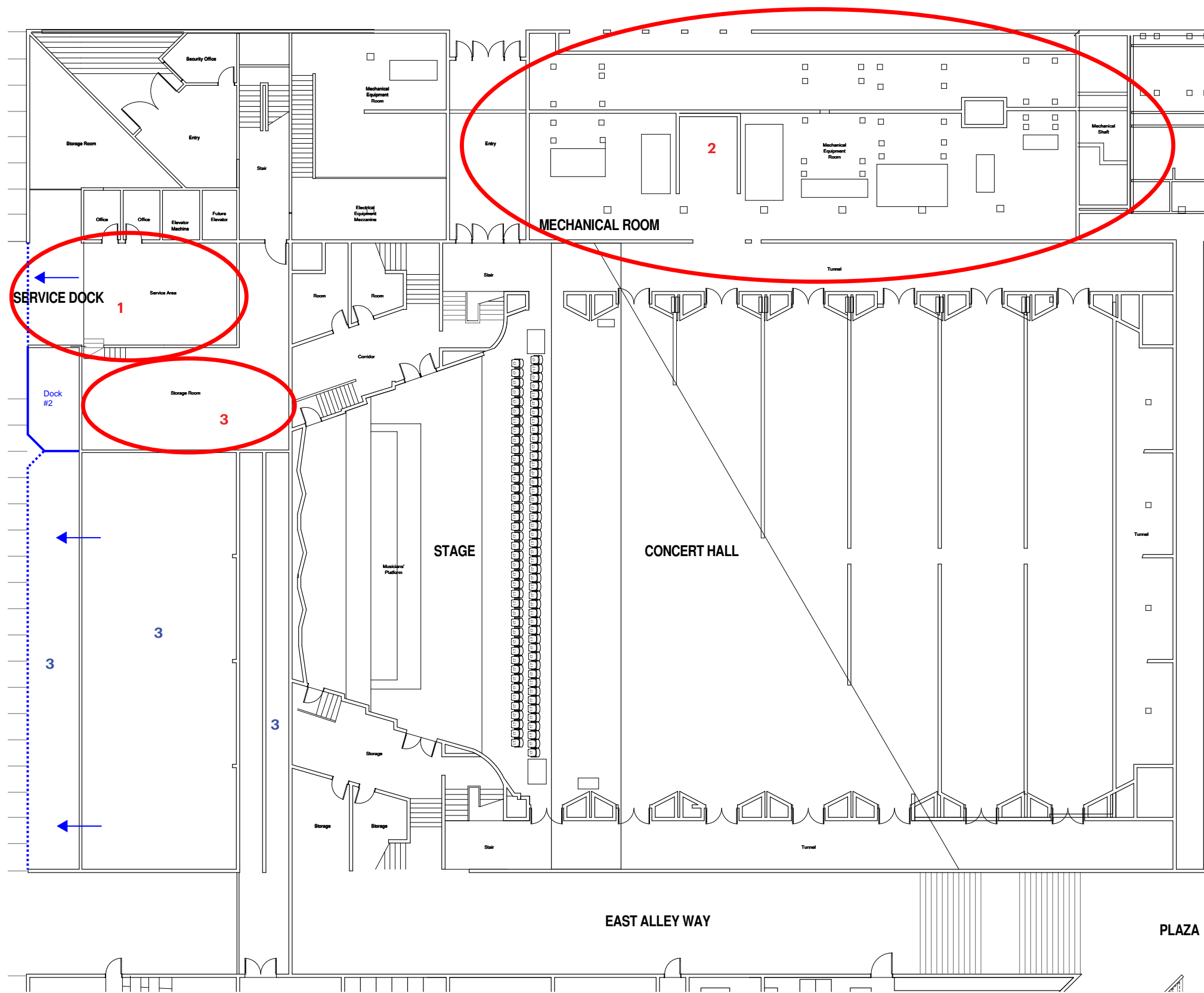


KEYED NOTES

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7. Hanging Chihuly sculpture would maintain views of piece and experience from different levels.
8. Convert area at back of first tier in the hall into a club seating or "suite" environment - for VIP's to have food and drinks, and special amenities. Noise is a concern.

KEYED NOTES - UPDATED 2/19/14

1. A better location for a floor infill and for concessions may be on the second tier lobby. Keep the first tier lobby for the VIP's and not have to worry about "separating" VIP's from concessions patrons.
2. Still under consideration, especially for VIP area.
3. Noted.
4. Space could become shared area for both the first tier room and for what is decided for the first tier level of the new north building. Access for this area could be provided from both the first tier room, and from the grand staircase.
5. Roof area could also be used for needed space for back of house offices, symphony program, or other functions.
6. This was reviewed by the group and did not seem to be a viable solution for concessions. The second tier option for concessions was preferred.
7. Noted.
8. Needs further discussion.



KEYED NOTES

1. Look at adding A/C to service dock area.
2. Address issues at mechanical room area (storage, leaks, repairs, etc).
3. Organization of storage areas, and adjacent areas.

KEYED NOTES - UPDATED 2/19/14

1. Confirmed to look at adding A/C to dock area. In addition, the basement corridor needs to have A/C added. Dock area needs to be enlarged to fit longer truck into dock area. Expand area to the south.
2. Confirmed.
3. Storage area behind stage level is not large enough. Additional room is needed for instrument/equipment storage, as follows"
 - 400 sf for piano storage
 - 1200 sf for percussion storage
 - 600 sf for large string storage
 - 1200 sf for platforms/risers
 Look at expanding building footprint to the south to provide additional storage space.
4. A restroom and dressing room need to be added at stage level.



3. INDIVIDUAL SPACE DESCRIPTIONS

For the Phase 3 Areas – Room Data Sheets were distributed to the CFA and USUO representatives, to understand the needs for Individual Spaces within the building. The Room Data Sheets were filled out for both the existing spaces, as well as new spaces to be added to the program. These room data sheets are provided in Appendix A – at the End of the Program booklet.

The Room Data Sheets were organized and compiled into the Room Data Spreadsheet on the following pages.

Mechanical Items:

Plumbing Items:

Electrical / Communication Items:

Lighting:

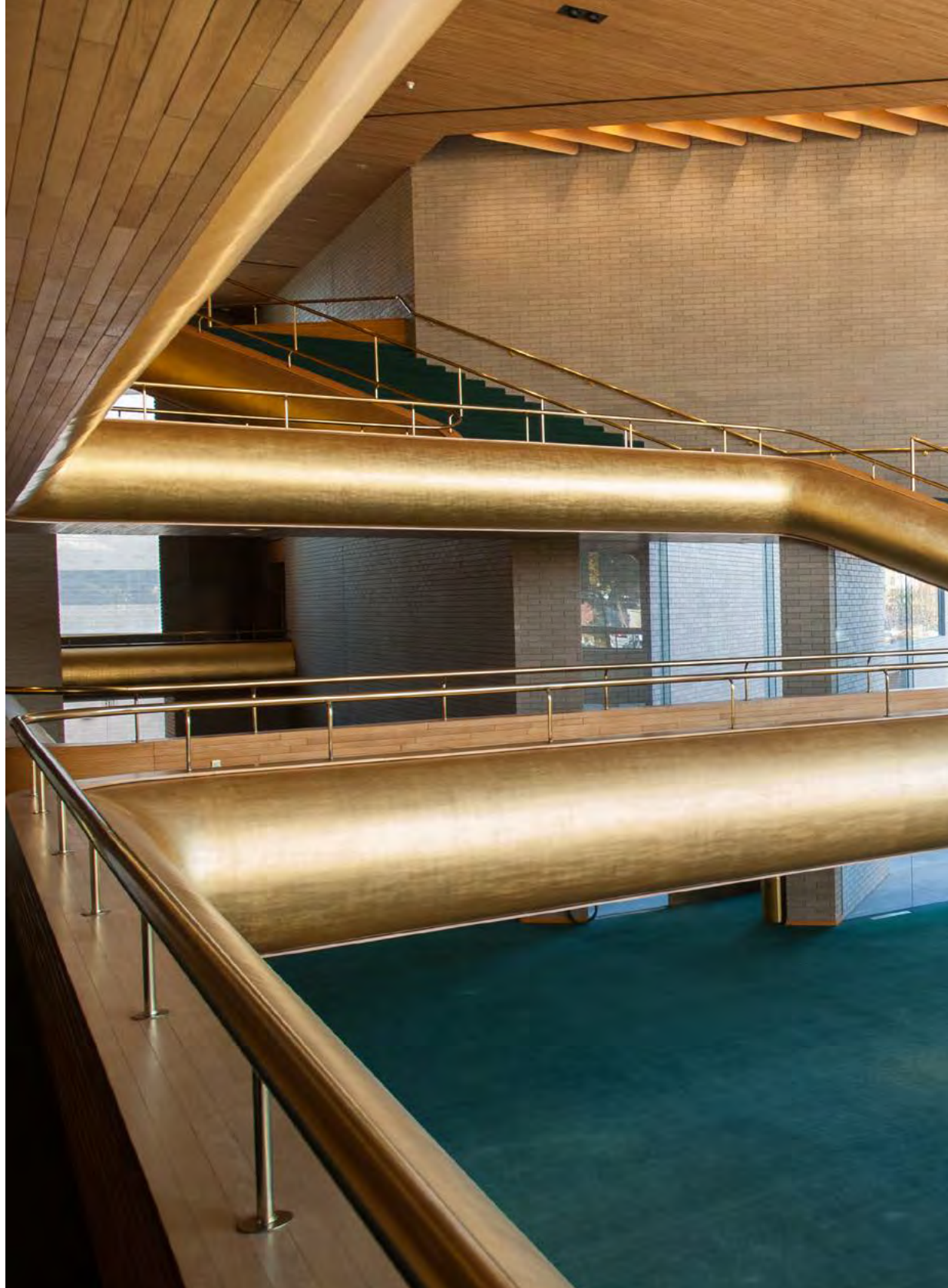
Fixtures, Furnishings & Equipment:

4. CONCEPT DEVELOPMENT

Add summary here.



5. CONSULTANT NARRATIVES



March 5, 2014

Mr. Jack Madsen
HKS Architects, Inc.
90 South 400 West #110
Salt Lake City, UT 84101

RE: Abravanel Hall Renovation Programming Study

Jack:

BHB Consulting Engineers' scope of work as we understand it for the above- mentioned study is:

1. Do an on-site observation of the building to observe the structural condition of the building.
2. Review available existing structural drawing of the building.
3. Provide input to the structural implications of proposed renovations to the building.
4. Write a brief report.

The renovations, as we understand it, that are being considered in this program study that affects the structure of the building are as follows:

1. Build an addition on the northwest side of the building.
2. Hang the Chihuly Sculpture from the roof structure.
3. Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.
4. Increase storage space at back of house for instruments by adding onto the south.
5. Add another story on the south and west side of building. This additional story will but up against the south and west of the auditorium.
6. Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.
7. Add needed structure at the coffers between chandeliers in order to move the follow spot from its present location at the top of tier

Quite a few of the items above have one thing in common. This is that a full seismic evaluation will need to be done for the existing building in conjunction with the proposed modifications and additions. Providing a full seismic evaluation of the existing building with the alterations and additions are not part of our scope-of-work.

The 2012 International Building Code (IBC) requires that if the lateral load capacity of any element is decreased by more than 10% due to alterations, the lateral load capacity of the element needs to be shown to meet present day lateral load design forces per the 2012 IBC. If this altered element is shown not to meet these required lateral load design forces, the element is to be strengthened in order to so.

Also the 2012 IBC requires that if a proposed addition to an existing building will not be structurally independent of the existing building and the addition's portion of the lateral load forces on the existing element is more than 10% of that element, the lateral load capacity of the element needs to be shown to meet 2012 IBC lateral load design forces. If the element is shown not to meet these required lateral load design forces the element is to be strengthened in order to do so.

For information, the present day code design seismic lateral forces have increased by about 45% since this building and its addition were constructed. This means that if an element is found to be inadequate with the addition and the addition provides more than 10% of the lateral load to the element, the element will need to be strengthened to account for the 45% increase due to code modifications since the time when the building was built plus the lateral load that would come from the addition.

Finally, the 2012 International Building Code requires that if the gravity load on an element is increased by more than 5%, the element shall be strengthened, supplemented or replace unless it can be shown the element has the gravity load capacity to carry present day design loads including the increased load.

It is our feeling that the modifications and additions above are all structurally possible; however some structural upgrade may be required.

1. **Build an addition on the northwest side of the building.** If the addition has a seismic expansion joint between it and the existing building the code doesn't require any strengthening of the existing building for later al loads due to the addition. In reviewing the existing drawings we were provided it appears the top of existing footings are low enough that the addition's floor elevation can be at 91'-0" right up to the existing building. Per the existing drawings of this area the top of footings carrying the existing load bearing walls varies from 76'-0" to 83'-4". The ticket lobby floor elevation is at 91'-0". The footings at the glass walls at this area however are at 96'-6". We are assuming these glass walls will be removed in this area when the addition is built.
2. **Hang the Chihuly Sculpture from the roof structure.** If the member of roof structure where it is proposed to hang this sculpture is inadequate, the member can be strengthened, supplemented or replaced as needed.
3. **Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.** This will require punching a hole in the existing exterior concrete wall. It appears there is adequate concrete wall on the south building to allow this. Also a "dog house" will need to be built in order to be able to park the truck inside.
4. **Increase storage space at back of house for instruments by adding onto the south.** The roof at the south end of the building cantilevers out beyond the south wall of the building. A wall could be added to line-up with this roof in order to enclose the space in below the cantilevered roof. Openings could be punched through the existing south concrete wall in select locations in order to access this space.
5. **Add another story on the south and west side of building.** Don Barker with BHB Consulting Engineers did a feasibility study of this about 15 to 20 years ago that showed this is possible. This additional story would need to be constructed with a light weight steel structure. Since that time however, the lateral design forces have increased by 45%. The existing structural would need to be investigated to see if it has the lateral capacity to resist the additional seismic loads caused by this additional story. If it doesn't, parts of the existing lateral system would be to be strengthened or addition lateral resisting elements added.
6. **Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.** It would need to be verified that te existing structure has the capacity to carry the additional gravity loads and lateral loads generate by the infill. If it doesn't the existing structure would need to be strengthened.
7. **Add needed structure at ceiling coffers between chandeliers in order to move the follow spot from its present location at the top of tier.** The same would need to be done at this location as at the proposed location where the Chihuly Sculpture would be hung.

If you have any questions, please feel free to call.

Sincerely,

BHB Consulting Engineers
Don W. Barker SE Principal



ABRAVANEL HALL RENOVATION1. ELECTRICAL SYSTEMS NARRATIVECODES AND STANDARDS

GENERAL

The electrical work will comply with current codes and standards that are applicable:

NEC (National Electrical Code)
 NFC (National Fire Code)
 NFPA (National Fire Protection Association)
 IFC (International Fire Code)
 IBC (International Building Code)
 ASHRAE 90.1 (Energy Code)
 UL (Underwriters Laboratories)
 ASTM (American Society for Testing and Materials)
 ANSI (American National Standards Institute)
 NEMA (National Electrical Manufacturer's Association)
 IEEE (Institute of Electrical and Electronics Engineers)
 EIA/TIA (Electronic Industries Association/Telecommunications Industries Association)
 IESNA (Illuminating Engineering Society of North America)

BUILDING ELECTRICAL SERVICE DISTRIBUTION

POWER DISTRIBUTION

Existing power in the building is 277/480V, 3 phase, 4 wire and 120/208V, 3 phase, 4 wire.

Lighting and Mechanical equipment is served with 277/480V, 3 phase, 4 wire. Receptacles, small motors and miscellaneous equipment is served with 120/208V, 3 phase, 4 wire.

VOLTAGE DROP

The voltage drop for feeders shall be limited to 2 percent. The voltage drop for branch circuits shall be limited to 3 percent.

RACEWAYS

Raceways shall be steel; EMT conduit (Electrical Metallic Tubing) shall be used throughout for branch circuits and feeders. PVC conduit shall be used under slab and below grade with rigid elbows. Final conduit connections for interior lighting fixtures shall be by means of a flexible conduit whip, not exceeding 6 feet in length. Conduit connections to vibrating equipment shall be by means of flexible seal-tite conduit. Conduit fittings shall be malleable steel. Aluminum conduit and conduit fittings shall not be acceptable. Minimum raceway size shall be 3/4 inch.

CONDUCTORS

All conductors shall be copper. Use solid conductor for sizes #12 AWG and smaller; stranded conductor for sizes #10 AWG and larger. Insulation shall be THHN/THWN, rated for 600 volts. Aluminum conductors will not be acceptable. Minimum conductor size for branch circuits shall be #12 AWG. All 20 amp branch circuits over 100 feet in length shall be #10 conductors. All conductors will be color coded according to the NEC.

GROUNDING

Grounding shall be provided for the entire raceway, service entrance, enclosures and equipment system. Grounding shall be provided in accordance with the NEC. A separate grounding conductor shall be provided for all feeders, equipment circuits and branch circuit runs. Grounding conductors shall be sized in accordance with the NEC.

SEISMIC SUPPORT

Electrical Contractor will support and provide seismic bracing for electrical equipment, lighting fixtures, etc. shall be supported from building structural elements, independently from ceilings and ceiling support wires. Attach wall mounted equipment rigidly to wall structure, provide additional wall bracing as required by the application. Attach floor mounted equipment rigidly to floor or structure. Seismically brace all electrical equipment and raceways in accordance with the most recent regulations of UBC or IBC, and the guidelines for Seismic Restraint for Electrical Systems (SMACNA).

WIRING DEVICES

Wiring devices shall comply with NEMA standards Pub. No. WD 1. Switches and receptacles shall be specification grade, and rated at 20 amps and 120 volts AC. Receptacles shall be 3-wire grounding type. GFI (Ground fault circuit interrupter) type receptacles shall be rated 20 amps, 120 volts AC, with solid-state ground fault sensing and 5 milliamp trip levels. Receptacles in toilet rooms, wet areas, or within 6 feet of any sink shall be GFI type. All cover plates shall be stainless steel or otherwise as directed by Architect and/or Owner to match existing conditions.

EMERGENCY POWER

Emergency egress power shall be provided for life safety including exit and egress lighting. Utilize power from existing emergency distribution system. Provide exterior emergency egress illumination per NFPA 101, 7.8 Illumination of Means of Egress.

LIGHTING

All Illumination Levels will be designed per IESNA standards. Point by point foot-candle calculations will be provided in critical areas. 3d modeling will be provided as requested by Owner.

INTERIOR LIGHTING

Interior lighting will be primarily illuminated with LED and Fluorescent lamps. Lighting design criteria and approach will exceed ASHRAE 90.1 and will be as energy efficient as possible.

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EXTERIOR LIGHTING

Exterior lighting will complement and enhance the new architectural design features and existing conditions. LED light fixtures will be utilized. Emergency egress lighting will be provided at the building exit.

LIGHTING CONTROLS

Controllability of lighting shall match existing conditions and utilize existing control equipment in all possible locations. Provide occupancy sensing devices in new rooms and/or areas as applicable to the space. Variable light levels and dimming controls will be provided as directed in new developed areas.

FIRE AND LIFE SAFETY

New fire alarm devices will be provided in the renovated space and integrated into existing class A fire alarm loops or new fire alarm class A loop circuits will be added to the existing Fire Alarm System. New battery calculation will be provided and necessary programming for the expansion to the Fire Alarm Control Panel. Update to the fire alarm annunciator, the fire alarm drawing and building floor plan will be provided. The Fire Alarm System will be designed to meet all applicable codes.

All new devices will match the existing fire alarm system in the building.

TELECOMMUNICATIONS

New tele/data receptacles shall extend to existing Tele/Comm equipment rooms. Provide conduit and conductor as required per Owner standards and existing conditions. Wireless Access Points will be designed in the space by Owner.

SECURITY SYSTEMS

A raceway only design system shall be provided for security as directed by Owner. This will include Video Surveillance and CCTV.

AUDIO/VISUAL

An audio visual system shall be provided and will be designed with input from the Owner. Provide equipment rough-in and raceway to accommodate design intent. Coordination of A/V headend equipment and controls shall be coordinated with the Architect and Owner.

SUSTAINABLE DESIGN

ENERGY UTILIZATION

The standard that governs the requirements for energy utilization is ASHRAE 90.1. This standard outlines the power density requirements for electrical lighting systems as well as energy related to mechanical cooling and heating.

As it applies to electrical lighting systems, ASHRAE 90.1 limits the power density that can be used for interior and exterior lighting. The lighting design will exceed minimum requirements.

PHASE THREE

Back of house
Concert hall
Stage

BNACONSULTING

PHASE 3 BOH TYPICAL

GENERAL

The mechanical system will provide heating, ventilation and air conditioning required for the new building functions.

The mechanical system will be designed to provide a safe, economical, energy efficient, low maintenance type system that is balanced with the projects sustainability goals. All mechanical systems will have a proven track record of high quality, energy efficiency and environmental control.

HVAC DESIGN CRITERIA

Comply with the 2012 edition of the International Codes:

- International Building Code (IBC),
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Fuel Gas Code (IFGC)
- International Energy Conservation Code (IECC)
- International Fire Code (IFC)
- National Electric Code (NEC)
- All state amendments.

Comply with all applicable local, state, and federal codes and regulations.

HVAC system to comply with the following standards, most current edition:

- ANSI/ASHRAE Standard 62-2010: Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy
- ANSI/ASHRAE 90.1-2010: Energy Standard for Buildings
- SMACNA Sheet Metal and Air Conditioning Contractor's National Association standards
- Industrial Ventilation: A Manual of Recommended Practice
- Heating and Cooling Load Calculations: Size the building heating and cooling systems based on undiversified calculated loads for space and process equipment. Include 10% safety factor for the heating load calculations and no safety factor for the cooling load calculations.

Infiltration: Design for 30 MPH wind when calculating infiltration loads and building pressurization controls.

Design for Environmental Awareness. The built environment has a profound impact on our natural environment, economy, health, and productivity. Incorporate environmentally friendly solutions in the building design.

DESIGN CONDITIONS

Outside Design Conditions: Use the following climate data from ASHRAE Fundamental Handbook for Salt Lake City, Utah

Elevation	4226 FT	
Summer Design Dry Bulb Temp. (ASHRAE 0.4%)	96 deg. F	
Summer Mean Coincident Wet Bulb (ASHRAE 0.4%)	62 deg. F	
Cooling Tower Wet Bulb Temp. (ASHRAE 0.4%)	66 deg. F	
Winter Design Dry Bulb Temp. (ASHRAE 99%)	6 deg. F	
Winter Design Dry Bulb Temp. (VBFA Standard)	0 deg. F	

Indoor Design Conditions: AHSRAE Standard 55

Interior occupied spaces:

Summer	75 deg. F	50% RH Maximum
Winter	72 deg. F	No Minimum

Mechanical Rooms, Electrical Rooms, and Elev. Equip. Rooms:

Summer	80 deg. F	No humidity control
Winter	60 deg. F	No humidity control

Telephone/Data/Communication:

Year Round	75 deg. F max.	No humidity control
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Noise Criteria: Design the heating, ventilating and air conditioning systems to meet the acoustical design criteria

Pressure Relationships: Design the heating, ventilating and air conditioning systems to meet the following:

Building:	Positive to outside
Toilet Rooms:	Negative to adjacent spaces

VENTILATION REQUIREMENTS

Ventilation will comply with the IMC and ASHRAE Standard 62.1.

Provide a building relief air system to maintain the building to be +0.03-0.05 in. W.G. building static pressure.

HEAT SOURCE

The heat source will be from the existing high pressure steam system that currently serves Abravanel Hall. The central plant is located in the Salt Palace. Abravanel Hall is served by an 8" medium pressure steam line and a 2" pumped condensate line. The proposed additional building space will require additional heat. The proposed Plaza snow melt system will require up to 3,000,000 BTU/H of additional. The proposed future fountain will be heated; the current fountain is not heated. A study will need to be done to determine if the existing central heating plant and steam and condensate main lines have adequate capacity for the future requirements.

COOLING SOURCE

The cooling source will be from the existing chilled water plant that currently serves the Abravanel Hall. The central cooling plant is located in the Salt Palace. Abravanel Hall is served by 8" chilled water supply and return pipes. There will be some additional cooling required for the propose additional building space. A study may need to be done to determine if the existing central heating plant and main lines have adequate capacity for the future.

AIR HANDLERS

Central air handlers will be required for the proposed additional building spaces. Fan rooms will have to be provided to accommodate indoor handlers. Approximately 5% of the proposed additional space will be required for fan rooms. The existing building has indoor air handlers. Air handlers will be factory custom built type for better sound performance.

Multiple fan arrays (fan walls) will be used for supply air fans and return/relief air fans in the air handlers serving sound critical areas. Multiple fan arrays also provide better redundancy. The smaller fans in the multiple fan arrays are also easier to replace. The air handlers should be located remotely from sound sensitive areas for acoustical reasons, similar to the existing design.

The air handlers will have outside air intake and dampers, return air dampers, filters, relief or return air fans, supply air fans, glycol preheat coils, chilled water cooling coils, and direct evaporative cooling sections. All pre-filters shall be MERV 8 and all final filters shall be MERV 13.

The air handlers will be sized for a coil face velocity of 400 feet per minute, in lieu of the standard 500 feet per minute in order to save fan energy.

All fans will have variable frequency drives (VFD's). VFD's are required for multiple zone variable air volume (VAV) systems. VFD's will also be provided on single zone systems, such as the, in order to reduce the air flow (and fan energy) when these spaces are not occupied or only partially occupied.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

The ATC system will comply with the Salt Lake County Design Guidelines. The Salt Lake City approved controls manufacturer is: Alerton. Approved installers are D&L Controls and Alliance Energy and Integration.

Controls will have the capability of trend logging specific parameters in order to Commission the system and track energy costs.

DOMESTIC WATER SERVICE

New plumbing fixtures will connect into the existing domestic hot and cold water lines

BUILDING SEWER

New plumbing fixtures will connect into the existing waste and vent system.

ROOF DRAINAGE SYSTEM

A primary and overflow roof drainage system will be provided for new roof areas. The overflow roof drains will daylight

PLUMBING FIXTURES

The following low flow fixtures will be used for water savings:

- Manual flush valve water closets at 1.28 gal/flush
- Sensor actuator urinals at 1 pt/flush
- Sensor actuator lavatories at 0.5 gpm
- Showers at 1.5 gpm

The lavatories and urinals shall have hard-wired sensors.

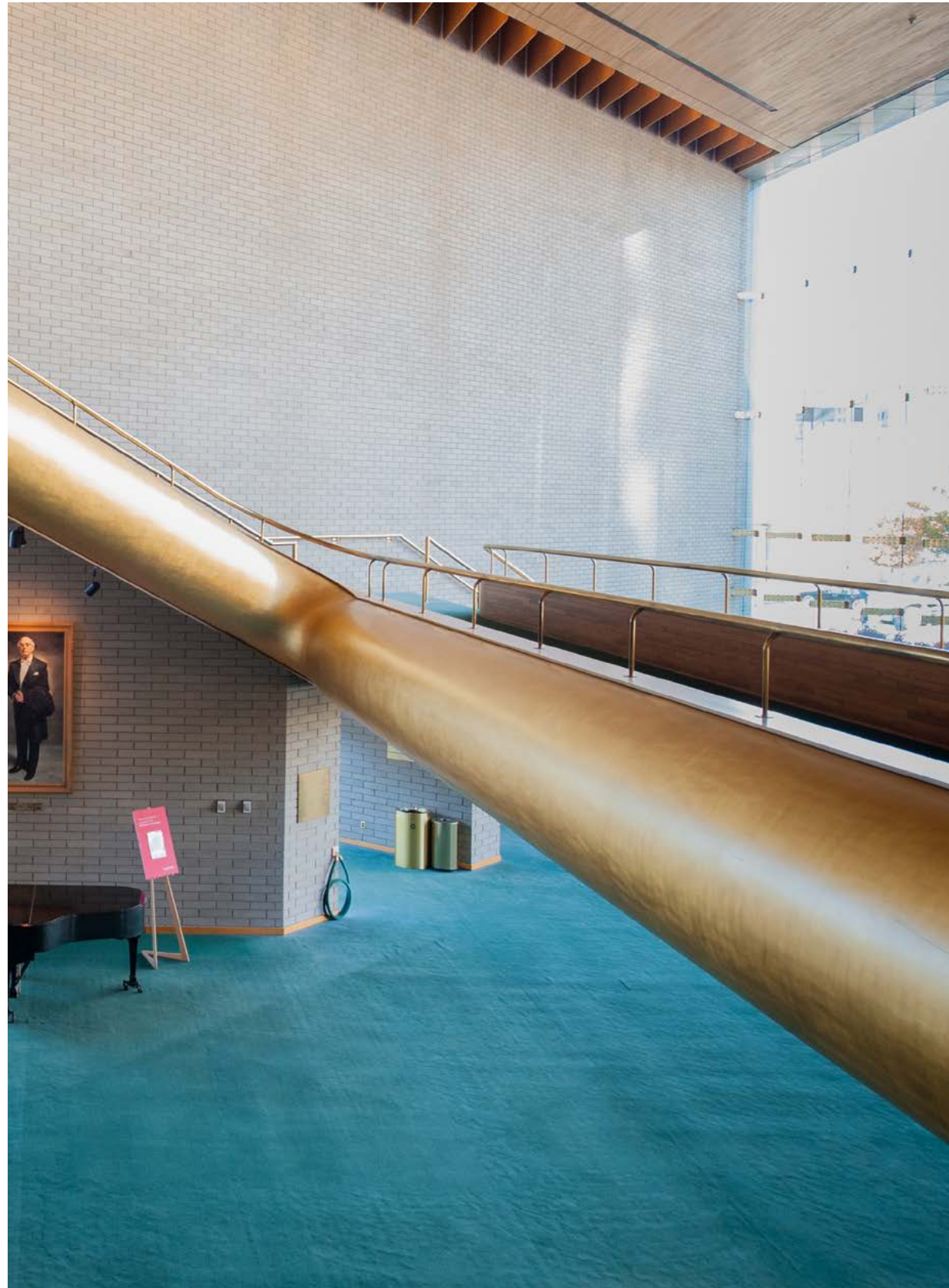
GREASE WASTE

Grease waste from kitchen and food service areas will be processed using local point of use grease interceptors.

FIRE SUPPRESSION SYSTEMS

The proposed additional spaces will connect into the existing wet pipe fire sprinkler system.

6. PRELIMINARY COST ESTIMATE



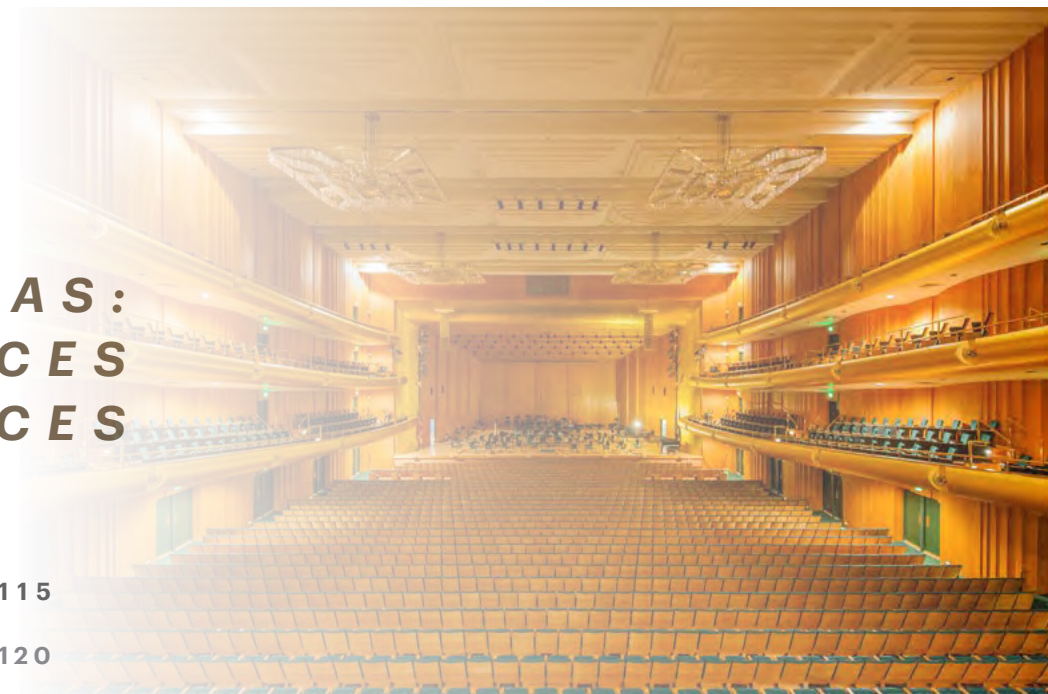
PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014
PROJECT NAME.....ABRAVANEL HALL BACK STAGE RENOV. & LOADING DOCK/ STORAGE EXP.				
LOCATION.....SALT LAKE CITY, UT				
ARCHITECT.....HKS				
STAGE OF DESIGN.....MASTERPLANNING				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
STAGE LEVEL				
DOCK #1	567 SF	\$	80.00	\$ 45,360
DOCK #2	97 SF	\$	80.00	\$ 7,760
EXTEND DOCK OUT TO SOUTH	220 SF	\$	129.00	\$ 28,380
HARP STORAGE ADDITION	150 SF	\$	165.00	\$ 24,750
PERCUSSION ROOM ADDITION	1200 SF	\$	165.00	\$ 198,000
LARGE STRING ROOM ADDITION	600 SF	\$	165.00	\$ 99,000
LARGER PIANO STORAGE ADDITION	200 SF	\$	165.00	\$ 33,000
LAUNDRY ROOM ADDITION	150 SF	\$	225.00	\$ 33,750
QUICK CHANGE ROOM ADDITION	50 SF	\$	225.00	\$ 11,250
QUICK CHANGE ROOM ADDITION	50 SF	\$	225.00	\$ 11,250
RESTROOM AT STAGE LEVEL ADDITION	65 SF	\$	275.00	\$ 17,875
CIRCULATION/BLDG STRUCTURE ADDITION	1020 SF	\$	225.00	\$ 229,500
ENTRY	283 SF	\$	135.00	\$ 38,205
SECURITY AREA	112 SF	\$	135.00	\$ 15,120
STORAGE	425 SF	\$	808.00	\$ 343,400
OPERATIONS OFFICE 1	66 SF	\$	135.00	\$ 8,910
OPERATIONS OFFICE 2	66 SF	\$	135.00	\$ 8,910
ELEV MACHINE	67 SF	\$	125.00	\$ 8,375
DOCK AREA	960 SF	\$	80.00	\$ 76,800
CFA CHAIR/TABLE STORAGE	435 SF	\$	80.00	\$ 34,800
CFA SOUND EQUIP STORAGE	108 SF	\$	80.00	\$ 8,640
SYMPHONY STORAGE (EQUIP)	1757 SF	\$	80.00	\$ 140,560
CHAIR & STAND STORAGE	183 SF	\$	80.00	\$ 14,640
PIANO STORAGE	193 SF	\$	80.00	\$ 15,440
PRODUCTION OFFICE	231 SF	\$	135.00	\$ 31,185
TOOL STORAGE	149 SF	\$	80.00	\$ 11,920
ELECTRICAL	208 SF	\$	80.00	\$ 16,640

6. PRELIMINARY COST ESTIMATE

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014
PROJECT NAME.....ABRAVANEL HALL BACK STAGE RENOV. & LOADING DOCK/ STORAGE EXP.				
LOCATION.....SALT LAKE CITY, UT				
ARCHITECT.....HKS				
STAGE OF DESIGN.....MASTERPLANNING				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
CIRCULATION/BLDG STRUCTURE	2589	SF	\$ 135.00	\$ 349,515
BUILDING ADDITION CORE & SHELL	3705	SF	\$ 195.00	\$ 722,475
SUBTOTAL STAGE LEVEL	15906	SF	\$ 162.54	\$ 2,585,410
TOTAL CONSTRUCTION COST	15,906	SF	\$ 162.54	\$ 2,585,410
Plan Check Fees				\$ 9,843
Building Permit				\$ 15,143
1% State Permit Fee				\$ 151
Utility Connection Fees and Impact Fees				\$ 50,000
Furniture Fixtures & Equipment		9%		\$ 232,687
A/E Fees		8%		\$ 206,833
Programming Study Fees				NIC
Reimbursables				\$ 8,273
Geotechnical				\$ 5,000
Commissioning Agent				\$ 25,000
Survey				\$ 5,000
County Administration Fees		1.5%		\$ 38,781
Project Management Fees		1.5%		\$ 38,781
Owner's Construction Contingency		10%		\$ 258,541
Special Inspections & Testing		1%		\$ 25,854
Energy Modeling				\$ 45,000
LEED Documentation A/E				\$ 45,000
LEED Registration				\$ 35,000
Art		1%		\$ 25,854
TOTAL PROJECT COST				\$ 3,656,151
ESTIMATE IS BASED UPON 2015 DOLLARS ESCALATION HAS NOT BEEN FACTORED IN				

AREA 5 - MAIN LEVEL BOH AREAS: RENOVATION OF SYMPHONY OFFICES & MUSICIAN SPACES

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SUMMARY

During the 35 year life of Abravanel Hall, the Symphony's influence and operations have grown and expanded. Over these years the building users have found ways to make the existing Back of House spaces work, and "make do" with the space available. However – it is evident now that significant renovation and additional space is needed to accommodate the operations that are in this building.

Additionally, there are items within the Concert Hall itself that need to be addressed – specifically theatrical lighting and lighting positions, A/V modifications, and Stage/Seating issues

The Phase 3 Issues that need to be addressed have been organized into four areas in the building:

- 1) BOH Stage Level Renovations
- 2) BOH Lobby Level Renovations
- 3) BOH First Tier Level New Construction

Several locations for building expansion were explored. It was clear that disruption to the concert hall was to be avoided. It was decided that the most optimal expansion for the back of house spaces was to build above the west and south BOH spaces that flank the concert hall. This will require significant demolition and renovation of existing spaces on the stage level and lobby level, as well as new construction at the first tier level.

The work to be done in the Concert Hall is not as significant. This will consist of new lighting above the stage and new lighting positions, removing seats at the back of the hall to create a house sound mix position, possible stage extension and removal of seats at sides of hall – depending upon mock-up review.

Summary

BOH Stage Level Renovations

9,667 SF Stage Level

Cost = XXXX



1. DENTITY & PURPOSE

The Abravanel Hall Back of House Spaces provide essential areas for the Symphony and CFA operations to exist and function properly. Over the years – with the growth of the organization’s operations – the existing back of house spaces have become inadequate in size and function to accommodate the needs of the organizations. Several of the spaces appear to have been inadequate when the building was first opened in 1979.

To better understand the Back of House needs of the Utah Symphony Utah Opera organization, as well as Salt Lake County Center for the Arts organization – the design team distributed a Questionnaire – that was circulated for responses. Questions were also asked about the Concert Hall, as well as Mechanical Items and Food & Beverage Services.

The questions that were asked are:

- Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.
- Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.
- As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?
- Please list the three things that you think are in the most need of improvement inside the Concert Hall. Please explain why.
- Please list three things about the Concert Hall that you would not want to change. Please explain why.
- As the Concert Hall moves into its next 40 years, What items do you think are missing – that need to be added.
- In the RFP there is a note: “Renovations to Boiler Room-safety issues”. In the site visit, we observed a Steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?
- Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.
- If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?
- Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what to you see as the food menu offering?
- What do you see as the schedule and hours of operation?
- What do you see as the source for the menu offering (who cooks and preps)?



- Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

The responses that were provided to the questionnaire are listed on the following pages.

In addition to the questionnaire - a "Visioning" session was held for the Phase 3 areas, and responses were gathered from participants and were documented. The Visioning Responses were grouped into three basic categories:

1) Back of House

BACK STAGE- VISIONING

1) Back of House / Offices:

- More Artist Suites.
- More storage for musician instrument cases.
- Back of house artist lounge needs more efficient use of space.
- Provide guest artist dressing room with shower, sink & toilet.
- Reconfigure back stage space for 1 added star dressing room.
- More useful lockers / dressing rooms. Women's locker room space is not adequate. Lockers need to be wider and deeper (possibly "Z-Lockers"?)
- More storage in loading dock with A/C.
- Improve conference room space back stage to be bigger - for 20 people.
- Provide choir space.
- More restrooms.
- Fix musician's lounge.
- Shrink musician's lounge.
- Back of house star dressing rooms reconfigures and renovated.
- Smaller tanner lounge, added larger lockers, table space for instruments.
- Look at different space for library and increased storage.
- Fix the ugly.
- Grow the conference room.
- Add floor above or off back of building for office space / back of house needs.
- Add floor for chorus room and small performance room.
- Explore adding entire floor at back of house area.

SUMMARY OF RESPONSES:

- Most popular responses are listed first, with number of responses in parenthesis at end.
- Responses that appear to contradict are tagged with two asterisks (**)

1. Back of House Spaces (Offices, Lockers, Lounge, Instrument Storage, General Storage, etc.)

A. Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.

1. Instrument storage room: Lack of safe space to store instruments. (5)
2. Locker room: need larger lockers (for instruments) and more mirrors. (5)
3. Tanner Lounge – needs updated furniture / décor to serve a useful purpose. (3)
4. “Star” dressing rooms – need roomy, comfortable spaces our guest artists can use. Currently cramped and stark. The walls are very thin- if someone is playing at full volume in the room next-door it makes it near impossible to focus. (2)
5. First Tier Room kitchen – no functioning ovens, leaking sinks
6. Loading dock / truck parking bay – need a longer internal bay so we can house a larger truck inside.
7. The inside loading dock does not allow for a 26 foot truck with standard cab to be stored inside with the door closed, and still allow for foot traffic between the door and the truck. This will likely become a problem during the upcoming year as the symphony is looking to acquire a new truck.
8. Equipment Storage (house equipment).
9. Production Conference Room.

B. Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.

1. Security Office and reception works well. (3)
2. Artist Lounge & Kitchen – furniture upgrade has improved look; kitchen is a functional space (2)
3. Maestro Suite – the natural light is lovely; functional and comfortable space for conductors (2)
4. Technical Director Office – Good location. (2).
5. ** Conference Room – recently renovated and constantly used.
6. Offices – location and size.

C. As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?

1. Choral Room / Rehearsal Space (with service areas – restrooms, lockers, kitchenette) (4)
2. Larger Music library with more storage capacity. (4)
3. Noise isolated grand piano practice room, additional noise isolated warm up rooms, at least one that can accommodate groups larger than two (2)
4. Event space with functioning kitchens and prep. Space (ideally, located with easy access to lobby so lobby can function as event space) (2)
5. Additional conference room.
6. One fancy suite for CFA use for other clients besides the symphony.
7. More Offices for USUO.
8. IT Tech Room.

4. Mechanical Equipment Questions

A. In the RFP there is a note: “Renovations to Boiler Room-safety issues”. In the site visit, we observed a steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?

1. Access / No Elevators to Level.
2. Dryer does not vent outside.
3. Air Compressor for HVAC Controls is failing.

B. Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.

1. The HVAC system is generally difficult to adjust and would benefit from more local control to adjust levels in different rooms (especially dressing rooms and offices)
2. Improved electrical capacity – breakers are frequently tripped
3. Fumes from loading dock and back-up generators get circulated into offices.
5. Replace ALL VAV’s and change to electronic controls.
6. Old Ceiling Tiles are falling, we are out of attic stock and we are out of fire code.
7. Would like to have our own chiller, so that we are not so dependent on the Salt Palace’s maintenance issues.

C. If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?

1. Break through the basement – like in the 1997 addition.

5. Food Service Questions

A. Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what to you see as the food menu offering?

1. Café style lunch – coffee, sandwiches/Panini, crepes, salads, fruit, pastries
2. Add tapas prior to performances
3. Wine/beer service.
4. Hot and cold caffeine.
5. Pastries.
6. Ice Cream.
7. Bistro food menu – research other Orchestras.

B. What do you see as the schedule and hours of operation?

1. Weekdays without concerts – office hours
2. Flexibility to remain open during and after late concerts
3. ** 7 am to 7 pm & events.
4. ** Pre-event / Post Event only.

C. What do you see as the source for the menu offering (who cooks and preps)?

1. Off-site delivery except for coffee, and on-site storage (2)
2. Local collaboration? -Perhaps ask The Pub Group (Martine/Desert Edge/Red Butte) to consult

D. Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

1. Orchestra and staff would make use of it weekdays
2. Pre-concert, intermission, and post-concert activity would be profitable if quality is good (i.e. museum cafes in many cities that are known for their food)
3. Useful for development events and receptions.
4. ** Do not think it would be a profit center.
5. ** Yes – Profit –for it to last.

2. ORGANIZATION & SERVICE REQUIREMENTS

The Owner Team and Design Team participated in several building walk-throughs, to identify the key elements of the Back of House and Concert Hall areas of concern, and opportunities for improvement. These items are documented in the floor plans that are below. Notes were also made and reviewed in team meetings. Additional notes were added to the plans in the team meetings - to better understand the issues, and confirm the desired direction.





3. INDIVIDUAL SPACE DESCRIPTIONS

For the Phase 3 Areas – Room Data Sheets were distributed to the CFA and USUO representatives, to understand the needs for Individual Spaces within the building. The Room Data Sheets were filled out for both the existing spaces, as well as new spaces to be added to the program. These room data sheets are provided in Appendix A – at the End of the Program booklet.

The Room Data Sheets were organized and compiled into the Room Data Spreadsheet on the following pages.

Mechanical Items:

Plumbing Items:

Electrical / Communication Items:

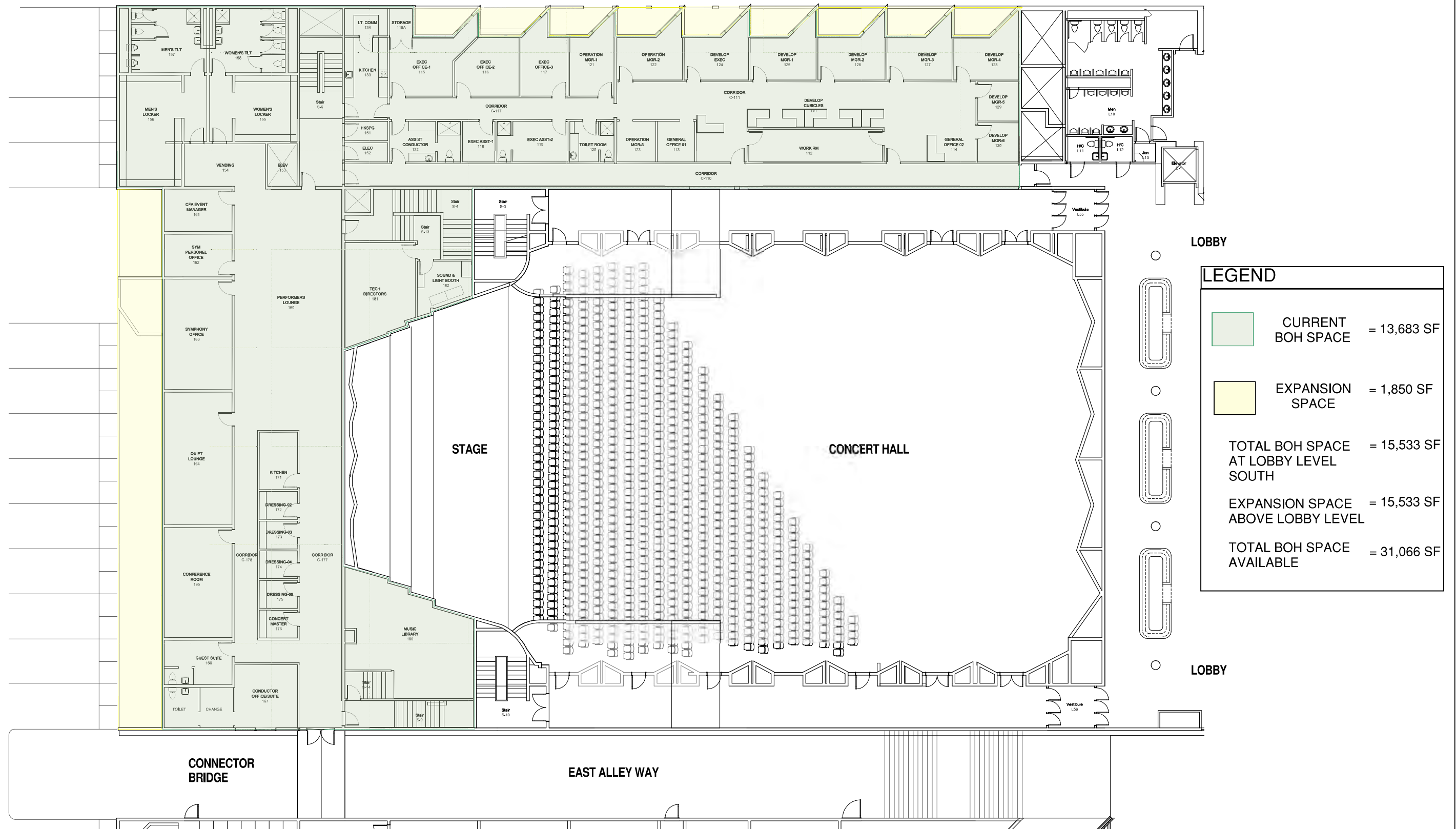
Lighting:

Fixtures, Furnishings & Equipment:

4. CONCEPT DEVELOPMENT

Add summary here.





LOBBY

LEGEND

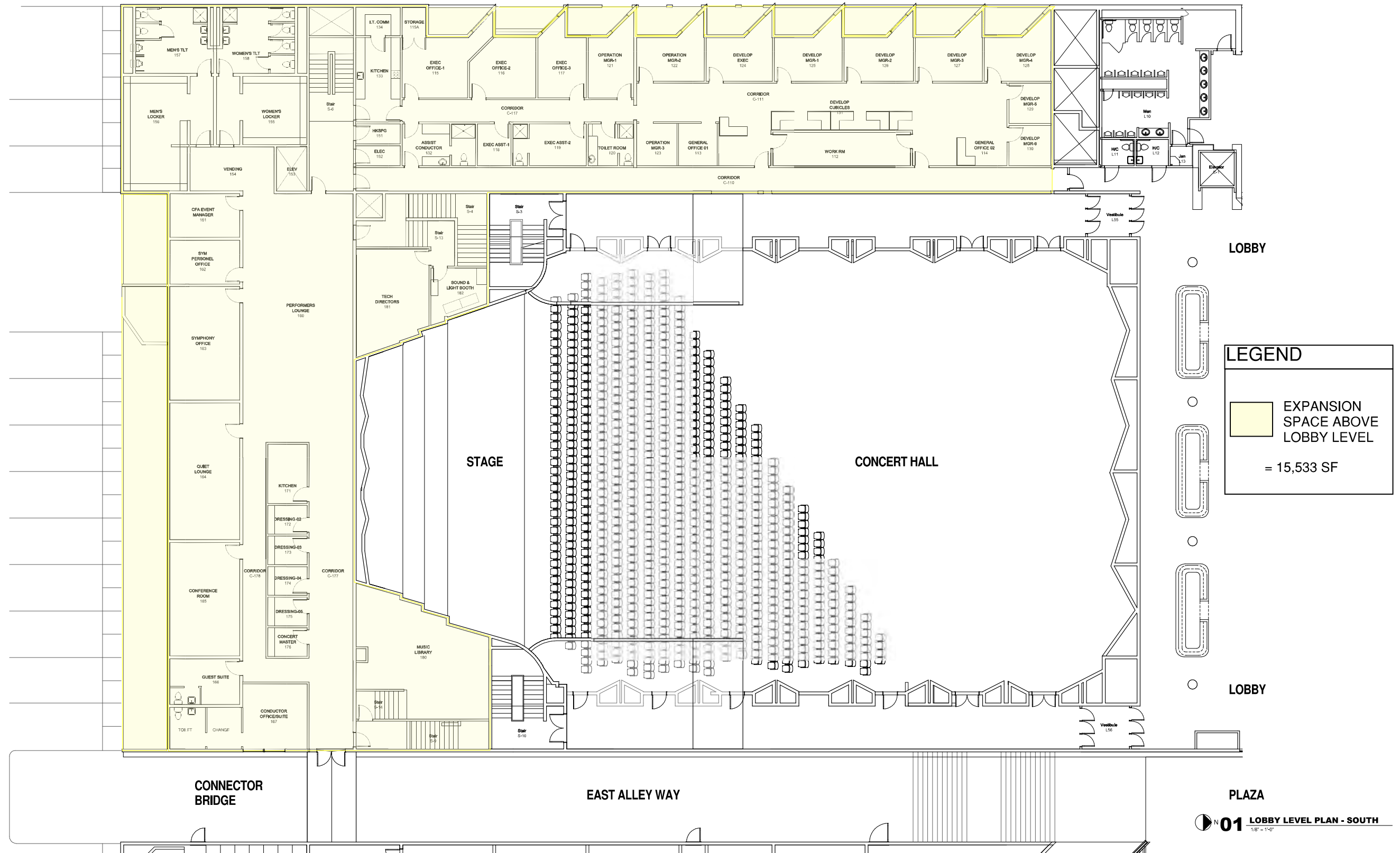
- CURRENT BOH SPACE = 13,683 SF
- EXPANSION SPACE = 1,850 SF

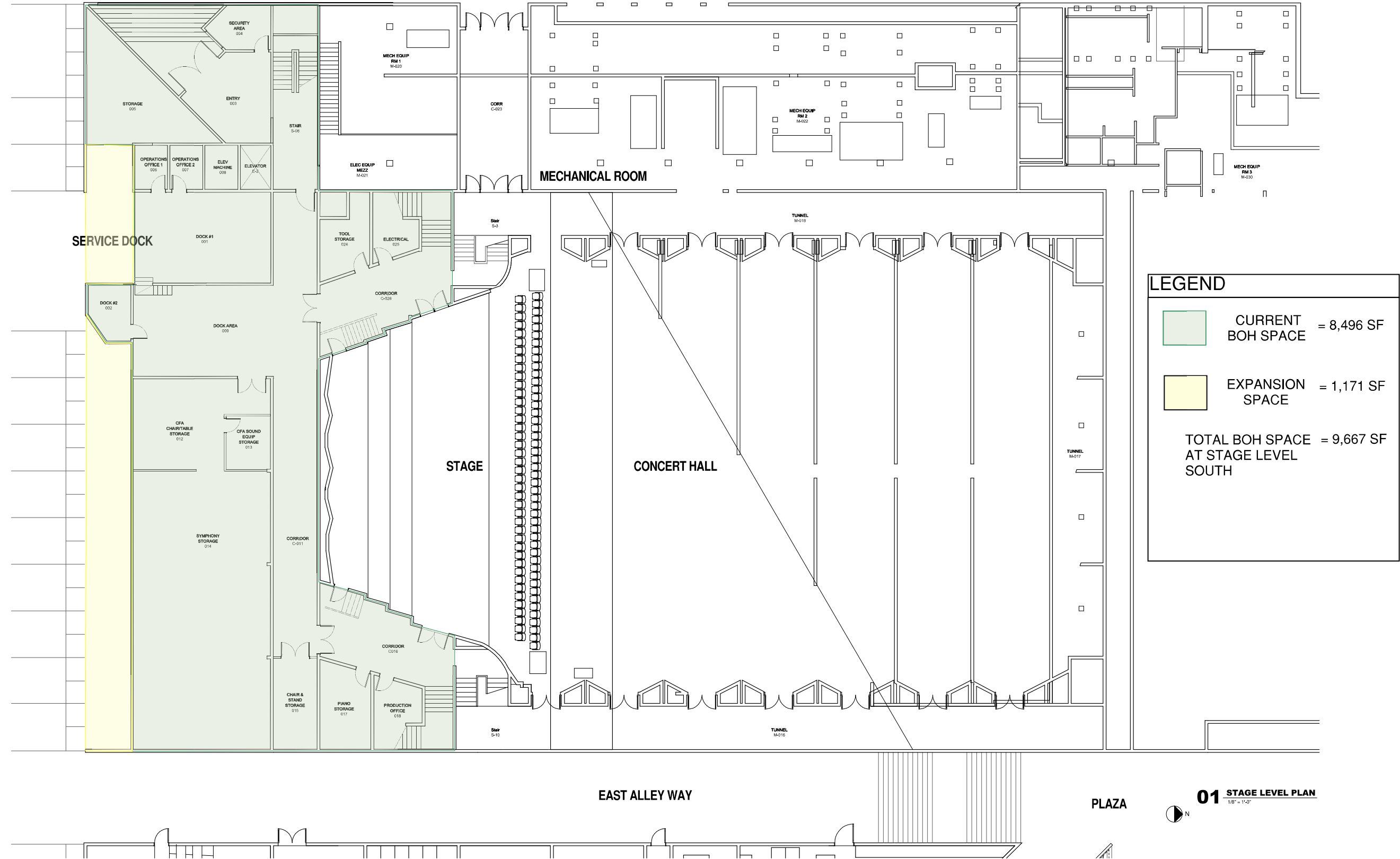
TOTAL BOH SPACE AT LOBBY LEVEL SOUTH = 15,533 SF

EXPANSION SPACE ABOVE LOBBY LEVEL = 15,533 SF

TOTAL BOH SPACE AVAILABLE = 31,066 SF

LOBBY





LEGEND

- CURRENT BOH SPACE = 8,496 SF
- EXPANSION SPACE = 1,171 SF

TOTAL BOH SPACE = 9,667 SF AT STAGE LEVEL SOUTH

EAST ALLEY WAY

PLAZA

01 STAGE LEVEL PLAN
1/8" = 1'-0"



ABRAVANEL HALL - PHASE 3 ROOM PROGRAM DATA **DATE: 4/1/2014**

ROOM NUMBER	EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
STAGE LEVEL				
001	DOCK #1	567	EXTEND DOCK OUT TO SOUTH	220
002	DOCK #2	97	-	
003	ENTRY	283	-	
004	SECURITY AREA	112	-	
005	STORAGE	425	-	
006	OPERATIONS OFFICE 1	66	-	
007	OPERATIONS OFFICE 2	66	-	
008	ELEV MACHINE	67	-	
009	DOCK AREA	960	-	
012	CFA CHAIR/TABLE STORAGE	435		
013	CFA SOUND EQUIP STORAGE	108		
014	SYMPHONY STORAGE (EQUIP)	1757		
			HARP STORAGE	150
			PERCUSSION ROOM	1200
			LARGE STRING ROOM	600
015	CHAIR & STAND STORAGE	183		
017	PIANO STORAGE	193	LARGER	200
018	PRODUCTION OFFICE	231	-	
024	TOOL STORAGE	149	-	
025	ELECTRICAL	208	-	
			LAUNDRY ROOM	150
			QUICK CHANGE ROOM	50
			QUICK CHANGE ROOM	50
			RESTROOM AT STAGE LEVEL	65
	TOTAL ROOM SQ FT - STAGE LEVEL	5907	ADDED ROOM SQ FT - STAGE LEVEL	2685
	CIRCULATION/BLDG STRUCTURE	2589	CIRCULATION/BLDG STRUCTURE	1020
	43.83%			
	TOTAL SQ FT - STAGE LEVEL	8496	TOTAL ADDED SQ FT - STAGE LEVEL	3705
			TOTAL SQ FT NEEDED AT STAGE LEVEL	12201
LOBBY LEVEL				
112	WORK RM	214	-	
113	GENERAL OFFICE 01	77	-	
114	GENERAL OFFICE 02	117	-	
115	EXEC OFFICE-1	210	-	
115A	STORAGE	31	-	
116	EXEC OFFICE-2	171	-	
117	EXEC OFFICE-3	151	-	
			EXEC OFFICE-4	175
			EXEC OFFICE-5	175
118	EXEC ASSIST-1	65	LARGER	35
119	EXEC ASSIST-2	139	-	
			EXEC ASSIST-3	100
			EXEC CONFERENCE ROOM	225
120	TOILET ROOM (FOR OFFICES)	86	-	
			TOILET ROOM (FOR OFFICES)	65
121	OPERATIONS MGR-1	142	-	
122	OPERATIONS MGR-2	153	-	
123	OPERATIONS MGR-3	80	-	
			OPERATIONS MGR-4	135
124	DEVELOP EXEC	151	-	
125	DEVELOP MGR-1	155	-	
126	DEVELOP MGR-2	156	-	
127	DEVELOP MGR-3	152	-	
128	DEVELOP MGR-4	155	-	
129	DEVELOP MGR-5	78	LARGER	55
130	DEVELOP MGR-6	69	LARGER	65
131	DEVELOP CUBICLES (5 CUBICLES)	145	-	

ROOM NUMBER	EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
132	ASSIST CONDUCTOR	139	-	
133	KITCHEN	173	LARGER	100
134	I.T. COMM	58	LARGER	50
			I.T. MANAGER	135
			I.T. CUBICLE	50
			I.T. WORKROOM	300
			MARKETING EXEC OFFICE	175
			MARKETING MANAGER (6 @135 SF)	810
			MARKETING CUBICLES (2 @50 SF)	100
			FISCAL EXEC OFFICE	175
			FISCAL MANAGER (3 @ 135 SF)	405
			FISCAL DOUBLE OFFICE	200
			FISCAL CUBICLES (2 @50 SF)	100
			CALL CENTER MANAGER (2 @135 SF)	270
			CALL CENTER CUBICLES (12@50 SF)	600
			CALL CENTER BREAK ROOM	200
151	HKSPG	41	-	
			HSKPG	60
152	ELEC	41	-	
			ELEC	100
153	ELEV	62	-	
			FREIGHT ELEVATOR	150
154	VENDING	170	-	
155	WOMEN'S LOCKER (36? LOCKERS)	280	MORE/LARGER LOCKERS	300
156	MEN'S LOCKER (72? LOCKERS)	413	LARGER LOCKERS	200
157	MEN'S TLT (2 STALLS, 2 URINALS)	186	50 PEOPLE	120
158	WOMEN'S TLT (4 STALLS)	146	50 PEOPLE	150
160	PERFORMERS LOUNGE	1275	LARGER	475
161	CFA EVENT MANAGER	140	-	
162	SYMPH PERSONEL OFFICE	141	-	
			SYMPH PERSONEL OFFICE	140
163	SYMPHONY OFFICE	368	-	
164	QUIET LOUNGE	442	LARGER	258
165	CONFERENCE ROOM	367	LARGER FOR 30 PEOPLE	533
166	GUEST SUITE (w 1/2 BATH,PIANO)	148	-	
			GUEST SUITE (W 1/2 BATH, PIANO)	148
167	CONDUCTOR SUITE (w TLT, CHANGE)	334	-	
			CONDUCTOR SUITE (w TLT, CHANGE)	334
			CONDUCTOR SUITE (w TLT, CHANGE)	334
171	KITCHEN	108	-	
172	DRESSING-02	52	-	
173	DRESSING-03	52	-	
174	DRESSING-04	52	-	
175	DRESSING-05	52	-	
			SINGLE DRESSING ROOM	65
176	CONCERT MASTER	52	LARGER	100
180	MUSIC LIBRARY	596	LARGER	400
181	TECH DIRECTORS	320	-	
182	SOUND & LIGHT BOOTH	119	-	
			CHORAL ROOM (150 PEOPLE)	1300
			CHORAL TOILET RM - FEMALE	140
			CHORAL TOILET RM - MALE	140
			CHORAL DIRECTOR OFFICE	100
			SECTION PRACTICE ROOM	230
			SECTION PRACTICE ROOM	230
			BLDG OPERATIONS OFFICE	80
			PRODUCTION OFFICES	150
			USHER COAT ROOM	100
			HOUSE MANAGER OFFICES	80
			WOODWIND STORAGE	150
			VIOLIN/VIOLA STORAGE	250
			BRASS STORAGE	120

ROOM NUMBER	EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
	TOTAL ROOM SQ FT - LOBBY LEVEL	9024	ADDED ROOM SQ FT - LOBBY LEVEL	11637
	CIRCULATION/BLDG STRUCTURE	4659	CIRCULATION/BLDG STRUCTURE	5935
	51.63%			
	TOTAL SQ FT - LOBBY LEVEL	13683	TOTAL ADDED SQ FT - LOBBY LEVEL	17572

TOTAL SQ FT NEEDED AT LOBBY LEVEL 31255

5. CONSULTANT NARRATIVES



March 5, 2014

Mr. Jack Madsen
HKS Architects, Inc.
90 South 400 West #110
Salt Lake City, UT 84101

RE: Abravanel Hall Renovation Programming Study

Jack:

BHB Consulting Engineers' scope of work as we understand it for the above- mentioned study is:

1. Do an on-site observation of the building to observe the structural condition of the building.
2. Review available existing structural drawing of the building.
3. Provide input to the structural implications of proposed renovations to the building.
4. Write a brief report.

The renovations, as we understand it, that are being considered in this program study that affects the structure of the building are as follows:

1. Build an addition on the northwest side of the building.
2. Hang the Chihuly Sculpture from the roof structure.
3. Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.
4. Increase storage space at back of house for instruments by adding onto the south.
5. Add another story on the south and west side of building. This additional story will but up against the south and west of the auditorium.
6. Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.
7. Add needed structure at the coffers between chandeliers in order to move the follow spot from its present location at the top of tier

Quite a few of the items above have one thing in common. This is that a full seismic evaluation will need to be done for the existing building in conjunction with the proposed modifications and additions. Providing a full seismic evaluation of the existing building with the alterations and additions are not part of our scope-of-work.

The 2012 International Building Code (IBC) requires that if the lateral load capacity of any element is decreased by more than 10% due to alterations, the lateral load capacity of the element needs to be shown to meet present day lateral load design forces per the 2012 IBC. If this altered element is shown not to meet these required lateral load design forces, the element is to be strengthened in order to so.

Also the 2012 IBC requires that if a proposed addition to an existing building will not be structurally independent of the existing building and the addition's portion of the lateral load forces on the existing element is more than 10% of that element, the lateral load capacity of the element needs to be shown to meet 2012 IBC lateral load design forces. If the element is shown not to meet these required lateral load design forces the element is to be strengthened in order to do so.

For information, the present day code design seismic lateral forces have increased by about 45% since this building and its addition were constructed. This means that if an element is found to be inadequate with the addition and the addition provides more than 10% of the lateral load to the element, the element will need to be strengthened to account for the 45% increase due to code modifications since the time when the building was built plus the lateral load that would come from the addition.

Finally, the 2012 International Building Code requires that if the gravity load on an element is increased by more than 5%, the element shall be strengthened, supplemented or replace unless it can be shown the element has the gravity load capacity to carry present day design loads including the increased load.

It is our feeling that the modifications and additions above are all structurally possible; however some structural upgrade may be required.

1. **Build an addition on the northwest side of the building.** If the addition has a seismic expansion joint between it and the existing building the code doesn't require any strengthening of the existing building for later al loads due to the addition. In reviewing the existing drawings we were provided it appears the top of existing footings are low enough that the addition's floor elevation can be at 91'-0" right up to the existing building. Per the existing drawings of this area the top of footings carrying the existing load bearing walls varies from 76'-0" to 83'-4". The ticket lobby floor elevation is at 91'-0". The footings at the glass walls at this area however are at 96'-6". We are assuming these glass walls will be removed in this area when the addition is built.
2. **Hang the Chihuly Sculpture from the roof structure.** If the member of roof structure where it is proposed to hang this sculpture is inadequate, the member can be strengthened, supplemented or replaced as needed.
3. **Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.** This will require punching a hole in the existing exterior concrete wall. It appears there is adequate concrete wall on the south building to allow this. Also a "dog house" will need to be built in order to be able to park the truck inside.
4. **Increase storage space at back of house for instruments by adding onto the south.** The roof at the south end of the building cantilevers out beyond the south wall of the building. A wall could be added to line-up with this roof in order to enclose the space in below the cantilevered roof. Openings could be punched through the existing south concrete wall in select locations in order to access this space.
5. **Add another story on the south and west side of building.** Don Barker with BHB Consulting Engineers did a feasibility study of this about 15 to 20 years ago that showed this is possible. This additional story would need to be constructed with a light weight steel structure. Since that time however, the lateral design forces have increased by 45%. The existing structural would need to be investigated to see if it has the lateral capacity to resist the additional seismic loads caused by this additional story. If it doesn't, parts of the existing lateral system would be to be strengthened or addition lateral resisting elements added.
6. **Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.** It would need to be verified that te existing structure has the capacity to carry the additional gravity loads and lateral loads generate by the infill. If it doesn't the existing structure would need to be strengthened.
7. **Add needed structure at ceiling coffers between chandeliers in order to move the follow spot from its present location at the top of tier.** The same would need to be done at this location as at the proposed location where the Chihuly Sculpture would be hung.

If you have any questions, please feel free to call.

Sincerely,

BHB Consulting Engineers
Don W. Barker SE Principal



ABRAVANEL HALL RENOVATION1. ELECTRICAL SYSTEMS NARRATIVECODES AND STANDARDS

GENERAL

The electrical work will comply with current codes and standards that are applicable:

NEC (National Electrical Code)
 NFC (National Fire Code)
 NFPA (National Fire Protection Association)
 IFC (International Fire Code)
 IBC (International Building Code)
 ASHRAE 90.1 (Energy Code)
 UL (Underwriters Laboratories)
 ASTM (American Society for Testing and Materials)
 ANSI (American National Standards Institute)
 NEMA (National Electrical Manufacturer's Association)
 IEEE (Institute of Electrical and Electronics Engineers)
 EIA/TIA (Electronic Industries Association/Telecommunications Industries Association)
 IESNA (Illuminating Engineering Society of North America)

BUILDING ELECTRICAL SERVICE DISTRIBUTION

POWER DISTRIBUTION

Existing power in the building is 277/480V, 3 phase, 4 wire and 120/208V, 3 phase, 4 wire.

Lighting and Mechanical equipment is served with 277/480V, 3 phase, 4 wire. Receptacles, small motors and miscellaneous equipment is served with 120/208V, 3 phase, 4 wire.

VOLTAGE DROP

The voltage drop for feeders shall be limited to 2 percent. The voltage drop for branch circuits shall be limited to 3 percent.

RACEWAYS

Raceways shall be steel; EMT conduit (Electrical Metallic Tubing) shall be used throughout for branch circuits and feeders. PVC conduit shall be used under slab and below grade with rigid elbows. Final conduit connections for interior lighting fixtures shall be by means of a flexible conduit whip, not exceeding 6 feet in length. Conduit connections to vibrating equipment shall be by means of flexible seal-tite conduit. Conduit fittings shall be malleable steel. Aluminum conduit and conduit fittings shall not be acceptable. Minimum raceway size shall be 3/4 inch.

CONDUCTORS

All conductors shall be copper. Use solid conductor for sizes #12 AWG and smaller; stranded conductor for sizes #10 AWG and larger. Insulation shall be THHN/THWN, rated for 600 volts. Aluminum conductors will not be acceptable. Minimum conductor size for branch circuits shall be #12 AWG. All 20 amp branch circuits over 100 feet in length shall be #10 conductors. All conductors will be color coded according to the NEC.

GROUNDING

Grounding shall be provided for the entire raceway, service entrance, enclosures and equipment system. Grounding shall be provided in accordance with the NEC. A separate grounding conductor shall be provided for all feeders, equipment circuits and branch circuit runs. Grounding conductors shall be sized in accordance with the NEC.

SEISMIC SUPPORT

Electrical Contractor will support and provide seismic bracing for electrical equipment, lighting fixtures, etc. shall be supported from building structural elements, independently from ceilings and ceiling support wires. Attach wall mounted equipment rigidly to wall structure, provide additional wall bracing as required by the application. Attach floor mounted equipment rigidly to floor or structure. Seismically brace all electrical equipment and raceways in accordance with the most recent regulations of UBC or IBC, and the guidelines for Seismic Restraint for Electrical Systems (SMACNA).

WIRING DEVICES

Wiring devices shall comply with NEMA standards Pub. No. WD 1. Switches and receptacles shall be specification grade, and rated at 20 amps and 120 volts AC. Receptacles shall be 3-wire grounding type. GFI (Ground fault circuit interrupter) type receptacles shall be rated 20 amps, 120 volts AC, with solid-state ground fault sensing and 5 milliamp trip levels. Receptacles in toilet rooms, wet areas, or within 6 feet of any sink shall be GFI type. All cover plates shall be stainless steel or otherwise as directed by Architect and/or Owner to match existing conditions.

EMERGENCY POWER

Emergency egress power shall be provided for life safety including exit and egress lighting. Utilize power from existing emergency distribution system. Provide exterior emergency egress illumination per NFPA 101, 7.8 Illumination of Means of Egress.

LIGHTING

All Illumination Levels will be designed per IESNA standards. Point by point foot-candle calculations will be provided in critical areas. 3d modeling will be provided as requested by Owner.

INTERIOR LIGHTING

Interior lighting will be primarily illuminated with LED and Fluorescent lamps. Lighting design criteria and approach will exceed ASHRAE 90.1 and will be as energy efficient as possible.

BNACONSULTING

EXTERIOR LIGHTING

Exterior lighting will complement and enhance the new architectural design features and existing conditions. LED light fixtures will be utilized. Emergency egress lighting will be provided at the building exit.

LIGHTING CONTROLS

Controllability of lighting shall match existing conditions and utilize existing control equipment in all possible locations. Provide occupancy sensing devices in new rooms and/or areas as applicable to the space. Variable light levels and dimming controls will be provided as directed in new developed areas.

FIRE AND LIFE SAFETY

New fire alarm devices will be provided in the renovated space and integrated into existing class A fire alarm loops or new fire alarm class A loop circuits will be added to the existing Fire Alarm System. New battery calculation will be provided and necessary programming for the expansion to the Fire Alarm Control Panel. Update to the fire alarm annunciator, the fire alarm drawing and building floor plan will be provided. The Fire Alarm System will be designed to meet all applicable codes.

All new devices will match the existing fire alarm system in the building.

TELECOMMUNICATIONS

New tele/data receptacles shall extend to existing Tele/Comm equipment rooms. Provide conduit and conductor as required per Owner standards and existing conditions. Wireless Access Points will be designed in the space by Owner.

SECURITY SYSTEMS

A raceway only design system shall be provided for security as directed by Owner. This will include Video Surveillance and CCTV.

AUDIO/VISUAL

An audio visual system shall be provided and will be designed with input from the Owner. Provide equipment rough-in and raceway to accommodate design intent. Coordination of A/V headend equipment and controls shall be coordinated with the Architect and Owner.

SUSTAINABLE DESIGN

ENERGY UTILIZATION

The standard that governs the requirements for energy utilization is ASHRAE 90.1. This standard outlines the power density requirements for electrical lighting systems as well as energy related to mechanical cooling and heating.

As it applies to electrical lighting systems, ASHRAE 90.1 limits the power density that can be used for interior and exterior lighting. The lighting design will exceed minimum requirements.

PHASE THREE

Back of house
Concert hall
Stage

BNACONSULTING

PHASE 3 BOH TYPICAL

GENERAL

The mechanical system will provide heating, ventilation and air conditioning required for the new building functions.

The mechanical system will be designed to provide a safe, economical, energy efficient, low maintenance type system that is balanced with the projects sustainability goals. All mechanical systems will have a proven track record of high quality, energy efficiency and environmental control.

HVAC DESIGN CRITERIA

Comply with the 2012 edition of the International Codes:

- International Building Code (IBC),
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Fuel Gas Code (IFGC)
- International Energy Conservation Code (IECC)
- International Fire Code (IFC)
- National Electric Code (NEC)
- All state amendments.

Comply with all applicable local, state, and federal codes and regulations.

HVAC system to comply with the following standards, most current edition:

- ANSI/ASHRAE Standard 62-2010: Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy
- ANSI/ASHRAE 90.1-2010: Energy Standard for Buildings
- SMACNA Sheet Metal and Air Conditioning Contractor’s National Association standards
- Industrial Ventilation: A Manual of Recommended Practice
- Heating and Cooling Load Calculations: Size the building heating and cooling systems based on undiversified calculated loads for space and process equipment. Include 10% safety factor for the heating load calculations and no safety factor for the cooling load calculations.

Infiltration: Design for 30 MPH wind when calculating infiltration loads and building pressurization controls.

Design for Environmental Awareness. The built environment has a profound impact on our natural environment, economy, health, and productivity. Incorporate environmentally friendly solutions in the building design.

DESIGN CONDITIONS

Outside Design Conditions: Use the following climate data from ASHRAE Fundamental Handbook for Salt Lake City, Utah

Elevation	4226 FT	
Summer Design Dry Bulb Temp. (ASHRAE 0.4%)	96 deg. F	
Summer Mean Coincident Wet Bulb (ASHRAE 0.4%)	62 deg. F	
Cooling Tower Wet Bulb Temp. (ASHRAE 0.4%)	66 deg. F	
Winter Design Dry Bulb Temp. (ASHRAE 99%)	6 deg. F	
Winter Design Dry Bulb Temp. (VBFA Standard)	0 deg. F	

Indoor Design Conditions: AHSRAE Standard 55

Interior occupied spaces:

Summer	75 deg. F	50% RH Maximum
Winter	72 deg. F	No Minimum

Mechanical Rooms, Electrical Rooms, and Elev. Equip. Rooms:

Summer	80 deg. F	No humidity control
Winter	60 deg. F	No humidity control

Telephone/Data/Communication:

Year Round	75 deg. F max.	No humidity control
------------	----------------	---------------------

Noise Criteria: Design the heating, ventilating and air conditioning systems to meet the acoustical design criteria

Pressure Relationships: Design the heating, ventilating and air conditioning systems to meet the following:

Building:	Positive to outside
Toilet Rooms:	Negative to adjacent spaces

VENTILATION REQUIREMENTS

Ventilation will comply with the IMC and ASHRAE Standard 62.1.

Provide a building relief air system to maintain the building to be +0.03-0.05 in. W.G. building static pressure.

HEAT SOURCE

The heat source will be from the existing high pressure steam system that currently serves Abravanel Hall. The central plant is located in the Salt Palace. Abravanel Hall is served by an 8” medium pressure steam line and a 2” pumped condensate line. The proposed additional building space will require additional heat. The proposed Plaza snow melt system will require up to 3,000,000 BTU/H of additional. The proposed future fountain will be heated; the current fountain is not heated. A study will need to be done to determine if the existing central heating plant and steam and condensate main lines have adequate capacity for the future requirements.

COOLING SOURCE

The cooling source will be from the existing chilled water plant that currently serves the Abravanel Hall. The central cooling plant is located in the Salt Palace. Abravanel Hall is served by 8” chilled water supply and return pipes. There will be some additional cooling required for the propose additional building space. A study may need to be done to determine if the existing central heating plant and main lines have adequate capacity for the future.

AIR HANDLERS

Central air handlers will be required for the proposed additional building spaces. Fan rooms will have to be provided to accommodate indoor handlers. Approximately 5% of the proposed additional space will be required for fan rooms. The existing building has indoor air handlers. Air handlers will be factory custom built type for better sound performance.



PROGRAMMING PACKAGE
04.30.2014
HKS #17350.001

ABRAVANEL HALL RENOVATION
Salt Lake City, Utah



VAN BOERUM & FRANK ASSOCIATES, INC.
CONSULTING ENGINEERS



Multiple fan arrays (fan walls) will be used for supply air fans and return/relief air fans in the air handlers serving sound critical areas. Multiple fan arrays also provide better redundancy. The smaller fans in the multiple fan arrays are also easier to replace. The air handlers should be located remotely from sound sensitive areas for acoustical reasons, similar to the existing design.

The air handlers will have outside air intake and dampers, return air dampers, filters, relief or return air fans, supply air fans, glycol preheat coils, chilled water cooling coils, and direct evaporative cooling sections. All pre-filters shall be MERV 8 and all final filters shall be MERV 13.

The air handlers will be sized for a coil face velocity of 400 feet per minute, in lieu of the standard 500 feet per minute in order to save fan energy.

All fans will have variable frequency drives (VFD's). VFD's are required for multiple zone variable air volume (VAV) systems. VFD's will also be provided on single zone systems, such as the, in order to reduce the air flow (and fan energy) when these spaces are not occupied or only partially occupied.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

The ATC system will comply with the Salt Lake County Design Guidelines. The Salt Lake City approved controls manufacturer is: Alerton. Approved installers are D&L Controls and Alliance Energy and Integration.

Controls will have the capability of trend logging specific parameters in order to Commission the system and track energy costs.

DOMESTIC WATER SERVICE

New plumbing fixtures will connect into the existing domestic hot and cold water lines

BUILDING SEWER

New plumbing fixtures will connect into the existing waste and vent system.

ROOF DRAINAGE SYSTEM

A primary and overflow roof drainage system will be provided for new roof areas. The overflow roof drains will daylight

PLUMBING FIXTURES

The following low flow fixtures will be used for water savings:

- Manual flush valve water closets at 1.28 gal/flush
- Sensor actuator urinals at 1 pt/flush
- Sensor actuator lavatories at 0.5 gpm
- Showers at 1.5 gpm

The lavatories and urinals shall have hard-wired sensors.

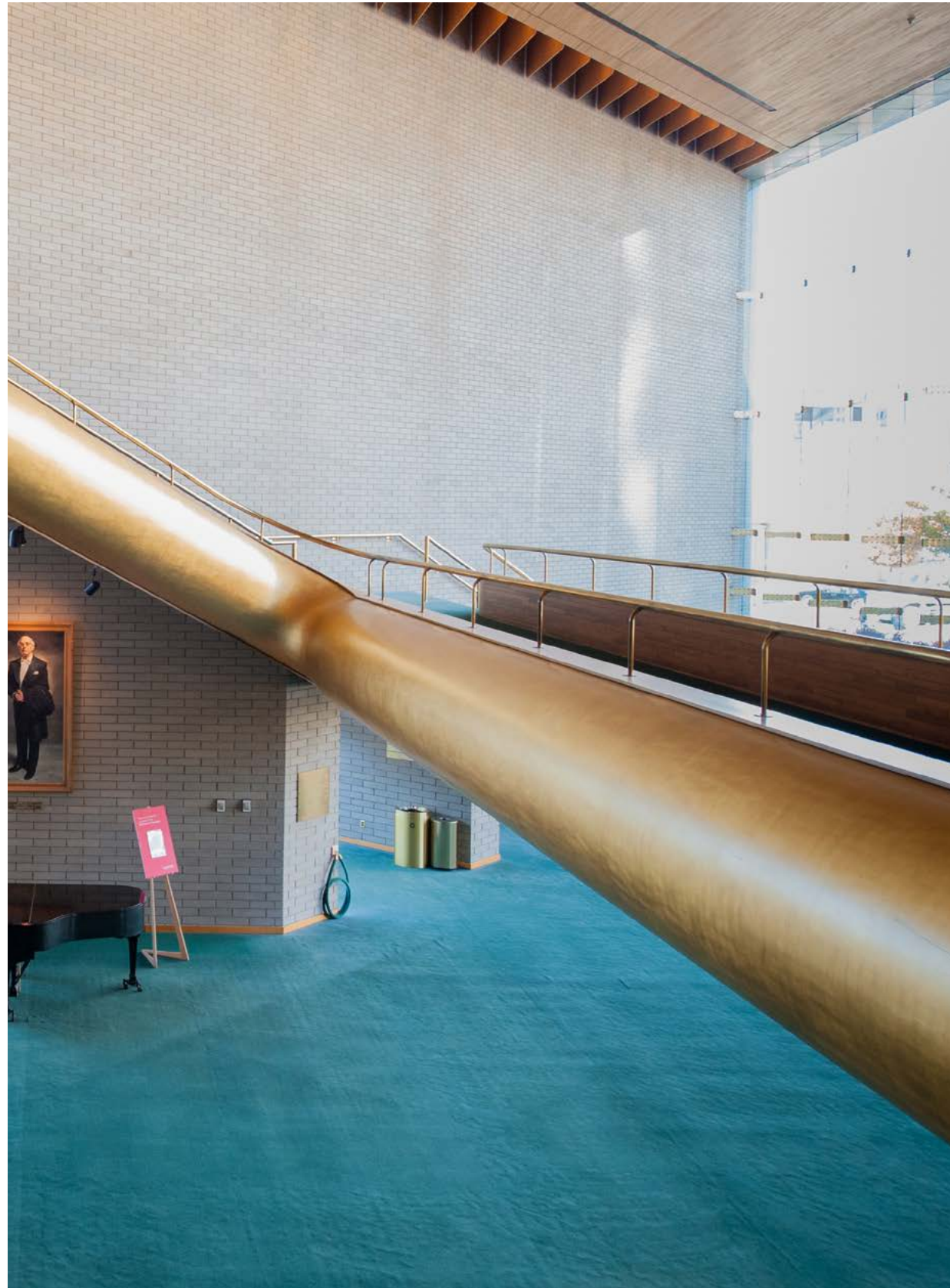
GREASE WASTE

Grease waste from kitchen and food service areas will be processed using local point of use grease interceptors.

FIRE SUPPRESSION SYSTEMS

The proposed additional spaces will connect into the existing wet pipe fire sprinkler system.

6. PRELIMINARY COST ESTIMATE



PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014
PROJECT NAME.....ABRAVANEL HALL RENOVATION OF SYMPH. OFFICES & MUSICIAN SPACES				
LOCATION.....SALT LAKE CITY, UT				
ARCHITECT.....HKS				
STAGE OF DESIGN.....MASTERPLANNING				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
LOBBY LEVEL				
WORK RM	214 SF	\$	135.00	\$ 28,890
GENERAL OFFICE 01	77 SF	\$	135.00	\$ 10,395
GENERAL OFFICE 02	117 SF	\$	135.00	\$ 15,795
EXEC OFFICE-1	210 SF	\$	165.00	\$ 34,650
STORAGE	31 SF	\$	80.00	\$ 2,480
EXEC OFFICE-2	171 SF	\$	165.00	\$ 28,215
EXEC OFFICE-3	151 SF	\$	165.00	\$ 24,915
EXEC ASSIST-1	65 SF	\$	165.00	\$ 10,725
EXEC ASSIST-2	139 SF	\$	165.00	\$ 22,935
TOILET ROOM (FOR OFFICES)	86 SF	\$	225.00	\$ 19,350
OPERATIONS MGR-1	142 SF	\$	135.00	\$ 19,170
OPERATIONS MGR-2	153 SF	\$	135.00	\$ 20,655
OPERATIONS MGR-3	80 SF	\$	135.00	\$ 10,800
DEVELOP EXEC	151 SF	\$	155.00	\$ 23,405
DEVELOP MGR-1	155 SF	\$	135.00	\$ 20,925
DEVELOP MGR-2	156 SF	\$	135.00	\$ 21,060
DEVELOP MGR-3	152 SF	\$	135.00	\$ 20,520
DEVELOP MGR-4	155 SF	\$	135.00	\$ 20,925
DEVELOP MGR-5	78 SF	\$	135.00	\$ 10,530
DEVELOP MGR-6	69 SF	\$	135.00	\$ 9,315
DEVELOP CUBICLES (5 CUBICLES)	145 SF	\$	90.00	\$ 13,050
ASSIST CONDUCTOR	139 SF	\$	135.00	\$ 18,765
KITCHEN	173 SF	\$	275.00	\$ 47,575
I.T. COMM	58 SF	\$	80.00	\$ 4,640
HKSPG	41 SF	\$	80.00	\$ 3,280
ELEC	41 SF	\$	80.00	\$ 3,280
ELEV	62 SF	\$	80.00	\$ 4,960
VENDING	170 SF	\$	160.00	\$ 27,200
WOMEN'S LOCKER (36? LOCKERS)	280 SF	\$	225.00	\$ 63,000
MEN'S LOCKER (72? LOCKERS)	413 SF	\$	225.00	\$ 92,925
MEN'S TLT (2 STALLS, 2 URINALS)	186 SF	\$	225.00	\$ 41,850
WOMEN'S TLT (4 STALLS)	146 SF	\$	225.00	\$ 32,850
PERFORMERS LOUNGE	1275 SF	\$	185.00	\$ 235,875
CFA EVENT MANAGER	140 SF	\$	135.00	\$ 18,900
SYMPH PERSONEL OFFICE	141 SF	\$	135.00	\$ 19,035
SYMPHONY OFFICE	368 SF	\$	135.00	\$ 49,680

6. PRELIMINARY COST ESTIMATE

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014
PROJECT NAME.....ABRAVANEL HALL RENOVATION OF SYMPH. OFFICES & MUSICIAN SPACES				
LOCATION.....SALT LAKE CITY, UT				
ARCHITECT.....HKS				
STAGE OF DESIGN.....MASTERPLANNING				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
QUIET LOUNGE	442	SF	\$ 165.00	\$ 72,930
CONFERENCE ROOM	367	SF	\$ 185.00	\$ 67,895
GUEST SUITE (w 1/2 BATH,PIANO)	148	SF	\$ 175.00	\$ 25,900
CONDUCTOR SUITE (w TLT, CHANGE)	334	SF	\$ 190.00	\$ 63,460
KITCHEN	108	SF	\$ 275.00	\$ 29,700
DRESSING-02	52	SF	\$ 150.00	\$ 7,800
DRESSING-03	52	SF	\$ 150.00	\$ 7,800
DRESSING-04	52	SF	\$ 150.00	\$ 7,800
DRESSING-05	52	SF	\$ 150.00	\$ 7,800
CONCERT MASTER	52	SF	\$ 135.00	\$ 7,020
MUSIC LIBRARY	596	SF	\$ 175.00	\$ 104,300
TECH DIRECTORS	320	SF	\$ 135.00	\$ 43,200
SOUND & LIGHT BOOTH	119	SF	\$ 175.00	\$ 20,825
CIRCULATION/BLDG STRUCTURE	4,659	SF	\$ 135.00	\$ 628,965
SUBTOTAL LOBBY LEVEL	13,683	SF	\$ 156.98	\$ 2,147,915
TOTAL PHASE 3A CONSTRUCTION COST	13,683	SF	\$ 156.98	\$ 2,147,915
Plan Check Fees				\$ 8,463
Building Permit				\$ 13,021
1% State Permit Fee				\$ 130
Utility Connection Fees and Impact Fees				\$ 50,000
Furniture Fixtures & Equipment		9%		\$ 193,312
A/E Fees		8%		\$ 171,833
Programming Study Fees				NIC
Reimbursables				\$ 6,873
Geotechnical				\$ 5,000
Commissioning Agent				\$ 25,000
Survey				\$ 5,000
County Administration Fees		1.5%		\$ 32,219
Project Management Fees		1.5%		\$ 32,219
Owner's Construction Contingency		10%		\$ 214,792
Special Inspections & Testing		1%		\$ 21,479
Energy Modeling				\$ 45,000
LEED Documentation A/E				\$ 45,000
LEED Registration				\$ 35,000
Art		1%		\$ 21,479
TOTAL PHASE 3A PROJECT COST				\$ 3,073,736
ESTIMATE IS BASED UPON 2015 DOLLARS ESCALATION HAS NOT BEEN FACTORED IN				



AREA 6 - NEW BUILDING EXPANSION ABOVE BOH AREAS: SYMPHON OFFICES & MUSICIAN SPACES



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SUMMARY

During the 35 year life of Abravanel Hall, the Symphony's influence and operations have grown and expanded. Over these years the building users have found ways to make the existing Back of House spaces work, and "make do" with the space available. However – it is evident now that significant renovation and additional space is needed to accommodate the operations that are in this building.

Additionally, there are items within the Concert Hall itself that need to be addressed – specifically theatrical lighting and lighting positions, A/V modifications, and Stage/Seating issues

The Phase 3 Issues that need to be addressed have been organized into four areas in the building:

- 1) BOH Stage Level Renovations
- 2) BOH Lobby Level Renovations
- 3) BOH First Tier Level New Construction

Several locations for building expansion were explored. It was clear that disruption to the concert hall was to be avoided. It was decided that the most optimal expansion for the back of house spaces was to build above the west and south BOH spaces that flank the concert hall. This will require significant demolition and renovation of existing spaces on the stage level and lobby level, as well as new construction at the first tier level.

The work to be done in the Concert Hall is not as significant. This will consist of new lighting above the stage and new lighting positions, removing seats at the back of the hall to create a house sound mix position, possible stage extension and removal of seats at sides of hall – depending upon mock-up review.

Summary

BOH Stage Level Renovations

9,667 SF Stage Level

Cost = XXXX



1. DENTITY & PURPOSE

The Abravanel Hall Back of House Spaces provide essential areas for the Symphony and CFA operations to exist and function properly. Over the years – with the growth of the organization’s operations – the existing back of house spaces have become inadequate in size and function to accommodate the needs of the organizations. Several of the spaces appear to have been inadequate when the building was first opened in 1979.

To better understand the Back of House needs of the Utah Symphony Utah Opera organization, as well as Salt Lake County Center for the Arts organization – the design team distributed a Questionnaire – that was circulated for responses. Questions were also asked about the Concert Hall, as well as Mechanical Items and Food & Beverage Services.

The questions that were asked are:

- Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.
- Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.
- As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?
- Please list the three things that you think are in the most need of improvement inside the Concert Hall. Please explain why.
- Please list three things about the Concert Hall that you would not want to change. Please explain why.
- As the Concert Hall moves into its next 40 years, What items do you think are missing – that need to be added.
- In the RFP there is a note: “Renovations to Boiler Room-safety issues”. In the site visit, we observed a Steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?
- Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.
- If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?
- Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what to you see as the food menu offering?
- What do you see as the schedule and hours of operation?
- What do you see as the source for the menu offering (who cooks and preps)?



- Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

The responses that were provided to the questionnaire are listed on the following pages.

In addition to the questionnaire - a "Visioning" session was held for the Phase 3 areas, and responses were gathered from participants and were documented. The Visioning Responses were grouped into three basic categories:

1) Back of House

BACK STAGE- VISIONING

1) Back of House / Offices:

- More Artist Suites.
- More storage for musician instrument cases.
- Back of house artist lounge needs more efficient use of space.
- Provide guest artist dressing room with shower, sink & toilet.
- Reconfigure back stage space for 1 added star dressing room.
- More useful lockers / dressing rooms. Women's locker room space is not adequate. Lockers need to be wider and deeper (possibly "Z-Lockers"?)
- More storage in loading dock with A/C.
- Improve conference room space back stage to be bigger - for 20 people.
- Provide choir space.
- More restrooms.
- Fix musician's lounge.
- Shrink musician's lounge.
- Back of house star dressing rooms reconfigures and renovated.
- Smaller tanner lounge, added larger lockers, table space for instruments.
- Look at different space for library and increased storage.
- Fix the ugly.
- Grow the conference room.
- Add floor above or off back of building for office space / back of house needs.
- Add floor for chorus room and small performance room.
- Explore adding entire floor at back of house area.

SUMMARY OF RESPONSES:

- Most popular responses are listed first, with number of responses in parenthesis at end.
- Responses that appear to contradict are tagged with two asterisks (**)

1. Back of House Spaces (Offices, Lockers, Lounge, Instrument Storage, General Storage, etc.)

A. Of the Back of House Spaces, please list the three rooms/areas that you think are in the most need of improvement/renovation. Please explain what is lacking.

1. Instrument storage room: Lack of safe space to store instruments. (5)
2. Locker room: need larger lockers (for instruments) and more mirrors. (5)
3. Tanner Lounge – needs updated furniture / décor to serve a useful purpose. (3)
4. “Star” dressing rooms – need roomy, comfortable spaces our guest artists can use. Currently cramped and stark. The walls are very thin- if someone is playing at full volume in the room next-door it makes it near impossible to focus. (2)
5. First Tier Room kitchen – no functioning ovens, leaking sinks
6. Loading dock / truck parking bay – need a longer internal bay so we can house a larger truck inside.
7. The inside loading dock does not allow for a 26 foot truck with standard cab to be stored inside with the door closed, and still allow for foot traffic between the door and the truck. This will likely become a problem during the upcoming year as the symphony is looking to acquire a new truck.
8. Equipment Storage (house equipment).
9. Production Conference Room.

B. Of the Back of House Spaces, please list three areas that work well in their current size and configuration. Please explain why.

1. Security Office and reception works well. (3)
2. Artist Lounge & Kitchen – furniture upgrade has improved look; kitchen is a functional space (2)
3. Maestro Suite – the natural light is lovely; functional and comfortable space for conductors (2)
4. Technical Director Office – Good location. (2).
5. ** Conference Room – recently renovated and constantly used.
6. Offices – location and size.

C. As Abravanel Hall moves into its next 40 years, What rooms/spaces do you think are missing (needed) from the Back of House areas?

1. Choral Room / Rehearsal Space (with service areas – restrooms, lockers, kitchenette) (4)
2. Larger Music library with more storage capacity. (4)
3. Noise isolated grand piano practice room, additional noise isolated warm up rooms, at least one that can accommodate groups larger than two (2)
4. Event space with functioning kitchens and prep. Space (ideally, located with easy access to lobby so lobby can function as event space) (2)
5. Additional conference room.
6. One fancy suite for CFA use for other clients besides the symphony.
7. More Offices for USUO.
8. IT Tech Room.

4. Mechanical Equipment Questions

A. In the RFP there is a note: “Renovations to Boiler Room-safety issues”. In the site visit, we observed a steam leak in the high pressure steam pipe at the pressure reducing station. Are there any other safety issues in the Boiler Room?

1. Access / No Elevators to Level.
2. Dryer does not vent outside.
3. Air Compressor for HVAC Controls is failing.

B. Are there any HVAC, Plumbing or Fire Sprinkling issues that need to be addressed? These would not include normal maintenance issues.

1. The HVAC system is generally difficult to adjust and would benefit from more local control to adjust levels in different rooms (especially dressing rooms and offices)
2. Improved electrical capacity – breakers are frequently tripped
3. Fumes from loading dock and back-up generators get circulated into offices.
5. Replace ALL VAV’s and change to electronic controls.
6. Old Ceiling Tiles are falling, we are out of attic stock and we are out of fire code.
7. Would like to have our own chiller, so that we are not so dependent on the Salt Palace’s maintenance issues.

C. If building area is added, consideration should be given to location of new air handlers. They will need to be acoustically isolated from the Hall. – Likely a basement location; comments?

1. Break through the basement – like in the 1997 addition.

5. Food Service Questions

A. Given that a food service operation is difficult to support as a profit center when that operation includes on-site kitchen and preparation with an 11am to 11pm Monday through Saturday schedule – what to you see as the food menu offering?

1. Café style lunch – coffee, sandwiches/Panini, crepes, salads, fruit, pastries
2. Add tapas prior to performances
3. Wine/beer service.
4. Hot and cold caffeine.
5. Pastries.
6. Ice Cream.
7. Bistro food menu – research other Orchestras.

B. What do you see as the schedule and hours of operation?

1. Weekdays without concerts – office hours
2. Flexibility to remain open during and after late concerts
3. ** 7 am to 7 pm & events.
4. ** Pre-event / Post Event only.

C. What do you see as the source for the menu offering (who cooks and preps)?

1. Off-site delivery except for coffee, and on-site storage (2)
2. Local collaboration? -Perhaps ask The Pub Group (Martine/Desert Edge/Red Butte) to consult

D. Is it anticipated the food service operation must be a profit center or is this only a service to patrons?

1. Orchestra and staff would make use of it weekdays
2. Pre-concert, intermission, and post-concert activity would be profitable if quality is good (i.e. museum cafes in many cities that are known for their food)
3. Useful for development events and receptions.
4. ** Do not think it would be a profit center.
5. ** Yes – Profit –for it to last.

2. ORGANIZATION & SERVICE REQUIREMENTS

The Owner Team and Design Team participated in several building walk-throughs, to identify the key elements of the Back of House and Concert Hall areas of concern, and opportunities for improvement. These items are documented in the floor plans that are below. Notes were also made and reviewed in team meetings. Additional notes were added to the plans in the team meetings - to better understand the issues, and confirm the desired direction.





3. INDIVIDUAL SPACE DESCRIPTIONS

For the Phase 3 Areas – Room Data Sheets were distributed to the CFA and USUO representatives, to understand the needs for Individual Spaces within the building. The Room Data Sheets were filled out for both the existing spaces, as well as new spaces to be added to the program. These room data sheets are provided in Appendix A – at the End of the Program booklet.

The Room Data Sheets were organized and compiled into the Room Data Spreadsheet on the following pages.

Mechanical Items:

Plumbing Items:

Electrical / Communication Items:

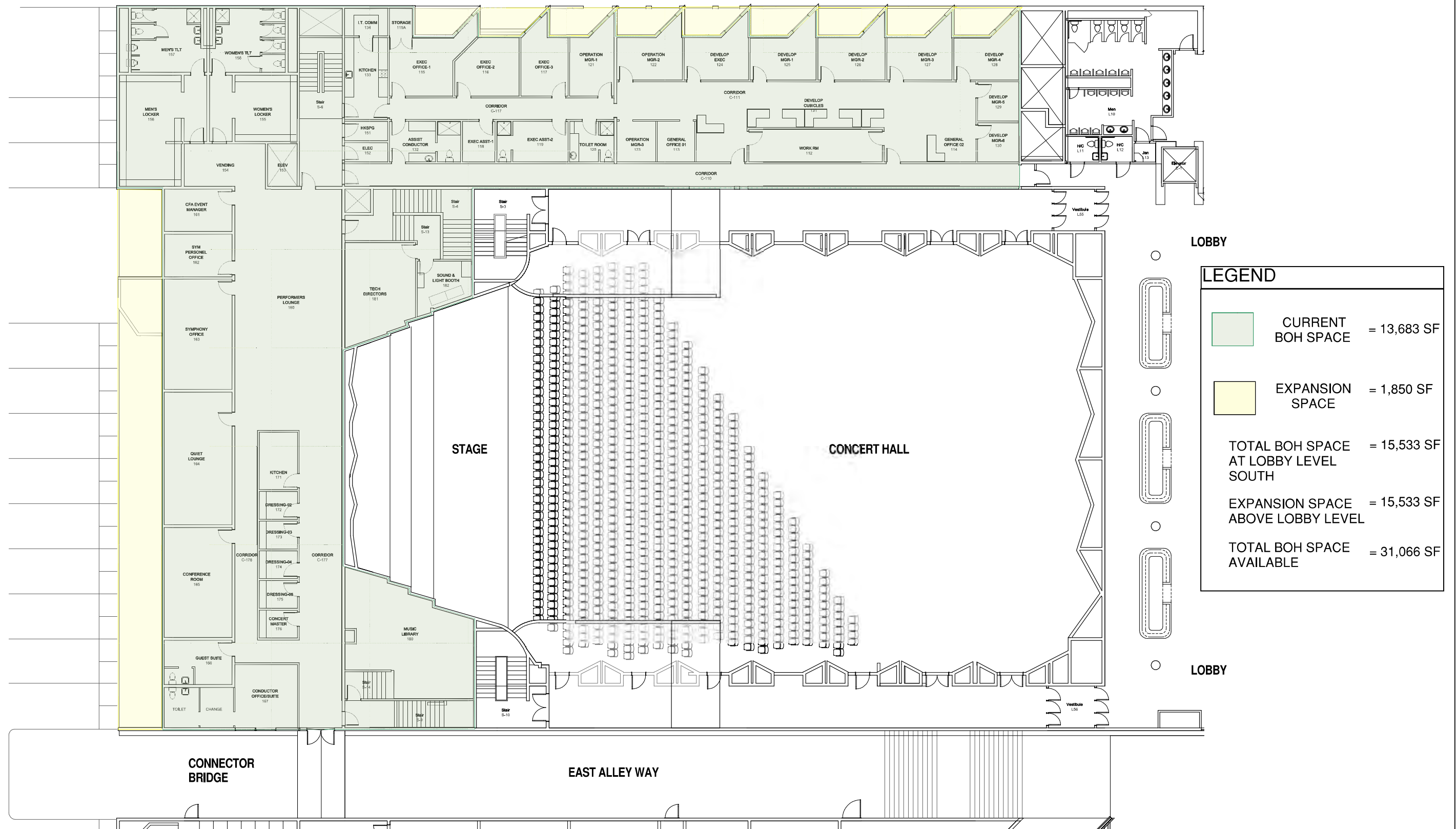
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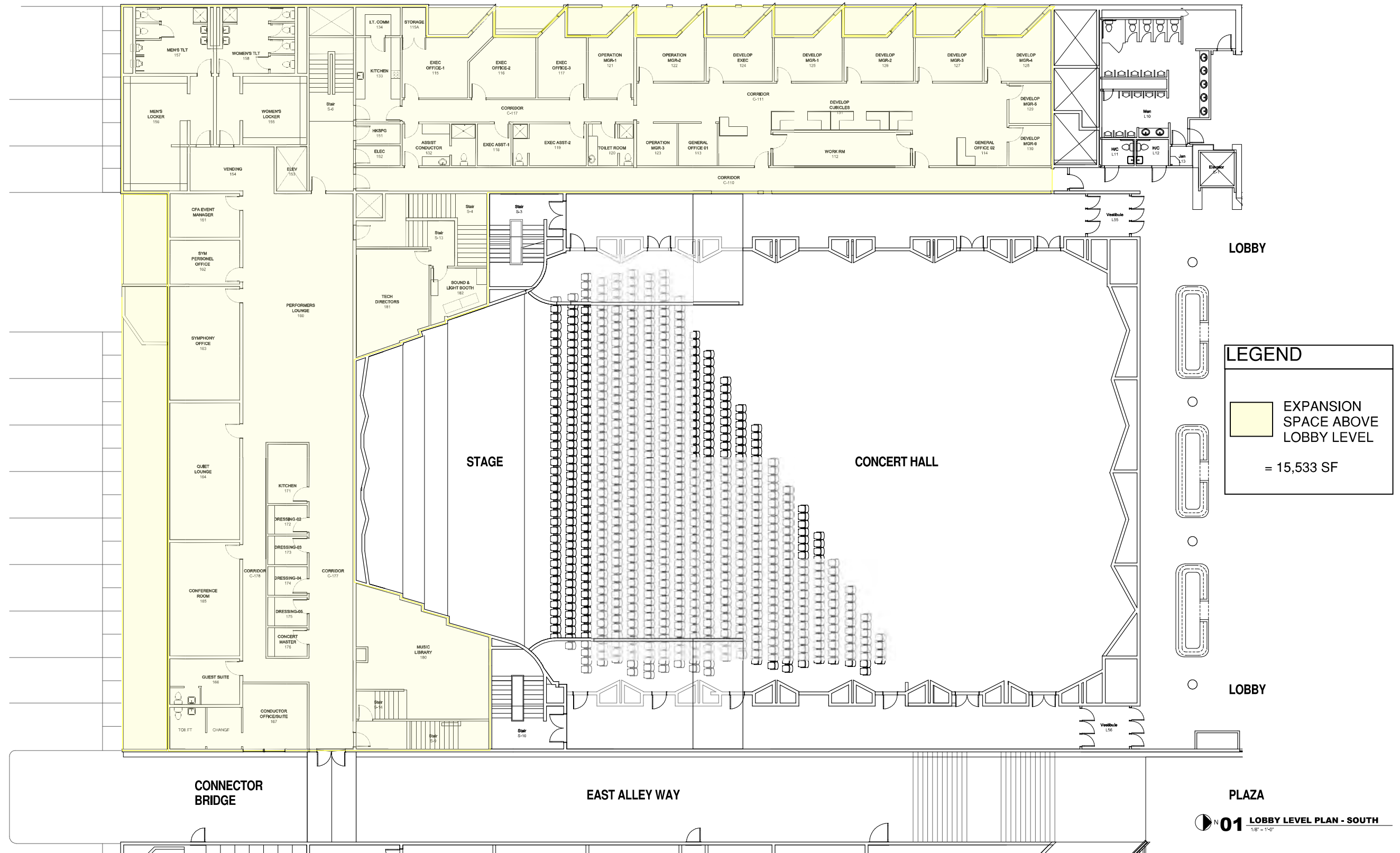
Fixtures, Furnishings & Equipment:

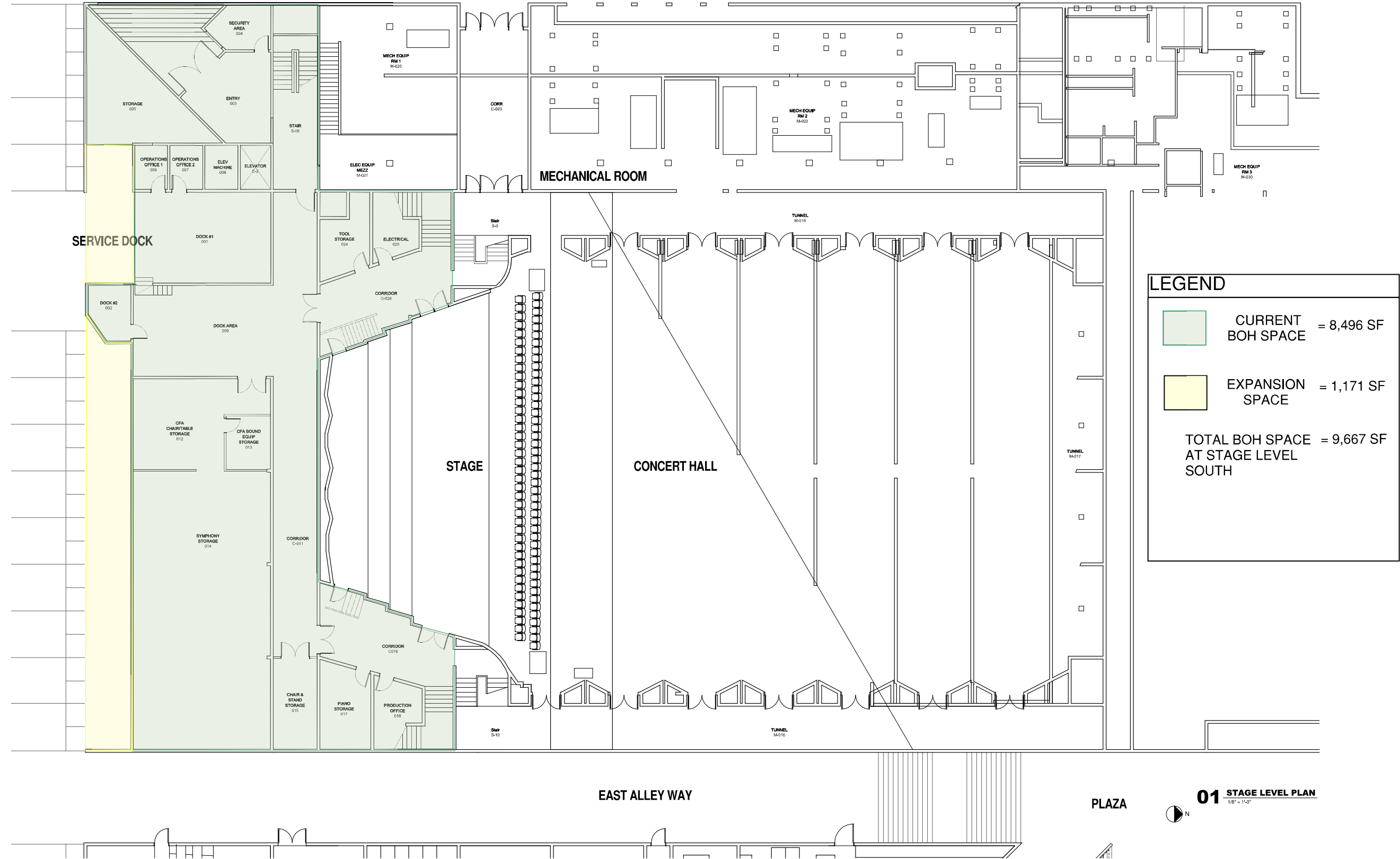
4. CONCEPT DEVELOPMENT

Add summary here.









ABRAVANEL HALL - PHASE 3 ROOM PROGRAM DATA

DATE: 4/1/2014

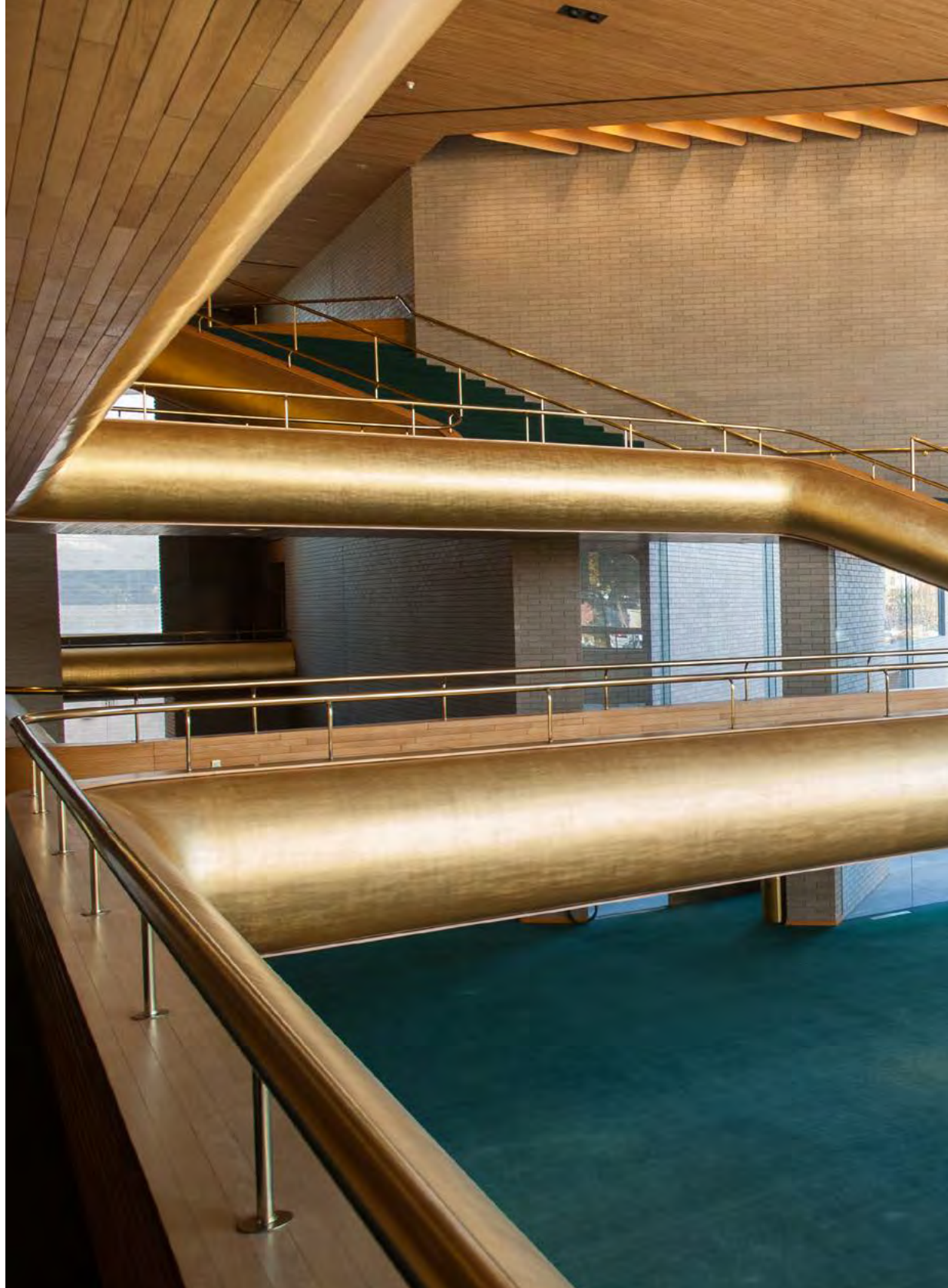
ROOM NUMBER	EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
STAGE LEVEL				
001	DOCK #1	567	EXTEND DOCK OUT TO SOUTH	220
002	DOCK #2	97	-	
003	ENTRY	283	-	
004	SECURITY AREA	112	-	
005	STORAGE	425	-	
006	OPERATIONS OFFICE 1	66	-	
007	OPERATIONS OFFICE 2	66	-	
008	ELEV MACHINE	67	-	
009	DOCK AREA	960	-	
012	CFA CHAIR/TABLE STORAGE	435		
013	CFA SOUND EQUIP STORAGE	108		
014	SYMPHONY STORAGE (EQUIP)	1757		
			HARP STORAGE	150
			PERCUSSION ROOM	1200
			LARGE STRING ROOM	600
015	CHAIR & STAND STORAGE	183		
017	PIANO STORAGE	193	LARGER	200
018	PRODUCTION OFFICE	231	-	
024	TOOL STORAGE	149	-	
025	ELECTRICAL	208	-	
			LAUNDRY ROOM	150
			QUICK CHANGE ROOM	50
			QUICK CHANGE ROOM	50
			RESTROOM AT STAGE LEVEL	65
	TOTAL ROOM SQ FT - STAGE LEVEL	5907	ADDED ROOM SQ FT - STAGE LEVEL	2685
	CIRCULATION/BLDG STRUCTURE	2589	CIRCULATION/BLDG STRUCTURE	1020
	43.83%			
	TOTAL SQ FT - STAGE LEVEL	8496	TOTAL ADDED SQ FT - STAGE LEVEL	3705
			TOTAL SQ FT NEEDED AT STAGE LEVEL	12201
LOBBY LEVEL				
112	WORK RM	214	-	
113	GENERAL OFFICE 01	77	-	
114	GENERAL OFFICE 02	117	-	
115	EXEC OFFICE-1	210	-	
115A	STORAGE	31	-	
116	EXEC OFFICE-2	171	-	
117	EXEC OFFICE-3	151	-	
			EXEC OFFICE-4	175
			EXEC OFFICE-5	175
118	EXEC ASSIST-1	65	LARGER	35
119	EXEC ASSIST-2	139	-	
			EXEC ASSIST-3	100
			EXEC CONFERENCE ROOM	225
120	TOILET ROOM (FOR OFFICES)	86	-	
			TOILET ROOM (FOR OFFICES)	65
121	OPERATIONS MGR-1	142	-	
122	OPERATIONS MGR-2	153	-	
123	OPERATIONS MGR-3	80	-	
			OPERATIONS MGR-4	135
124	DEVELOP EXEC	151	-	
125	DEVELOP MGR-1	155	-	
126	DEVELOP MGR-2	156	-	
127	DEVELOP MGR-3	152	-	
128	DEVELOP MGR-4	155	-	
129	DEVELOP MGR-5	78	LARGER	55
130	DEVELOP MGR-6	69	LARGER	65
131	DEVELOP CUBICLES (5 CUBICLES)	145	-	

ROOM NUMBER	EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
132	ASSIST CONDUCTOR	139	-	
133	KITCHEN	173	LARGER	100
134	I.T. COMM	58	LARGER	50
			I.T. MANAGER	135
			I.T. CUBICLE	50
			I.T. WORKROOM	300
			MARKETING EXEC OFFICE	175
			MARKETING MANAGER (6 @135 SF)	810
			MARKETING CUBICLES (2 @50 SF)	100
			FISCAL EXEC OFFICE	175
			FISCAL MANAGER (3 @ 135 SF)	405
			FISCAL DOUBLE OFFICE	200
			FISCAL CUBICLES (2 @50 SF)	100
			CALL CENTER MANAGER (2 @135 SF)	270
			CALL CENTER CUBICLES (12@50 SF)	600
			CALL CENTER BREAK ROOM	200
151	HKSPG	41	-	
			HSKPG	60
152	ELEC	41	-	
			ELEC	100
153	ELEV	62	-	
			FREIGHT ELEVATOR	150
154	VENDING	170	-	
155	WOMEN'S LOCKER (36? LOCKERS)	280	MORE/LARGER LOCKERS	300
156	MEN'S LOCKER (72? LOCKERS)	413	LARGER LOCKERS	200
157	MEN'S TLT (2 STALLS, 2 URINALS)	186	50 PEOPLE	120
158	WOMEN'S TLT (4 STALLS)	146	50 PEOPLE	150
160	PERFORMERS LOUNGE	1275	LARGER	475
161	CFA EVENT MANAGER	140	-	
162	SYMPH PERSONEL OFFICE	141	-	
			SYMPH PERSONEL OFFICE	140
163	SYMPHONY OFFICE	368	-	
164	QUIET LOUNGE	442	LARGER	258
165	CONFERENCE ROOM	367	LARGER FOR 30 PEOPLE	533
166	GUEST SUITE (w 1/2 BATH,PIANO)	148	-	
			GUEST SUITE (W 1/2 BATH, PIANO)	148
167	CONDUCTOR SUITE (w TLT, CHANGE)	334	-	
			CONDUCTOR SUITE (w TLT, CHANGE)	334
			CONDUCTOR SUITE (w TLT, CHANGE)	334
171	KITCHEN	108	-	
172	DRESSING-02	52	-	
173	DRESSING-03	52	-	
174	DRESSING-04	52	-	
175	DRESSING-05	52	-	
			SINGLE DRESSING ROOM	65
176	CONCERT MASTER	52	LARGER	100
180	MUSIC LIBRARY	596	LARGER	400
181	TECH DIRECTORS	320	-	
182	SOUND & LIGHT BOOTH	119	-	
			CHORAL ROOM (150 PEOPLE)	1300
			CHORAL TOILET RM - FEMALE	140
			CHORAL TOILET RM - MALE	140
			CHORAL DIRECTOR OFFICE	100
			SECTION PRACTICE ROOM	230
			SECTION PRACTICE ROOM	230
			BLDG OPERATIONS OFFICE	80
			PRODUCTION OFFICES	150
			USHER COAT ROOM	100
			HOUSE MANAGER OFFICES	80
			WOODWIND STORAGE	150
			VIOLIN/VIOLA STORAGE	250
			BRASS STORAGE	120

ROOM NUMBER	EXISTING ROOM NAME	CURRENT ROOM AREA (SF)	ADDITIONAL NEEDS	ADDED AREA (SF)
	TOTAL ROOM SQ FT - LOBBY LEVEL	9024	ADDED ROOM SQ FT - LOBBY LEVEL	11637
	CIRCULATION/BLDG STRUCTURE	4659	CIRCULATION/BLDG STRUCTURE	5935
	51.63%			
	TOTAL SQ FT - LOBBY LEVEL	13683	TOTAL ADDED SQ FT - LOBBY LEVEL	17572

TOTAL SQ FT NEEDED AT LOBBY LEVEL 31255

5. CONSULTANT NARRATIVES



March 5, 2014

Mr. Jack Madsen
HKS Architects, Inc.
90 South 400 West #110
Salt Lake City, UT 84101

RE: Abravanel Hall Renovation Programming Study

Jack:

BHB Consulting Engineers' scope of work as we understand it for the above- mentioned study is:

1. Do an on-site observation of the building to observe the structural condition of the building.
2. Review available existing structural drawing of the building.
3. Provide input to the structural implications of proposed renovations to the building.
4. Write a brief report.

The renovations, as we understand it, that are being considered in this program study that affects the structure of the building are as follows:

1. Build an addition on the northwest side of the building.
2. Hang the Chihuly Sculpture from the roof structure.
3. Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.
4. Increase storage space at back of house for instruments by adding onto the south.
5. Add another story on the south and west side of building. This additional story will but up against the south and west of the auditorium.
6. Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.
7. Add needed structure at the coffers between chandeliers in order to move the follow spot from its present location at the top of tier

Quite a few of the items above have one thing in common. This is that a full seismic evaluation will need to be done for the existing building in conjunction with the proposed modifications and additions. Providing a full seismic evaluation of the existing building with the alterations and additions are not part of our scope-of-work.

The 2012 International Building Code (IBC) requires that if the lateral load capacity of any element is decreased by more than 10% due to alterations, the lateral load capacity of the element needs to be shown to meet present day lateral load design forces per the 2012 IBC. If this altered element is shown not to meet these required lateral load design forces, the element is to be strengthened in order to so.

Also the 2012 IBC requires that if a proposed addition to an existing building will not be structurally independent of the existing building and the addition's portion of the lateral load forces on the existing element is more than 10% of that element, the lateral load capacity of the element needs to be shown to meet 2012 IBC lateral load design forces. If the element is shown not to meet these required lateral load design forces the element is to be strengthened in order to do so.

For information, the present day code design seismic lateral forces have increased by about 45% since this building and its addition were constructed. This means that if an element is found to be inadequate with the addition and the addition provides more than 10% of the lateral load to the element, the element will need to be strengthened to account for the 45% increase due to code modifications since the time when the building was built plus the lateral load that would come from the addition.

Finally, the 2012 International Building Code requires that if the gravity load on an element is increased by more than 5%, the element shall be strengthened, supplemented or replace unless it can be shown the element has the gravity load capacity to carry present day design loads including the increased load.

It is our feeling that the modifications and additions above are all structurally possible; however some structural upgrade may be required.

1. **Build an addition on the northwest side of the building.** If the addition has a seismic expansion joint between it and the existing building the code doesn't require any strengthening of the existing building for later al loads due to the addition. In reviewing the existing drawings we were provided it appears the top of existing footings are low enough that the addition's floor elevation can be at 91'-0' right up to the existing building. Per the existing drawings of this area the top of footings carrying the existing load bearing walls varies from 76'-0" to 83'-4". The ticket lobby floor elevation is at 91'-0". The footings at the glass walls at this area however are at 96'-6". We are assuming these glass walls will be removed in this area when the addition is built.
2. **Hang the Chihuly Sculpture from the roof structure.** If the member of roof structure where it is proposed to hang this sculpture is inadequate, the member can be strengthened, supplemented or replaced as needed.
3. **Add a truck dock at the back of house so that a larger truck could be used for transporting musical instruments.** This will require punching a hole in the existing exterior concrete wall. It appears there is adequate concrete wall on the south building to allow this. Also a "dog house" will need to be built in order to be able to park the truck inside.
4. **Increase storage space at back of house for instruments by adding onto the south.** The roof at the south end of the building cantilevers out beyond the south wall of the building. A wall could be added to line-up with this roof in order to enclose the space in below the cantilevered roof. Openings could be punched through the existing south concrete wall in select locations in order to access this space.
5. **Add another story on the south and west side of building.** Don Barker with BHB Consulting Engineers did a feasibility study of this about 15 to 20 years ago that showed this is possible. This additional story would need to be constructed with a light weight steel structure. Since that time however, the lateral design forces have increased by 45%. The existing structural would need to be investigated to see if it has the lateral capacity to resist the additional seismic loads caused by this additional story. If it doesn't, parts of the existing lateral system would be to be strengthened or addition lateral resisting elements added.
6. **Infill part of the floor opening above the west end of the lobby at either the first tier level or the 2nd tier level.** It would need to be verified that te existing structure has the capacity to carry the additional gravity loads and lateral loads generate by the infill. If it doesn't the existing structure would need to be strengthened.
7. **Add needed structure at ceiling coffers between chandeliers in order to move the follow spot from its present location at the top of tier.** The same would need to be done at this location as at the proposed location where the Chihuly Sculpture would be hung.

If you have any questions, please feel free to call.

Sincerely,

BHB Consulting Engineers
Don W. Barker SE Principal



ABRAVANEL HALL RENOVATION1. ELECTRICAL SYSTEMS NARRATIVECODES AND STANDARDS

GENERAL

The electrical work will comply with current codes and standards that are applicable:

NEC (National Electrical Code)
 NFC (National Fire Code)
 NFPA (National Fire Protection Association)
 IFC (International Fire Code)
 IBC (International Building Code)
 ASHRAE 90.1 (Energy Code)
 UL (Underwriters Laboratories)
 ASTM (American Society for Testing and Materials)
 ANSI (American National Standards Institute)
 NEMA (National Electrical Manufacturer's Association)
 IEEE (Institute of Electrical and Electronics Engineers)
 EIA/TIA (Electronic Industries Association/Telecommunications Industries Association)
 IESNA (Illuminating Engineering Society of North America)

BUILDING ELECTRICAL SERVICE DISTRIBUTION

POWER DISTRIBUTION

Existing power in the building is 277/480V, 3 phase, 4 wire and 120/208V, 3 phase, 4 wire.

Lighting and Mechanical equipment is served with 277/480V, 3 phase, 4 wire. Receptacles, small motors and miscellaneous equipment is served with 120/208V, 3 phase, 4 wire.

VOLTAGE DROP

The voltage drop for feeders shall be limited to 2 percent. The voltage drop for branch circuits shall be limited to 3 percent.

RACEWAYS

Raceways shall be steel; EMT conduit (Electrical Metallic Tubing) shall be used throughout for branch circuits and feeders. PVC conduit shall be used under slab and below grade with rigid elbows. Final conduit connections for interior lighting fixtures shall be by means of a flexible conduit whip, not exceeding 6 feet in length. Conduit connections to vibrating equipment shall be by means of flexible seal-tite conduit. Conduit fittings shall be malleable steel. Aluminum conduit and conduit fittings shall not be acceptable. Minimum raceway size shall be 3/4 inch.

CONDUCTORS

All conductors shall be copper. Use solid conductor for sizes #12 AWG and smaller; stranded conductor for sizes #10 AWG and larger. Insulation shall be THHN/THWN, rated for 600 volts. Aluminum conductors will not be acceptable. Minimum conductor size for branch circuits shall be #12 AWG. All 20 amp branch circuits over 100 feet in length shall be #10 conductors. All conductors will be color coded according to the NEC.

GROUNDING

Grounding shall be provided for the entire raceway, service entrance, enclosures and equipment system. Grounding shall be provided in accordance with the NEC. A separate grounding conductor shall be provided for all feeders, equipment circuits and branch circuit runs. Grounding conductors shall be sized in accordance with the NEC.

SEISMIC SUPPORT

Electrical Contractor will support and provide seismic bracing for electrical equipment, lighting fixtures, etc. shall be supported from building structural elements, independently from ceilings and ceiling support wires. Attach wall mounted equipment rigidly to wall structure, provide additional wall bracing as required by the application. Attach floor mounted equipment rigidly to floor or structure. Seismically brace all electrical equipment and raceways in accordance with the most recent regulations of UBC or IBC, and the guidelines for Seismic Restraint for Electrical Systems (SMACNA).

WIRING DEVICES

Wiring devices shall comply with NEMA standards Pub. No. WD 1. Switches and receptacles shall be specification grade, and rated at 20 amps and 120 volts AC. Receptacles shall be 3-wire grounding type. GFI (Ground fault circuit interrupter) type receptacles shall be rated 20 amps, 120 volts AC, with solid-state ground fault sensing and 5 milliamp trip levels. Receptacles in toilet rooms, wet areas, or within 6 feet of any sink shall be GFI type. All cover plates shall be stainless steel or otherwise as directed by Architect and/or Owner to match existing conditions.

EMERGENCY POWER

Emergency egress power shall be provided for life safety including exit and egress lighting. Utilize power from existing emergency distribution system. Provide exterior emergency egress illumination per NFPA 101, 7.8 Illumination of Means of Egress.

LIGHTING

All Illumination Levels will be designed per IESNA standards. Point by point foot-candle calculations will be provided in critical areas. 3d modeling will be provided as requested by Owner.

INTERIOR LIGHTING

Interior lighting will be primarily illuminated with LED and Fluorescent lamps. Lighting design criteria and approach will exceed ASHRAE 90.1 and will be as energy efficient as possible.

BNACONSULTING

EXTERIOR LIGHTING

Exterior lighting will complement and enhance the new architectural design features and existing conditions. LED light fixtures will be utilized. Emergency egress lighting will be provided at the building exit.

LIGHTING CONTROLS

Controllability of lighting shall match existing conditions and utilize existing control equipment in all possible locations. Provide occupancy sensing devices in new rooms and/or areas as applicable to the space. Variable light levels and dimming controls will be provided as directed in new developed areas.

FIRE AND LIFE SAFETY

New fire alarm devices will be provided in the renovated space and integrated into existing class A fire alarm loops or new fire alarm class A loop circuits will be added to the existing Fire Alarm System. New battery calculation will be provided and necessary programming for the expansion to the Fire Alarm Control Panel. Update to the fire alarm annunciator, the fire alarm drawing and building floor plan will be provided. The Fire Alarm System will be designed to meet all applicable codes.

All new devices will match the existing fire alarm system in the building.

TELECOMMUNICATIONS

New tele/data receptacles shall extend to existing Tele/Comm equipment rooms. Provide conduit and conductor as required per Owner standards and existing conditions. Wireless Access Points will be designed in the space by Owner.

SECURITY SYSTEMS

A raceway only design system shall be provided for security as directed by Owner. This will include Video Surveillance and CCTV.

AUDIO/VISUAL

An audio visual system shall be provided and will be designed with input from the Owner. Provide equipment rough-in and raceway to accommodate design intent. Coordination of A/V headend equipment and controls shall be coordinated with the Architect and Owner.

SUSTAINABLE DESIGN

ENERGY UTILIZATION

The standard that governs the requirements for energy utilization is ASHRAE 90.1. This standard outlines the power density requirements for electrical lighting systems as well as energy related to mechanical cooling and heating.

As it applies to electrical lighting systems, ASHRAE 90.1 limits the power density that can be used for interior and exterior lighting. The lighting design will exceed minimum requirements.

PHASE THREE

Back of house
Concert hall
Stage

BNACONSULTING

PHASE 3 BOH TYPICAL

GENERAL

The mechanical system will provide heating, ventilation and air conditioning required for the new building functions.

The mechanical system will be designed to provide a safe, economical, energy efficient, low maintenance type system that is balanced with the projects sustainability goals. All mechanical systems will have a proven track record of high quality, energy efficiency and environmental control.

HVAC DESIGN CRITERIA

Comply with the 2012 edition of the International Codes:

- International Building Code (IBC),
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Fuel Gas Code (IFGC)
- International Energy Conservation Code (IECC)
- International Fire Code (IFC)
- National Electric Code (NEC)
- All state amendments.

Comply with all applicable local, state, and federal codes and regulations.

HVAC system to comply with the following standards, most current edition:

- ANSI/ASHRAE Standard 62-2010: Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy
- ANSI/ASHRAE 90.1-2010: Energy Standard for Buildings
- SMACNA Sheet Metal and Air Conditioning Contractor’s National Association standards
- Industrial Ventilation: A Manual of Recommended Practice
- Heating and Cooling Load Calculations: Size the building heating and cooling systems based on undiversified calculated loads for space and process equipment. Include 10% safety factor for the heating load calculations and no safety factor for the cooling load calculations.

Infiltration: Design for 30 MPH wind when calculating infiltration loads and building pressurization controls.

Design for Environmental Awareness. The built environment has a profound impact on our natural environment, economy, health, and productivity. Incorporate environmentally friendly solutions in the building design.

DESIGN CONDITIONS

Outside Design Conditions: Use the following climate data from ASHRAE Fundamental Handbook for Salt Lake City, Utah

Elevation	4226 FT	
Summer Design Dry Bulb Temp. (ASHRAE 0.4%)	96 deg. F	
Summer Mean Coincident Web Bulb (ASHRAE 0.4%)	62 deg. F	
Cooling Tower Web Bulb Temp. (ASHRAE 0.4%)	66 deg. F	
Winter Design Dry Bulb Temp. (ASHRAE 99%)	6 deg. F	
Winter Design Dry Bulb Temp. (VBFA Standard)	0 deg. F	

Indoor Design Conditions: AHSRAE Standard 55

Interior occupied spaces:

Summer	75 deg. F	50% RH Maximum
Winter	72 deg. F	No Minimum

Mechanical Rooms, Electrical Rooms, and Elev. Equip. Rooms:

Summer	80 deg. F	No humidity control
Winter	60 deg. F	No humidity control

Telephone/Data/Communication:

Year Round	75 deg. F max.	No humidity control
------------	----------------	---------------------

Noise Criteria: Design the heating, ventilating and air conditioning systems to meet the acoustical design criteria

Pressure Relationships: Design the heating, ventilating and air conditioning systems to meet the following:

Building:	Positive to outside
Toilet Rooms:	Negative to adjacent spaces

VENTILATION REQUIREMENTS

Ventilation will comply with the IMC and ASHRAE Standard 62.1.

Provide a building relief air system to maintain the building to be +0.03-0.05 in. W.G. building static pressure.

HEAT SOURCE

The heat source will be from the existing high pressure steam system that currently serves Abravanel Hall. The central plant is located in the Salt Palace. Abravanel Hall is served by an 8” medium pressure steam line and a 2” pumped condensate line. The proposed additional building space will require additional heat. The proposed Plaza snow melt system will require up to 3,000,000 BTU/H of additional. The proposed future fountain will be heated; the current fountain is not heated. A study will need to be done to determine if the existing central heating plant and steam and condensate main lines have adequate capacity for the future requirements.

COOLING SOURCE

The cooling source will be from the existing chilled water plant that currently serves the Abravanel Hall. The central cooling plant is located in the Salt Palace. Abravanel Hall is served by 8” chilled water supply and return pipes. There will be some additional cooling required for the propose additional building space. A study may need to be done to determine if the existing central heating plant and main lines have adequate capacity for the future.

AIR HANDLERS

Central air handlers will be required for the proposed additional building spaces. Fan rooms will have to be provided to accommodate indoor handlers. Approximately 5% of the proposed additional space will be required for fan rooms. The existing building has indoor air handlers. Air handlers will be factory custom built type for better sound performance.



PROGRAMMING PACKAGE
04.30.2014
HKS #17350.001

ABRAVANEL HALL RENOVATION
Salt Lake City, Utah



VAN BOERUM & FRANK ASSOCIATES, INC.
CONSULTING ENGINEERS



Multiple fan arrays (fan walls) will be used for supply air fans and return/relief air fans in the air handlers serving sound critical areas. Multiple fan arrays also provide better redundancy. The smaller fans in the multiple fan arrays are also easier to replace. The air handlers should be located remotely from sound sensitive areas for acoustical reasons, similar to the existing design.

The air handlers will have outside air intake and dampers, return air dampers, filters, relief or return air fans, supply air fans, glycol preheat coils, chilled water cooling coils, and direct evaporative cooling sections. All pre-filters shall be MERV 8 and all final filters shall be MERV 13.

The air handlers will be sized for a coil face velocity of 400 feet per minute, in lieu of the standard 500 feet per minute in order to save fan energy.

All fans will have variable frequency drives (VFD's). VFD's are required for multiple zone variable air volume (VAV) systems. VFD's will also be provided on single zone systems, such as the, in order to reduce the air flow (and fan energy) when these spaces are not occupied or only partially occupied.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

The ATC system will comply with the Salt Lake County Design Guidelines. The Salt Lake City approved controls manufacturer is: Alerton. Approved installers are D&L Controls and Alliance Energy and Integration.

Controls will have the capability of trend logging specific parameters in order to Commission the system and track energy costs.

DOMESTIC WATER SERVICE

New plumbing fixtures will connect into the existing domestic hot and cold water lines

BUILDING SEWER

New plumbing fixtures will connect into the existing waste and vent system.

ROOF DRAINAGE SYSTEM

A primary and overflow roof drainage system will be provided for new roof areas. The overflow roof drains will daylight

PLUMBING FIXTURES

The following low flow fixtures will be used for water savings:

- Manual flush valve water closets at 1.28 gal/flush
- Sensor actuator urinals at 1 pt/flush
- Sensor actuator lavatories at 0.5 gpm
- Showers at 1.5 gpm

The lavatories and urinals shall have hard-wired sensors.

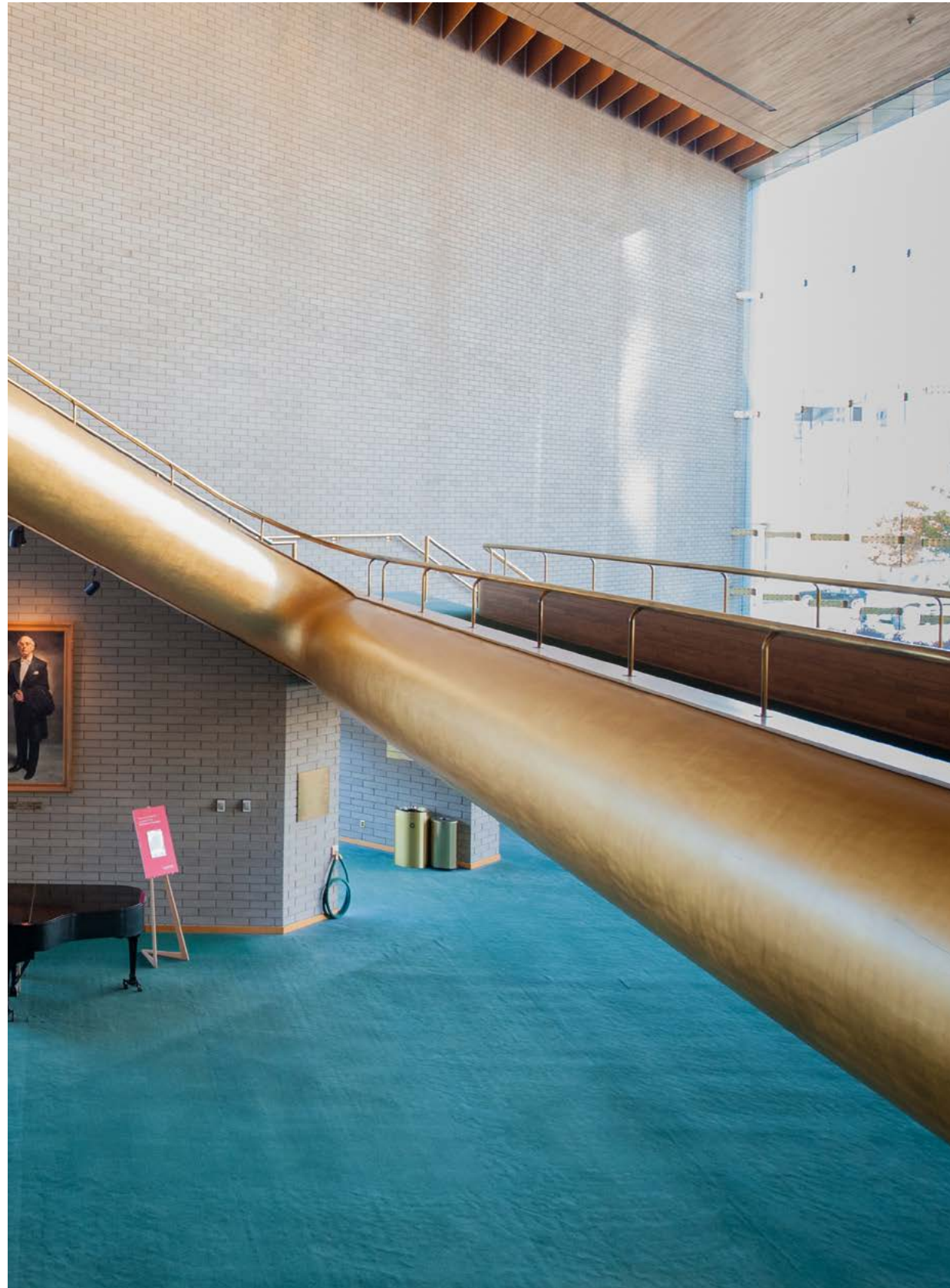
GREASE WASTE

Grease waste from kitchen and food service areas will be processed using local point of use grease interceptors.

FIRE SUPPRESSION SYSTEMS

The proposed additional spaces will connect into the existing wet pipe fire sprinkler system.

6. PRELIMINARY COST ESTIMATE



PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014	
PROJECT NAME.....ABRAVANEL HALL NEW BUILDING EXPANSION ABOVE BOH AREAS					
LOCATION.....SALT LAKE CITY, UT					
ARCHITECT.....HKS					
STAGE OF DESIGN.....MASTERPLANNING					
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	
ADDITION ABOVE EXISTING STRUCTURE					
DEMOLITION	17,572	SF	\$ 4.00	\$ 70,288	
CORE & SHELL CONSTRUCTION	17,572	SF	\$ 195.00	\$ 3,426,540	
EXEC OFFICE-4	175	SF	\$ 165.00	\$ 28,875	
EXEC OFFICE-5	175	SF	\$ 165.00	\$ 28,875	
EXEC ASSIST 1 LARGER	35	SF	\$ 135.00	\$ 4,725	
EXEC ASSIST-3	100	SF	\$ 135.00	\$ 13,500	
EXEC CONFERENCE ROOM	225	SF	\$ 175.00	\$ 39,375	
TOILET ROOM (FOR OFFICES)	65	SF	\$ 225.00	\$ 14,625	
OPERATIONS MGR-4	135	SF	\$ 135.00	\$ 18,225	
DEVELOP MGR 5 LARGER	55	SF	\$ 135.00	\$ 7,425	
DEVELOP MGR 6 LARGER	65	SF	\$ 135.00	\$ 8,775	
KITCHEN LARGER	100	SF	\$ 175.00	\$ 17,500	
I.T. COM LARGER	50	SF	\$ 80.00	\$ 4,000	
I.T. MANAGER	135	SF	\$ 135.00	\$ 18,225	
I.T. CUBICLE	50	SF	\$ 120.00	\$ 6,000	
I.T. WORKROOM	300	SF	\$ 135.00	\$ 40,500	
MARKETING EXEC OFFICE	175	SF	\$ 135.00	\$ 23,625	
MARKETING MANAGER (6 @135 SF)	810	SF	\$ 135.00	\$ 109,350	
MARKETING CUBICLES (2 @50 SF)	100	SF	\$ 120.00	\$ 12,000	
FISCAL EXEC OFFICE	175	SF	\$ 165.00	\$ 28,875	
FISCAL MANAGER (3 @ 135 SF)	405	SF	\$ 135.00	\$ 54,675	
FISCAL DOUBLE OFFICE	200	SF	\$ 135.00	\$ 27,000	
FISCAL CUBICLES (2 @50 SF)	100	SF	\$ 120.00	\$ 12,000	

6. PRELIMINARY COST ESTIMATE

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014	
PROJECT NAME.....ABRAVANEL HALL NEW BUILDING EXPANSION ABOVE BOH AREAS					
LOCATION.....SALT LAKE CITY, UT					
ARCHITECT.....HKS					
STAGE OF DESIGN.....MASTERPLANNING					
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	
CALL CENTER MANAGER (2 @135 SF)	270	SF	\$ 135.00	\$ 36,450	
CALL CENTER CUBICLES (12@50 SF)	600	SF	\$ 135.00	\$ 81,000	
CALL CENTER BREAK ROOM	200	SF	\$ 135.00	\$ 27,000	
HSKPG	60	SF	\$ 80.00	\$ 4,800	
ELEC	100	SF	\$ 80.00	\$ 8,000	
FREIGHT ELEVATOR	150	SF	\$ 1,000.00	\$ 150,000	
MORE/LARGER LOCKERS	300	SF	\$ 225.00	\$ 67,500	
LARGER LOCKERS	200	SF	\$ 225.00	\$ 45,000	
50 PEOPLE TOILET EXPANSION	120	SF	\$ 225.00	\$ 27,000	
50 PEOPLE TOILET EXPANSION	150	SF	\$ 225.00	\$ 33,750	
PERFORMERS LOUNGE LARGER	475	SF	\$ 165.00	\$ 78,375	
SYMPH PERSONEL OFFICE	140	SF	\$ 135.00	\$ 18,900	
QUIET LOUNG LARGER	258	SF	\$ 165.00	\$ 42,570	
CONFERENCE ROOMLARGER FOR 30 PEOPLE	533	SF	\$ 175.00	\$ 93,275	
GUEST SUITE (W 1/2 BATH, PIANO)	148	SF	\$ 175.00	\$ 25,900	
CONDUCTOR SUITE (w TLT, CHANGE)	334	SF	\$ 175.00	\$ 58,450	
CONDUCTOR SUITE (w TLT, CHANGE)	334	SF	\$ 175.00	\$ 58,450	
SINGLE DRESSING ROOM	65	SF	\$ 150.00	\$ 9,750	
CONCERT MASTER LARGER	100	SF	\$ 135.00	\$ 13,500	
MUSIC LIBRARY LARGER	400	SF	\$ 145.00	\$ 58,000	
CHORAL ROOM (150 PEOPLE)	1,300	SF	\$ 185.00	\$ 240,500	
CHORAL TOILET RM - FEMALE	140	SF	\$ 225.00	\$ 31,500	
CHORAL TOILET RM - MALE	140	SF	\$ 225.00	\$ 31,500	
CHORAL DIRECTOR OFFICE	100	SF	\$ 135.00	\$ 13,500	
SECTION PRACTICE ROOM	230	SF	\$ 185.00	\$ 42,550	

PROJECT ESTIMATE		CONSTRUCTION CONTROL CORPORATION		10/29/2014	
PROJECT NAME.....ABRAVANEL HALL NEW BUILDING EXPANSION ABOVE BOH AREAS					
LOCATION.....SALT LAKE CITY, UT					
ARCHITECT.....HKS					
STAGE OF DESIGN.....MASTERPLANNING					
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	
SECTION PRACTICE ROOM	230	SF	\$ 185.00	\$ 42,550	
BLDG OPERATIONS OFFICE	80	SF	\$ 135.00	\$ 10,800	
PRODUCTION OFFICES	150	SF	\$ 135.00	\$ 20,250	
USHER COAT ROOM	100	SF	\$ 155.00	\$ 15,500	
HOUSE MANAGER OFFICES	80	SF	\$ 135.00	\$ 10,800	
WOODWIND STORAGE	150	SF	\$ 95.00	\$ 14,250	
VIOLIN/VIOLA STORAGE	250	SF	\$ 95.00	\$ 23,750	
BRASS STORAGE	120	SF	\$ 95.00	\$ 11,400	
CIRCULATION/BLDG STRUCTURE	5,935	SF	\$ 135.00	\$ 801,207	
TOTAL PHASE 3B CONSTRUCTION COST		17572 SF	\$ 356.40	\$ 6,262,705	
Plan Check Fees				\$ 21,435	
Building Permit				\$ 32,977	
1% State Permit Fee				\$ 330	
Utility Connection Fees and Impact Fees				\$ 75,000	
Furniture Fixtures & Equipment				9%	\$ 563,643
A/E Fees				8%	\$ 501,016
Programming Study Fees				NIC	
Reimbursables				\$ 20,041	
Geotechnical				\$ 5,000	
Commissioning Agent				\$ 35,000	
Survey				\$ 5,000	
County Administration Fees				1.5%	\$ 93,941
Project Management Fees				1.5%	\$ 93,941
Owner's Construction Contingency				10%	\$ 626,271
Special Inspections & Testing				1%	\$ 62,627
Energy Modeling				\$ 45,000	
LEED Documentation A/E				\$ 45,000	
LEED Registration				\$ 35,000	
Art				1%	\$ 62,627
TOTAL PHASE 3B PROJECT COST				\$ 8,586,554	
ESTIMATE IS BASED UPON 2015 DOLLARS ESCALATION HAS NOT BEEN FACTORED IN					



A B R A V A N E L H A L L



MASTER PLAN OVERVIEW

OBJECTIVE

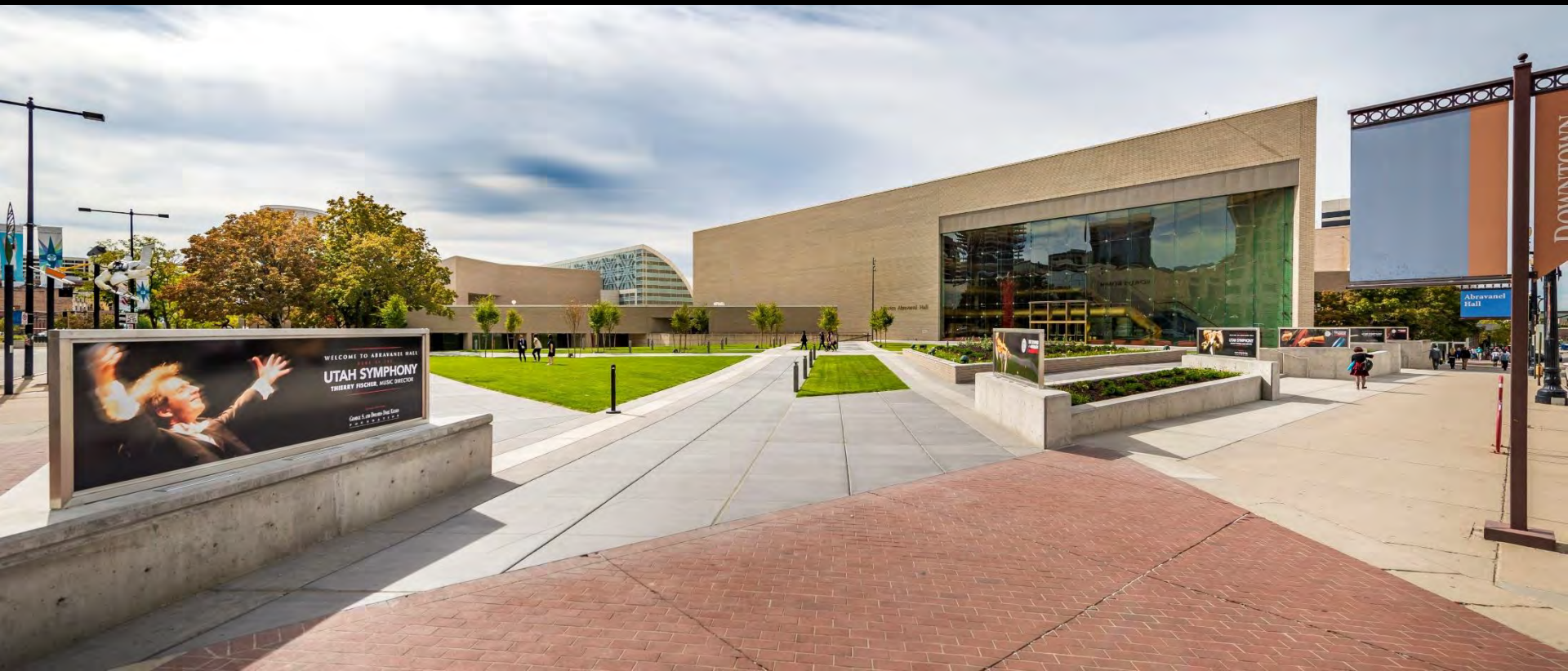
- HOW TO MAKE ABRAVANEL HALL RELEVANT TO TODAY'S AUDIENCES AND INTO THE FUTURE
- 1979 BUILDING

SCOPE

- 50 YEAR BLUE PRINT
- OPERATIONAL NEEDS
- PATHWAYS FOR GROWTH
- MERGING STAKEHOLDER GOALS WITH FACILITY NEEDS

PROCESS

- GATHER INFORMATION
- IDENTIFY NEEDS
- VISIONING
- ESTABLISH PRIMARY GOALS



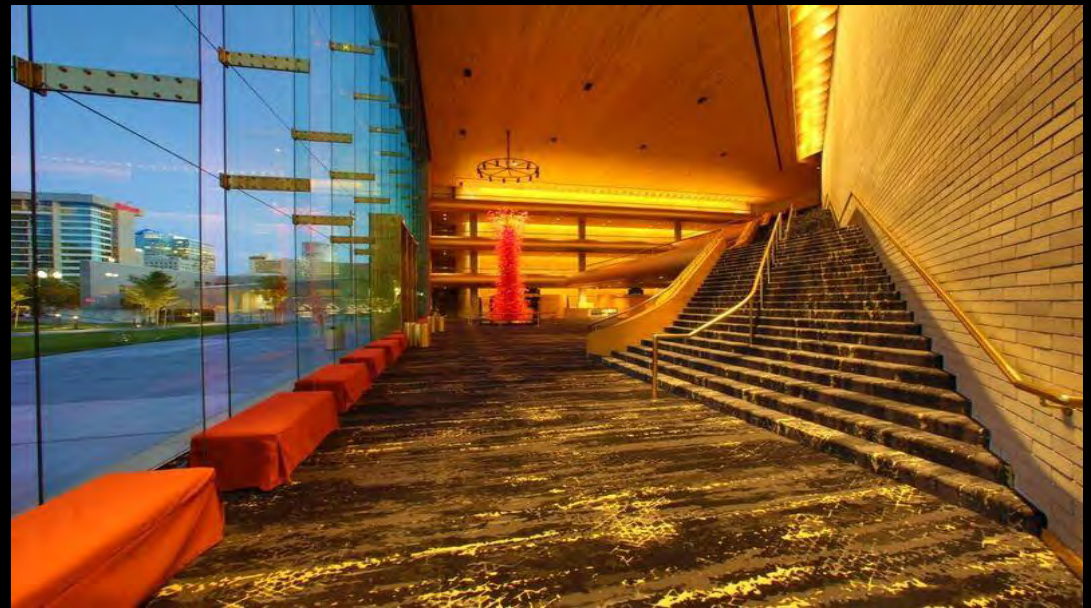


2014-15 PLAZA RENOVATION

\$ 1.8 M (COMPLETED)

2016 LOBBY RENOVATION Phase I Carpet Replacement

\$ 550,000 (COMPLETED)





RENOVATION
PLANS

MASTER PLAN PROJECT AREAS

AREA 1 – FRONT OF HOUSE

\$ 3.42 M

LOBBY RENOVATION

Phase II	Patron Services	\$ 1.00 M
Phase III	Escalators	\$.89 M
Phase IV	Lighting	\$ 1.53 M

AREA 2 – CONCERT HALL

\$ 2.14 M

TECHNICAL POSITIONS EQUIPMENT UPGRADES

AREA 3 – BACK STAGE

\$ 6.73 M

RENOVATION & EXPANSION OF PRODUCTION SPACES

AREA 4 – PLAZA ENHANCEMENTS

\$ 1.90 M

AREA 5 – LOBBY EXPANSION

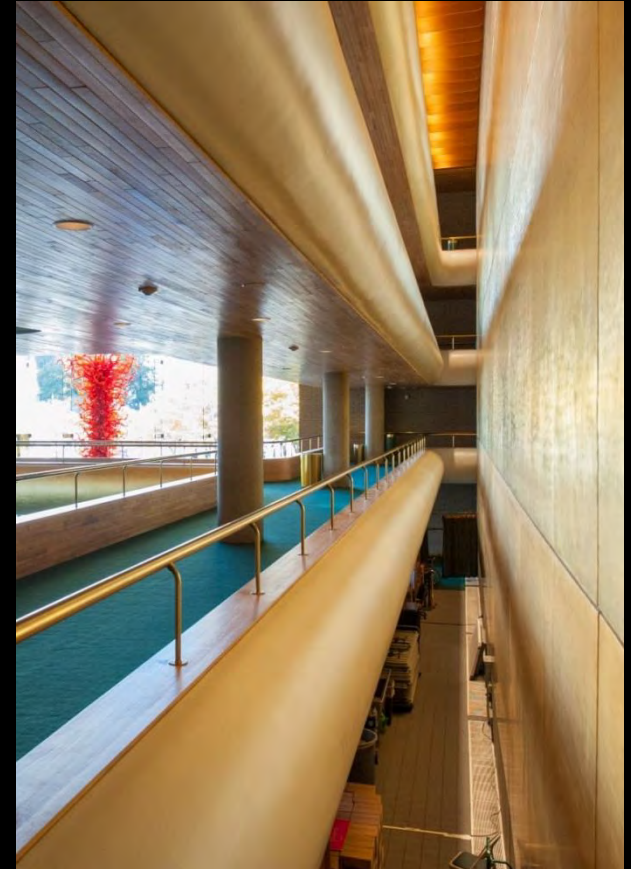
\$ 18.25 M

NEW “North Building” 3 LEVEL ADDITION

AREA 6 – BACK OF HOUSE EXPANSION

\$ 8.59 M

NEW MUSICIAN WORK SPACES NEW SYMPHONY OFFICES



AREA 1 – LOBBY RENOVATION

OBJECTIVES:

Phase II

- NEW CONCESSIONS & MERCHANDISE COUNTER
- COAT CHECK MILLWORK
- DIGITAL DISPLAY
- FURNITURE

Phase III

- NEW ESCALATORS AT WEST STAIR

Phase IV

- NEW GENERAL LIGHTING
- NEW LIGHTING AT CHIHULY SCULPTURE



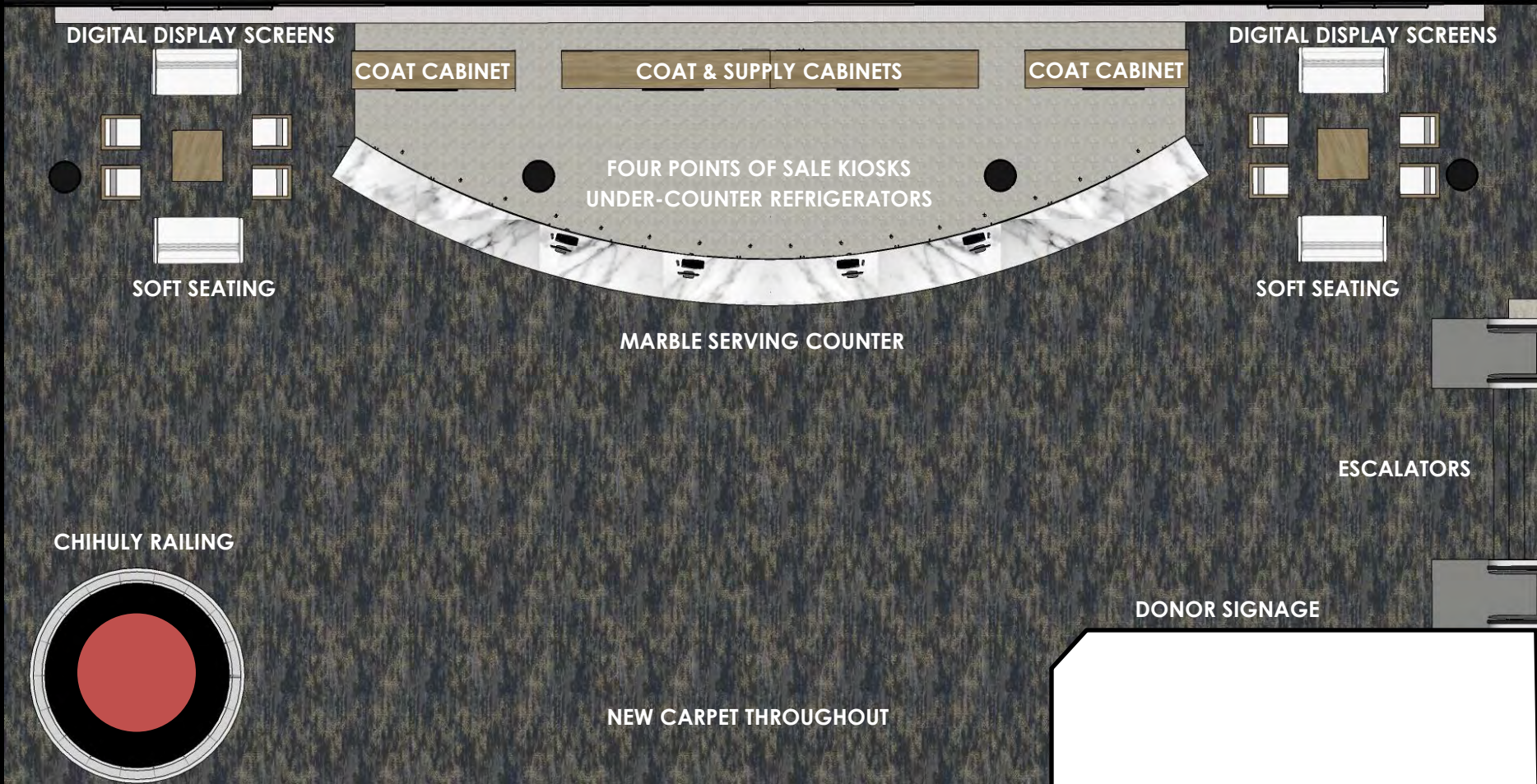
COST ESTIMATE

- \$ 3.42 MILLION

GOAL:

Update and enhance the overall lobby interior, creating a more inviting, functional and comfortable space.

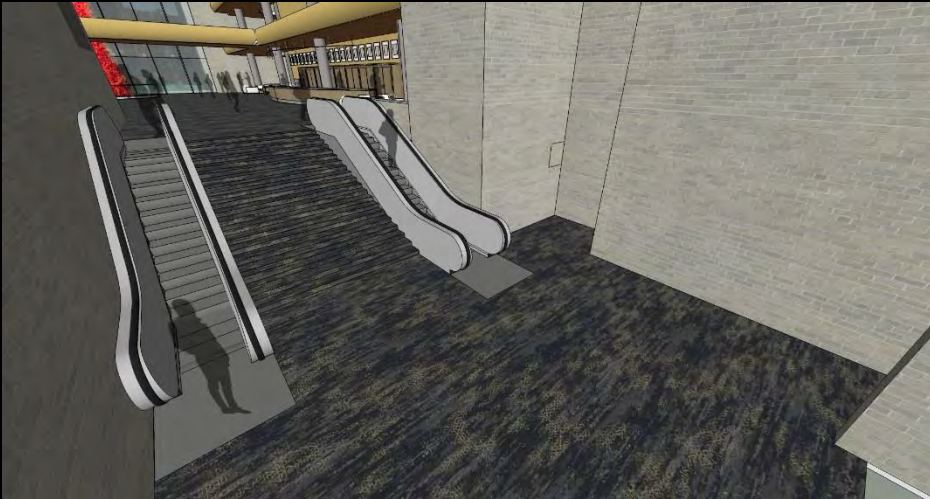
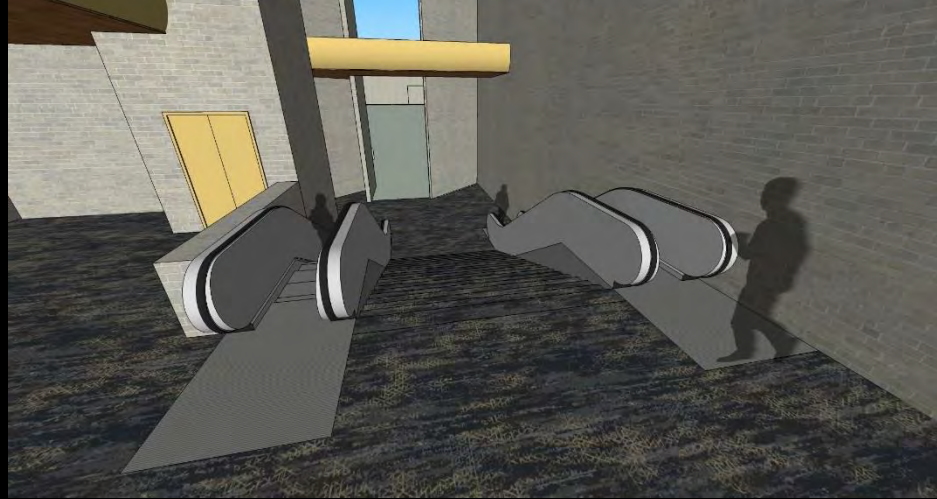
NEW CONCESSIONS / COAT CHECK / MERCHANDISING / SEATING / DIGITAL DISPLAY



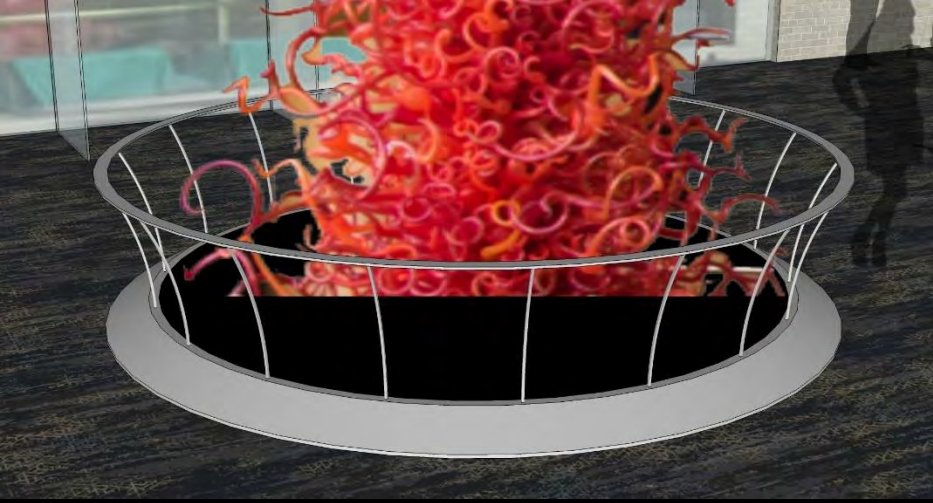
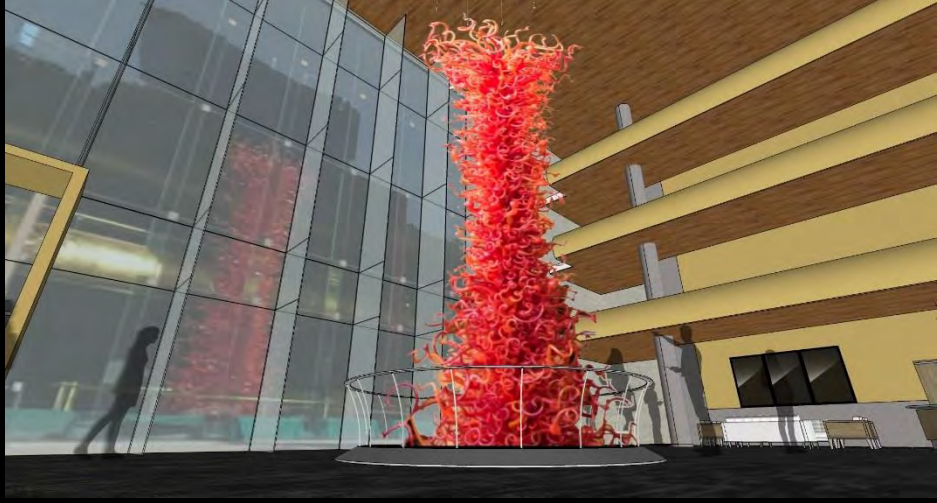
NEW CONCESSIONS / COAT CHECK / MERCHANDISING / SEATING / DIGITAL DISPLAY



NEW ESCALATOR / IMPROVED PATRON FLOW



NEW CHIHULY SCULPTURE BASE / LIGHTING



AREA 2 – CONCERT HALL

TECHNICAL AND EQUIPMENT UPGRADES

FEATURES

- NEW TECHNICAL POSITION AT BACK OF HALL
- NEW RECESSED LED LIGHTS OVER STAGE -REPLACING SHELL LIGHTS
- HIDE THEATRICAL LIGHTING POSITIONS AT SIDES OF PROSCENIUM
- ADD CONTEMPORARY LED LIGHTING SYSTEMS
- ADD STAGE RIGGING, PROJECTION & CONTROLS

COST ESTIMATE

- \$ 2.14 MILLION



AREA 3 – BACK STAGE

STAGE LEVEL - REMODEL OF PRODUCTION SPACES

FEATURES

- REMODEL LOADING DOCK @ 1,020 sq ft
- REMODEL US | UO PRODUCTION STORAGE
- REMODEL OF OPERATION AREAS TO MEET ARTISTS NEEDS



AREA 3 – BACK STAGE

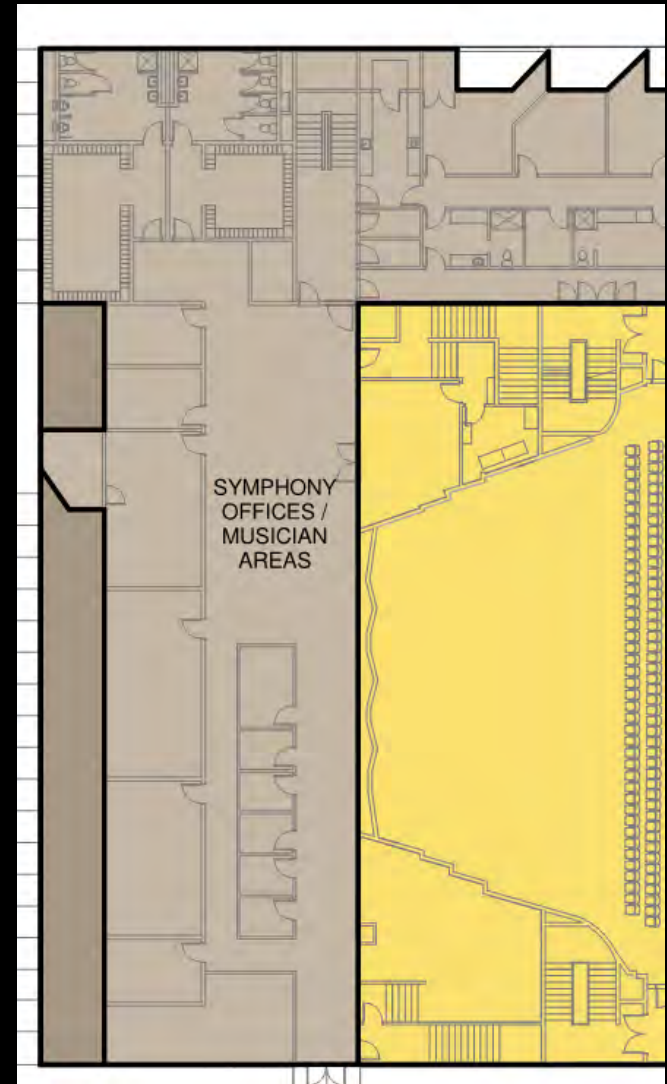
LOBBY LEVEL - REMODEL OF MUSICIAN SPACES

FEATURES

- REMODEL OF ARTISTS' LOCKER ROOMS, LOUNGE / CONFERENCE AREAS, DRESSING ROOMS, MUSIC LIBRARY & INSTRUMENT STORAGE SPACES
- REMODEL OF SYMPHONY & COUNTY EXISTING OFFICES

COST ESTIMATE

- \$6.73 MILLION



AREA 4 – PLAZA ENHANCEMENTS

MESSAGE CENTER - FOUNTAIN

ENHANCED PLAZA FEATURES

- NEW GRAPHIC LED MESSAGE CENTER \$800,000
- NEW 1,370 SF REFLECTION POOL WITH ZERO EDGE \$1,100,000

COST ESTIMATE

- \$ 1.9 MILLION



AREA 4 – PLAZA ENHANCEMENTS

MESSAGE CENTER





EXPANSION
PLANS

AREA 5 – LOBBY EXPANSION SOUTHWEST FACING VIEW



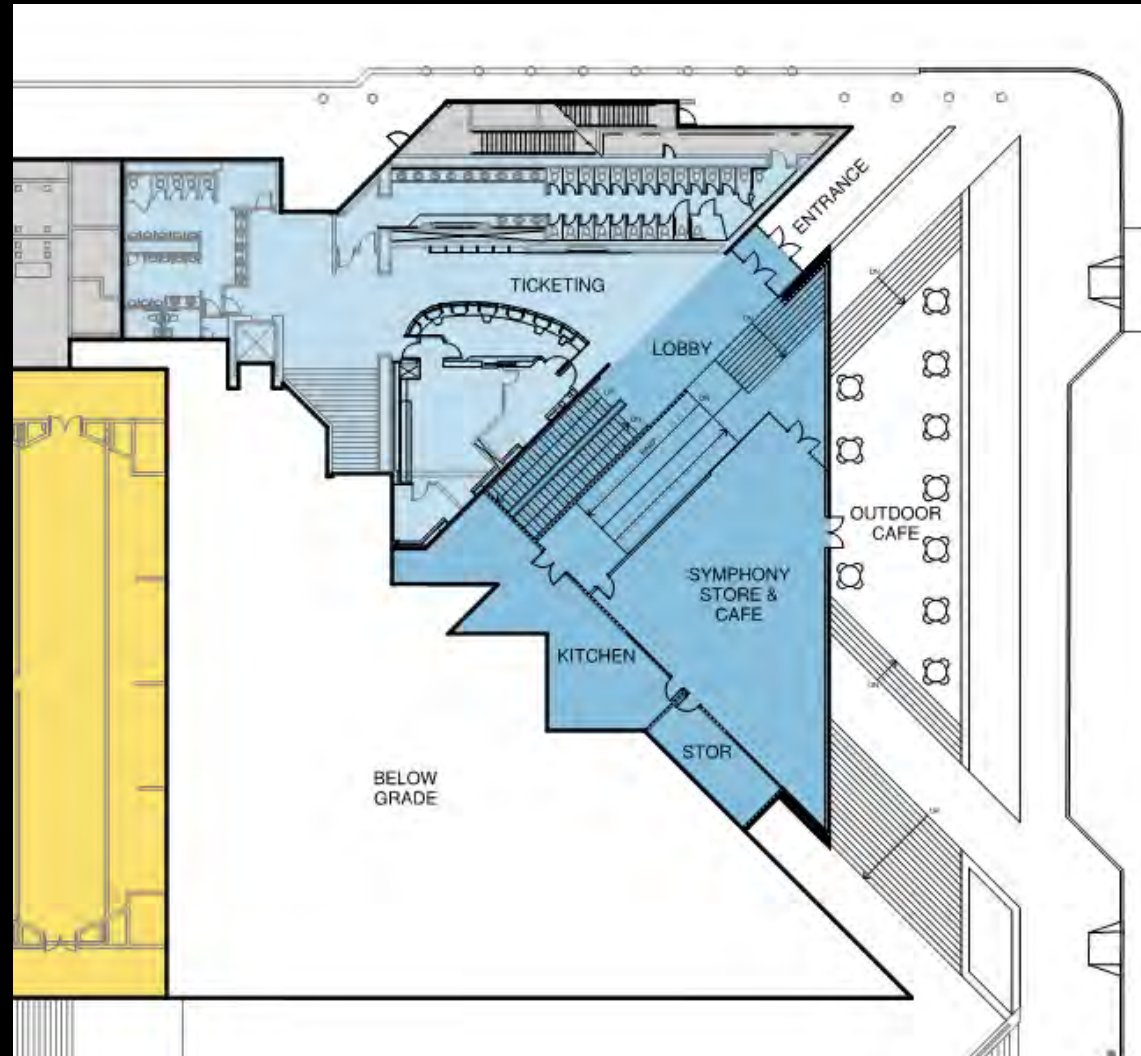
AREA 5 – LOBBY EXPANSION

STREET LEVEL FEATURES

- NEW 3 LEVEL “NORTH BUILDING” ADDITION

INCLUDES :

- NEW MAIN ENTRANCE TO BUILDING CLOSE TO TRAX
- NEW SYMPHONY STORE & CAFÉ
- NEW OUTDOOR CAFÉ SEATING
- NEW STORAGE AREA
- NEW FOOD PREP AREA
- TICKET OFFICE RENOVATIONS



AREA 5 – LOBBY EXPANSION EAST FACING VIEW



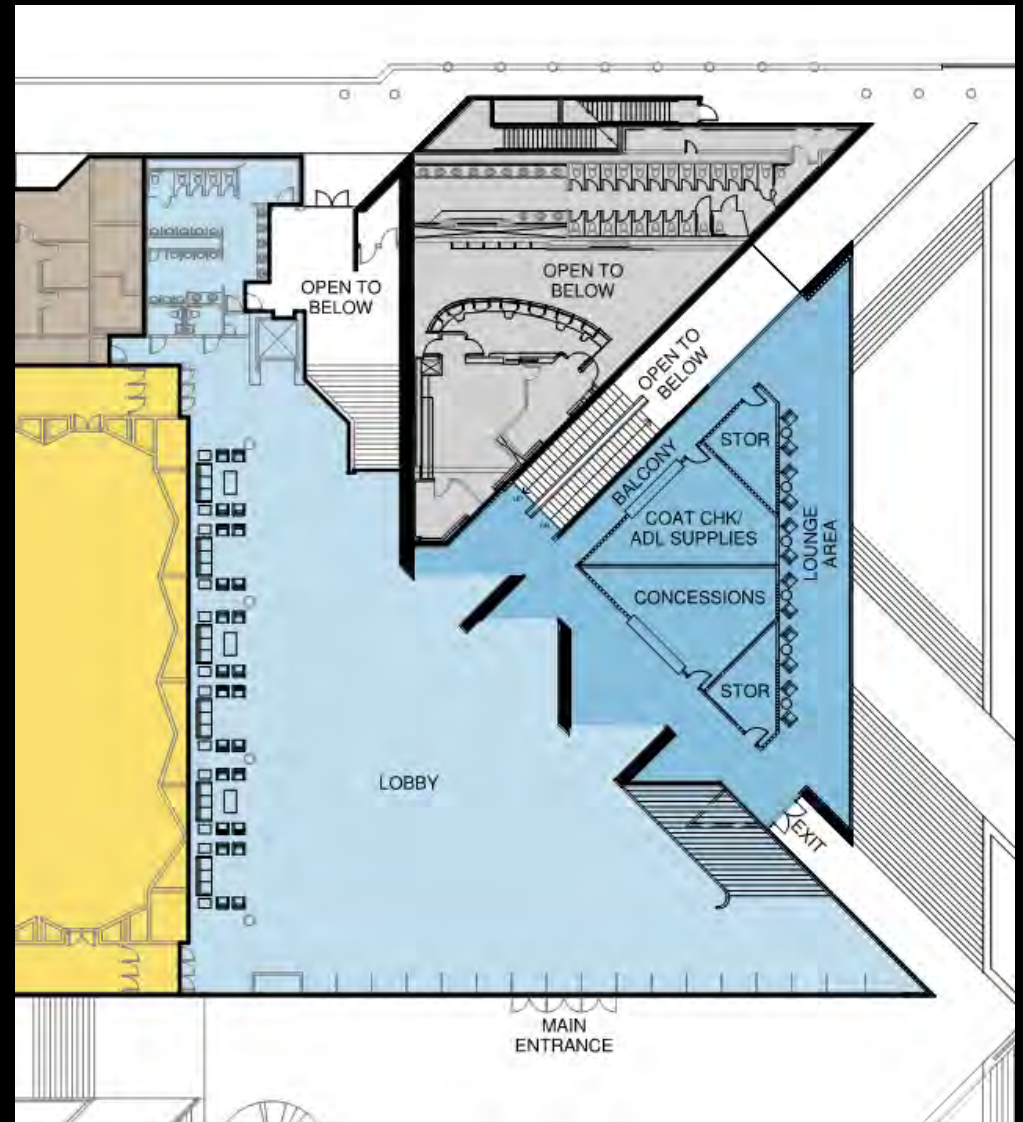
AREA 5 – LOBBY EXPANSION

MAIN LEVEL FEATURES

- RENOVATION OF EXISTING LOBBY AND FINISHES

LOBBY LEVEL OF ADDITION

- EXPAND LOUNGE AREA
- EXPAND FOOD & BEVERAGE SERVICES AREAS
- NEW CIRCULATION BALCONY



AREA 5 – LOBBY EXPANSION

FIRST TIER LEVEL FEATURES

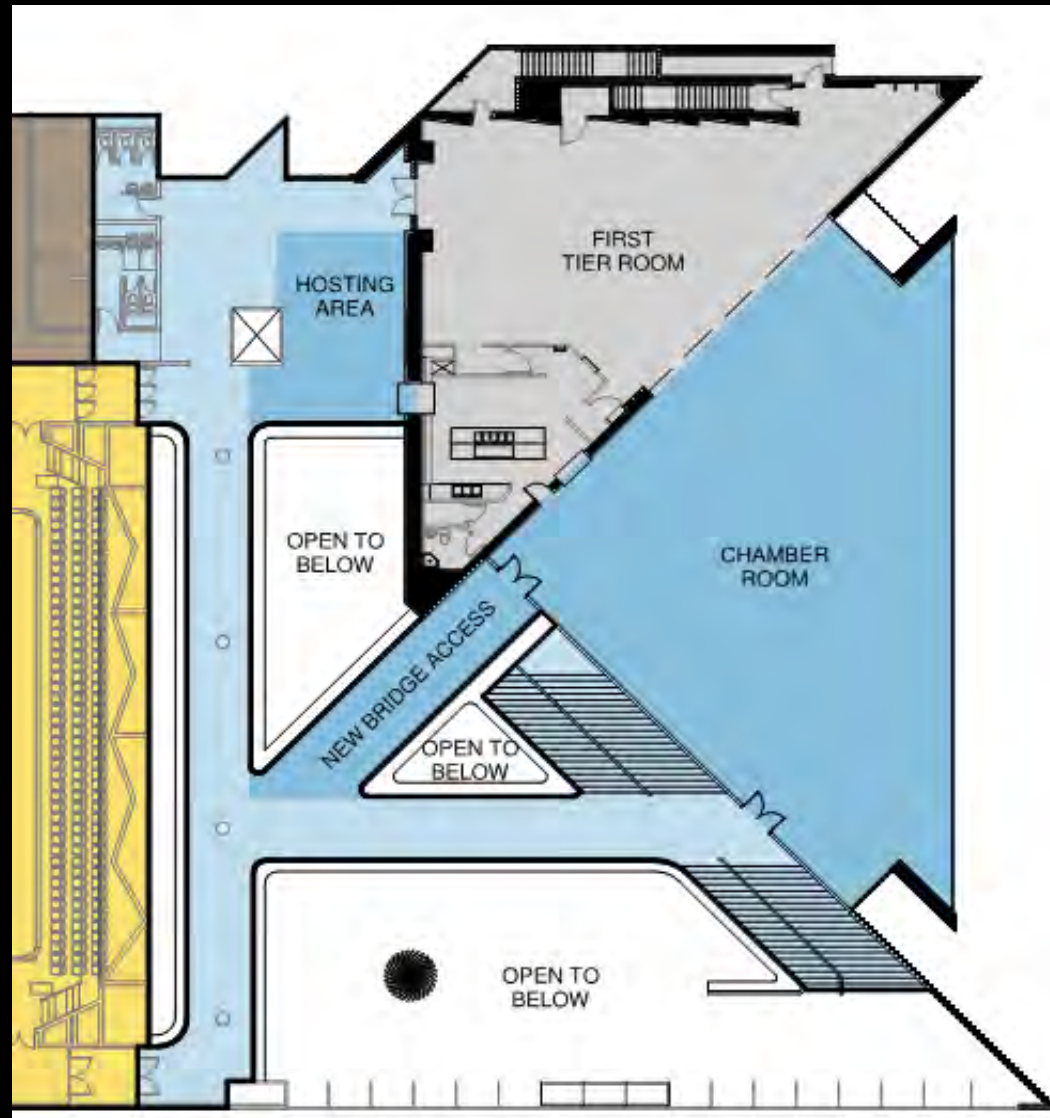
- RENOVATION OF EXISTING LOBBY FINISHES

INCLUDES :

- NEW BRIDGE ACCESS
- NEW CHAMBER ROOM WITH CONNECTION TO FIRST TIER ROOM
- NEW HOSTING AREA NEAR FIRST TIER ROOM

COST ESTIMATE

- \$ 18.25 M



AREA 5 – LOBBY EXPANSION SOUTHWEST FACING VIEW



AREA 6 – BACK OF HOUSE BUILDING EXPANSION

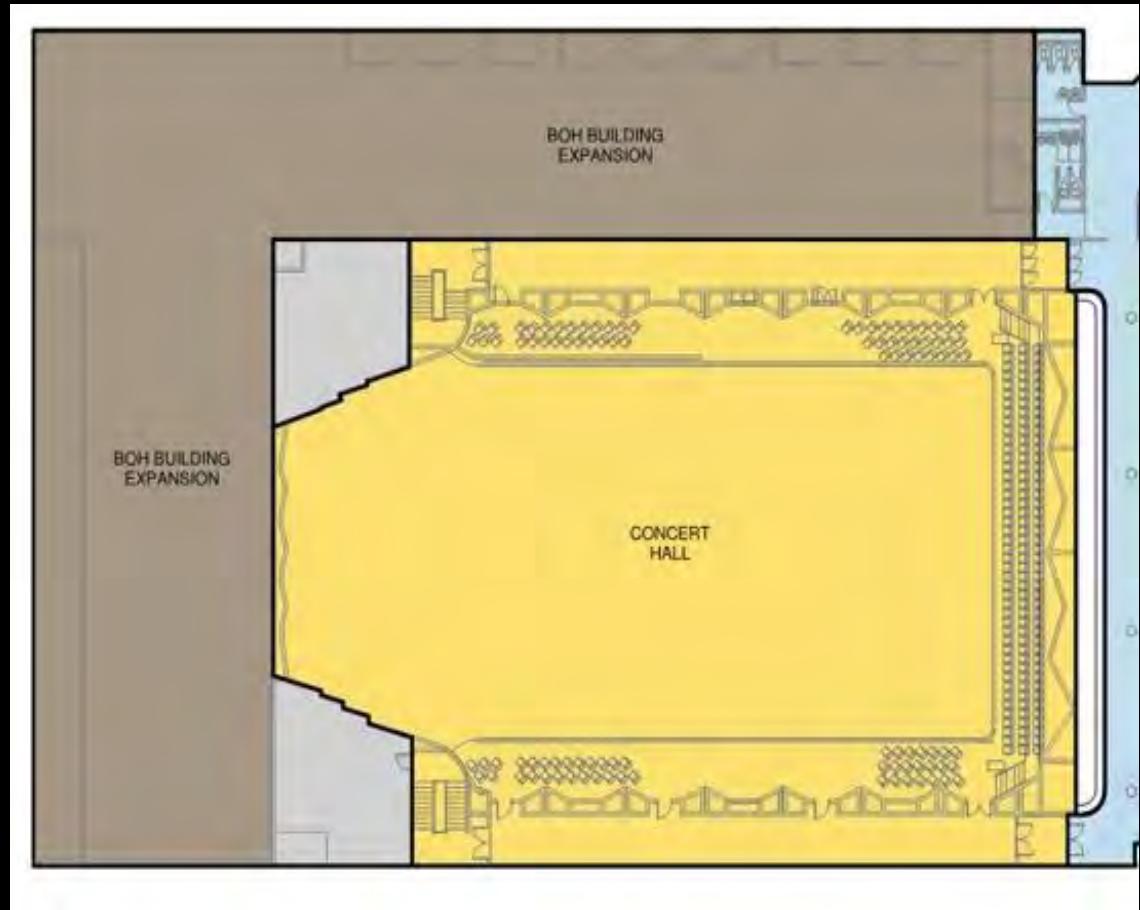
SYMPHONY OFFICES AND MUSICIAN SPACES

FEATURES

- NEW BUILDING EXPANSION (15,000 SF) ABOVE BOH SPACE AT MAIN LEVEL
- NEW ELEVATOR STOPS, STAIRWAY CIRCULATION & BUILDING INFRASTRUCTURE
- NEW SPACES FOR SYMPHONY OFFICES, CHORAL ROOM, REST ROOMS, INSTRUMENT STORAGE, PERFORMERS LOUNGE AND QUIET LOUNGE

COST ESTIMATE

- \$8.59 MILLION



MASTER PLAN TEAM

STAKEHOLDERS

SALT LAKE COUNTY CENTER FOR THE ARTS
UTAH SYMPHONY | UTAH OPERA
USUO BOARD AND DONORS
ABRAVANEL HALL TECHNICAL STAFF
SLC DOWNTOWN ALLIANCE

CONSULTANTS

ARCHITECT - HKS ARCHITECTS
ACOUSTICS - JAFFE HOLDEN
THEATRICAL CONSULTANT - THEATRE PROJECTS CONSULTANTS
FOUNTAIN CONCEPTS - WET DESIGN
LANDSCAPE ARCHITECT - MGB+A
CIVIL ENGINEER - MCNEIL ENGINEERING
STRUCTURAL ENGINEER - BHB ENGINEERING
MECHANICAL ENGINEER - VAN BOERUM & FRANK
ELECTRICAL ENGINEER - BNA CONSULTANTS
FOOD SERVICE - SYSTEMS DESIGN INTERNATIONAL
LIGHTING DESIGN - BNA CONSULTANTS
COST ESTIMATING - CONSTRUCTION CONTROL CORPORATION

